BMES 2015

BMES

BIOMEDICAL ENGINEERING SOCIETY™
Advancing Human Health and Well Being™

2015 Annual Meeting
October 7–10, 2015

Tampa Convention Center
Tampa, Florida

Steven C. George
Meeting Chair

Angelique Louie
Program Chair

www.bmes.org

BMES ANNUAL MEETING 25th ANNIVERSARY 1990–2015

Tampa

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BIOMEDICAL ENGINEERING SOCIETY

Advancing Human Health and Well Being

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October 5-8, 2016
Minneapolis, Minnesota

October 11-14, 2017
Phoenix, Arizona

October 17-20, 2018
Atlanta, Georgia

October 16-19, 2019
Philadelphia, Pennsylvania

October 14-17, 2020
San Diego, California

October 6-9, 2021
Orlando, Florida

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Scientific Program

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FIU Biomedical Engineering
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Thank you to our other supporters:

Grants have been provided by the National Institute of Biomedical Imaging and Bioengineering and the National Science Foundation for the BMES 2015 Annual Meeting.

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Richard T. Hart, PhD

BMES President

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BMES Fellow
Department of Biomedical Engineering
The Ohio State University
Columbus, OH

WELCOME TO THE 2015 ANNUAL MEETING of the Biomedical Engineering Society! Our Annual Meeting is the premier event for the Society and the field of biomedical engineering. This year's theme – "Innovation at the Interface" – epitomizes the multidisciplinary approach of biomedical engineers. I urge you to take advantage of the excellent technical program, plenaries, special events and myriad opportunities for professional development and networking.

This year also marks the 25th Anniversary of the Society's Annual Meeting. It was a significant milestone: the Annual Meeting launched an upsurge of interest for both the Society and the general field of BME. Look for artifacts from the first meeting near the registration area and please join in commemorating the anniversary throughout the meeting.

This year features familiar networking opportunities including the Celebration of Minorities in BME Luncheon and the Women in BMES Luncheon. This year also includes new networking opportunities including the LGBT Dessert Social on Wednesday night. And don't miss the Friday Night Bash at the Convention Center where BEDrock will be performing – a band comprised of biomedical engineering faculty and colleagues.

This year's meeting also features a new slate of sessions from the Society's Industry Committee. The special sessions will take place throughout the meeting and will include: Transitioning from Academia to Industry; Engineering to Entrepreneur; and Start-ups and Venture Capital: Navigating the Funding Process and Investment Pitches. The Industry Committee has done a great job putting together the three days of programming, and I encourage you to take advantage of the sessions. These events promote BMES's vision to become the networking connection for academia and industry!

Student and Early Career programing has also been expanded for the 2015 meeting. The programing is specifically tailored for those navigating new careers. Topics include: How to Find a Job in Industry; How to get an Industry, Government or Academia job after your PhD; and Resume Review and Critique. The Annual Meeting Career Fair also returns this year on Friday from 1 pm to 5 pm.

Of special note, a terrific slate of keynote addresses starts Thursday morning with the Pritzker Distinguished Lecture by Martin Yarmush, MD, PhD, Rutgers University. And don't miss the special Friday night talk by Kevin Carroll, one of the researchers who helped develop a prosthetic tail for Winter the dolphin, whose story was featured in the movie *Dolphin Tale*.

In the 25-year history of the Annual Meeting, the Society has established itself as the premier organization for biomedical engineering and bioengineering. BMES has now grown to more than 7,000 members – up over 33% in just the past 4 years! The hard work of our members ensures that BMES will continue to lead the field. Special thanks are due to Conference Chair Steven C. George and Program Chair Angelique Louie, BMES Staff, NSF, NIH, our sponsors and our meeting attendees. My very best wishes to you for an enjoyable and productive meeting!

Richard T. Hart, PhD
BMES President

BMES ANNUAL MEETING 25th ANNIVERSARY 1990–2015

CELEBRATING TWENTY-FIVE YEARS OF BMES ANNUAL MEETINGS!

Year	Attendees	Location
1990	109	BLACKSBURG, VA
1991	551	CHARLOTTESVILLE,VA
1992	410	SALT LAKE CITY, UT
1993	568	MEMPHIS, TN
1994	679	TEMPE, AZ
1995	750	BOSTON, MA
1996	671	STATE COLLEGE, PA
1997	800	SAN DIEGO, CA
1998	1,326	CLEVELAND, OH
1999	2,118	ATLANTA, GA
2000	1,041	SEATTLE, WA
2001	1,378	DURHAM, NC
2002	1,899	HOUSTON, TX
2003	1,727	NASHVILLE, TN
2004	2,000	PHILADELPHIA, PA
2005	2,189	BALTIMORE, MD
2006	2,450	CHICAGO, IL
2007	2,275	LOS ANGELES, CA
2008	1,972	ST. LOUIS, MO
2009	2,598	PITTSBURGH, PA
2010	3,035	AUSTIN, TX
2011	3,004	HARTFORD, CT
2012	3,901	ATLANTA, GA
2013	3,247	SEATTLE, WA
2014	3,616	SAN ANTONIO, TX
2015	★★★	**TAMPA, FL**

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BIOMEDICAL ENGINEERING SOCIETY
Advancing Human Health and Well Being

A SHORT HISTORY OF THE FIRST STANDALONE BMES MEETING, OCTOBER 1990

THE FIRST PRACTITIONERS OF what became the discipline of biomedical engineering were systems physiologists and engineers, the latter largely trained in the traditional engineering disciplines. Both groups saw the value of more quantitative approaches to medicine and biology, and both were critically important to the creation of the BMES. However, each favored a different venue to present their work. Systems physiologists attended the Federation of American Societies for Experimental Biology (FASEB) annual meeting (since renamed "Experimental Biology") in the spring. BMES was a guest of the American Physiological Society at FASEB, where it held its annual business meeting. Most of the engineers who were to become active in BMES presented their work at the fall Annual Conference on Engineering in Medicine and Biology (ACEMB). Over time, BMES became a major contributor to the ACEMB program.

Although these meetings provided platforms for researchers in the emerging discipline of biomedical engineering, the presence of two venues, one more biologically oriented and the other with an engineering orientation, inhibited interaction between the two populations. Meanwhile, interdisciplinary competition in the engineering world during the 1980's compromised the financial viability of the ACEMB, the last of which was held in 1988. It became clear that the impending loss of a platform for a growing number of interdisciplinary engineers, and the unhelpful distinction between engineers and quantitative physiologists, could both be addressed if BMES took the lead and ran a meeting that would welcome both populations. Furthermore, such a meeting would establish the Society as the society for all biomedical engineers and, in the longer term, establish by example biomedical engineering as a distinct discipline within engineering (see accompanying rationale).

The BMES President in 1988-9 (terms were for a single year at that time) was Mort Friedman, who created a Special Committee to explore the possibility that our Society could independently manage a technical meeting, distinct from FASEB, that would underline the broader aspects of our field. The committee met at the final ACEMB and was chaired by President-Elect H.K. Chang. In January 1989, the Special Committee filed a report recommending that BMES go forward with its first Annual Fall Meeting. As President of BMES from 1989-90, H.K. advanced the process in an important way by obtaining an essential grant from the Whitaker Foundation. The President of our Society in 1990-1 was Dan Schneck, who took the process the rest of the way, serving as Conference Chair of the first standalone meeting of BMES, in Blacksburg, Virginia, in October 1990.

BMES 2015 MEETING WELCOME

Steven C. George, MD, PhD

Annual Meeting Chair,
BMES 2015 Annual Meeting

Department Chair & Professor
Department of Biomedical Engineering
Washington University in St. Louis
St. Louis, MO

CETACEANS. SEA. SCIENCE. We are excited to welcome you to the 2015 BMES meeting in Tampa, Florida!

This year's theme is Innovating at the Interface, which celebrates the highly interdisciplinary and collaborative nature of biomedical engineering. To highlight these types of interactions, in this year's program you will see the denotation "DREAM TEAM & CENTER" and Centers" next to some of the abstracts. These are works that self-identified to consist of teams of three or more principal investigators/labs working in collaboration. Although we are highlighting teams of >3 PIs, many other works presented may consist of collaborations between 2 PIs. Celebrate the strength of team-work by making note of successful collaborations and think about how you could enhance your own work through fruitful alliances.

As befitting the sunshine state, the program this year is full of bright gems. We have two fascinating Plenary Sessions: The Thursday night Plenary features three representatives from major funding agencies (NSF, NIH, Stand Up to Cancer) speaking on the future of funding. Come hear about these different funding models and where the leadership sees trends going in the future. Stand Up to Cancer is a relatively new funding agency with a unique funding model that focuses on "DREAM TEAM & CENTER". Come to the plenary to find out more about it! Friday night we have a special treat with speaker Kevin Carroll, engineer of the prosthetic fin worn by Winter the dolphin. Winter lost her tail fin when she was entangled in a crab trap line at only 3 months old. Though her tail had to be amputated, she was able to swim again with the aid of a prosthetic tail. Hear Dr. Carroll speak about advancement in human rehabilitation engineering as well as how these advancements can aid other species.

You will also see several technical sessions that are jointly listed between Tracks in the Program-at-a-Glance (beginning page 229) in order to highlight and promote the cross-disciplinary nature of research.

There are several new features to this years meeting. First, this year in the Exhibit Hall is the "Meet the Expert" theater. Throughout the meeting, experts from various disciplines and careers will be featured, who will give a more in depth view of a variety of BME topics and potential career paths. Programming for the theater can be found on page 74 and 132. Drop by and meet an expert! Second, there are cash awards for the winners of the "Best Poster" competition. This year there will be five awards, and in addition to the cash award, each winner will receive a certificate and recognition on the BMES website. Third, we are having a series of "Student and Early Career" sessions that will cover a range of topics from how to get your first job in industry to protecting intellectual property. And, of course, don't forget the BMES BASH on Friday evening.

This meeting also would not be possible without your participation. There were a record-breaking 2,885 abstract submissions this year. The efforts and dedication of our many volunteers are truly appreciated. From the Track Chairs, Abstract Reviewers/Session Chairs to the student volunteers at the meeting, it takes a village and we want to take this moment to acknowledge all of the volunteers—be sure to thank one when you see them around the meeting!

Big thanks also to the heroes behind the scenes such as Debby Tucker who is the force behind all aspects of the administration of the meeting, also Michele Ciapa and Ed Schilling who work tirelessly to garner the financial support required to offer the meeting and our many programmed events and activities, and the other BMES staff dedicated to provided quality programs for our students and early career members.

Don't forget to enjoy Florida! Winter the dolphin lives at the Florida Clearwater Aquarium, about an hour from the Tampa Convention Center. You might think about scheduling a visit while you are in Florida. Manatee viewing opportunities are also possible around the state. Soak up the science (see some of our recommended highlights below), then soak up the sea and sun (but wear SPF!)!

At a glance meeting highlights from the Chairs:

- Meet the Expert Theater (*Exhibition Hall*)
- *Thursday night* plenary on "The Future of Funding"
- *Friday night* plenary featuring Kevin Carroll, developer of the prosthetic dolphin tale
- DREAM TEAM & CENTER and Centers talks
- Student and Early Career workshops
- BMES BASH - ***Friday, October 9, 6:30 - 9:00 PM - Convention Center***
- Women in BME Luncheon - ***Friday, October 9, 12:15 - 1:30 PM - Convention Center***
- Celebration of Minorities Luncheon - ***Thursday, October 8, 12:30 - 1:45 PM - Convention Center***
- BMES-NSF Special Session on Research in Biomedical Engineering and Grant Writing - ***Friday, October 9, 1:45 - 5:00 PM - Convention Center***
- ABET workshop - ***Thursday, October 8, 8:00 - 9:30 AM - Convention Center***
- Tech Transfer and Licensing - Best Practices in Transferring Technologies from Academia and the Clinic Into Industry - ***Friday, October 9, 3:15 - 5:00 PM - Convention Center***
- Start-ups and Venture Capital: Navigating the Funding Process and Investment Pitches - ***Friday, October 9, 2:00 - 3:00 PM - Convention Center***
- Biomedical Engineering Technology for the Elimination of Health Disparities - ***Thursday, October 8, 2:00 – 4:00 PM - Convention Center***
- Get involved: attend a BMES committee meeting, see meeting times posted in program
- Support undergraduate research and attend the Undergraduate Research, Design, and Leadership sessions on Saturday
- Visit the Exhibit Hall
- Enjoy the sea!

Angelique Y. Louie, PhD

Program Chair,
BMES 2015 Annual Meeting

Department of Biomedical Engineering
University of California, Davis
Davis, CA

BMES ROBERT A. PRITZKER DISTINGUISHED LECTURE

Pritzker Distinguished Lecturer:

Martin L. Yarmush, MD, PhD

Paul and Mary Monroe Chair and Distinguished Professor of Biomedical Engineering, Rutgers University, and Director of the Center for Engineering in Medicine at the Massachusetts General Hospital/Harvard Medical School.

THURSDAY OCTOBER 8, 2015
10:30AM
BALLROOM BC
TAMPA CONVENTION CENTER

Emerging Technologies and Biomedical Engineering Innovation

THIS PRESENTATION WILL COVER a diverse set of key topics that have the potential to make a real difference in biomedical research and healthcare in the coming decades. The discussion of certain "hot" fields (e.g. organs-on-a-chip, stem cells, tissue engineering, synthetic biology, personalized medicine, nanobiotechnology, etc.) will attempt to distinguish between what will likely be within the realm of scientific advancement and technology development, and not merely fodder for "scientific entertainment.

Martin L. Yarmush is an internationally recognized bioengineer and translational scientist whose laboratory has been a pioneer and leader in multiple fields including: tissue engineering and regenerative medicine, applied immunology and biotechnology, BioMEMS and nanotechnology, and metabolic engineering and functional genomics. Dr. Yarmush currently serves as the Paul and Mary Monroe Chair and Distinguished Professor of Biomedical Engineering at Rutgers University, and Director of the Center for Engineering in Medicine at the Massachusetts General Hospital/Harvard Medical School. Over the last 30 years, Dr. Yarmush has: 1) published more than 450 peer-reviewed journal articles, 2) has co-authored more than 50 patents and patent applications, 3) has mentored over 130 postdoctoral fellows and graduate students, and 4) has taught a spectrum of courses from Molecular Genetics and Immunology, to Thermodynamics and Transport Phenomena, to Innovation and Entrepreneurship for Science and Technology and Bioengineering in the Biotechnology and Pharmaceutical Industries. More than 70 of his former fellows have gone on to successful careers in academia both here and abroad, while many others have gone on to become leaders in the pharmaceutical, biotechnology and medical device industries. In addition to his teaching and research achievements, Dr. Yarmush has contributed to the advancement of science and engineering through service as: (1) a member of NIH, NSF, FDA, and Office of Technology Assessment review panels; (2) an advisory board member for foundations (e.g. the Whitaker Foundation, Juvenile Diabetes Foundation, and Doris Duke Foundation), academic-based centers, and industrial firms; and 3) an editor of several science and engineering journals. A frequent invited speaker at major conferences and institutions, and winner of over 25 local and national awards, Dr. Yarmush's research "pushes the envelope" on several healthcare technology frontiers. He has been credited with many pioneering scientific and technological advances including: innovative cell culture systems, stem cell therapies, dynamic cell and tissue microsystems, point-of-care devices, bioartificial organs development, targeted therapies for tumors and infections, recombinant protein purification techniques, and recombinant retrovirus production and purification techniques. Some of these developments have resulted in licensed patents and the formation and development of > 10 companies based on these advances. Dr. Yarmush received his BA from Yeshiva University, his MD degree from Yale University, and completed PhD work at The Rockefeller University in biophysical chemistry and at MIT in chemical engineering.

Future of Funding

THURSDAY OCTOBER 8, 2015
6:15PM - 7:30PM
BALLROOM BC
TAMPA CONVENTION CENTER

This special plenary session is about the funding landscape in biomedical research. This session will discuss the future of funding as well as innovative approaches to funding. The speakers bring their unique expertise to the discussion.

SESSION CHAIR
Steven C. George, PhD
Washington University,
St. Louis, MO

SPEAKER
Dr. Pramod Khargonekar
Assistant Director,
Engineering Directorate
National Science Foundation

SPEAKER
Dr. Sung Poblete
President and CEO
Standup 2-Cancer (SU2C)

SPEAKER
Dr. Jerry Lee
Deputy Directory CSSI
National Cancer Institute

NIH National Institute of Biomedical Imaging and Bioengineering Lecture:

Wendy M. Murray, PhD

Associate Professor, Northwestern University Departments of Biomedical Engineering, Physical Medicine & Rehabilitation, and Physical Therapy & Human Movement Sciences
Research Health Scientist, Edward Hines, Jr. VA Hospital, Research Scientist
Rehabilitation Institute of Chicago

FRIDAY, OCTOBER 9, 2015
10:30AM
BALLROOM BC
TAMPA CONVENTION CENTERR

Advances in Biomechanical Simulation of Complex Hand Motion

PERSONS WITH RECENT HAND amputations expect modern hand prostheses to function like intact hands. Because of this, advances in mechanical hardware are directed toward providing functionality comparable to the intact human hand. Despite such advances, the performance of sophisticated hand prostheses remains limited by the ability to control them via physiological (e.g., electromyographic) signals sensed from the user.

Currently, my laboratory leads a NIBIB-funded study with the long-term objective of advancing biomechanical simulation of the hand and wrist in order to facilitate control algorithms capable of predicting the motions that would occur in an intact hand given the electromyographic (EMG) signals measured from the residual muscles of an amputee's forearm. Given the paucity of experimental data describing complex hand motions, in general, we first developed experimental protocols that enabled .

Dr. Murray is an Associate Professor at Northwestern University with appointments in the Departments of Biomedical Engineering, Physical Medicine and Rehabilitation, and Physical Therapy and Human Movement Sciences. She is the Director of the Applied Research in Musculoskeletal Simulation (ARMS) laboratory at the Rehabilitation Institute of Chicago, where she is appointed as a Research Scientist; she also holds an appointment as a Research Health Scientist at the Edward Hines VA Medical Center. Dr. Murray received her Bachelor of Science in Mathematics from the University of Notre Dame in 1990. She obtained her M.S. and Ph.D. in Biomedical Engineering from Northwestern University. She completed post-doctoral training in Biomedical Engineering at the Cleveland FES Center at Case Western Reserve University, where she was named an NIDRR Mary Switzer Fellow, and was also awarded post-doctoral funding from the Paralyzed Veterans of America. From 2000 to 2006, she developed an NIH-funded research program as an independent investigator for the Department of Veterans Affairs at the VA Palo Alto. She joined the Northwestern faculty in 2007.

The foundation for Dr. Murray's work is the development of biomechanical models that accurately represent the mechanical actions of the upper extremity muscles. The models and corresponding anatomical databases that Dr. Murray has shared with the scientific community have been cited hundreds of times. The main thrust of her current research is the application of these models to better understand and, ultimately, to help improve function of the disabled upper limb. Her work has relevance over a broad scope, including basic motor control, the design of control systems for exoskeletons and upper limb prosthetics, restoration of hand and arm function following cervical spinal cord injury, rehabilitation of hand and arm function following stroke, orthopaedic interventions for osteoarthritis, and prevention of injuries in baseball pitching. In addition to the NIH and VA investigator-initiated award funding that has enabled her research program to thrive, the trainees in her program have been awarded pre- and post-doctoral fellowships from NIH, the Neilsen Foundation, and the American Heart Association. She served as co-Track Chair of the Orthopaedics and Rehabilitation Engineering Track at the 2014 Biomedical Engineering Society Annual Meeting, and Program Chair of the 2011 Annual Meeting of the American Society of Biomechanics. She is a member-at-large of the Executive Board of the US National Committee on Biomechanics and is also a member of the Multi-Scale Modeling Consortium, sponsored by the Interagency Modeling and Analysis Group.

Kevin Carroll, MS, CP, FAAOP

Vice President of ProstheticsHanger Clinic

FRIDAY, OCTOBER 9, 2015
5:15PM - 6:15PM
BALLROOM BC
TAMPA CONVENTION CENTER

Prosthetics Advancements: How One Little Dolphin Learned to Swim Again

KEVIN CARROLL, MS, CP, FAAOP is an accomplished healthcare professional with over 30 years as a practicing prosthetist, visionary researcher, and skilled educator. As Vice President of Prosthetics for Hanger Clinic, Carroll travels nationally and internationally presenting scientific symposiums and managing clinics for difficult prosthetic cases.

Carroll is an American Board Certified Prosthetist and has been named a Fellow of the American Academy of Orthotics and Prosthetics, one of the highest honors of the profession. He is the co-developer of the patented Hanger ComfortFlex™ Socket System and the first prosthetic tail for a dolphin, the story of which debuted September 23, 2011 in a 3D feature film titled, *Dolphin Tale* starring Morgan Freeman, Ashley Judd, and Harry Connick, Jr. He has appeared on news broadcasts such as *Dateline, 20/20, CBS Early Show, NBC Nightly News,* ABC's *Good Morning America*, and the *Discovery Channel*.

RITA SCHAFFER MEMORIAL LECTURE

BMES 2015 Rita Schaffer Memorial - Young Investigator Lecturer:

Jonathan F. Lovell, PhD

Assistant Professor of Biomedical Engineering
State University of New York at Buffalo

SATURDAY, OCTOBER 10, 2015
10:30AM
BALLROOM BC
TAMPA CONVENTION CENTER

Engineering Self-Assembled Porphyrin Nanoparticles for Biomedical Applications in Imaging and Drug Delivery

PORPHYRINS HAVE PLAYED NUMEROUS historic roles in development of approaches to the diagnosis and treatment of diseases, in particular based on how these molecules interact with light. This lecture will cover some of our recent efforts to develop new self-assembled materials from porphyrins and related molecules and how these nanomaterials have potentially advantageous properties for disease diagnosis and therapy. In particular, several recently reported nanoscale systems will be discussed that are being investigated preclincally: First, porphyrin nanovesicles have been developed that can release drugs in response to red laser irradiation, leading to enhanced drug deposition in irradiated tumors. Second, these porphyrin nanovesicles can be chelated with cobalt for simple functionalization using polyhistidine ligands. Finally, a family of highly light-absorbing nanoparticles have been developed for safe and real-time gastrointestinal imaging following oral administration.

JONATHAN F. LOVELL is an assistant professor of biomedical engineering at the State University of New York at Buffalo. He is a faculty of both the School of Engineering and Applied Sciences, and the School of Medicine and Biomedical Sciences. Dr. Lovell received a Bachelor of Applied Sciences in Systems Design Engineering from the University of Waterloo in 2004. He went on to a M.S. degree in Biochemistry at McMaster University working in the group of Dr. David Andrews where he developed liposomal systems to study membrane permeabilization during cell death. Dr. Lovell pursued doctoral studies in biomedical engineering at the Institute of Biomaterials and Biomedical Engineering at University of Toronto. Working under Dr. Gang Zheng, Dr. Lovell discovered new liposome-like nanovesicles formed from porphyrin-phospholipids conjugates, which exhibit unique characteristics useful for biomedical imaging and therapy. In 2012, Dr. Lovell received his Ph.D. and joined the University at Buffalo faculty the same year. In 2013, Dr. Lovell was awarded an Early Independence Award from the National Institutes of Health. To date, he has co-authored over 40 peer-reviewed journal publications and 7 patents. His group at University at Buffalo has published numerous works involving the engineering of porphyrin-based materials, in journals including Advanced Materials, Nature Chemistry, Nature Communications and Nature Nanotechnology. Dr. Lovell is a council member and newsletter editor for the American Society for Photobiology, and is a member of the American Chemical Society as well as BMES. Dr. Lovell is on the editorial board of several journals including Theranostics and is a senior editor for the Journal of Interdisciplinary Nanomedicine. He has participated in numerous federal and international grant review panels. His main research interests involve developing clinically translatable nanoplatforms for improving disease diagnosis and treatment.

BMES established this award in 2000 to honor Rita M. Schaffer, former BMES Executive Director. Rita's gift of her estate, along with contributions from her family, friends, and associates, has enabled BMES to create the Rita Schaffer Young Investigator Award, which includes the Rita Schaffer Memorial Lecture.

The City College of New York

Diversity Lecture:

Department of Biomedical Engineering The City College of New York

SATURDAY, OCTOBER 10, 2015
11:15AM
BALLROOM BC
TAMPA CONVENTION CENTER

Biomedical Engineering at The City College of New York: Experiences in Diversity and Success

THE DEPARTMENT OF BIOMEDICAL ENGINEERING at The City College of New York was created in 2002 with a mission that placed equal emphasis on academic excellence and diversity. We are uniquely positioned for this mission, given the rich legacy of City College and its historical core commitments to offer an affordable education and to recruit and support a diverse student population, reflective of both New York City and the global society in which we live. We will discuss our approaches, failures and successes en route to achieving a faculty and student body diversity that is extraordinary among engineering programs in the United States.

DEPARTMENT OF BIOMEDICAL ENGINEERING AT THE CITY COLLEGE OF NEW YORK

Founded originally in 1847 as the Free Academy of the City of New York, the mission of The City College of New York (CCNY) was and remains: "To provide the children of immigrants and the poor access to free higher education based on academic merit alone." The CCNY Department of Biomedical Engineering has 13 faculty members, with research concentrations in Cardiovascular Biomechanics, Musculoskeletal Biomechanics, Neural Engineering and Tissue Engineering & Biomaterials. Among our faculty are members of the National Academy of Engineering, National Academy of Sciences, Institute of Medicine and 8 Fellows of the American Institute of Medical and Biological Engineering. We are also among the most diverse faculties in the country; 7 of our 12 faculty are women and/or under-represented minorities.

Education: The PhD program in Biomedical Engineering at CCNY started in 1999. In the most recent NRC Rankings of PhD programs, it was ranked 1st in diversity, 7th in overall research productivity and among the top 20 programs in overall quality. Our undergraduate program started in 2006 and has rapidly grown into one of the most successful in the NYC area. True to our CCNY mission, diversity and outreach remain our priority. **The New York Center for Biomedical Engineering (NYCBE)** The CCNY Department of Biomedical Engineering also anchors the NYCBE - a consortium established in 1994 to serve as a center for promoting interactions between CCNY and partner clinical institutions in NYC (Albert Einstein College of Medicine, Hospital for Special Surgery, Weill Medical College of Cornell University, Mount Sinai School of Medicine, New York University Schools of Medicine and Dentistry, Memorial Sloan-Kettering Cancer Center, CUNY School of Medicine). The NYCBE enables research and educational collaborations, program and training grants, and provides opportunities for CCNY BME students in research laboratories at partner institutions.

Lecture to be presented by:
John Tarbell, PhD
CUNY and Wallace Coulter Distinguished
Professor of Biomedical Engineering

Our faculty: Gilda Barabino, PhD, Marom Bikson, PhD, Luis Cardoso, PhD, Jacek Dmochowski, PhD, Susannah Fritton, PhD, Bingmei Fu, PhD, Steven Nicoll, PhD, Lucas Parra, PhD, Mitchell Schaffler, PhD, John Tarbell, PhD, Maribel Vazquez, PhD, Sihong Wang, PhD, Sheldon Weinbaum, PhD

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BMES Medical Devices
SPECIAL INTEREST GROUP

2016 BMES/FDA Frontiers in Medical Devices Conference

May 22-25, 2016, Washington DC

The College Park Marriott Hotel and
Conference Center at the University of Maryland

The Biomedical Engineering Society and the US Food and Drug Administration have formed a partnership to co-host the BMES/FDA Frontiers in Medical Devices Conference, a meeting for researchers, engineers, clinicians and other professionals in the fields of designing, building and using medical devices.

Meeting Co-chairs

Tina Morrison
Regulatory Advisor of Computational Modeling for Center for Devices and Radiological Health, U.S. Food and Drug Administration

Jeff Bischoff
Zimmer, Inc

Registration opens

March 2, 2016

Earlybird registration deadline

April 19, 2016

For more information
www.bmes.org/meddevicesregistration

Please visit:
www.bmes.org/meddevicessig
for additional information about the meeting.


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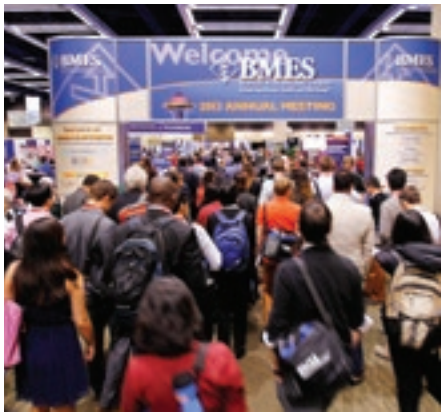
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Annual Review of Biomedical Engineering

bioeng.annualreviews.org • Volume 17 • September 2015

Editor: **Martin L. Yarmush,** *Rutgers University Center for Engineering in Medicine, Massachusetts General Hospital*

The *Annual Review of Biomedical Engineering,* in publication since 1999, covers the significant developments in the broad field of biomedical engineering, including biomechanics, biomaterials, computational genomics and proteomics, tissue engineering, biomonitoring, health care engineering, drug delivery bioelectrical engineering, biochemical engineering, and biomedical imaging topics.

Congratulations to Editor Martin L. Yarmush—the 2015 recipient of the Pritzker Distinguished Lectureship Award.
Come by booth #510 on Thursday to meet Dr. Yarmush and enjoy a celebratory treat!

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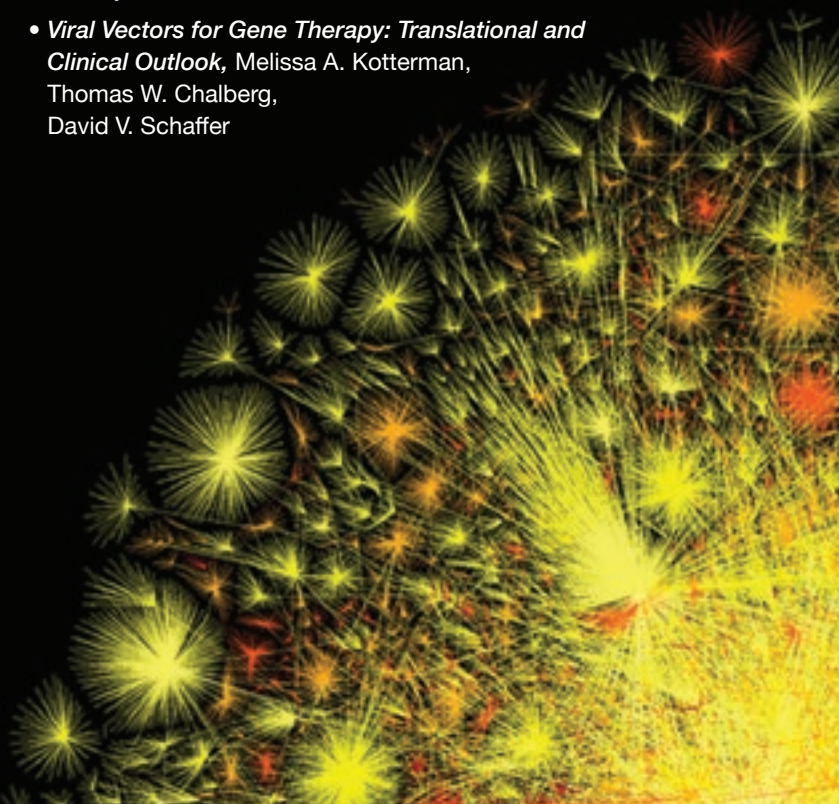

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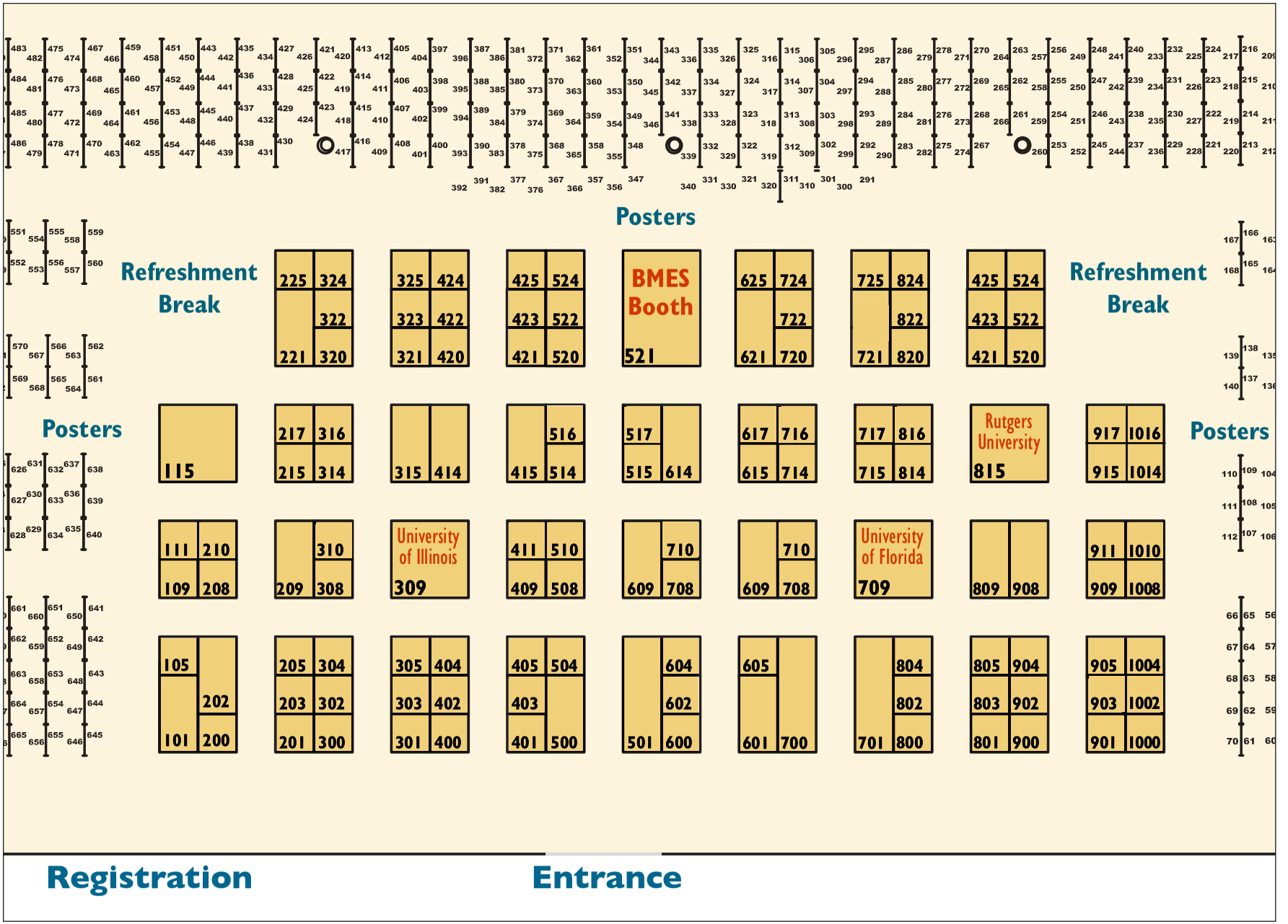
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The mission of the School of Biological and Health Systems Engineering at ASU is to create novel solutions to improve human health through research, education, and service to the community. The faculty in SBHSE has a wide range of research expertise with strengths in the following research areas: imaging, biosensors and instrumentation, molecular, cellular and tissue engineering, neural and rehabilitation engineering, synthetic biology and systems bioengineering.

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Binghamton University Department of Bioengineering

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Web: www.binghamton.edu/bioengineering

The Binghamton University Department of Biomedical Engineering provides a state-of-the-art, affordable education. We train the next generation of biomedical engineers, cultivate leaders, and foster entrepreneurship through the integration of engineering principles, medical science, and biology towards an improved understanding of biophysical phenomena, healthcare systems, disease prevention, diagnostics, and treatment.

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Web: www.bu.edu/bme

The Boston University Department of Biomedical Engineering is one of the largest and oldest departments of its kind in the country. We attract exceptional students to our BS, MEng, MS and PhD degree programs, which are known for their highly quantitative approach. We have strengths in numerous research areas including biomechanics, neural engineering, biomedical optics, respiratory dynamics, tissue engineering, biomaterials and synthetic biology. We boast a wealth of research resources, and have strong ties with the BU School of Medicine, and other top medical research centers in the Boston area.

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Brown University Center for Biomedical Engineering

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Web: www.brown.edu/bme

The Center for Biomedical Engineering at Brown University features an interdisciplinary approach in four complementary research areas: Neuroengineering, biosensors/bioplatforms, mechanobiology, and tissue engineering/regenerative medicine. The program offers BS, MS, and PhD degrees and is distinguished by its research and strong collaborative connections between academic science/engineering, clinical medicine, and industry.

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The Department of Biomedical Engineering at Carnegie Mellon is built upon a long tradition of interdisciplinary research across departmental borders. Its decades-old research program emphasizes a collaborative network that balances four synergistic areas: basic engineering principles of living cells and tissues, engineering tools for biomedical research, interface between living and artificial materials, and clinical applications of biomedical engineering. Training programs encourage students to expand their vision and prepare them for a wide range of careers from academic research in basic sciences, to engineering entrepreneurship, to medical care.

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The Department of Biomedical Engineering at Case Western Reserve University offers distinctive programs ranging from the B. S. degree through the Ph.D. degree, including our innovative M.D./Ph.D. degree, M. D./M.S. degree, and our Biomedical Entrepreneurship program. Cutting-edge research thrusts include: biomaterials and tissue engineering, neural engineering and neuroprostheses, biomedical imaging and sensing, transport and metabolic engineering, biomechanics, and targeted therapeutics.

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Harvard Medical School

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The CEM at MGH/HMS trains investigators in fundamentals and applications of BME. Established in 1995 and catalyzed by a Whitaker Foundation Development Award, the CEM has been sustained by well over $150M in funding over the past 10 years, and has garnered an international reputation for its interdisciplinary research thrusts and training of postdocs and grad students for academic and high impact industrial careers.

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New York Biomedical Engineering

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Clemson University
Department of Bioengineering

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Columbia University
Department of Biomedical Engineering

351 Engineering Terrace
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The Department of Biomedical Engineering at Columbia University offers biomedical engineering education and research through B.S., M.S., Ph.D., and M.D./Ph.D. degree programs. Our department provides a surprising mix of the intellectual atmosphere of an Ivy League institution and the sense of community of a small college enriched by the diversity of New York City.

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The Nancy E. and Peter C. Meinig School of Biomedical Engineering at Cornell University focuses on interdisciplinary research to achieve a quantitative understanding of human biology at all spatial and temporal scales with the goal of improving human health. The School has a close relationship with Weill Cornell Medical College and its associated hospitals in New York City, including an "Immersion Term" during which all Ph.D. students spend 7 weeks in a clinical experience at the Medical College. Cornell University is a comprehensive university with outstanding programs of teaching and research in all areas of human inquiry which has its main campus at Ithaca in the Finger Lakes Region of upstate New York. A new Engineering campus is opening in New York City located on a site less than 20 minutes from the Medical College which will catalyze further growth in the School's interactions with the Medical College and hospitals. The Meinig School of Biomedical Engineering has close collaborations with a wide variety of other departments in Ithaca, especially with those in the Colleges of Engineering, Veterinary Medicine, Agriculture and Life Sciences, Arts and Sciences, and Human Ecology.

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The Coulter Foundation endowed Department of Biomedical Engineering at Florida International University in Miami is the only program with doctoral, masters and accredited bachelors among all of the public universities amongst the Hispanic and Minority serving universities in the nation. Multiple undergraduate and graduate scholarships support research and entrepreneurship. Senior Design projects are extensively industry sponsored and the MS professional track includes courses in management. New faculty hires, revised doctoral curriculum and extensive links with the Colleges of Medicine, Nursing & Health Sciences and Arts & Sciences allow research focus in Engineered Tissue Model Systems, Diagnostic Bioimaging and Sensor Systems, and Therapeutic and Reparative Neurotechnology.

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George Mason University Department of Bioengineering

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Web: www.bioengineering.gmu.edu

Located in the Washington DC metropolitan area, George Mason University's Department of Bioengineering offers unique research and educational experience with collaborative opportunities with nearby national laboratories, institutes, and clinical facilities. The BS program earned accreditation from ABET in 2012 offers two concentrations: Biomedical Signals & Systems and Bioengineering Healthcare Informatics. The Bioengineering PhD program is currently accepting applications from outstanding prospective students with full tuition and stipend support. The department has 11 primary faculty members with approximately $6M of active research in areas ranging from biomedical imaging, nanotechnology, neural engineering, and date-driven biomechanics.

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Develop
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Home to remarkable students, cutting-edge research and award-winning faculty, the Department of Biomedical Engineering at Florida International University in Miami, Florida, combines medical needs with engineering expertise.

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Biomedical Engineering
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George Washington University Department of Biomedical Engineering

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Web: http://www.seas.gwu.edu/bme

The graduate program in biomedical engineering at the George Washington University offers a unique combination of small class sizes, engaged faculty, and cutting edge research. Areas of research include biosensors, cardiac electrophysiology, image analysis, medical imaging instrumentation, microfluidics, and therapeutic ultrasound. The Department of Biomedical Engineering offers both M.S. and Ph.D. degrees in Biomedical Engineering. Our newly opened Science and Engineering Hall is located directly across the street from the GW School of Medicine and Health Sciences which gives our faculty and students direct access to real world medical problems. In addition, our location in the heart of the nation's capital affords our students and faculty unparalleled access to world class research facilities in a number of government laboratories including the National Institutes of Health and the Food and Drug Administration.

BOOTH # 520

The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech / Emory University

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Atlanta, GA 30332
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Email: gradstudies@bme.gatech.edu
Web: www.bme.gatech.edu

The Wallace H. Coulter Department of Biomedical Engineering is a unique partnership between Georgia Tech's College of Engineering and Emory University's School of Medicine. PhD students are trained in a world-class research infrastructure, working alongside pre-eminent engineers and bio-scientists. We also offer a PhD program that is joint between Georgia Tech, Emory, and Peking University, whereby students have the opportunity to work in three different renowned institutions in two different countries. In addition, we offer a Master of Biomedical Innovation and Development whereby students receive instructional and hands-on clinical experience in the biomedical industry. With world class faculty and new initiatives in research and learning, BME at Georgia Tech/ Emory is the go-to place for all those who want to actively shape the world and invent the future of healthcare!

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Imperial College London is the only UK university to focus entirely on science, engineering, medicine and business. Our international reputation for excellence in teaching and research sees us consistently rated in the top 10 universities worldwide. The Department of Bioengineering at Imperial is the leading Department in the UK. Our research spans the breadth of bioengineering and falls under five themes: biomechanics; cellular and molecular bioengineering; detection, devices, design; implants and regenerative medicine and neural engineering. We offer a full range of academic and research opportunities for undergraduate (MEng) and postgraduate (MSc, MRes and PhD).

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BOOTH # 823

Lehigh University Bioengineering

111 Research Drive, Room D325
Bethlehem, PA 18015
Phone: 610-758-4091
Email: inbioe@lehigh.edu
Web: www.lehigh.edu/~inbioe

The Bioengineering Program at Lehigh holds true to our University's tradition of world-class excellence in education and research. We accomplish this with outstanding and dedicated faculty, a vibrant curriculum, state of the art technologies and a highly integrated and interdisciplinary curriculum. We offer a full range of academic and research opportunities for BS, MS and PhD students, from the nano-scale to the systems levels, with a focus on the advancement of knowledge of biological systems, the generation of new diagnostic tools, the improvement of medical therapies and innovation of medical devices. Broad categories of bioengineering research include Biomaterials, Biomechanics, Biomedical Imaging and Analysis, Biosensors, Biophotonics and Bioelectronics, Biophysics, Cell and Tissue Engineering, Computational Engineering, Modeling of Biological Systems, Molecular Bioengineering and Neuroengineering

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BOOTH # 902

Louisiana Tech University
Biomedical Engineering

818 Nelson Avenue #10157 / BMEB 103
Ruston, LA 71272
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Milwaukee, WI 53201
Phone: 414-288-6059
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Web: www.mu.edu

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BOOTH # 516

Mayo Graduate School Biomedical Engineering & Physiology Program

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Rochester, MN 55905
Phone: 507-255-8544
Email: kingsleyberg.shirley@mayo.edu
Web: www.mayo.edu/,gs/programs/phd/biomedical-engineeringBooth

BOOTH # 424

McGill University
Department of Bioengineering

817 Sherbrooke Street West
Room 270 MacDonald Engineering Building
Montreal, Quebec H3A 0C3 Canada
Phone: 514-398-7138
Email: adminoffice.bioeng@mcgill.ca
Web: www.mcgill.ca/bioengineering

The Department of Bioengineering is the newest department to join McGill University's renowned Faculty of Engineering. Faculty members are carrying out experimental and computational research in biological materials and mechanics; biomolecular and cellular engineering; and biomedical, diagnostics and high throughput screening.

BOOTH # 308

Michigan Technological University
Department of Biomedical Engineering

1400 Townsend Drive
Houghton, MI 49931
Phone: 906-487-2772
Email: biomed@mtu.edu
Web: www.mtu.edu/biomedical

Located in the beautiful Upper Peninsula of Michigan, the Department of Biomedical Engineering at Michigan Technological University conducts world-class research at the interface of medicine, biology, and engineering, while educating the next generation of biomedical engineers by offering B.S., M.S., and Ph.D. degrees. The BME Department at MTU leverages the University's strong and rich history of engineering education and research. We create the future of medicine.

BOOTH # 321

Mississippi State University Department of Ag & Bio Engineering

130 Creelman Street
Mississippi State, MS 39762
Phone: 662-325-7938
Email: manderson@abe.msstate.edu
Web: www.abe.msstate.edu

Mississippi State University offers M.S. and Ph.D. degrees in Biomedical Engineering. Research areas include Bio-Inspired design, Injury biomechanics, Cardiovascular and Orthopedic bioengineering, Tissue engineering, Multiscale modeling, and Computational simulation. Our program emphasizes the interdisciplinary nature of biomedical engineering and often collaborates with the College of Veterinary Medicine here at Mississippi State University.

BOOTH # 716

National Institute of Biomedical Imaging and Bioengineering / National Institutes of Health

31 Center Drive, Room 1C14
Bethesda, MD 20892
Phone: 301-496-9208
Email: coneyjohnsons@mail.nih.gov
Web: http://www.nibib.nih.gov

The mission of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) is to improve human health by leading the development and accelerating the application of biomedical technologies. The Institute is committed to integrating the physical and engineering sciences with the life sciences to advance basic research and medical care. Stories of exciting research breakthroughs are told through video and web content at www.nibib.nih.gov. In addition to funding research, NIBIB supports a broad range of training programs from undergraduate to post-doctoral students. These programs are designed to support researchers throughout the career continuum, increase the number of clinician-scientists, and enhance the participation of underrepresented populations in biomedical imaging and bioengineering research.

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Web: ww.nsf.gov

The NSF Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET) supports innovative research and education primarily in the fields of chemical, mechanical, and civil/environmental engineering, and bioengineering. CBET program directors from the Biomedical Engineering and GARDE (General and Age-Related Disabilities Engineering) programs will be available to answer questions about proposals, areas for funding, timelines and expectations while writing, and common author mistakes. Attendees can also gain tips on how to create and develop a proposal while incorporating key features requested by NSF.

BOOTH # 320

New Jersey Institute of Technology (NJIT) Department of Biomedical Engineering

University Heights
Newark, NJ 07102
Phone: 973-596-5268
Email: : rocha@njit.edu
Web: http://biomedical.njit.edu

Biomedical engineering is the youngest engineering department at the New Jersey Institute of Technology (NJIT) and offers bachelor's, master's and doctoral degrees. The program has grown rapidly and today NJIT is among the top producers of biomedical engineering degrees in the region. In addition to the bachelor's program, the graduate programs are also a significant part of the department's total educational offerings. NJIT's master's program is the second largest nationally. Our doctoral program was ranked by the National Research Council 26th out of 76 nationally in curriculum quality and student accomplishment. We have a strong research program with expertise in neural and neuromuscular engineering, and tissue engineering/regenerative medicine.

BOOTH # 1000

New York University School of Engineering

6 Metrotech Ctr
Brooklyn, NY 11218
Phone: 718-637-5984
Email: rlutzky@nyu.edu
Web: http://engineering.nyu.edu

The Othmer-Jacobs Department of Chemical and Biomolecular Engineering at the NYU School of Engineering offers programs that follow current trends in novel molecules, advanced products and processes, as well as synthesis design and operation methodology. The department offers M.S. and Ph.D. degrees in Biomedical Engineering, Biotechnology, Biotechnology and Entrepreneurship, Chemical Engineering, Chemistry, and Materials Chemistry.

BOOTH # 917

Northeastern University

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313 Snell Engineering Center
Boston, MA 02115
Phone: 627-373-2989
Email: f.kiragu@neu.edu
Web: www.che.neu/edu

BOOTH # 600

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With cutting-edge research in Biomaterials and Regenerative Medicine, Imaging and Biophotonics, and Neural Engineering, Northwestern University BME attracts top faculty and students alike. Research takes place on the main campus in Evanston and on the medical school campus in downtown Chicago.

BOOTH # 825

The Ohio State University Department of Biomedical Engineering

270 Bevis Hall
1080 Carmack Road
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Phone: 614-292-1285
Email: senitko.1@osu.edu
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The Pennsylvania State University

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University Park, PA 16801
Phone: 814-865-1407
Email: mjs436@engr.psu.edu
Web: www.bme.psu.edu

The Penn State Department of Biomedical Engineering and the Intercollege Graduate Degree Program in Bioengineering are proud to offer B.S., M.S. and Ph.D. degrees. Our mission is to educate students to become world-class engineers who contribute to social and economic development through innovative solutions to problems in medicine and the life sciences. The graduate program offers strong integration with many other disciplines to increase the breadth of our uniquely trained faculty and specialized facilities, enable cutting-edge research in fundamental biology, medical device design, and disease diagnosis, with a goal to translate discovery from academia to society. Come by for a visit. We look forward to meeting you!

BOOTHS # 509/511

Purdue University Weldon School of Biomedical Engineering

206 S. Martin Jischke Drive
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Phone: 765-494-2995
Email: fergusoc@purdue.edu
Web: www.purdue.edu/bme

The Weldon School at Purdue is undergoing significant programmatic and faculty growth. Opportunities abound in our expanding graduate programs, signature areas of research, and entrepreneurial partnerships. Ask us about our unique specialty programs in Regulatory Affairs and Biomedical Entrepreneurship. We are recruiting top students for several nationally-funded graduate training programs.

BOOTH # 720

Rensselaer Polytechnic Institute

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Phone: 518-276-6548
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Web: www.bme.rpi.edu

Rensselaer Polytechnic Institute is the nation's oldest technological research university and home to one of the oldest biomedical engineering departments. Educating outstanding academics, industry leaders and research scientists. Research is centered on Biomolecular Science and Engineering, Biomedical Imaging, Musculoskeletal Engineering, Neural Engineering, Systems Biology and Biocomputation, and Vascular Engineering (bme.rpi.edu).

BOOTHS # 101 / 103

Rice University Department of Bioengineering

6100 Main Street
Houston, TX 77005-1892
Phone: 713-348-5869
Email: bioeng@rice.edu
Web: www.bioengineering.rice.edu

Rice University's Department of Bioengineering is a top-tier teaching and research institution with graduate programs that lead to an MBE, PhD, or a joint MD/PhD with Baylor College of Medicine. Situated next to the Texas Medical Center, we offer education and research opportunities in biomaterials and drug delivery, biomedical imaging and diagnostics, cellular and bimolecular engineering, computational and theoretical bioengineering, systems and synthetic biology, and tissue engineering and biomechanics.

BOOTH # 815

Rutgers University

599 Taylor Road
Piscataway, NJ 08854
Phone: 848-445-4500
Email: langrana@rci.rutgers.edu
Web: http://biomedical.rutgers.edu

The Rutgers Department of Biomedical Engineering (BME) is a vibrant and dynamic enterprise of scholarship, learning, and technology development. Located in the heart of New Jersey's "Cure Corridor", BME offers a remarkably diverse array of opportunities for undergraduate, graduate, and postgraduate training and research in molecular systems bioengineering, biomaterials and tissue engineering, bionanotechnology, biomechanics, rehabilitation engineering, and biomedical imaging.

BOOTH # 324

Santa Clara University

500 El Camino Real
Santa Clara, CA 95053
Phone: 408-554-4874
Email: sbeaumier@scu.edu
Web: www.scu.edu/engineering/bioengineering

Bioengineering at SCU has experienced a tremendous rate of growth in both undergraduate and graduate programs. Our actively engaged faculty, and world-class industrial advisory board with members from all over Silicon Valley work together to set new directions in education, research, outreach, mentorship and training. Our mission is to prepare students for exciting, fulfilling, rewarding, and meaningful careers while promoting high ethical standards and social responsibility.

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BOOTH # 208

Stanford University Bioengineering

318 Campus Drive, Room E100
Stanford, CA 94305
Phone: 650-736-1160
Email: christine.kurihara@stanford.edu
Web: bioengineering.stanford.edu

The Bioengineering Department creates a fusion of engineering and the life sciences to promote biomedical discovery and the development of new technologies and therapies. Bioengineering at Stanford embraces biology as a new engineering paradigm and applies engineering principles to medical problems and biological systems. The Biodesign Program has a mission to train students, fellows and faculty in the Biodesign Process: a systematic approach to needs finding and the invention and implementation of new biomedical technologies. A key component of the program is the Biodesign Medical Technology Innovation Fellowships. In the Mechanical Engineering Department, the Biomechanical Engineering division helps students combine strong mechanical skills with a working understanding of biological and/or medical systems and processes.

BOOTH # 203

Stevens Institute of Technology

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Stony Brook University Department of Biomedical Engineering

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Stony Brook, NY 11794
Phone: 631-632-2302
Email: nubia.andrade@stonybrook.edu
Web: www.bme.sunysb.edu

The mission of the BME department at Stony Brook University is to fully integrate the cutting edge of engineering and physical sciences with state-of-the-art biology to advance our understanding of biomedical problems, and to drive the development of therapeutics, diagnostics and medical devices. Areas of research expertise include biomechanics, bioelectricity, tissue engineering, bioinstrumentation, cellular and molecular bioengineering, and bioimaging.

BOOTH # 323

Syracuse University Department of Biomedical and Chemical Engineering

329 Link Hall
Syracuse, NY 13244
Phone: 315-443-1931
Email: topgrads@syr.edu
Web: http://eng-cs.syr.edu/our-departments/biomedical-and-chemical-engineering/

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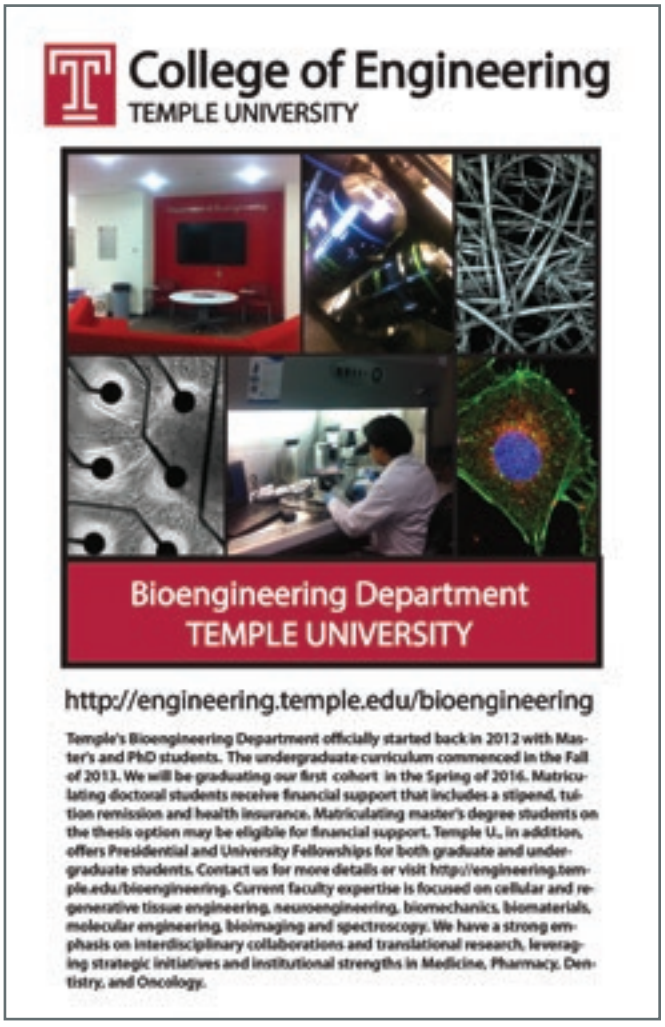
BOOTH # 725

Temple University Department of Bioengineering

1947 North 12th Street
Philadelphia, PA 19122
Phone: 215-204-3404
Email: doreen.aiello@temple.edu
Web: http://engineering.temple.edu/bioengineering

Temple's Bioengineering Department officially started back in 2012 with Master's and PhD students. The undergraduate curriculum commenced in the Fall of 2013. We will be graduating our first cohort in the Spring of 2016. Matriculating doctoral students receive financial support that includes a stipend, tuition remission and health insurance. Matriculating master's degree students on the thesis option may be eligible for financial support. Temple U., in addition, offers Presidential and University Fellowships for both graduate and undergraduate students. Current faculty expertise is focused on cellular and regenerative tissue engineering, neuroengineering, biomechanics, biomaterials, molecular engineering, bioimaging and spectroscopy. We have a strong emphasis on interdisciplinary collaborations and translational research, leveraging strategic initiatives and institutional strengths in Medicine, Pharmacy, Dentistry, and Oncology.



BOOTH # 801

Texas A & M University
Department of Biomedical Engineering

3120 TAMU
College Station, TX 77843-4462
Phone: 979-845-2312
Email: bmen@tamu.edu
Web: http://engineering.tamu.edu/biomedical

The Department of Biomedical Engineering at Texas A&M University offers an opportunity to participate in ground-breaking research in sensing and imaging, optics, orthopedic biomechanics, biomaterials, tissue engineering and more. The department's award-winning faculty members have strong collaborations with medical and veterinary schools as well as industry. Offering graduate degree options at the master's (M.S., M.Eng., & M.Eng./MBA) and doctoral (Ph.D. & D.Eng.) levels, this program provides an exceptional academic experience.

BOOTHS # 721 / 723

Tufts University
Biomedical Engineering

4 Colby Street
Medford, MA 02155
Phone: 614-627-2580
Email: bme@tufts.edu
Web: www.engineering.tufts.edu/bme

Biomedical Engineering at Tufts University draws from core disciplines such as engineering, biology, computer science, physics, chemistry, and physiology emphasizing an interdisciplinary approach to research and education. Strong emphasis is placed on interactions with faculty in Arts and Sciences and the professional schools. The Tissue Engineering Resource Center (TERC) was initiated in August of 2004 as a Resource Center supported through the National Institutes of Health P41 program. The core themes in the Center focus on functional tissue engineering achieved through a systems approach – integrating cells, scaffolds and bioreactors to control the environment in vitro for translation in vivo.

BOOTH # 714

Tulane University

500 Lindy Boggs Bldg.
New Orleans, LA 70118
Phone: 504-865-5897
Email: bmeninfo@tulane.edu
Web: www.bmen.tulane.edu

Tulane's Biomedical Engineering Department is located in the diverse cultural mecca of New Orleans and has been established since 1977. Degrees offered range from B.S. to Ph.D., and research includes biomechanics, biotransport, regenerative medicine, biomaterials and devices. Collaboration with the School of Medicine and numerous other centers are available and abounding.

BOOTH # 824

The University of Akron Department of Biomedical Engineering

302 Buchtel Common
Akron, OH 44325-0302
Phone: 330-972-6650
Email: bmegrad@uakron.edu
Web: http://bme.uakron.edu

The Department of Biomedical Engineering at The University of Akron offers two graduate degree programs: a master's degree in engineering with a biomedical specialization and a Ph.D. in engineering. These programs have an individualized curricular approach, designed in coordination with each student's career plans. BME faculty are engaged in a variety of research areas, including but not limited to, instrumentation, biomaterials, biomechanics, and tissue engineering. Our faculty have active collaborations both on campus and with researchers in regional health care institutions and biomedical industry. We encourage interdisciplinary interactions to promote vibrant research activities and to provide an exceptional scholarly atmosphere for learning. The BME Department currently has 17 full-time and joint faculty, including 8 recent hires, 3 endowed chairs, and 2 CAREER award recipients.

BOOTHS # 601 / 603

The University of Alabama at Birmingham Department Biomedical Engineering

1825 University Boulevard, Suite 801
Birmingham, AL 35295
Phone: 205-996-6936
Email: minrob@uab.edu
Web: www.eng.uab.edu/bme

The Biomedical Engineering (BME) Graduate Program at The University of Alabama at Birmingham offers Master's and PhD degrees. The BME Department has a joint status in the School of Engineering and School of Medicine with a strong record of interdisciplinary research in biomaterials, biomechanics, biomedical imaging, cardiac electrophysiology, computational biology, tissue engineering and regenerative medicine. The BME Graduate Program has over 60 primary and secondary faculty training students to develop the next generation of technologies. BME graduates find employment in universities, health care, medical devices, pharmaceuticals, and regulatory agencies.

BOOTH # 314

The University of Arizona Biomedical Engineering / GIDP Program

P.O. Box 210240
Tucson, AZ 85721
Phone: 520-626-9134
Email: stanley@email.arizona.edu
Web: www.bme.arizona.edu

The University of Arizona's Biomedical Engineering Graduate Interdisciplinary Program offers opportunities to integrate engineering, mathematics, biology, and medicine in a collaborative multi-disciplinary environment with over 60 faculty mentors. Proximity to Medicine, and Health Sciences Colleges facilitates cutting-edge translational research in specialties such as cardiovascular engineering, imaging, nanotechnology, computational modeling and entrepreneurship.

BOOTH # 904

University of Arkansas Department of Biomedical Engineering

1 University of Arkansas
120 John A. White, Jr. Engineering Hall
Fayetteville, AR 72701
Phone: 479-575-4667
Email: bmeginfo@uark.edu
Web: http://bmeg.uark.edu

The Biomedical Engineering Program at the University of Arkansas offers MS and PhD degrees. Our active faculty has research programs in: Organ Regeneration; Cell and Molecular Imaging; Nanobiotechnology; Molecular Genetics and Cell Biology in Disease Prevention; Biomaterials; Tissue Engineering; and Vaccine and Immunotherapy Delivery Systems. Stop by our booth and learn how well qualified students can earn $10,000 to $20,000 per year on top of standard assistantship stipends!

BOOTH # 422

University of Calgary Biomedical Engineering Graduate Program

ENA 127, 2500 University Drive NW
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Phone: 403-220-2721
Email: bmegrad@ucalgary.ca
Web: www.ucalgary.ca/bme/graduate

Students in the Biomedical Engineering (BME) Graduate Program at the University of Calgary are interested in cutting-edge, multidisciplinary biomedical research. The BME Graduate Program enables graduate students to undertake MSc or PhD programs that intersect the fields of engineering, kinesiology, medicine, science, nursing, and veterinary medicine.

BOOTH # 610

University of California, Berkeley

306 Stanley Hall #1762
Berkeley, CA 94720-1762
Phone: 510-642-5833
Email: bioeng@berkeley.edu
Web: http://bioeng.berkeley.edu/

The Department of Bioengineering at the University of California, Berkeley will be showcasing its novel research and academic programs including BS, MEng (Master of Engineering), MTM (Master of Translational Medicine), and PhD degrees. Come visit the UC Berkeley booth to speak with representatives and learn more about the department.

BOOTH # 217

The University of California at Davis Department of Biomedical Engineering

451 E. Health Sciences Drive
GBSF 2303, University of California
Davis, CA 95616
Phone: 530-752-1033
Email: bme@ucdavis.edu
Web: www.bme.ucdavis.edu

With 33 primary faculty and a graduate group of ~75 faculty, BME at UC Davis combines exceptional teaching with state-of-the-art research to prepare students for careers in academics and industry. Come learn about our programs in bioinformatics, biomechanics, cellular and molecular systems, imaging, synthetic biology, and tissue engineering and regenerative medicine.

BOOTHS # 414 / 416

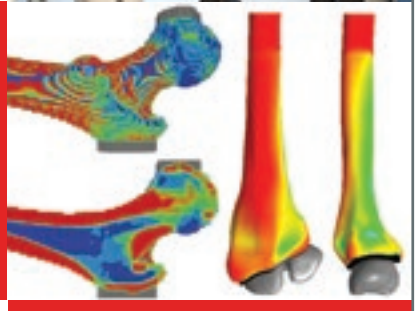
University of California, Irvine

3120 Natural Sciences II
Irvine, CA 92697-2715
Phone: 949-824-9196
Email: chta@uci.edu
Web: www.bme.uci.edu

The UC Irvine Department of Biomedical Engineering's mission is to inspire engineering minds for the advancement of human health. Engineering focus areas include biomedical photonics/optoelectronics, biomedical nano- and microscale systems/fabrication, biomedical computation/modeling, and tissue engineering. These technology areas intersect with clinical areas of focus such as cardiovascular disease, the nervous system, cancer, and ophthalmology. Included in these opportunities are major campus research centers at the Beckman Laser Institute (biophotonics), the Edwards Lifesciences Center for Advanced Cardiovascular Technology, the Chao Family Comprehensive Cancer Center, the Integrated Nanosystems Research Facility, the Laboratory of Fluorescence Dynamics, and the Micro/nano Fluidics Fundamentals Focus Center. UCI is located in Orange County, home to more than 300 medical device companies.

UNIVERSITY OF CALGARY

Biomedical Engineering Graduate Program



The Biomedical Engineering Graduate Program is a multi-displinary program spanning the Schulich School of Engineering, the Cumming School of Medicine, and the Faculties of Kinesiology, Veterinary Medicine, Science, and Nursing.

Broad research areas of the faculty in the program include:

- **Bioelectricity**
- **Biomechanics**
- **Cell and Tissue Engineering**
- **Medical Imaging**
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Graduate programs offered:

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For Program Details including application deadlines visit,

ucalgary.ca/bme/graduate

BOOTH # 200

University of Chicago
Institute for Molecular Engineering

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Web: http://ime.uchicago.edu

The IME PhD program equips students with engineering principles to analyze and design molecules for emerging applications, taking research beyond the boundaries of traditional engineering fields. Students work closely with faculty and peers in combining problem-solving skills with broad scientific expertise to build useful systems from the molecular level up.

BOOTH # 225

University of Colorado Denver
Anschutz Medical Campus
Department of Bioengineering

12700 E. 19th Avenue
Room 6018, MS 8607
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Phone: 303-724-5893
Email: bioengineering@ucdenver.edu
Web: www.ucdenver.edu/bioengineering

Located on a medical campus, we are integrated with world-class hospitals and the nationally ranked CU School of Medicine. In addition to traditional undergraduate and graduate degrees, we offer a dual MS-MBA, MD-MS and MD-PhD. Our students work with top faculty and researchers on projects that range from basic research to clinical applications and commercialization of medical technologies through our entrepreneurship pathway.

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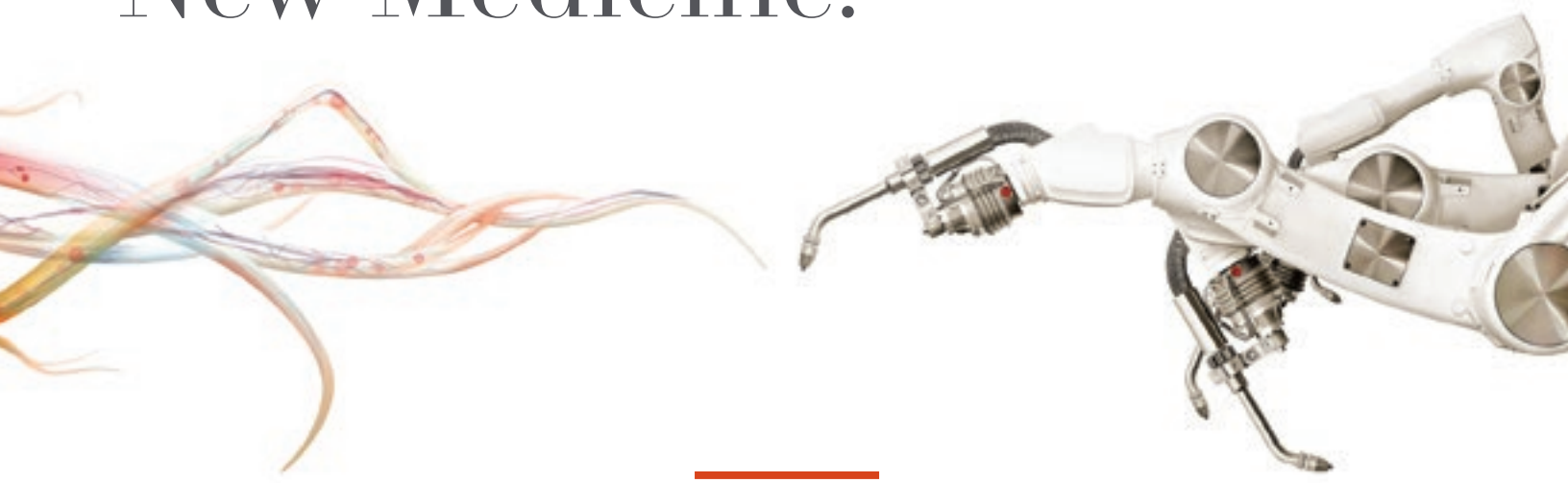

The Department of Bioengineering at the **University of Illinois at Urbana-Champaign** is proud to be a driving force in the creation of the first college of medicine focused, from the beginning, on the intersection of engineering and medicine.

The university expects to accept the first cohort of medical students in the new college in Fall 2018.

Further enhancing the integration of engineering and medicine is the exciting addition of the Jump Simulation Center, to be built within Everitt Laboratory. Scheduled for a $55 million renovation beginning in 2016, Everitt Lab is the future home of the **Department of Bioengineering at Illinois.**

FOR MORE INFORMATION
email: bioengineering@illinois.edu
web: medicine.illinois.edu

CARLE ILLINOIS **COLLEGE OF MEDICINE**

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Email: jss@udel.edu
Web: www.bme.udel.edu

University of Delaware's Biomedical Engineering Department welcomes undergraduate and graduate students who are intellectually motivated, creative, and diverse individuals to join us. Our research focus areas: Biomolecular Engineering, Cellular Engineering & Systems Biology; Tissue Engineering, Biomaterials & Drug Delivery; Rehabilitation Engineering & Neuroengineering; Biomechanics; Bioimaging, Bio-computing & Bioelectronics.

BOOTH # 709

University of Florida
Department of Biomedical Engineering

1275 Center Drive
Biomedical Sciences Building JG-56
P.O. Box 116131
Gainesville, FL 32606
Phone: 352-273-9222
Email: info@bme.ufl.edu
Web: www.bme.ufl.edu

UF BME is made possible by the vision and generosity of Dr. J. Crayton Pruitt and his family. Since its inception in 2002, the department continues to excel in interdisciplinary research that merges engineering with biology and medicine. The department offers both a graduate program and an undergraduate program (2012 inaugural class), with particular strengths in Neural Engineering, Imaging and Medical Physics, Biomaterials and Regenerative Medicine, and Biomedical Informatics and Modeling. In the past year, the department has grown to 22 faculty and will continue that growth up to 25-30. UF BME is one of only a few departments in the nation to be co-localized with a top-ranked medical school, veterinary school, and dental school. The department is also uniquely positioned to contribute to clinical translation of biomedical technologies because of the outstanding resources for entrepreneurship and commercialization in the Gainesville area.

BOOTH # 717

University of Illinois at Chicago

851 S. Morgan Street, Room 218
Chicago, IL 60607-7052
Phone: 312-996-2335
Email: bioe@uic.edu
Web: www.bioe.uic.edu

One of the first degree granting and accredited Bioengineering programs in the nation, since 1965 UIC Bioengineering offers B.S, M.S, Ph.D., M.D./M.S. and M.D./Ph.D. programs that emphasize translational research and innovative training that can include clinical immersion and industry-linked interdisciplinary medical product development. The Richard and Loan Hill Department of Bioengineering is led by core faculty who collaborate with leading faculty in five major academic medical centers in Chicago - including UIC, home of the largest medical school in the country.

BOOTH # 309

University of Illinois @ Urbana-Champaign

1304 W. Springfield Avenue
Urbana, IL 61801
Phone: 217-333-1867
Email: jenchrn@illinois.edu
Web: www.bioengineering.illinois.edu

The Department of Bioengineering in the College of Engineering at the University of Illinois at Urbana-Champaign offers B.S., M.S. and Ph.D. degrees in Bioengineering. Highly qualified students may pursue the joint M.D./Ph.D. through the Medical Scholars Program. And Illinois now offers a first-of-its-kind professional Master's of Engineering degree in Bioinstrumentation. The Bioengineering Graduate Program provides students with access to Illinois' accomplished faculty who cross numerous disciplines and its world-renowned centers, labs and institutes. Areas of focus include Bioimaging at Multi-Scale; Bio-Micro/Nanotechnology; Molecular, Cellular and Tissue Engineering; Computational Bioengineering; and Synthetic Bioengineering.

BOOTH # 615

The University of Kansas

1520 West 15th, Room 1, Eaton Hall
Lawrence, KS 66045
Phone: 785-864-5258
Email: bioe@ku.edu
Web: www.bio.engr.ku.edu

KU Bioengineering is an exciting and dynamic place. Our curriculum is broad and flexible, embracing the interdisciplinary nature of the field. With six tracks; Bioimaging, Bioinformatics, Biomolecular, Biomedical Product Design & Development, Biomechanics & Neural, and Biomaterials & Tissue; and a collaboration with the University of Kansas Medical Center, students customize their education and create a niche of research before they enter the job market.

BOOTH # 820

University of Kentucky Department of Biomedical Engineering

522 Robotics and Manufacturing Building
143 Graham Avenue
Lexington, KY 40506
Phone: 859-257-8101
Email: bmedgs@uky.edu
Web: www.bme.uky.edu

UK is one of only a small number of U.S. institutions having a major academic medical center with all six health sciences colleges and the full spectrum of academic colleges on a single campus. Visit with BME representatives to learn about the exciting research and educational opportunities in our department.

BOOTH # 111

University of Maryland Fischell Department of Bioengineering

2330 Jeong H. Kim Building
College Park, MD 20742
Phone: 301-405-8268
Email: bioe-grad@umd.edu
Web: http://www.bioe.umd.edu

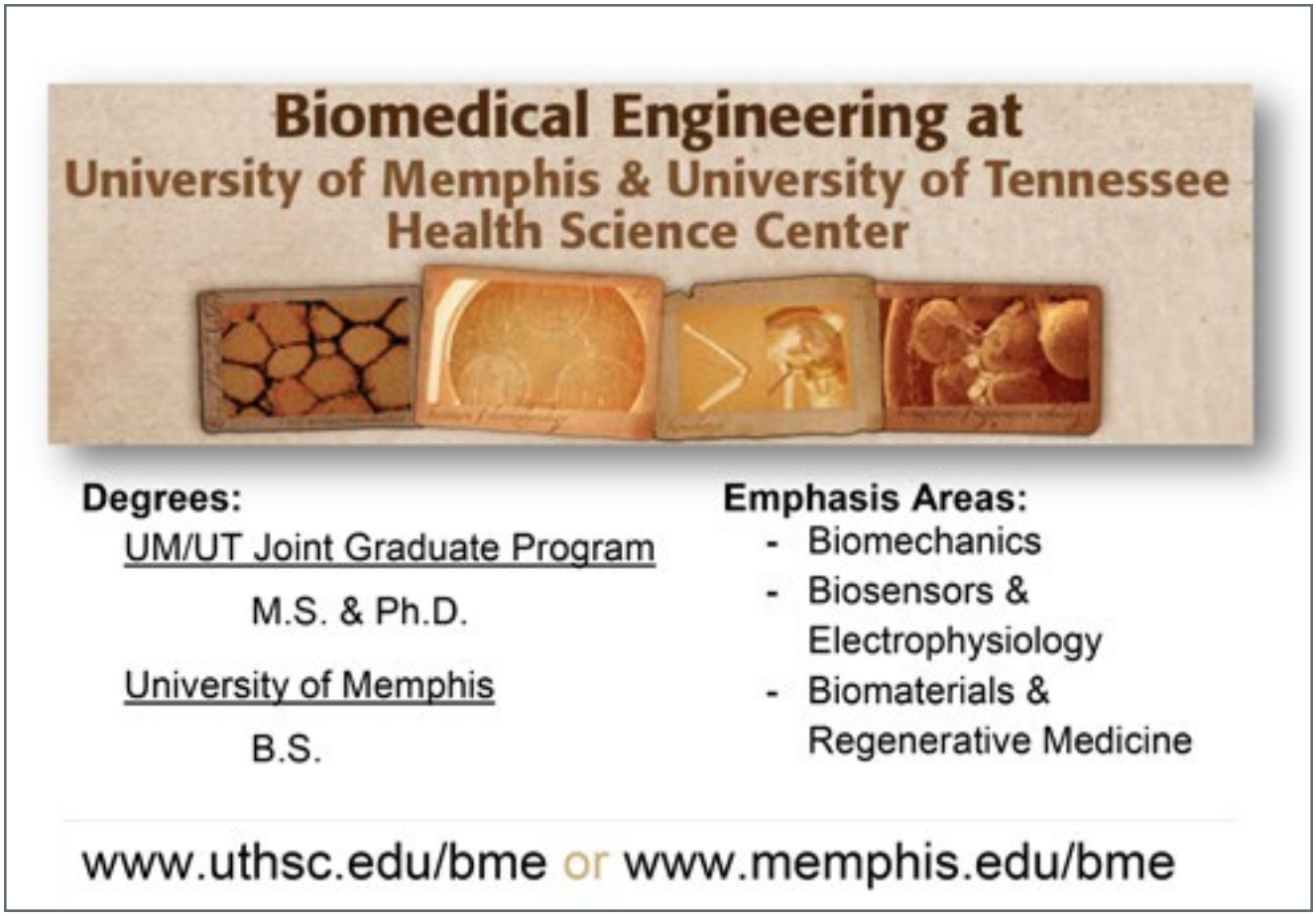
Faculty and students in the Fischell Department of Bioengineering at UMD are committed to making a difference in human health care through education, research, and invention. We have exciting collaborations with the FDA, NIH-NCI, UMB Pharmacy and Medicine, and Children's National Medical Center and offer programs leading to the BS, M.Eng., MS/MD, MD/PhD and PhD degrees.

BOOTH #814

University of Memphis - University of Tennessee Health Sciences Center Biomedical Engineering

330 Engineering Technology Building
Herff College of Engineering Memphis, TN 39152-3210
Phone: 901-678-3733
Email: jbmgrdnr@memphis.edu
Web: www.memphis.edu/bme

The UM/UT Joint Graduate Program offers M.S. and Ph.D. degrees in biomedical engineering with research specialization in biomaterials, tissue engineering, drug delivery, biomechanics, biomedical sensors, electrophysiology, and bioimaging. Emphasis in these disciplines is in dental/orthopedics, computational models (pulmonary, coronary, and muscoskeletal), sensor nano/microfabrication, and image processing and analyses.



BOOTHS # 202 / 204

University of Miami
Department of Biomedical Engineering

1251 Memorial Drive, MEA #219A
Coral Gables, FL 33146-0621
Phone: 305-284-2445
Email: oozdamar@miami.edu
Web: www.bme.miami.edu

Our undergraduate and graduate programs leading to the B.S., 5 year B.S./M.S, M.S and Ph.D. degrees provide graduates with the analytical and design skills required to solve problems at the interface of engineering and life sciences. Special features of our program include small class size, very strong ties with the University of Miami Miller School of Medicine, high level of student-faculty interaction, and a high percentage of undergraduate student participation in research and professional activities. The research areas of our Faculty include biomedical imaging, optics and lasers; neural engineering, biosignals and instrumentation; and biomechanics, biomaterials and tissue engineering.

BOOTH # 401

University of Michigan
Department of Biomedical Engineering

1111 Carl A. Gerstacker Building
2200 Bonisteel Blvd.
Ann Arbor, MI 48109-2099
Phone: 734-763-5290
Email: sbitzer@umich.edu
Web: www.bme.umich.edu

The University of Michigan Department of Biomedical Engineering provides an outstanding educational experience for engineers in biomedical engineering and develops future leaders in the field. The program's primary emphasis is on biomedical engineering fundamentals, while allowing students to personalize their curriculum to prepare them for a wide variety of careers including biomedical engineering, law, medicine, and business.

BOOTH # 409

University of Minnesota
Department of Biomedical Engineering

312 Church St. SE
7-105 Nils Hasselmo Hall
Minneapolis, MN 55455
Phone: 612-624-8396
Email: bmengp@umn.edu
Web: www.umn.edu/bme

The Department of Biomedical Engineering at the University of Minnesota is physically located at the intersection of the medical school, engineering, and physical sciences, and in the heart of LifeScience Alley (home to Medtronic, Boston Scientific, St. Jude Medical, Covidien, plus 500 other FDA-registered medtech companies). Research conducted by the faculty spans the full spectrum, with particular depth in cardiovascular/neural engineering, cell/tissue engineering, cancer bioengineering, and biomedical imaging/optics.

BOOTH # 405

University of Minnesota IGERT
Systems Neuroengineering Program

312 Church St. SE
7-105 Nils Hasselmo Hall
Minneapolis, MN 55455
Phone: 612-624-8396
Email: igert-ne@umn.edu
Web: http://igert-ne.umn.edu

The NSF IGERT (Integrative Graduate Education and Research Traineeship) training program provides interdisciplinary education and research training to highly qualified doctoral students to develop the skills to revolutionize technologies for interfacing with the brain and advance our fundamental understanding of the brain through engineering innovations.

BOOTH # 301

University of North Carolina at Chapel Hill NC State University

137 MacNiber Hall
Chapel Hill, NC 27599
Phone: 919-966-8088
Email: vberg@email.unc.edu
Web: www.bme.unc.edu

The Joint Department of Biomedical Engineering is an academic department co-located at the University of North Carolina at Chapel Hill and NC State University and was established on December 1, 2003, linking the School of Medicine at UNC-CH to the College of Engineering at NC State. The graduate program offers joint MS and PhD degrees in Biomedical Engineering. The department has administrative offices on both campuses (NCSU: 4130 Engineering Building III; UNC-CH: 152 MacNider Hall).

BOOTHS # 809 / 811

University of Pittsburgh Department of Bioengineering

306 CNBIO
Pittsburgh, PA 15219
Phone 412-624-6445
Email: ngm8@pitt.edu
Web: engineering.pitt.edu

The University of Pittsburgh Department of Bioengineering conducts world-class research and is home to faculty and students at both the graduate and undergraduate level who have won both nationally and internationally recognized awards. The department also has a close affiliation with the renowned University of Pittsburgh School of Medicine.

BOOTH # 105

University of Portland

5000 N. Willamette Boulevard
Portland, OR 97203
Phone 503-943-7612
Email: cairncro@up.edu
Web: engineering.up.edu

The University of Portland's master's degree in Biomedical Engineering is an interdisciplinary 12-month program that immerses students in the technical, scientific, medical, business, and management aspects of health care innovation. Students from all STEM backgrounds are encouraged to apply. More information can be found at: engineering.up.edu

BOOTH # 608

University of Rochester Biomedical Engineering

204 Robert E. Georgen Hall
Rochester, NY 14627
Phone: 585-275-3891
Email: donna.porcelli@rochester.edu
Web: www.bme.rochester.edu

The Graduate Program in Biomedical Engineering at the University of Rochester provides training at the Masters and Doctoral level. Multiple active centers and affiliated groups offer collaborative research in Biomedical Optics; Neuroengineering; Biomechanics; Medical Imaging; Biomaterials, Nanotechnology and Cell & Tissue Engineering. With access to over 50 laboratories on the River Campus and the adjacent Medical Center, students can tailor their own interdisciplinary and translational training experience. We also offer an MS program focused on Medical Technology & Innovation, including a clinical practicum and full-year design experience.

BOOTH # 201

University of Southern California (USC) Viterbi School of Engineering

3650 McClintock Ave, OHE 106
Los Angeles, CA 90089
Phone: 213-740-0119
Email: fujioka@usc.edu
Web: http://viterbi.usc.edu/gapp

A USN&WR top-10 ranked graduate engineering school, the University of Southern California is a leading private research university. Our Biomedical Engineering department is in the top tier for research funding per faculty and hosts six internationally recognized research centers. Located in L.A., USC offers extensive opportunities for study and research.

BOOTHS #922 / 924

University of South Florida

4202 E. Fowler Avenue
Tampa, FL 33620
Phone: 813-974-3780
Email: bhethana@usf.edu
Web: www.chbme.eng.usf.edu

The University of South Florida is a high-impact, global research university dedicated to student success. USF is a Top 50 research university among both public and private institutions nationwide in total research expenditures, according to the National Science Foundation. Serving nearly 48,000 students, the USF System has an annual budget of $1.5 billion and an annual economic impact of $4.4 billion.

A Closely Knit Community

Nestled into Utah's Wasatch Mountain range, the Department of Bioengineering's new home (foreground) is located between the University Hospital & School of Medicine (upper left) and the College of Engineer Campus (just to the right out of frame) providing a clinically immersive engineering experience that is unique among BME training programs. Did you know that the Department of Bioengineering is one of the oldest and yet fastest growing Biomedical training programs in the nation. We rank 7th nationally in median h-index for core faculty as determined by google scholar. With over 125 faculty our research strengths span every inch of Clinical medicine. Not to mention that we are surrounded by unprecedented natural beauty.
Learn more about us at: *http://www.bioen.utah.edu/*

BIOENGINEERING
UNIVERSITY OF UTAH

BOOTHS # 908 / 910

University of Tennessee - Knoxville

1512 Middle Drive
414 Dougherty Engineering Bldg
Knoxville, TN 37996
Phone: 865-974-5115
Email: williamk@utk.edu
Web: http://mabe.utk.edu

The department of Mechanical, Aerospace and Biomedical Engineering at the University of Tennessee offers B.S., M.S., and Ph.D. degrees in Biomedical Engineering. Graduate level research in Biomedical Engineering are organized as interdisciplinary and across departmental and college boarders through the Institute of Biomedical Engineering (iBME). In iBME, faculty from the College of Engineering, the Graduate School of Medicine, the College of Veterinary Medicine, and the College of Education, Health, and Human Sciences work collaboratively to teach a wide variety of courses and perform research in seven major thrust groups. Current thrust groups include Healthcare Engineering and Bioinformatics, Systems Modeling and Simulation, Medical Sensors and Devices, Biomechanics, Multi-Scale Imaging, Systems Biology and Molecular Medicine, and Biomaterials and Regenerative Medicine.

BOOTH # 522

University of Texas Arlington Bioengineering Department

500 UTA Blvd., Suite 226
Arlington, TX 76010
Phone: 817-272-2249
Email: cbradfield@uta.edu
Web: www.uta.edu/bioengineering

The Bioengineering Department at the University of Texas Arlington offers several research and scholarship opportunities for students interested in Biomaterials & Regenerative Tissue Engineering, Bioinstrumentation, Biomechanics, and Biomedical Imaging. Graduate students also have the option of earning a joint graduate degree with The University of Texas Southwestern Medical Center at Dallas. Those interested in our programs are strongly encouraged to visit Booth 522 at the exhibit to learn more!

BOOTHS # 614 / 616

The University of Texas at Austin Department of Biomedical Engineering

107 W. Dean Keeton, C0800
Austin, TX 78712
Phone: 512-475-8623
Email: sbixby@mail.utexas.edu
Web: www.bme.utexas.edu

The University of Texas at Austin's Biomedical Engineering Department educates the next generation of biomedical engineers by offering B.S., M.S., and Ph.D. degrees. Scholars and students build interdisciplinary knowledge in areas such as bioinformatics, biomechanics, biomedical imaging and instrumentation, cellular and biomolecular engineering, and computational biomedical engineering, among others.

BOOTH # 411

University of Texas at Dallas Eric Jonsson School of Engineering and Computer Science

800 W. Campbell Rd. EC 39
Richardson, TX 75080
Phone: 972-883-5155
Email: kelly.sloan@utdallas.edu
Web: www.be.utdallas.edu

We would like to provide attendees information regarding the many opportunities that exist for dedicated students to pursue graduate studies in Bioengineering at the University of Texas at Dallas. Outstanding students planning to pursue the Ph.D. degree are invited to apply for a Founders Distinguished Graduate Fellowship at UT Dallas.

BOOTH # 425

University of Toronto Institute of Biomaterials & Biomedical Engineering

164 College Street
Rosebrugh Building, Room 407
Toronto, Ontario M5S 3G9 Canada
Phone: 416-946-8019
Email: comm.ibbme@utoronto.ca
Web: www.ibbme.utoronto.ca

Collaboration shapes innovation at the University of Toronto's Institute of Biomaterials & Biomedical Engineering (IBBME). Spanning three faculties (Applied Science & Engineering, Medicine and Dentistry) and ten major hospitals, IBBME's unique biomedical and clinical engineering research programs deliver world-class, real world education for students of Canada's top-ranked University.

BOOTH #205

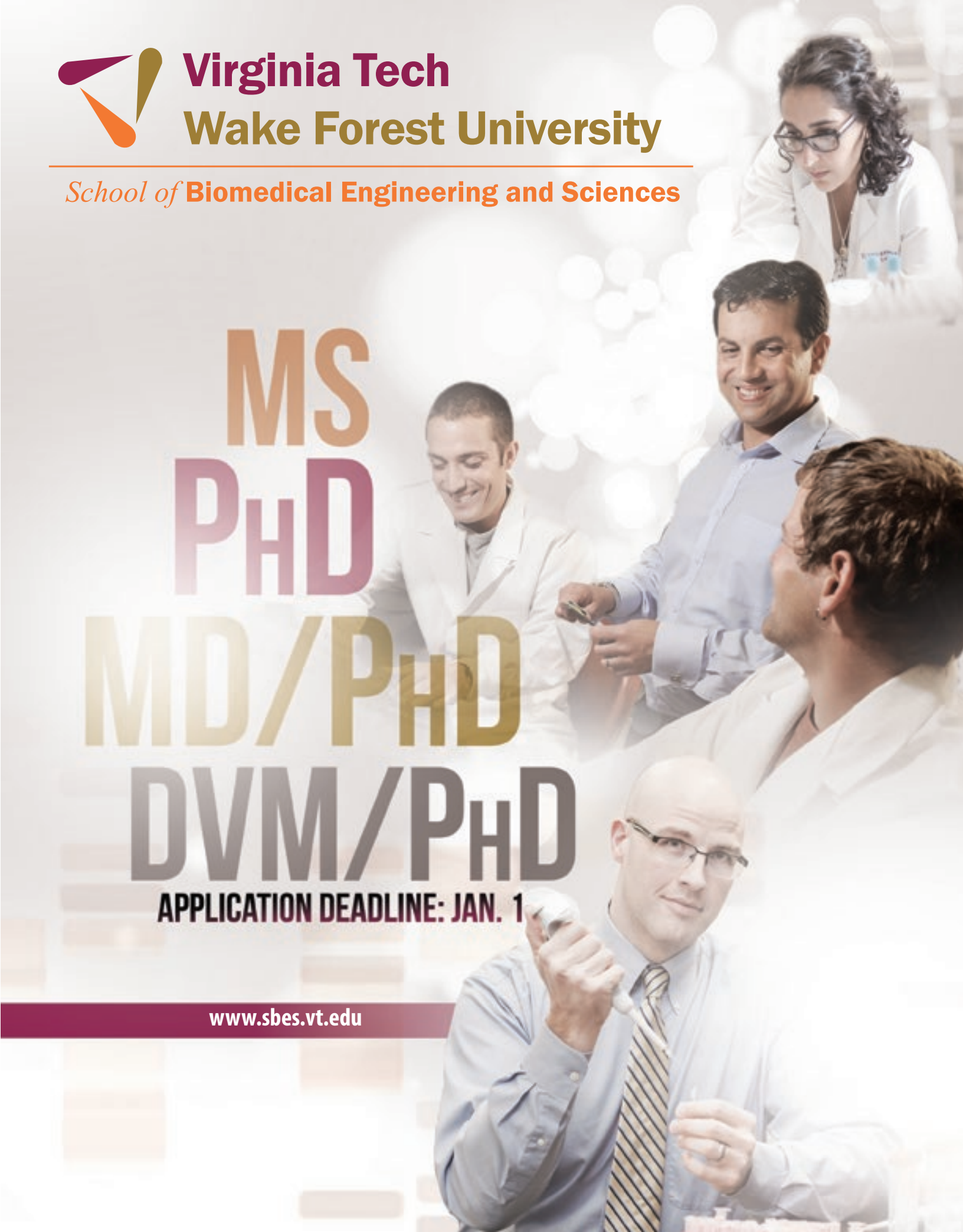
University of Utah Department of Bioengineering

36 S. Wasatch Drive, SMBB 3100
Salt Lake City, UT 84112
Phone: 801-581-8528
Email: erin.pugh@utah.edu
Web: www.bioen.utah.edu

The Department of Bioengineering and the SCI Institute are internationally recognized for research in biomaterials, drug delivery, neuroengineering, othropedics, cardiovascular medicine, visualization, scientific computing, and image analysis, respectively. Together they offer BS, MS, and PhD training opportunities in a world class vacation destination located at the base of the Wasatch Range. The highly entrepreneurial and interdisciplinary environment is distinguished by its strong collaborative connections between clinical medicine, engineering and industry; a place where researchers can work and play hard.

Virginia Tech
Wake Forest University

School of **Biomedical Engineering and Sciences**



MS
PhD
MD/PhD
DVM/PhD

APPLICATION DEADLINE: JAN. 1

www.sbes.vt.edu

BOOTH # 504

University of Virginia Department of Biomedical Engineering

P.O. Box 800759
Charlottesville, VA 22908
Phone: 434-924-5101
Email: adt2n@virginia.edu
Web: http://bme.virginia.edu

Join a vibrant network of engineers, clinicians, basic scientists and entrepreneurs. U.Virginia Biomedical Engineering offers a rare integration of Engineering and Medicine, with an exceptionally supportive, collaborative training environment for translational research and the basic sciences. UVA: Explore, Discover, Invent.

BOOTH # 605

University of Washington Department of Bioengineering

3720 15th Avenue NE
Box 355061
Seattle, WA 98195
Phone: 206-685-2000
Email: bioeng@uw.edu
Web: http://depts.washington.edu/bioe/index.html

University of Washington Bioengineering is a world leader in bioengineering research, education, clinical applications, technology transfer, and service. Please visit booth 605 to discover how we are inventing the future of medicine. Our faculty and students are eager to talk to you!

BOOTHS # 609 / 611

Vanderbilt University Department of Biomedical Engineering

5824 Stevenson Center
Nashville, TN 37235
Phone: 615-343-1099
Email: tina.shaw@vanderbilt.edu
Web: engineering.vanderbilt.edu/BiomedicalEngineering.aspx

VU BME bridges Vanderbilt's engineering, basic science departments, and its renowned medical center; an ideal location for engineering research at the interface of technology and medicine. Research strengths include image-based technologies, nanobiotechnology, biophotonics, modeling, biomaterials, bioregenerative engineering, bioMEMs. VU BME stimulates high impact research and provides unique educational opportunities.

BOOTHS # 621 / 623

Virginia Commonwealth University

401 W. Main Street
P.O. Box 843067
Richmond, VA 23284
Phone: 804-828-7956
Email: biomedicalengr@vcu.edu
Web: www.biomedical.engr.vcu.edu

Located on a thriving urban campus, VCU Biomedical Engineering has strong ties with the VCU Medical Center, School of Medicine, School of Dentistry, and Massey Cancer Center, and offers degrees at the Bachelor's, Master's, and Doctoral level. Research specialties include mechanobiology, regenerative medicine, orthopaedic biomechanics, rehabilitation engineering, and biomaterials.

BOOTHS # 700 / 701 / 702 / 703 / 704 / 705

Virginia Tech-Wake Forest University School of Biomedical Engineering & Science

VT-WFU SBES:
317 Kelly Hall (MC0298)
Blacksburg, VA 24061
Phone: 540-231-8191
Email: pamstiff@vt.edu
Web: www.sbes.vt.edu

The Virginia Tech – Wake Forest University, School for Biomedical Engineering and Sciences offers MS, PhD, MD/PhD, and DVM/PhD degrees. We have 76 biomedical engineering faculty with active research programs in tissue engineering, biomedical imaging, biomechanics, nanomedicine, & nanobioengineering, neuroengineering, translational cancer research, cardiovascular engineering, and other emerging fields.

BOOTH # 508

Washington University in St. Louis

One Brookings Drive, Box 1097
St. Louis, MO 63131
Phone: 314-935-6164
Email: teasdalek@wustl.edu
Web: http://bme.wustl.edu/

In partnership with our world-class medical school, our department emphasizes interdisciplinary training from top-notch faculty. Our main research areas are biomaterials and tissue engineering; cardiovascular engineering; imaging; molecular, cell and systems engineering; and neural engineering. Our department has more than 75,000 sq. ft. of state-of-the-art facilities. We offer BS, MS, MEng, MS/MA, PhD and MD/PhD degrees.

BOOTH # 617

Wayne State University

818 W. Hancock
Detroit, MI 48201
Phone: 313-577-1345
Email: nmurthy@wayne.edu
Web: www.bme.wayne.edu

The Biomedical Engineering Department at Wayne State University offers BS, MS, PhD and MD/PhD degrees. It is involved in some of the newest ground breaking research in the field. From the use of biomaterials to aid in the regeneration of nerves and the tailoring of these materials to optimize cellular response, to the use of advanced human modeling to study the biomechanics of impact injuries, and the study of sports related injuries and prevention of these injuries, Wayne State will play a major role in the development of new standards to better the quality of human life. Our past research has led to improvement in the standards of the automotive industry, better safer equipment for our soldiers, and a better understanding of injury biomechanics to help prevent and repair damage from these injuries.

BOOTH # 821

Whitaker International Program

809 United Nations Plaza
New York, NY 10017
Phone: 212-984-5442
Email: saltaf@iie.org
Web: www.whitaker.org

The Whitaker International Program provides funding to emerging U.S.-based leaders in biomedical engineering, with a goal of building international bridges. Grant projects – including research, coursework, public policy work – are intended to enhance both the recipient's career and the BME field. Administered by the Institute of International Education.

BOOTH # 822

Worcester Polytechnic Institute

100 Institute Road
Worcester, MA 01609
Phone: 508-831-5301
Email: bme-web@wpi.edu
Web: www.wpi.edu/+gradbme

Graduate students in WPI's Biomedical Engineering (BME) Department collaborate with scientists and engineers across disciplines, seeking breakthroughs in regenerative medicine, innovations in bioinstrumentation, and major steps forward in healthcare. Whether in the classroom or the lab, the focus remains squarely on solving real-world problems. BME graduates have gone on to rewarding careers at major medical and biomedical research centers across academia, government, and the medical device industry.

BOOTH # 517

World Scientific Publishing

27 Warren Street, Suite 401
Hackensack, NJ 07601
Phone: 201-487-9655
Email: ruth@wspc.com
Web: www.wspc.com

Established in 1981, World Scientific today is one of the leading STM publishers. Publishing 500 titles a year and 120 journals, our mission is to develop the highest quality knowledge-based products and services for the academic, scientific, professional, research and student communities.

BOOTH # 316

Yale University

55 Prospect Street
New Haven, CT 06511
Phone: 203-432-4262
Email: deanna.lomax@yale.edu
Web: www.seas.yale.edu/departments/biomedical-engineering

The booth will be staffed with graduate representatives and faculty from the department of Biomedical Engineering at Yale. The faculty and graduate representative will aim to describe the program to interested visitors and answer any questions regarding the program requirements and admissions process.

GREAT MINDS

MULTIPLIED

Where innovation is a degree requirement.

The master's and doctoral programs in biomedical engineering at WPI produce leaders and entrepreneurs highly valued in today's workplace. Find your place here, among researchers who are seeking innovative ways to improve lives.

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WPI

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OUT OF MORE THAN 1,500 COLLEGES ACROSS THE COUNTRY ON *MONEY* MAGAZINE'S 2015 "BEST COLLEGES" LIST

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PHD POST-GRADUATION EMPLOYMENT
(WPI CAREER DEVELOPMENT CENTER, 2013)

Whitaker International Program: Fellows, Scholars & Summer Programs

Grants For Biomedical Engineering Study or Research Abroad

The **Whitaker International Program** provides young biomedical engineers, and those in a related field, the opportunity to expand their geographic and academic horizons.

Potential activities to pursue overseas include:

- conducting research at an academic institution or with a corporation
- interning at a policy institute
- studying for a post-baccalaureate degree
- pursuing post-doctoral work

For more information, including program details, application requirements, and the online application, visit our website.

ACTIVITIES

A Whitaker International grant experience will ideally advance your career, while also advancing the goal of increased international collaboration in BME.

Activities could include:

Type of Awards:

- **Fellows Award: one year award after receiving your bachelor's degree.**
- **Scholars Award: for post-doctoral work.**
- **Summer Award: for BME coursework or research towards your Master's or Ph.D. degree.**

Phone: +212-984-5442

www.whitaker.org

INSTITUTE OF INTERNATIONAL EDUCATION

Institute of International Education, 809 United Nations Plaza, New York, NY 10017

www.whitaker.org

GENERAL INFORMATION & PRESENTER INFORMATION

Meeting Location

Tampa Convention Center
333 S Franklin Street
Tampa, FL 33602
(813) 274-8511

Tampa Marriott Waterside
(Headquarters Hotel)
700 South Florida Avenue
Tampa, Florida 33602
(813) 221-4900

Registration

Paid registration is required for admission to all meeting functions including scientific sessions, posters, exhibits, breaks and the BMES BASH on Friday evening. BMES cancellation policy may be found on any registration form. Any applicable refunds will be issued post-meeting. Substitutions are permitted with written permission from the original registrant. Additional social event tickets including the Celebration of Minorities in BME Luncheon, and the Women in BME Luncheon are separate and above BMES meeting registration.

On-Site Registration Hours

Wednesday, October 7	1:00pm – 7:00pm
Thursday, October 8	7:00am – 6:00pm
Friday, October 9	7:00am – 6:00pm
Saturday, October 10	7:00am – 2:00pm

Exhibits

Exhibit Hall, Tampa Convention Center

Exhibits are located in the Exhibit Hall at the Tampa Convention Center. Exhibits will be open:

Thursday, October 8	9:30am – 5:00pm
Friday, October 9	9:30am – 5:00pm
Saturday, October 10	9:30am – 1:30pm

Dream Teams & Centers

Throughout the program, presentations are recognized as DREAM TEAMS & CENTERS. These teams consist of a minimum of three independent principal investigators. It truly highlights the team-nature of science and the ability of bioengineers to work effectively with others.

BMES Presenter Information

Platform Presentations

Each technical session room will be equipped with a PC-compatible computer with a USB port and PowerPoint along with an LCD projector, screen and a lectern with microphone.

During the half hour before your session begins, please upload your presentation onto the computer using a memory stick or flash drive. Because of the potential difficulty transferring some Mac files to PC format, we encourage you to avoid use of animation if there is a question about transferability.

Please do not try to connect your own laptop. Please note, it will not be possible to provide special equipment. Any additional equipment will need to be supported by the presenter. Although BMES has paid for WiFi throughout the convention center during the Annual Meeting, there will not be specific dedicated hard-wired internet access in the meeting rooms.

Sessions chairs should keep sessions on the listed schedule so attendees can move back and forth among sessions. In most cases, presentations should be done in twelve minutes, allowing three minutes for questions and answers and transition to the next speaker.

Poster Presentations

Posters will be presented Thursday, Friday and Saturday. Posters are to be displayed all day on assigned day. Authors must be present during specified viewing with authors as listed in Scientific Program:

Thursday	9:30-10:30am and 3:30-4:30pm
Friday	9:30-10:30am and 4-5pm
Saturday	9:30-10:30am

All posters will be in the Exhibit Hall of the Tampa Convention Center. Posters are numbered with a card corresponding to the numbers assigned in the program.

Speaker Ready Room

Registration Area, Exhibit Hall of the Tampa Convention Center
In the BMES Speaker Ready Room you will find cables, LCD projector and screen to practice your presentation. Please bring your own laptop.

Wednesday, October 7	1:00pm – 5:00pm
Thursday, October 8	7:00am – 5:00pm
Friday, October 9	7:00am – 5:00pm
Saturday, October 10	7:00am – 2:30pm

Program Highlights

Don't Miss These Events

WEDNESDAY, October 7

Meet the Faculty Candidate Forum

3:30pm - 5:30pm

Exhibit Hall, Tampa Convention Center

The "Meet-the-Faculty Candidate" poster session provides a great opportunity for faculty, recruiters, and Department Chairs to speak directly with current graduate students and postdoctoral researchers who are seeking faculty positions.

The BMES 2015 Annual Meeting MEET THE FACULTY CANDIDATE FORUM was only open to those who are actively on the market for the 2015-2016 recruiting cycle. Candidates submitted for consideration in August. The accepted candidates' CVs can be viewed at www.bmes.org.

WEDNESDAY, October 7

Welcome Reception

5:30pm - 7:00pm

2nd Floor Foyer, Tampa Convention Center

Light refreshments will be served. All registrants are invited to attend.

Sponsored by

Department of Bioengineering, The University of Utah

WEDNESDAY, October 7

VIP Reception *invitation only*

6:30pm - 7:30pm

Il Terrazzo, Tampa Marriott Waterside

Sponsored by

ACS Biomaterials Science & Engineering

WEDNESDAY, October 7

LGBT Desert Social *ticket purchase required*

8:00pm - 9:00pm

Room 4, Tampa Marriott Waterside

***additional registration and $10 ticket required.**

Wendy Thomas, Associate Professor of Bioengineering at the University of Washington, is the inaugural speaker for the BMES LGBT social hour. As a member of the LGBT community, Prof. Thomas has served as an open role model and mentor for numerous trainees and a champion for diversity issues. She will speak about her experiences as an out member of the community, her experiences communicating with students and colleagues, and the faculty search process. Introductory remarks will be made by Shelly Peyton, Assistant Professor of Chemical Engineering at the University of Massachusetts, Amherst. Prof. Thomas' talk will be followed by dessert and a cash bar.

LGBT Social Sponsored in part by: Georgia Tech and Emory University, University of Massachusetts, Rice Institute of Biosciences and Bioengineering, University of Washington and other anonymous donors.

THURSDAY, October 8

BMES State of the Society Address & Fellows Induction

10:30am

Ballroom BC, Tampa Convention Center

Please join us for a dialogue with BMES President Rich Hart and other leaders of the Society.

FRIDAY, October 9

BMES Bash at the Tampa Convention Center

6:30pm - 9:00pm

Riverwalk Terrace

Admission to the BMES BASH will require a wristband. **Please exchange your ticket (in your badge envelope) for your wristband at the Information Counter (Level 1) or BMES Registration.**

Refreshment Breaks

Please note your meeting registration includes morning and afternoon refreshments breaks on Thursday, Friday and Saturday. All refreshment breaks will be in the Exhibit Hall.

Thursday morning refreshment break sponsored by

FIU Biomedical Engineering, Florida International University

Thursday afternoon refreshment break sponsored by

NJIT New Jersey Institute of Technology

THURSDAY, October 8

Celebration of Minorities in BME Luncheon*

12:30-1:45pm

Ballroom D, Tampa Convention Center

***additional registration and $25 ticket required**

This is the sixth year of this event hosted by the BMES Diversity Committee to create a community and network within the Society fostering support and professional development of minorities in BMES at all levels. Everyone is invited to attend, as diversity only increases when all groups play a part. The luncheon complements the Diversity Award lecture on Saturday and the Women in BME Luncheon on Friday.

Leveraged Innovation: Incorporating, New Opportunities, Varying Tactics, Opposing the Norm!

Christine S. Grant, PhD, Associate Dean of Faculty Affairs and Professor of Chemical and Biomolecular Engineering at North Carolina State University

In this presentation, Dr. Grant will share her experiential perspectives in engineering and inspire the audience to: (i) identify the interfaces in their lives, specifically at the intersection of the personal and professional realms, (ii) create exemplar examples of people and systems that manage seemingly conflicting realms well, and (iii) execute a plan aligned with their own life goals. The discussion will include strategic approaches to the myriad interfaces that exist in the professional and personal realms. The resulting plan will be both flexible and incorporate paradigm-shifting opportunities for "career upgrades." The balance between the public and private components of this plan enables us to selectively invite allies to successfully leverage our core strengths with their external networks, creating new pathways for success.

Dr. Christine Grant is a tenured Full Professor of Chemical and Biomolecular (CBE) engineering and serves as the Associate Dean of Faculty Advancement in the NC State College of Engineering. She is one of only 4 African-American women ChE Full Professors in the U.S. Grant is working to change the under-representation of women and minorities in STEM through targeted empowerment of both women and underrepresented minority (URM) academics at all levels in the STEM pathway. An NSF Presidential Award for Excellence in Science, Math and Engineering Mentoring (PAESMEM) awardee, Grant was selected as a Boeing Senior Fellow of the National Academy of Engineering's Center for the Advancement of Scholarship on Engineering Education (CASEE). She has received the AIChE Minority Affairs Committee Distinguished Service Award, Council for Chemical Research Diversity Award, and YWCA Academy of Women in Science and Technology award. An entrepreneur, her company, Leveraged Empowerment a unit of CoolSci Productions LLC empowers STEM students, faculty and professionals towards excellence in both academic career and personal development via workshops, keynotes and seminars.

FRIDAY, October 9

Women in BME Luncheon*

12:15pm-1:30pm

Ballroom D, Tampa Convention Center

***additional registration and $25 ticket required**

Gordana Vunjak-Novakovic, PhD, Mikati Foundation Professor of Biomedical Engineering and a Professor of Medical Sciences at Columbia University

Achieving gender equality in science will require formulating and implementing strategies to overcome the political, administrative, financial, and cultural challenges that exist in the current environment. Dr. Vunjac-Novakovic will describe how she navigated her academic career path, becoming a leader in the field stem cells and tissue engineering and founder of EpiBone and TARA Biosystems. Dr. Vunjac-Novakovic will propose an initial shortlist of recommendations to promote gender equality in science and stimulate future efforts to level the field.

Gordana Vunjak-Novakovic is the Mikati Foundation Professor of Biomedical Engineering, and a Professor of Medical Sciences at Columbia University. She directs the Laboratory for Stem Cells and Tissue Engineering and the Stem Cell Imaging Core, and co-directs the NIH Tissue Engineering Center and the Craniofacial Regeneration Center. She is the lead for bioengineering for the Columbia Stem Cell Initiative. She obtained her Ph.D. in chemical engineering at the University of Belgrade in Serbia where she stayed on faculty and became Full Professor in 1993. She spent twelve years at MIT, to join Columbia University in 2005. The focus of her research is on engineering human tissues using stem cells, biomaterials and bioreactors, for regenerative medicine and study of development and disease. She was elected to the National Academy of Engineering and National Academy of Medicine.

2015 BMES Annual Meeting

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- **Browse** the program by date or session type
- **Search** keywords
- **Search** author list
- **Add** presentations to a custom itinerary
- **Click a link** to show where a presentation is on a map of the convention center

Additional Meetings

Most of these meetings/events are invitation only. Please check with the organizer.

Wednesday, October 7

Venture/Well - BME - IDEA 2015
7:00am - 6:00pm
Marriott, Florida Salon V
Organizer: Holly Crisler

BMES Board of Directors Meeting
8:30am – 4:30pm
Convention Center, Room 24
Organizer: Richard Hart

AIMBE Board of Directors Meeting
11:30am - 3:30pm
Convention Center, Room 36
Organizer: Milan Yager

AIMBE Academic Council Meeting
4:30pm - 5:30pm
Convention Center, Room 36
Organizer: Milan Yager

Annals of Biomedical Engineering - Editorial Board
7:00pm - 10:00pm
Marriott Florida Salon I
Organizer: Christina Dzikowski

Council of Chair Dinner & Meeting
6:15pm - 9:00pm
Marriott Florida Salon IV
Organizer: Judy Cezeaux

Industry Committee Planning Committee
7:30pm - 8:30pm
Marriott, Room 7
Organizer: Ben Noe

Thursday, October 8

ABioM SIG Business Meeting
7:00am - 8:00am
Convention Center, Room 35
Organizer: Kaiming Ye

BMES Diversity Committee Meeting
7:00am - 8:00am
Convention Center, Room 36
Organizer: Guillermo Ameer and Debra August

BMES National Meetings Committee Meeting
8:00am - 10:00am
Convention Center, Room 31
Organizer: Christine Schmidt

Cellular and Molecular Bioengineering – Editorial Board
12noon – 1:30pm
Marriott, Florida Salon I
Organizer: Christina Dzikowski

BMES Membership Committee Meeting
1:30pm - 2:30pm
Convention Center, Room 36
Organizer: Martine LaBerge

BMES International Affairs Committee Meeting
1:30pm - 2:30pm
Convention Center, Room 31
Organizer: Phil LeDuc

Friday, October 9

BMES Education Committee
7:00am - 8:00am
Convention Center, Room 36
Organizer: Don Gaver

2016 BMES Annual Meeting Committee Meeting
8:00am - 10:00am
Convention Center, Room 31
Organizer: Song Li

Ethics Committee
9:30am - 10:30am
Convention Center, Room 36
Organizer: Subrata Saha

Medical Devices SIG Business Meeting
12:30pm - 1:30pm
Convention Center, Room 39
Organizer: Walt Baxter

Saturday, October 10

BMES Industry Advisory Committee Meeting - *(Invitation only)*
8:30am - 9:30am
Convention Center, Room 39
Organizer: Ben Noe

BMES Student Affairs Committee Meeting
9:30am - 10:30am
Convention Center, Room 36
Organizer: Elizabeth DaSilva

BMES Board of Directors Meeting & New Board Orientation
1:00pm - 3:30pm
Convention Center, Room 24
Organizer: Rich Hart

Hosted Receptions

Thursday, October 8

Tampa Marriott Waterside
Individual organizations have set their own times for their private receptions. Please consult your invitation for the specific time. Generally receptions are from 8:00-9:30pm.

Arizona State University
Meeting Room 11

Biomedical Engineering Opportunities in India (MIT)
Florida Ballroom I

Boston University
Grand Ballroom G

Clemson Bioengineering
Grand Ballroom A

Cornell University
Grand Ballroom F

Duke University
Grand Ballroom J

Florida International University
Meeting Room 7

Georgia Tech
Grand Ballroom D

Johns Hopkins University
Grand Ballroom B

NJIT - New Jersey Institute of Technology
Meeting Room 6

Rensselaer Polytechnic Institute
Grand Ballroom H

Rice University
Grand Ballroom I

The Ohio State Universiy
Grand Ballroom E

University of California Berkeley
Grand Ballroom C

University of California Irvine
Meeting Room 3

University of California, Los Angeles
Meeting Room 12

University of California, San Diego
Meeting Room 10

University of Florida
Il Terrazzo

University of Illinois at Urbana-Champaign
Florida Ballroom VI

University of Michigan
Champions Sports Bar

University of Pennsylvania
Meeting Room 4

University of Pittsburgh
Florida Ballroom III

University of Southern California
Meeting Room 5

University of South Florida
Waterside PDR

University of Texas at Austin
Florida Ballroom IV

University of Texas at Dallas
Il Terrazzo Boardroom

University of Utah
Florida Ballroom II

University of Virginia
Meeting Room 9

University of Washington
Florida Ballroom V

University of Wisconsin-Madison
Meeting Room 1

Vanderbilt University
Meeting Room 8

Whitaker
Meeting Room 13

Texas A&M University
Embassy Suites Hotel

CELEBRATING ONE YEAR!

PHYSICAL REVIEW **APPLIED**

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Physical Review Applied is APS's newest journal, dedicated to publishing the highest quality research at the intersection of physics and engineering.

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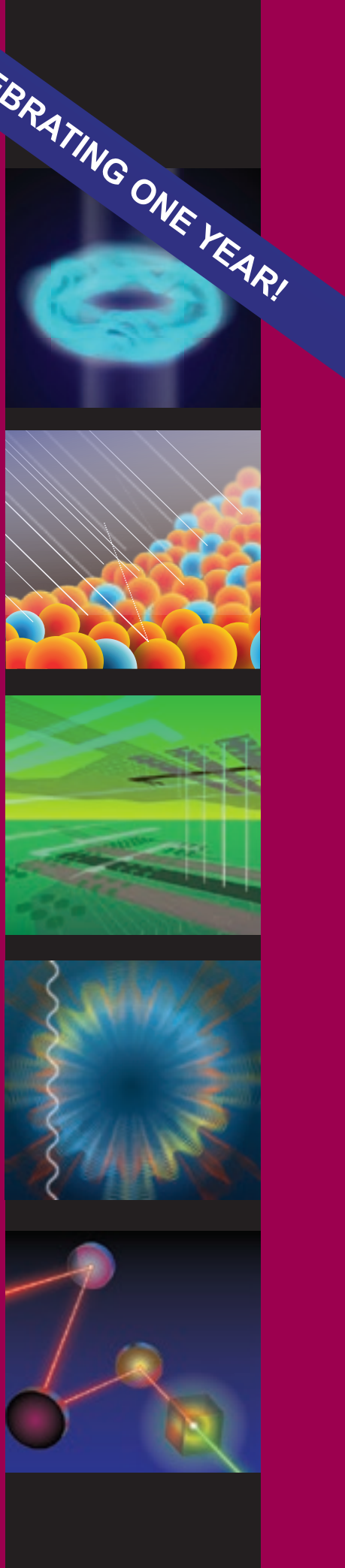

CAREER | CONNECTIONS

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2015 SOUTHEAST BIOMEDICAL ENGINEERING REGIONAL CONFERENCE

HOSTED BY

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Joint Department of BIOMEDICAL ENGINEERING

NC STATE UNIVERSITY

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Duke PRATT SCHOOL of ENGINEERING

OCTOBER 22-23, 2015
Raleigh Convention Center
Raleigh, North Carolina

www.BMES.org/SEConf15

Learn about BME career opportunities in industry, academia, clinical, and government

NETWORK!

Hear about Entrepreneurship/ Translational Research

Present your research work at the poster session

Tour the UNC/NC State joint BME department

Registration
www.BMES.org/SEConf15Reg

Abstract Submissions
www.BMES.org/SEConf15Abs

Exhibit
www.BMES.org/SEConf15Exh

Hotel and Travel
www.BMES.org/SEConf15Hotel

CAREER AND PROFESSIONAL DEVELOPMENT SESSIONS

The career and professional development sessions offer career guidance for job seekers ranging from entry level to experienced professionals. The sessions will highlight both traditional and alternative careers available to BMEs.

Thursday, October 8

How to Find a Job in Industry
8:00am - 9:00am

Convention Center, Ballroom A

The biomedical engineering field is growing rapidly. Biomedical engineering opens the door to an ever-growing amount of job opportunities in industry. Hear from experts in human resources and BME professionals how to search for industry jobs and what to do when you find them.

BME Careers in Industry, Government and Academia
9:15am - 10:15am

Convention Center, Ballroom A

Biomedical Engineering professionals from industry, government and academia will share their career paths, educational training, insight into the hiring market, and suggestions for students and recent graduates.

Student and Early Career programming is sponsored by

BIOE

Transitioning from Academia to Industry Panel
4:00pm - 5:30pm

Convention Center, Ballroom A

This session will explore the industry career paths available to biomedical engineers, what companies look for when hiring undergraduate and graduate students, the interview process, and desired skills of an entry –level biomedical engineer.

Rapid Resume... Review and Critique

Experienced BME professionals or BME related disciplines will review an electronic or hard copy of your resume and work with you to edit and improve your resume. While this has been done successfully at past meetings in a roundtable format, recommendations were made to revise the format so attendees can seek more one-on-one advice.

Convention Center, Room 24

Thursday, October 8
2:00pm - 4:00pm

Friday, October 9
2:00pm - 4:00pm

Friday, October 9

BMES Student Chapter Outstanding Chapter Best Practices
8:30am - 9:30am

Convention Center, Room 12

This workshop will feature the Student Chapter that was awarded the BMES Outstanding Student Chapter Award, along with the Student Chapter awarded the Commendable Achievement Award. During this workshop each Chapter will provide their chapter best-practices, allowing students to ask questions, exchange ideas and implement new goals for the upcoming year.

BMES Student Chapter - Outreach and Mentoring Best Practices
9:30am - 10:30am

Convention Center, Room 12

This workshop will feature the Student Chapter that was awarded the BMES Outstanding Mentoring Award, as well as the Student Chapter awarded the Outstanding Outreach Award. This workshop will begin with the Mentoring and Outreach presentations from both awardees, which will serve to provide information on chapter best-practices, allowing students to ask questions, exchange ideas and implement new goals for the upcoming year.

What You Need to Know to Get a Job in Industry, Government and Academia after Your Ph.D.

9:00am - 10:30am

Convention Center, Ballroom A

Take control of your career! Whether you are employed or searching for a job, this session will provide a structured "roadmap" to help you develop and execute a short-term career plan. Learn action-packed steps to get started with and apply a new approach throughout your career. In addition, this session will teach you how to build a mentorship base. Who should your mentors be? Learn your role as the "mentee" and what to expect from your mentors. These are tips you will be able to implement successfully right away. Remember: nobody cares about your career more than you do; you owe it to yourself to learn new ways to get ahead!

BMES Undergraduate Student Design Competition – Friday

1:45pm - 3:15pm

Convention Center, Ballroom BC

(funding with a grant from Medtronic)

The theme of this year's first competition is Bioinstrumentation. The session will bring together the top 6 winning design teams that were selected out of 16 applicants. The top 6 include Columbia University, UC Berkeley, Virginia Commonwealth University, Virginia Tech, Worcester Polytechnic Institute and Yale University. This competition allows each design team to orally present their projects and students to ask questions after each presentation.

Upon completion of all presentations, the judges will select and announce the top 3 winners. Winners will receive First, Second and Third place prize money during the awards ceremony on Saturday, October 10th during the Plenary.

Career Fair – Friday

1:00pm - 5:00pm

Convention Center, Exhibit Hall

This event is designed to connect organizations looking to hire high-level people with specialized knowledge and innovation to new product and process development, teaching/training, scientific research, critical resource management, and more.

Start-ups and Venture Capital: Navigating the Funding Process and Investment Pitches

2:00pm - 3:00pm

Convention Center, Room 12

This will be a forum for start-up companies to pitch to venture capitalists, angel investors, and large company venture groups.

Tech Transfer and Licensing - Best Practices in Transferring Technologies from Academia and the Clinic into Industry

3:15pm - 5:00pm

Convention Center, Room 12

1st segment: The first segment of this session will describe what companies seek in transferrable technologies, when and how to transfer, the ins and outs of licensing, and best practices for commercializing inventions and technologies derived from academic and clinical settings. Panelists will include distinguished professionals with expertise in the fields of university tech transfer, law, incubator support, and venture capital investment.

2nd segment: The second segment of this session will be a forum for select researchers and academics to pitch to select companies interested in sponsoring research or licensing a technology. The technology topics will align with the commercial interests of the participating companies. All members are welcome to sit in the audience to watch pitches.

STUDENT CHAPTER TABLES

Stop by the Student Chapter Booths inside the Registration area in Exhibit Hall to see what's going on "on campus"!

Alpha Eta Mu Beta, The National Biomedical Engineering Honor Society

Binghamton University

Cornell University

San Jose State University

University of California, Davis

University of Illinois, Urbana-Champaign

University of Maryland

University of North Carolina, Chapel Hill

University of Southern California

Wayne State University

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2015 MIDWEST BIOMEDICAL ENGINEERING REGIONAL CONFERENCE

HOSTED BY The University of Akron

NOVEMBER 6, 2015

The University of Akron Student Union

Akron, Ohio

www.BMES.org/MWConf15

Learn about BME career opportunities in industry, academia, clinical, and government

NETWORK!

Hear about Entrepreneurship/ Translational Research

Present your research work at the poster session

Learn how to market yourself!

Registration
www.BMES.org/MWConf15Reg

Abstract Submissions
www.BMES.org/MWConf15Abs

Exhibit
www.BMES.org/MWConf15Exh

Hotel and Travel
www.BMES.org/MWConf15Hotel

Alpha Eta Mu Beta (AEMB) Programs

Alpha Eta Mu Beta Annual Grand Meeting

Thursday, October 8
4:00pm - 5:00pm
Convention Center, Room 25

Session Co-chairs: Bhavit Vora, BS, Justin Huckaby, BS, Morgan Elliott, BS, David Wolfson, BS, Alicia Fernandez-Fernandez, DPT,PhD, Marcia A. Pool, PhD, Teresa A. Murray, PhD, Dominic E. Nathan PhD.

At this annual grand meeting, members representing chapters nationwide will come together to discuss important contemporary events relating to AEMB. (Attendance is mandatory for all AEMB members). If you would like to learn more about AEMB or start a new chapter at your school, please consider attending this session and speak to any of the national officers.

Alpha Eta Mu Beta Reception
(Invitation Only)

Thursday, October 8
5:30pm - 7:00pm
The Annual AEMB reception will be held at the Embassy Suites Tampa (across the street from the Convention Center).

Session Co-chairs: Bhavit Vora, BS, Justin Huckaby, BS, Morgan Elliott, BS, David Wolfson, BS, Alicia Fernandez-Fernandez, DPT,PhD, Marcia A. Pool, PhD, Teresa A. Murray, PhD, Dominic E. Nathan PhD.

The Annual AEMB reception will be held at The Embassy Suites Tampa Downtown Convention Center). We will be presenting the national awards and charters for new chapters during this session. Furthermore, this session is a networking opportunity to meet with other fellow members from AEMB chapters, representatives from industry and academia. This session is open to all AEMB student and faculty members, however tickets are required. For tickets, please contact aemb@alphaetamubeta.org

Alpha Eta Mu Beta - Mentoring for INnovative Design Solutions (MINDS) Workshop *(by invitation only)*

Friday, October 9
9:00am - 10:30am
Convention Center, Room 25

Session Chairs: Teresa Murray, PhD, Alicia Fernandez, PhD, DPT, Marcia A. Pool, PhD, Bhavit Vora, BS, Dominic E. Nathan, PhD

Participation in this workshop is by invitation after successfully competing for a spot on a design team. Student applicants will submit an idea for a novel device that uses wearable electronics or telemetry technology for the biomedical applications (please see http://www.alphaetamubeta.org/ for application instructions). Students will work in teams of 4 based on similar interests. Each team will have a mentor who will assist the team in creating a potentially marketable innovation. The mentor will help students incorporate key design considerations, including (i) market considerations for commercialization, (ii) design development and testing, (iii) quality control, (iv) regulatory strategy, and (v) intellectual property protection. After the workshop, students will meet virtually (e.g., via Skype) for up to 6 months to further refine their innovation. They will also be required to produce a more extensive presentation of their product, such as a video for a Kickstarter campaign, or a PowerPoint presentation for a group of potential investors. We will alert participants about opportunities for design contests, investment, and grant programs to further promote and develop their innovations.

Alpha Eta Mu Beta Annual Ethics Session - Genomic Testing and Personalized Medicine, to What Extent is Knowing a Good Thing?

Friday, October 9
2:00pm - 3:00pm
Convention Center, Room 25

Session Chair: Robert D. Frisina, PhD, Bhavit Vora, BS

Today's biomedical engineers are advancing many technical areas of bioengineering at a very rapid pace. Impacts of recent and ongoing advances in tissue engineering and microelectronic fabrication are revolutionizing progress in the arenas of personalized medicine, especially with regards to molecular genetics and genomic testing. Technological progress in these areas have significantly improved quality of care and the efficacy of treatment. However, one of the professional conundrums in the area of genomic testing pertains to moral and ethical challenges, especially with regards to newborns and children. The basic dilemma here focuses upon the decisions that parents have to make for their young children, since children cannot make the decision themselves, about how much genetic testing should be carried out, and what can or should be done with the results of that genetic testing. Genomic testing in children is becoming faster, more efficient and less expensive. So, now instead of testing for a few obvious genes for children who are born with birth defects, possible genetic syndromes, or easily diagnosed problems such as hearing loss or deafness, genetic screening immediately on the horizon will be able to screen for mutations in hundreds or thousands of genes routinely. So, for example, what if a newborn is discovered to have a gene that causes an age-related disorder such as Alzheimer's Disease? Should the parents be told? Should the child be told when they are old enough to know? What is the point of telling the family now, when there are still no preventative or curative treatments of Alzheimer's? Should it go in the child's medical record, where future employers, insurance companies or hackers can gain access to it? And you can imagine a number of biomedical scenarios where it is not obvious what to do with genetic information such as this. Another

challenging issue is how to obtain the necessary blood samples from a newborn, which has a relatively small blood volume. Umbilical cord blood has been mentioned as a good source, since the umbilical cord is normally cut (sometimes by the proud Father) and discarded with the placenta. However, even this seemingly innocent, harmless procedure has now been called into question as some new evidence suggests that babies do better when the cord blood is allowed to flow into the baby for awhile, precluding a quick cutting of the cord, as has traditionally been done. So, as biomedical engineers work with nurses, doctors, insurance companies and other players in our healthcare system, these issues will come up without clear-cut answers available to them.

Alpha Eta Mu Beta (AEMB), the International Biomedical Engineering Honor Society, is committed to promoting ethics in the field of biomedical engineering. This year, AEMB is honored to host Dr. Robert D. Frisina. Dr. Frisina is a Professor and Director of the Department of Chemical and Biomedical Engineering and also the director for the Communication Sciences and Disorders lab at the University of South Florida. In addition, Dr. Frisina is the director of the Global Center for Hearing and Speech Research and holds joint appointments as Professor at the National Technical Institute for the Deaf (one of two colleges for the deaf in the world), and at the University of Buffalo Center for Hearing and Deafness. Dr. Frisina's research is focused on the function and disorders of the auditory system, more specifically in the critical areas of hearing loss and deadness for which there are is no existing cure. More information about Dr. Frisina can be found at his official website (http://www.eng.usf.edu/~rfrisina/).

Whitaker International Program: Funding Opportunity for Young Biomedical Engineers

Friday, October 9

8:00am - 9:30am

Convention Center, Room 39

The Whitaker International Program, founded in 2005 provides funding to emerging U.S.-based leaders in biomedical engineering to conduct a study and/or research project, with the underlying objective of building international bridges. Grant projects – including research, coursework, public policy work – are intended to enhance both the recipient's career and the BME field. The goal of the Whitaker Program is to assist the development of professional leaders who are not only superb scientists, but who will advance the profession through an international outlook. The Whitaker Program has two subprograms: Fellows and Scholars Program, and the Summer Program. For more information, including program details, the online application and deadlines, visit: http://www.whitaker.org.

1. **Sabeen Altaf (Session Chair)**
   Senior Program Manager, Science and Technology Programs
   Institute of International Education
2. **Caitlin Anderson**
   Whitaker International Fellow, 2013
   Host Institution: Kilimanjaro Clinical Research Institute, TanzaniaTitle: Sensitive antibody detection for Mycobacterium tuberculosis infection in the Tanzanian setting
3. **Adam Gormleyy**
   Whitaker International Scholar, 2012
   Host Institution: Imperial College London, UK
   Title: Self-Assembled Biomaterials and Enzyme Enabled Polymnerizations
4. **Carson Ingo**
   Whitaker International Fellow, 2013
   Host Institution: Leiden University, Netherlands
   Title: An opportunity in innovation training in medical device development and how it has directed my future
5. **Metasebya Solomon**
   Whitaker International Fellow, 2013
   Host Institution: St. Paul's Hospital Millennium Medical College, Ethiopia
   Topic: Biomedical Engineering Center in a Low-funding Hospital for Improved Healthcare: Challenges and Applied Practical Solutions
6. **Kelli Summers**
   Whitaker International Fellow, 2013
   Host Institution: Medical University of Graz, Austria
   Topic: Novel IL-10 Coated Proticles for Detecting Unstable Atherosclerotic Lesions

2015 Awards Recipients

One of the more important — and most enjoyable — tasks of the Society is to recognize contributions to the intellectual and professional development of the field of biomedical engineering. On behalf of the awards committee we would like to thank all the members who submitted nominations and provided letters of support and for the high quality of their nominees. Congratulations to the following award winners.

Robert A. Pritkzer Distinguished Award Lecture

Martin Yarmush, MD, PhD
Rutgers University

NIBIB Lecture

Wendy M. Murray, PhD
Northwestern University

Distinguished Service Award Winner

Gilda Barabino, PhD
The City University of New York

Rita Schaffer Young Investigator Award Lecture

Jonathan F. Lovell, PhD
State University of New York at Buffalo

Diversity Award Lecture

The City College of New York Department of Biomedical Engineering
New York, NY

Annals of Biomedical Engineering (ABME) Awards

Presented at Friday afternoon plenary session at 5:15pm

Each year, *The Annals of Biomedical Engineering*, the BMES flagship journal, offers awards for the most downloaded and the most cited papers. This year's awards go to:

Most Downloaded Article

Smartphones for Cell and Biomolecular Detection Smartphones for cell and biomolecular detection.

Xiyuan Liu, Tung-Yi Lin, Peter B. Lillehoj

November 2014, Volume 42, Issue 11, pp 2205-2217

Most Cited Article

Porous Implants Modulate Healing and Induce Shifts in Local Macrophage Polarization in the Foreign Body Reaction

Eric M. Sussman, Michelle C. Halpin, Jeanot Muster, Randall T. Moon, Buddy D. Ratner

July 2014, Volume 42, Issue 7, pp 1508-1516

BMES Extended Abstracts: Design and Research Awards:

Presented at Friday morning plenary session at 10:30am

Graduate Students

Sebastian Barreto
Johns Hopkins University

Brian Evans
Vanderbilt University

Lisa Tostanoski
University of Maryland - College Park

Abigail Tyson
Virginia Tech

Undergraduate Students

Garrett Cyprus
Virginia Commonwealth University

Sarah Denning
Bucknell University

Talia Greenstein
Rutgers University

Sagar Kaushik
University of Alabama at Birmingham

Andrea Mazzocchi
Rochester Institute of Technology

Katerina Stojkova
Illinois Institute of Technology

Kelly Tong
Bucknell University

BMES Student Chapter Awards

Presented at Saturday morning plenary session at 10:30am

2015 Outstanding Achievement Award

BMES Student Chapter at University of Pennsylvania

2015 Commendable Achievement Award

BMES Student Chapter at the University of California - Davis

2015 Outreach Program Award

BMES Student Chapter at University of Texas - Arlington

2015 Outstanding Mentoring Award

BMES Student Chapter at The Ohio State University

2015 Commitment to Excellence Award

BMES Student Chapter at University of California, Davis

2014 Fleetest Feet Award

BMES Student Chapter
Virginia Tech/Wake Forest - 105,672 miles

Cellular and Molecular Bioengineering

Congratulates the 2015 CMBE Young Innovators!

September 2015 issue, edited by Nicholas Peppas, Cynthia Reinhart-King, and Christine Schmidt

Danielle Benoit
Univ. Rochester
Akhilesh Gaharwar
Texas A&M Univ.
Anjelica Gonzalez
Yale Univ.
Zhen Gu
Univ. North Carolina, and North Carolina State Univ.
Brenton Hoffman
Duke Univ.
Princess Imoukhuede
Univ. Illinois Urbana-Champaign

CMBE 2015

Deok-Ho Kim
Univ. Washington
Shelly Peyton
Univ. Massachusetts
Nicole Steinmetz
Case Western Reserve Univ.
Stephanie Willerth
Univ. Victoria
Lijie Grace Zhang
George Washington Univ.

See the Young Innovators present their work on Friday, October 9, 2015 at 8am and 1:45pm!

- **Become a 2016 CMBE Young Innovator! Next competition is underway.**
- **Accepted authors will be invited to present their work in a special two-part platform session at the 2016 BMES Annual Meeting.**
- **To be eligible, candidates must be BMES members and hold a position at the Assistant Professor level or equivalent.**
- **Self nominations should include manuscript title with 200-word abstract, and a 2-page NIH-style biosketch, emailed to mike.king@cornell.edu.**

BMES
BIOMEDICAL ENGINEERING SOCIETY™
Advancing Human Health and Well-Being™

Key Dates for 2016 Young Innovators issue:
Nomination Deadline: November 6, 2015
Abstract Acceptance: December 11, 2015
Manuscript Submission: February 12, 2016
Print Publication: September 2016

2015 TRACK CHAIRS

Bioinformatics and Systems Biology

Leonor Saiz
University of California, Davis

Victor Rodgers
University of California, Riverside

Biomaterials

Leo Wan
Rensselaer Polytechnic Institute

Danielle Benoit
University of Rochester

Biomechanics

Joel Stitzel
Wake Forest University

Phil LeDuc
Carnegie Mellon University

Biomedical Engineering Education

Craig Goergen
Purdue University

Michaelann Tartis
NM Institute of Mining and Technologyy

Biomedical Imaging and Optics

Joan Greve
University of Michigan

Paul Dayton
University of North Carolina

Cancer Technologies

Shay Soker
Wake Forest University

Marissa Nichole Rylander
University of Texas, Austin

Cardiovascular Engineering

Manu Platt
Georgia Tech

Mike Hess
Medtronic

Cellular and Molecular Bioengineering

Abdul Barakat
Ecole Polytechnique (LadHyX)

Melissa Knothe Tate
UNSW Australia

Device Technologies and Biomedical Robotics

Dan Moran
Washington University

Justin Williams
University of Wisconsin

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BMES Fellow status is awarded to members who demonstrate exceptional achievements and experience in the field of biomedical engineering, and a consistent record of membership and participation in the Society.

Fellows will be awarded their plaques at the Pritzker Lecture, Thursday, October 8th.

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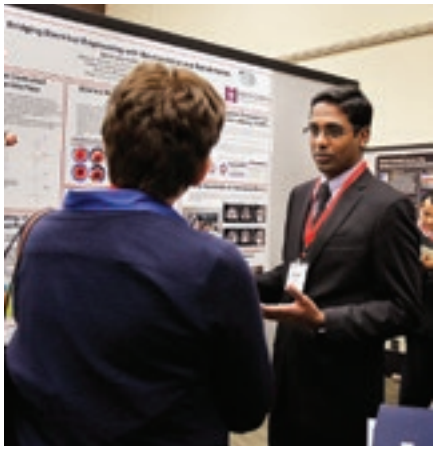


TODAY'S HIGHGHTS

PLATFORM SESSIONS Thurs-1 8:00am - 9:30am
See pages 75-81, Convention Center

EXHIBIT HALL OPEN 9:30am - 5:00pm
Convention Center, Exhibit Hall

POSTER SESSION 9:30am - 5:00pm
See pages 97-131, Convention Center Exhibit Hall
Poster Viewing with Authors & Refreshment Break 9:30am - 10:30am

PLENARY SESSION
10:30am - 12:15pm
Convention Center, Ballroom BC
State of the Society Fellows Presentation
Rich Hart, PhD

Robert A. Pritzker Distinguished Lecture
EMERGING TECHNOLOGIES AND BIOMEDICAL ENGINEERING INNOVATION
Martin Yarmush, PhD

Celebration of Minorities in BME Luncheon 12:30pm - 1:45pm
Additional ticket purchase required
Convention Center, Ballroom D

PLATFORM SESSIONS Thurs-2 2:00pm - 3:30pm
See pages 82-89, Convention Center

Poster Viewing with Authors & Refreshment Break 3:30pm - 4:30pm
Convention Center, Exhibit Hall

PLATFORM SESSIONS Thurs-3 4:30pm - 6:00pm
See pages 90-96, Convention Center

PLENARY SESSION 6:15pm - 7:30pm
Models for Funding Research
Convention Center, Ballroom BC

Hosted Receptions–Marriott
See page 57 for list

SPECIAL SESSION

Meet the Expert 2015 Schedule

New for 2015 is the "Meet the Expert" theater located on the Exhibition Hall floor. "Meet the Expert" was conceived as a method to allow attendees to explore various biomedical engineering disciplines and career options. The format of the theater allows closer interaction and personal connection with invited experts who will be presenting throughout the week.

Thusday, October 8

12:30 - 1:45PM
Engineer/Clinician to Entrepreneur
Samit Gupta[1], Paul Torres[2]

[1]Graftworx, [2]Universal Hospital Services

Description: The audience will be treated to an inside look of medical device entrepreneurship. The challenges and triumphs of entrepreneurship will be explained with real-world experiences from an engineer or clinician who launched a successful start-up. The speaker will be available for a Q&A session after the presentation.

2:00 - 3:30PM
Product Development Panel: From Idea to Product
Rebecca DeLegge[1], Stuart Hart[2], Anthony Coston[3], Elliot Botvinick4

[1]DeLegge Medical, [2]Center for Advanced Learning and Simulation (CAMLS), [3]Alkermes, [4]UC Irvine

Description:This session will provide an overview of the medical device development process. Join experts in medical device product development as they discuss aspects of the development process from idea to commercialization. They will share perspectives on product development relevant to start-ups (including university and clinician inventors) and large medical device manufacturers.

4:30 - 6:00 PM
Opportunity Recognition at the Interface of Medicine and Technology
Rashid Bashir[1], Amy Herr[2], Elliot Botvinick[3]

[1]Univ of Illinois at Urbana-Champaign, [2]UC Berkeley, [3]UC Irvine

Description: An in-depth look into what it takes to commercialize cutting edge technologies from academic labs through successful startups and spinoffs in medicine and healthcare. Meet entrepreneurs from academia and industry who worked on both sides of the equation, and learn how they identified the right opportunities and the right approaches for successful commercialization.

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

THURSDAY, October 8, 2015

8:00 AM - 9:30 AM

PLATFORM SESSIONS – THURS - 1

Track: Cellular and Molecular Bioengineering
OP-Thurs-1-1 - Room 18

Cell Adhesion and Interactions with the Extracellular Matrix I

Chairs: Michelle Previtera

8:00AM

High-throughput Matrix Platform Reveals Nonlinear Regulation of Oncogenic microRNA by Stiffness and Fibronectin Density

A. Rape[1], M. Zibinsky[1], N. Murthy[1], and S. Kumar[1]

[1]*University of California, Berkeley, Berkeley, CA*

8:15AM

Biomechanical Characterization of Glycocalyx Mediated Leukocyte Adhesion

M. Dragovich[1], K. Genemaras[1], and X. F. Zhang[1]

[1]*Lehigh University, Bethlehem, PA*

8:30AM

Effect of Shear Stress on Streptococci gordonii Binding to Platelets in Infective Endocarditis

W. Thomas[1], O. Yakovenko[1], B. Bourgeois[1], B. Bensing[2], T. Iverson[3], and P. Sullam[2]

[1]*University of Washington, Seattle, WA,* [2]*University of California San Francisco, San Francisco, CA,* [3]*Vanderbilt University, Nashville, TN*

8:45AM DREAM TEAM & CENTER

Disrupting Glycosphingolipid Biosynthesis on Human Myeloid Cells Results in Reduced Adhesion and Skipping Motion of Leukocytes

S. Neelamegham[1], N. Mondal[1], G. Stolfa[1], A. Antonopoulos[2], A. Buffone, Jr.[1], G. Atilla-Gokcumen[1], S. Haslam[2], and A. Dell[2]

[1]*State University of New York, Buffalo, NY,* [2]*Imperial College, London, United Kingdom*

9:00AM

Mechanical Memory In Cadherin Mediated Cell Adhesion

S. Sivasankar[1], A. Priest[1], and K. Manibog[1]

[1]*Iowa State University, Ames, IA*

9:15AM

Provisional Matrix Citrullination Contributes to Altered Fibroblast Phenotypes

V. Stefanelli[1] and T. Barker[1]

[1]*Georgia Institute of Technology, Atlanta, GA*

Track: Cellular and Molecular Bioengineering
OP-Thurs-1-2 - Room 19

Cell Motility

Chairs: Evan Scott

8:00AM

Confinement and Contractility Mediate Tumor Cell Decision Making in Bifurcating Microchannels

C. Paul[1], D. Shea[1], M. Mahoney[1], A. Chai[1], W-C. Hung[1], and K. Konstantopoulos[1]

[1]*Johns Hopkins University, Baltimore, MD*

8:15AM

Immobilized and Soluble EGF Differentially Impact Cell Signaling and Migration in Keratinocytes

C. Kim[1], I. Mitchell[1], M. Kim[1], P. Kreeger[1], and K. Masters[1]

[1]*University of Wisconsin-Madison, Madison, WI*

8:30AM

Collective Migration Slows Dynamics Of Directional Alignment During Electrotaxis

M. Lalli[1] and A. Asthagiri[1]

[1]*Northeastern University, Boston, MA*

8:45AM

Matrix Alignment Mediates 3D Cell Protrusion Events Through Rac1 and FAK

S. Carey[1], Z. Goldblatt[1], K. Martin[1], B. Romero[1], R. Williams[1], and C. Reinhart-King[1]

[1]*Cornell University, Ithaca, NY*

9:00AM

Integrated Modeling-Experimental Analysis of Actin Turnover Regulation in Migrating Glioma Cells

B. McCullough[1] and D. Odde[1]

[1]*University of Minnesota, Minneapolis, MN*

9:15AM

Role of Cytoskeletal Forces in Directional Cell Migration Within Three-dimensional Matrices

C. Choi[1,2], M. Kutys[1,2], K. Drezek[1], and C. Chen[1,2]

[1]*Boston University, Boston, MA,* [2]*Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA*

Track: Cancer Technologies
OP-Thurs-1-3 - Room 20

Engineered Models of Cancer and Tumor Environment I

Chairs: Claudia Fischbach, Bobak Mosadegh

8:00AM

Understanding and Modulation of the Glioma Stem Cell Microenvironment

L. Nusblat[1] and C. Roth[11]

Rutgers, The State University of New Jersey, Piscataway, NJ

8:15AM

Dynamic Matrix Stiffening Accelerates Tumor Progression in vivo

S. Allen[1], N. Ebelt[1], R. Stowers[2], C. Van Den Berg[1], and L. Suggs[1]

[1]*University of Texas at Austin, Austin, TX,* [2]*Stanford University, Stanford, CA*

8:30AM

Dynamically Stiffening Hydrogels Promote Malignant Transformation and Mechanical Signaling

M. Ondeck[1], S. Wei[1], J. Yang[1,2], and A. Engler[1,31]

UC San Diego, La Jolla, CA, [2]*Moores Cancer Center, La Jolla, CA,* [3]*Sanford Consortium for Regenerative Medicine, La Jolla, CA*

8:45AM

Non-microtubule Targeting Drug Increased Eradication Effect on Brain Tumor Cell Lines in Physical ConfinementL.

Bui[1], A. Hendricks[1], R. Leviner[1], and Y-T. Kim[1]

[1]*University of Texas at Arlington, Arlington, TX*

9:00AM
Mesofluidic Platform for High Throughput Screening for Inhibitors of Metastasis
A. Spencer[1], C. Spruell[1], S. Nandi[1], V. Le[1], M. Crexiell[1], A. Dunn[1], and A. Baker[1]
[1]University of Texas at Austin, Austin, TX

9:15AM
Changes in Extracellular Matrix Microarchitecture Drive Tumor Progression
K. Wang[1,2], B. R. Seo[1], M. Quien[2], L. Hsu[2], S. Min[2], C. Fischbach[1,3], and D. Gourdon[1,2]
[1]Biomedical Engineering, Cornell University, Ithaca, NY, [2]Materials Science and Engineering, Cornell University, Ithaca, NY, [3]Kavli Institute at Cornell for Nanoscale Science, Ithaca, NY

Track: Biomaterials
OP-Thurs-1-4 - Room 21
Biomaterials Scaffolds I

Chairs: Anjana Jain, Yadong Wang

8:00AM
Electrochemical Compaction Yields Transparent and Stable Collagen Matrices for Corneal Applications
R. Iyer[1] and V. Kishore[1]
[1]Florida Institute of Technology, Melbourne, FL

8:15AM
Injectable Ultrathin Polymeric Films for Subretinal Cell Delivery
H. Kaji[1], T. Kondo[1], N. Nagai[1], and T. Abe[1]
[1]Tohoku University, Sendai, Japa

8:30AM
Intrinsically Electroactive Biodegradable Photoluminescent Elastomers for Nerve Regeneration
D. Shan[1] and J. Yang[1]
[1]Penn State University, State College, PA

8:45AM
Poling Electrospun Collagenous Scaffolds for Enhanced Piezoelectric Behavior and Cellular Response
A. H. Rajabi [1], T. Livingston Arinzeh[1], and M. Jaffe[1]
[1]New Jersey Institute of Technology, Newark, NJ

9:00AM
Versatile Click Alginate Hydrogels Crosslinked via Tetrazine-Norbornene Chemistry
R. Desai[1,2], S. Koshy[1,2], S. Hildebrand[3], D. Mooney[1,2], and N. Joshi[1,2]
[1]Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Boston, MA, [3]Harvard Medical School, Boston, MA

9:15AM
Improving Wound Healing in Diabetes via a Novel Cell Adhesive Thermoresponsive Dressing
Y. Zhu[1], Z. Cankova[1], M. Mrksich[1], and G. Ameer[1]
[1]Northwestern University, Evanston, IL

Track: Translational Biomedical Engineering
OP-Thurs-1-5 - Room 22
Biomedical Device Design in Translational Research

Chairs: Melinda Harman, Tamara Baynham

8:00AM
Compact Magnetic Levitation for Rapid, On-Site Disease Diagnostics
S. Knowlton[1] and S. Tasoglu[1]
[1]University of Connecticut, Storrs, CT

8:15AM
Multimolecule Electroporation-mediated Delivery Integrated on Chip (MEDiC) Towards Personalized Medicine
C. H. Choi[1], M. Ouyang[1], and S. C. Hur[1]
[1]Rowland Institute at Harvard University, Cambridge, MA

8:30AM
Fiber Oscillation as a Mode for Gas Exchange Enhancement in the Paracorporeal Ambulatory Artificial Lung (PAAL) device
S. Madhani[1], B. Frankowski[1], and W. Federspiel[1]
[1]University of Pittsburgh, Pittsburgh, PA

8:45AM DREAM TEAM & CENTER
Design And Development Of A Novel, Low-Cost, Portable, Autotransfusion Device For Application In Low Resource Settings
T. Wong[1], K. Sierzega[1], G. Roytman[1], N. Robinson[1], P. Kutz[1], S. Geller[1], V. Dobiesz[1], and H. Esmailbeigi[1]
[1]University of Illinois at Chicago, Chicago, IL,

9:00AM
Bedside Washing of Stored Red Blood Cells: A Simple Apparatus Based on Microscale Sedimentation in Normal Gravity
G. Khanal[1], R. Huynh[1], K. Torabian[1], S. Gifford[1], and S. Shevkoplyas[1]
[1]University of Houston, Houston, TX

9:15AM
Endotracheal Tube Geometry and Restraint Affect Forces and Displacements Within the Upper Airway: System Design Considerations
J. Wagner[1], M. De Achaval[1], C. Lanning[1], and R. Shandas[1]
[1]University of Colorado, Aurora, CO

Track: Biomaterials
OP-Thurs-1-6 - Room 23
Micro and Nano Structured Materials I

Chairs: April Kloxin, Kristopher Kilian

8:00AM
Sequential Click Reactions for the Polymerization and Functionalization of PEG hydrogel Microparticles
R. Yegappan[1], F. Jivan[1], A. Gaharwar[1], and D. Alge[1]
[1]Texas A&M University, College Station, TX

8:15AM
Extracellular Matrix Nanoparticles Modulate Macrophage Phenotype
M. Wolf[1], J. Krill[1], T. Wang[1], K. Sadtler[1], C. Kim[1], and J. Elisseeff[1]
[1]Johns Hopkins University, Baltimore, MD

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

8:30AM
Osteogenesis on Microtextured Surfaces Is Suppressed In The Presence Of Cigarette Smoke Extract
G. Cyprus[1], S. Hyzy[1], Z. Schwartz[1], M. Sakagami[1], B. Boyan[1,2], and R. Olivares-Navarrete[1]
[1]Virginia Commonwealth University, Richmond, VA, [2]Georgia Institute of Technology, Atlanta, GA

8:45AM
Nanohydroxyapatite Gelatin Hydrogels for Biomimetic Bone Tissue Engineering
T. Thakur[1], J. Xavier[1], L. Cross[1], M. Jaiswal[1], and A. Gaharwar[1]
[1]Texas A&M University, College Station, TX

9:00AM DREAM TEAM & CENTER
Advanced Breast Cancer Remotely Alters the Nanostructure of the Bone Metastatic Site
F. He[1,2,3], M. Lynch[1], R. Hoerth[2], B. R. Seo[1], B. Willie[3], W. Wagermaier[2], G. Duda[3], P. Fratzl[2], and C. Fischbach[1]
[1]Cornell University, Ithaca, NY, [2]Max Planck Institute of Colloids and Interfaces, Potsdam-Golm, Germany, [3]Charite - University Medicine Berlin, Berlin, Germany

9:15AM DREAM TEAM & CENTER
Micropatterns Promote Cell Migration for Enhanced Epithelialization
C. Magin[1], M. Drinker[1], D. Neale[2], B. Willenberg[2,3], S. Reddy[1], G. Schultz[2], and A. Brennan[1,2]
[1]Sharklet Technologies, Inc., Aurora, CO, [2]University of Florida, Gainesville, FL, [3]University of Central Florida, Orlando, F

Tracks: Tissue Engineering, Cardiovascular Engineering
OP-Thurs-1-7 - Room 13

Cardiovascular Tissue Engineering I

Chairs: Nenad Bursac, Kara McClosk

8:00AM
Extracting the Enhancement of Extracellular Matrix Production and Stiffness in Large-Deformation Mechanically-Conditioned Heart Valve Tissue Engineering
J. Soares[1], A. D'Amore[2], J. Stella[2], W. Zhang[1], J. Mayer, Jr.[3], W. Wagner[2], and M. Sacks[1]
[1]University of Texas at Austin, Austin, TX, [2]University of Pittsburgh, Pittsburgh, PA, [3]Boston Children's Hospital, Boston, MA

8:15AM
A Tissue Engineered Hybrid Myocardial Patch for Post-MI Cardiac Regeneration
A. Andukuri[1], K. Ban[1], S. Kim[1], Y. Jeon[1], S. Lee[1], P. Hwang[2], H-W. Jun[2], and Y-S. Yoon[1]
[1]Emory University, Atlanta, GA, [2]University of Alabama at Birmingham, Birmingham, AL

8:30AM
Early 3D Culture Promotes Functional Maturation of hPSC-derived Cardiomyocytes
I. Shadrin[1], A. Carlson[1], and N. Bursac[1]
[1]Duke University, Durham, NC

8:45AM
Engineering 3D Cardiac Micro-Tissues by Co-Culturing Cardiomyocytes and Cardiac Fibroblasts within Hydrogel Based Constructs
H. Saini[1], A. Navaei [1], A. Van Putten[1], and M. Nikkhah[1]
[1]Arizona State University, Tempe, AZ

9:00AM
Electromechanical Conditioning of Human iPS Derived Cardiac Microtissues Enables Predictive Modeling of Toxicity and Disease
K. Ronaldson[1], S. Ma[1], T. Chen[1], K. Yeager[1], D. Sirabella[1], L. Song[1], M. Yazawa[1], and G. Vunjak-Novakovic[1]
[1]Columbia University, New York, NY

9:15AM
Differential Effect of PEG-Based Hydrogels on MAPK Signaling in Adventitial Fibroblasts
R. A. Scott[1], P. M. Kharkar[1], N. J. Bunce[1], R. E. Akins[2], and K. L. Kiick[1]
[1]University of Delaware, Newark, DE, [2]A.I. duPont Hospital for Children, Wilmington, DE

Track: Tissue Engineering
OP-Thurs-1-8 - Room 14

Inflammation and Immunomodulation in Tissue Engineering I

Chairs: Benjamin Keselowsky, Evan Scott

8:00AM
Novel Strategy to Alter Fibrotic Tissue Responses by Directed-Adipogenic Differentiation
D. Baker[1], Y-T. Tsai[1], H. Weng[1], and L. Tang[1]
[1]University of Texas at Arlington, Arlington, T

8:15 AM
Optimizing Spheroidal Culture of Mesenchymal Stromal Cells to Enhance Wound Healing Potential
K. Murphy[1], P. Falahee[1], S. Simon[1], and J. K. Leach[1]
[1]UC Davis, Davis, CA

8:30AM
Role of Macrophage-associated GPNMB in MSC Migration and Diabetic Wound Healing
B. Yu[1], T. Albosolemy[1], C. Malcuit[1], F. Safadi[2], and M-H. Kim[1]
[1]Kent State University, Kent, OH, [2]Northeast Ohio Medical University, Rootstown, OH

8:45AM
Long term Glycemic Control Using Polymer Encapsulated, Human Stem-Cell Derived & β-cells in Immune Competent Rodents
O. Veiseh[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

9:00AM
MnO 2 Nanoparticles as Oxidative Stress Modulators in Beta Cell Culture/Encapsulation*
M. Tootoonchi[1] and C. Fraker[2]
[1]University of Miami School of Medicine, Miami, FL, [2] University of Miami Diabetes Research Institute, Miami, FL

9:15AM
Localized Low-Dose Release of Corticosteroid from Macroporous Organosilicone Scaffolds*
K. Jiang[1], J. Weaver[2], P. Buchwald[3], and C. Stabler[1]
[1] University of Florida, Gainesville, FL, [2] Georgia Institute of Technology, Atlanta, GA, University of Miami, Miami, FL

Track: Biomechanics
OP-Thurs-1-9 - Room 15

Concussion and Head Impact Measurement and Mitigation in Sports

Chairs: Stefan Duma, Songbai Ji

8:00AM
Quantifying Head Impact Exposure in Collegiate Women's Soccer
J. Press[1] and S. Rowson[1]
[1]Virginia Tech, Blacksburg, VA

8:15AM
Direct Assessment of Impact Mitigation by Football Helmets
B. Cummiskey[1], E. Nauman[1], J. Meyer[1], D. Adams[2], T. Talavage[1], and L. Leverenz[1]
[1]Purdue University, West Lafayette, IN, [2]Vanderbilt University, Nashville, TN

8:30AM DREAM TEAM & CENTER
Ex Vivo Evaluation of an Instrumented Mouthguard
C. Kuo[1], L. Wu[1], J. Luck[2], H. Cutcliffe[2], R. Lynall[3], J. Kait[2], K. Campbell[3], J. Mihalik[3], C. Bass[2], and D. Camarillo[1]
[1]Stanford University, Stanford, CA, [2]Duke University, Durham, NC, [3]University of North Carolina at Chapel Hill, Chapel Hill, NC

8:45AM
Head Impact Exposure Of Youth Football Athletes Over Multiple Seasons
M. Kelley[1], J. Urban[1], D. Jones[1], L. Miller[1], and J. Stitzel[1]
[1]Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences, Winston-Salem, NC

9:00AM DREAM TEAM & CENTER
Validation of an Ear-Based Measurement System for Head Impact
H. Cutcliffe[1], J. Luck[1], J. Kait[1], C. Kuo[2], L. Wu[2], R. Lynall[3], K. Campbell[3], D. Camarillo[2], J. Mihalik[3], and D. Bass[1]
[1]Duke University, Durham, NC, [2]Stanford University, Stanford, CA, [3]University of North Carolina at Chapel Hill, Chapel Hill, NC

9:15AM DREAM TEAM & CENTER
Laboratory Evaluation of the xPatch: Differences in Outputs between the Left and Right xPatch in Helmeted Head Impacts
K. R. Campbell[1], R. C. Lynall[1], J. F. Luck[2], H. C. Cutcliffe[2], J. R. Kait[2], C. Kuo[3], L. Wu[3], D. B. Camarillo[3], C. R. ". Bass[2], and J. P. Mihalik[1]
[1]University of North Carolina at Chapel Hill, Chapel Hill, NC, [2]Duke University, Durham, NC,[3]Stanford University, Stanford, CA

Track: Biomechanics
OP-Thurs-1-10 - Room 16
Computational and Multiscale Modeling, Cellular and Cardiovascular

Chairs: Michael Sacks, Chung-Hao Lee

8:00AM
Effect Of The Degradation Of Bioresorbable Stents On Mechanical Stresses In The Stent And The Artery
J. Mensah[1], F. Cornat[1], A. Lafont[1,2], and A. Barakat[1]
[1]Ladhyx - Ecole Polytechnique, Palaiseau, France, [2]Université Paris Descartes, Paris, France

8:15 AM
Computational Modeling of Cell Invasion Dynamics into a 3D ECM Fiber Network
M-C. Kim[1], J. Whisler[1], Y. R. Silberberg[2], R. D. Kamm[1], and H. H. Asada[1]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Singapore MIT Alliance Research Technology, Singapore, Singapore

8:30AM
A Computational Model for Studying Mechanical Stresses on Cells Using Microfluidics
K. Warren[1], J. Mpagazehe[1], P. LeDuc[1], and C. F. Higgs, III[1]
[1]Carnegie Mellon University, Pittsburgh, PA

8:45AM
Development of a Population-Averaged Model of the Complete Mitral Valve Geometry
A. Khalighi[1], A. Drach[1], C-H. Lee[1], C. Bloodworth[2], E. Pierce[2], M. Jensen[2], A. Yoganathan[2], R. Gorman[3], J. Gorman[3], and M. Sacks[1]
[1]The University of Texas as Austin, Austin, TX, [2]Georgia Institute of Technology, Atlanta, GA,[3]University of Pennsylvania, Philadelphia, PA

9:00AM DREAM TEAM & CENTER
A Multiscale Model of Leukocyte Transmigration
R. Bhui[1], C. Meyer[1], S. Leonardi[1], and H. Hayenga[1]
[1]University of Texas at Dallas, Richardson, TX

9:15AM
Cardiac Electromechanics-Growth model: Predicting the Long-Term Effects of Left Branch Bundle Block
L. C. Lee[1], M. Genet[2], J. Sundnes[3], S. Wall[3], and G. Kassab[4]
[1]Michigan State University, East Lansing, MI, [2]ETH Zurich, Zurich, Switzerland, [3]Simula Research Laboratory, Oslo, Norway, [4]California Medical Innovations Institute, San Diego, CA

Track: Cardiovascular Engineering
OP-Thurs-1-11 - Room 3-4
Hemodynamics and Vascular Mechanics

Chairs: Morton Jensen, Hanjoong Jo

8:00AM
Altered Lymphatic Flow in Lymphedema
J. Jiménez[1], D. Sweet[1], P. Davies[1], and M. Kahn[1]
[1]University of Pennsylvania, Philadelphia, PA

8:15AM
Ex vivo Whole Blood Haemostatic Model of Trauma-induced Coagulopathy and Assessment of Trauma Patient Platelet Function Under Flow
R. Li[1], H. Elmongy [1], C. Sims[2], and S. Diamond[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]Hospital of the University of Pennsylvania, Philadelphia, PA

8:30AM
Pathological VWF Fibers Resist tPA and ADAMTS13 while Promoting the Contact Pathway and Shear-Induced Platelet Activation
B. Herbig[1] and S. Diamond[1]
[1]University of Pennsylvania, Philadelphia, PA

8:45AM DREAM TEAM & CENTER
A Mechanical Argument for the Differential Performance of Coronary Artery Grafts
D. Prim[1], B. Zhou[1], M. Uline[1], A. Hartstone-Rose[2], T. Shazly[1], and J. Eberth[1,2]
[1]University of South Carolina, Columbia, SC, [2]University of South Carolina School of Medicine, Columbia, SC

9:00AM
The Influence of Substrate Hhydrophobicity on Fibrinogen Fiber Formation and Platelet Adhesion
L. Zhang[1], C. Marmorat[1], Y. Yu[1], D. Galanakis[1], and M. Rafailovich[2]
[1]Stony Brook University, Stony Brook, NY, [2]stony brook university, stony brook, NY

9:15AM
An *In Vivo* Study Of A Gold Nanoparticle-Tissue Construct For Vascular Repair
S. Grant[1], A. Ostdiek[1], D. Grant[1], and R. Gopaldas[2]
[1]University of Missouri, Columbia, MO, [2]Prairie Cardiovascular, Springfield, IL

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Stem Cell Engineering
OP-Thurs-1-12 - Room 5-6
Stem Cells in Pre-clinical and Clinical Models

Chairs: Jennifer Elisseeff, Stephanie Willerth

8:00AM
Track Overview Talk by chairs

8:15 AM
Placental Mesenchymal Stromal Cells Rescue Ambulation in Ovine Myelomeningocele
A. Wang[1], L. Lankford[1], B. Keller[1], C. Pivetti[1], and D. Farmer[1]
[1]University of California Davis, Sacramento, CA

8:45AM
Programming Stem Cell Delivery By Single-Cell Encapsulation In Microgels
J-W. Shin[1], A. S. Mao[1], D. A. Weitz[1], and D. J. Mooney[1]
[1]Harvard University, Cambridge, MA

9:00AM
Human Keratinocytes Derived Neural Crest Cells: An Untapped Source of Myelinogenic Schwann Cells for Demyelinating Diseases
V. Bajpai[1], X. Wang[1], R. Zeiger[1], and S. Andreadis[1]
[1]SUNY Buffalo, Amherst, NY

9:15AM
Magnetic Targeting Cardiac Stem Cells For The Treatment Of Myocardial Infarction And Exosomes For Treatment Of Dilated Cardiomyopathy
A. Vandergriff[1,2], J. Bizetto Miera de Andrade[1], J. Tang[1,3], M. T. Hensley[1], J. Piedrahita[1], T. Caranasos[4], and K. Cheng[1]
[1]North Carolina State University, Raleigh, NC, [2]UNC/NCSU, Ralegh, NC, [3]Zhengzhou University, Zhengzhou, China, People's Republic of, [4]University of North Carolina at Chapel Hill, Chapel Hill, NC

Track: Biomedical Imaging and Optics
OP-Thurs-1-13 - Room 11
Magnetic Resonance Imaging

Chairs: Samuel Grant, Stephen LaConte

8:00AM
Probing Cellular Specific Microarchitectures Using Double Diffusion Encoded, Relaxation-Enhanced Magnetic Resonance Spectroscopy at 21.
[1] TN. Shemesh[1], J. Rosenberg[2], J-N. Dumez[3], L. Frydman[2,4], and S. Grant[2,5]
[1]Champalimaud Centre for the Unknown, Lisbon, Portugal, [2]Florida State University, Tallahassee, FL, [3]CNRS, Gif-sur-Yvette, France, [4]Weizmann Institute of Science, Rehovot, Israel, [5]FAMU-FSU College of Engineering, Tallahassee, FL

8:30AM
Effects of B1+ Inhomogeneity on Liver Iron Estimates in MRI Effects of B1+ Inhomogeneity on Liver Iron Estimates in MRI
E. Doyle[1,2] and J. Wood[1,2]
[1]University of Southern California, Los Angeles, CA, [2]Children's Hospital of Los Angeles, Los Angeles, CA

8:30AM
Surgical Target Selection for Subcallosal Cingulate Region Deep Brain Stimulation Based on Structural Connectivity
K. S. Choi[1], P. Riva-Posse[1], C. McIntyre[2], R. Gross[1], A. Crowell[1], S. Garlow[1], J. Rajendra[1], and H. Mayberg[1]
[1]Emory University, Atlanta, GA, [2]Case Western Reserve University, Cleveland, OH

8:45AM
MRI Analysis of Inferior Vena Cava Branches in Murine Models of Venous Thrombosis O
Palmer[1], J. Diaz[1], and J. Greve[1]
[1]University of Michigan, Ann Arbor, MI

9:00AM
Seed-Based Functional Connectivity to Study Motor Function in Children with Cerebral Palsy
H. Deshpande1,2, J. Lee Park3, J. Lisinski2, S. DeLuca2, S. Ramey2, and S. LaConte2
[1]Virgnia Tech, Blacksburg, VA, [2]Virgnia Tech Carilion Research Institute, Roanoke, VA,[3]Virgnia Tech Carilion School of Medicine, Roanoke, VA

9:15AM
The MRI-Targeted Delivery of Brain-Penetrating Non-Viral GDNF Gene Vectors to the Striatum with Focused Ultrasound Reverses Neurodegeneration in a Parkinson's Disease ModelB.
Mead[1], P. Mastorakos[2], W. Miller[1], J. S. Suk[2], A. Klibanov[1], J. Hanes[2], and R. Price[1]
[1]University of Virginia, Charlottesville, VA, [2]Johns Hopkins University, Baltimore, MD

Track: Neural Engineering
OP-Thurs-1-14 - Room 12
Neural Interfaces: Compatibility, Recording, and Stimulation I

Chairs: Tim Bruns, Abigail Koppes

8:00AM
A Transgenic Mouse Study of the Role of Macrophages from Different Origins in the FBR to Chronically Implanted Microelectrode Arrays
B. Velagapudi[1], M. Christensen[1], and P. Tresco[1]
[1]University of Utah, Salt Lake City, UT

8:15 AM
Stretchable Multielectrode Arrays for Conformal Neural Interfacing
L. Guo[1]
[1]The Ohio State University, Columbus, OH

8:30AM
Perspectives on Using Device Capture Histology (DCHist) for *in situ* Evaluation of Implantable Microelectrodes
H. C. Lee[1], J. Gaire[1], and K. Otto[1]
[1]University of Florida, Gainesville, FL

8:45AM
Flexible Neural Microprobes Coated with a Fast Degrading Polymer as a Tissue Insertion Aid
M-C. Lo[1], J. M. Zheng[1], S. Singh[1], V. B. Damodaran[1], I. Ahmed [1], K. Coffey [1], D. Barker [1], H. M. Kaplan[1], D. I. Shreiber [1], J. Kohn[1], and J. D. Zahn[1]
[1]Rutgers University, Piscataway, NJ

9:00AM
Anti-oxidant Coatings Improve Microelectrode-induced Neuroinflammation
J. Keene[1], G. Gaskin[1], J. Nyugen[1], S. Meade[1], and J. Capadona[1]
[1]Case Western University, Cleveland, OH

9:15AM
Mechanically Matched Hydrogel Coatings for Improved Biocompatibility of Neural Implants
K. Spencer[1], J. Sy[1], and M. Cima[1]
[1]MIT, Cambridge, MA

PLATFORM SESSIONS Th-1

Track: Cardiovascular Engineering
OP-Thurs-1-15- Room 17
Cardiac Electrophysiology

Chairs: Michael Hill, Ellie Rahbar

8:00AM
Simultaneous Optical Pacing and Optical Mapping of Activation Spread in Optogenetic Neonatal Rat Ventricular Myocyte Cultures
Q. Li[1], R. Ni[1], W. Kong[1], V. Fast[1], and L. Zhou[1]
[1]University of Alabama at Birmingham, Birmingham, AL

8:15AM
Shortening of Action Potential Duration with Increased Work in Contracting Rabbit Heart
K. Garrott[1], A. Wengrowski[1], H. Zhang[2], J. Rogers[2], and M. Kay[1]
[1]The George Washington University, Washington, DC, [2]The University of Alabama at Birmingham, Birmingham, AL

8:30AM DREAM TEAM & CENTER
Handheld Device for ECG Acquisition with Onboard Algorithm for Rapid and Automated Detection of Atrial Fibrillation
G. Kruger[1], R. Latchamsetty[1], N. Langhals[1], M. Yokokawa[1], H. Oral[1], and O. Berenfeld[1]
[1]University of Michigan, Ann Arbor, MI

8:45AM
Gap Junctional Coupling Modulates the Conduction Velocity-Ephaptic Coupling Relationship
M. Entz II[1], S. George[1], M. Zeitz[1], J. Smyth[1], and S. Poelzing[1]
[1]Virginia Polytechnic Institute and State University, Roanoke, VA

9:00AM
Engineering Primary Human Fibroblasts with Customizable Electrical Phenotypes
H. Nguyen[1], R. Kirkton[1], and N. Bursac[1]
[1]Duke University, Durham, NC

9:15AM
Analysis of Congestive Heart Failure ECG Signals Using Hilbert-Huang Transform
S. Mohamed Yacin[1], S. Ranjitha[1], A. C. S. Suchithra[1], and B. Divya[1]
[1]Rajalakshsmi Engineering College, Chennai, India

Track: Drug Delivery
OP-Thurs-1-16 - Room 10
Responsive Delivery Systems

Chairs: Elizabeth Dirk, Craig Duvall

8:00AM
Externally Controlled Cell Internalization of Magneto-Electric Nanoparticles via Magneto-acoustic Electroporation
B. Shrestha[1,2], S. Betal[1], M. Dutta[1], E. Khachatryan[1], L. F. Cotica[3], K. Nash[1], A. Bhalla[1], R. Guo[1], and L. Tang[1,2]
[1]University of Texas at San Antonio, San Antonio, TX, [2]University of Texas Health Science Centre, San Antonio, TX, [3]State university of Maringá, Maringá, Brazil

8:15AM
In Situ Transfection by Controlled Release of Lipoplex via Acoustic Droplet Vaporization
B. Juliar[1], D. Jones[1], A. Moncion[1], M. Pilon[1], R. Franceschi[1], and M. Fabiilli[1]
[1]University of Michigan, Ann Arbor, MI

8:15 AM
In Situ Transfection by Controlled Release of Lipoplex via Acoustic Droplet Vaporization
B. Juliar[1], D. Jones[1], A. Moncion[1], M. Pilon[1], R. Franceschi[1], and M. Fabiilli[1]
[1]University of Michigan, Ann Arbor, MI

8:30AM
Design & Development of pH-Responsive Hydrogels: An Oral Delivery Strategy for Protein Therapeutics
S. Steichen[1], C. O'Connor[1], and N. Peppas[1]
[1]The University of Texas at Austin, Austin, TX

8:45AM
Molecular Engineering of Insulin
M. Webber[1], D. Anderson[1], and R. Langer[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

9:00AM
pH-Sensitive Elastin-Like RGD-Functionalized Liposomes For Anticancer Drug Delivery
E. Veneti[1], D. Auguste[1], and R. Tu[1]
[1]The City College of New York, New York, NY

9:15AM
Eudragit-PLGA-PEG Blended Nanoparticles With pH Triggered Drug Release For Oral Delivery Of Insulin
S. Chopra[1], A. Wang[1], O. Farokhzad[2], and R. Karnik[1]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Harvard Medical School, Boston, MA

Track: Nano and Micro Technologies
OP-Thurs-1-17 - Room 7-8
Medical Diagnostics and Screening I

Chairs: Erkin Seker, Vince Beachley

8:00AM
Designing An Assay For Quick Detection Of Ebola Through Nanomanufacturing Of An Ebola Virus Mimic
P. Lam[1] and N. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

8:15 AM
Rapid Detection of Pathogens via Culture-based Detection of Living Micro-organisms Using Impedance Measurements
S. Puttaswamy[1], R. Kargupta[1], A. Lee[1], J. Pardalos[1], and S. Sengupta[1]
[1]University of Missouri, Columbia, MO

8:30AM
Biomarker Detection in a Rat Post-traumatic Osteoarthritis Model using Magnetic Capture
E. Yarmola[1], H. Kloefkorn[1], J. Dobson[1], and K. Allen[1]
[1]University of Florida, Gainesville, FL

8:45AM
Solid-state Nanopores for DNA Base Modification Detection and Sequence Selection
A.R. Hall[1], O. K.Zahid[1], and R. Wang[1]
[1]Wake Forest University School of Medicine, Winston-Salem, NC

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

9:00AM
Exponentially Amplified Isothermal Immunoassay with Size-based Oligonucleotide Background Reduction
J. Kong[1], D. Kim[1], and D. Di Carlo[1]
[1]*University of California, Los Angeles, Los Angeles, CA*

9:15AM DREAM TEAM & CENTER
Nanopore-Based Detection of Biomarker toward Cancer Diagnostics
J. Shim[1], Y. Kim[1], G. Humphreys[1], A. Nardulli[1], F. Kosari[2], G. Vasmatzis[2], W. Taylor[2], D. Ahlquist[2], S. Myong[1], and R. Bashir[1]
[1]*University of Illinois at Urbana - Champaign, Urbana, IL,* [2]*Mayo Clinic, Rochester, MN*

Track: Neural Engineering
OP-Thurs-1-18 - Room 1
Device-based Approaches for Axonal Growth and Guidance

Chairs: Treena Arinzeh, Chandra Kothapalli

8:00AM DREAM TEAM & CENTER
Enabling Technologies for Neurons: New Approaches for Axonal and Dendritic Growth and Guidance *(invited)*
M. U. Gillette[1], A. Jain[1], O. V. Cangellaris[1], S. C. Liu[1], R. Iyer[1], L. J. Millet[1], T. Kim[1], P. Froeter[1], M. Lee[1], A. Abdeen[1], K. Kilian[1], G. Popescu[1], H. Kong[1], and X. Li[1]
[1]*University of Illinois, Urbana, IL*

8:15AM DREAM TEAM & CENTER
Microchannel Scaffold Technology for Nerve Repair
D. Shahriari[1], D. Lynam[2], K. Wolf[2], K. Murakami[3], M. Shibayama[3], J. Koffler[3], M. Tuszynski[3,4], W. Campana[3], and J. Sakamoto[1]
[1]*University of Michigan, Ann Arbor, MI,* [2]*Michigan State University, East Lansing, MI,* [3]*University of California San Diego, La Jolla, CA,* [4]*Veterans Administration Medical Center, San Diego, CA*

8:30AM
Nebulized Solvent Ablation of Aligned PLLA Fibers for the Study of Astrocyte and Neurite Responses to Anisotropic-to-Isotropic Fiber/Film Transition Boundaries
J. Zuidema[1,2], G. Desmond[1], C. Rivet[1], K. Kearns[1], D. Thompson[1], and R. Gilbert[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY,* [2]*University of California San Diego, La Jolla, CA*

8:45AM
Capillary Alginate Gel (Capgel) With Laminin Promotes 3D Schwann Cell Myelination Of DRG Axons
W. Anderson[1], A. Goloubev[1], A. Brown[1], E. Ross[1], S. Lambert[1], and B. Willenberg[1]
[1]*University of Central Florida, Orlando, FL*

9:00AM DREAM TEAM & CENTER
Combining Micro-Computed Tomography with Histology to Analyze Biomedical Implants for Peripheral Nerve Repair
S. Pixley[1], T. Hopkins[1], A. Heilman[1], J. Liggett[1], K. LaSance[1], K. Little[2], D. Hom[1], D. Minteer[3], and K. Marra[3]
[1]*University of Cincinnati, Cincinnati, OH,* [2]*Cincinnati Children's Hospital Medical Center, Cincinnati, OH,* [3]*University of Pittsburgh, Pittsburgh, PA*

9:15AM
Homeostatic Plasticity Preserves Network Architecture
M. Adegoke[1] and D. Meaney[1]
[1]*University of Pennsylvania, Philadelphia, PA*

Track: Biomedical Imaging and Optics
OP-Thurs-1-19 - Ballroom D
Application of Imaging Methods to Tissue Engineering*

Chairs: Eric Brey

8:00AM
Single-Cell Lens-Free Imaging of Cell Migration in Diverse Microenvironments
C. Paul[1], E. Mathieu[2], R. Stahl[2], G. Vanmeerbeeck[2], K. Konstantopoulos[1], and L. Lagae[2]
[1]*Johns Hopkins University, Baltimore, MD,* [2] *imec, Leuven, Belgium*

8:15AM
Development of an Optical Probe for Detection of Chondrocyte Apoptosis Following Cartilage Injury
Y-H. Huang[1], J. Zhou[1], H. Weng[1], J. Borrelli[2], and L. Tang[1]
[1]*University of Texas at Arlington, Arlington, TX,* [2] *Texas Health Arlington Memorial Hospital, Arlington, TX*

8:30AM
In Situ Microscale Quantification of Solute Transport via Image Correlation Spectroscopy
B. Graham[1], J. Shoga[1], and C. Price[1]
[1]*University of Delaware, Newark, DE*

8:45AM
Modified En Bloc Staining and Clearing for Improved Imaging of Musculoskeletal Cells *In Situ*
I. Berke[1], J. Miola[1], M. Smith[1], and C. Price[1]
[1] *University of Delaware, Newark, DE*

9:00AM
Imaging Optically Cleared Whole Tissues with Unprecedented Resolution of Cellular Anatomy and Macroscale Architecture
F. Marini[1], K. Cowdrick[1], C. M. Booth[1], K. Nelson[1], and G. J. Christ[1,2]
[1] *Wake Forest Institute of Regenerative Medicine, Winston-Salem, NC,* [2] *University of Virginia, Charlottesville, VA*

9:15AM
Fluorescent Imaging to Probe MSC Chondrogenesis and Matrix Production in Hydrogels
S. Vega[1], M. Kwon[1], and J. Burdick[1]
[1] *University of Pennsylvania, Philadelphia, PA*

Track: Biomedical Engineering Education (BME)
OP-Thurs-1-20 - Room 9
ABET Workshop: Criteria for Your Next Accreditation

Chairs: Jim Sweeney and Jay Goldberg

The BMES Accreditation Activities Committee and BMES Education Committee will present a workshop with a panel discussion. The workshop will provide an informational overview of recent and proposed changes to the ABET criteria, including the program specific criteria for bioengineering and biomedical engineering, as well as a panel discussion on best practices for incorporating engineering standards into bioengineering and biomedical engineering capstone design projects

THURSDAY, October 8, 2015

2:00 PM - 3:30 PM

PLATFORM SESSIONS – THURS - 2

Track: Cellular and Molecular Bioengineering
OP-Thurs-2-1 - Room 18

Cell Adhesion and Interactions with the Extracellular Matrix II

Chairs: Randy Ashton, Chris Jewell

2:00PM

Recognition in Tight Spaces

D. Leckband[1], N. Shashikanth[2], and M. Kisting[2]

[1]University of Illinois, Urbana, IL, [2]Univ of Illinois, Urbana, IL

2:15PM

Recapitulating the Cytoskeletal Architecture of Cells of Interest Using Cell-Derived, Biomimetic Patterns

J. Slater[1], J. Culver[2], B. Long[3], C. Hu[3], J. Hu[3], T. Birk[3], A. Qutub[3], M. Dickinson[4], and J. West[5]

[1]University of Delaware, Newark, DE, [2]University of California San Francisco School of Medicine, San Francisco, CA, [3]Rice University, Houston, TX, [4]Baylor College of Medicine, Houston, TX, [5]Duke University, Durham, NC

2:30PM

Transglutaminase Cross-linking Inhibits DDR1 and DDR2 Activation on Type I Collagen Extracellular Matrices

D. Wang[1], A. Hsieh[2], and K. Bhadriraju[3]

[1]River Hill High School, Clarksville, MD, [2]University of Maryland, College Park, MD, [3]National Institute of Standards and Technology, Gaithersburg, MD

2:45PM

Cell Adhesion Chromatography Reveals Impaired Persistence of Rolling Adhesion of Metastatic Cells to P-selectin

E. Hannen[1,2], J. Oh[1], P. M. McClatchey[1], and S. N. Thomas[1,2,3]

[1]Georgia Institute of Technology, Atlanta, GA, [2]Georgia Institute of Technology and Emory University, Atlanta, GA, [3]Emory University School of Medicine, Atlanta, GA

3:00PM

Mechanical Feedback In Cell-Cell Adhesion: Cadherin Conformational Shuttling Captured At The Single Molecule Level.

S. Sivasankar[1], K. Manibog[1], K. Sankar[1], and R. Jernigan[1]

[1]Iowa State University, Ames, IA

3:15PM

Integrin-Dependent Mechanical Signaling Drives Glycoprotein-Rich Matrix Production and Aggressiveness in Malignant Brain Cancer

M. Barnes[1], Y. Miroshnikova[1], J. Lakins[1], and V. Weaver[1]

[1]UCSF, San Francisco, CA

Track: Cellular and Molecular Bioengineering
OP-Thurs-2-2 - Room 19

Cancer Cell Mechanics and Engineering

Chairs: Hossein Tavana, Carlos Rinaldi

2:00PM

Cell Motility in a Basement Membrane Gel Concentrates ECM Around Breast Epithelial Cells, a Feature Lost in Malignant Cells

C. Robertson[1] and M. Bissell[1]

[1]Lawrence Berkeley National Lab, Berkeley, CA

2:15PM

Galectin-1 Modulates E-selectin Ligand Function of Breast Cancer Cells

N. Reynolds[1], C. Hall[1], S. Thomas[1], and M. Burdick[1]

[1]Ohio University, Athens, OH

2:30PM

Engineered Multivalency Increases ErbB3 Affibody Efficacy in Cancer Cell Signaling Inhibition

J. Schardt[1] and S. Jay[1]

[1]University of Maryland, College Park, College Park, MD

2:45PM

Bioreactor-Derived Fluid Flow Upregulates Expression Of Genes That Affect Cell Adhesion in Breast Cancer Cells

K. Fuh[1], B. Kooistra[1], R. Shepherd[1], and K. Rinker[1]

[1]University of Calgary, Calgary, AB, Canada

3:00PM

TRAIL-coated Leukocytes That Prevent the Bloodborne Metastasis of Prostate Cancer

E. Wayne[1], S. Chandrasekaran[1], M. Chan[1], R. Lee[1], C. Schaffer[1], M. King[1], and M. J. Mitchell[2]

[1]Cornell University, Ithaca, NY, [2]MIT, Cambridge, MA

3:15PM DREAM TEAM & CENTER

Mechanical Stimulation Of The Cellular Microenvironment Via Active Surface Wrinkling Directly Influences The Control Of Cell Migration Behavior

M. E. Brasch[1,2], N. O. Deakin[3], M. L. Manning[1,2], C. E. Turner[3], and J. H. Henderson[1,2]

[1]Syracuse University, Syracuse, NY, [2]Syracuse Biomaterials Institute, Syracuse, NY, [3]SUNY Upstate Medical University, Syracuse, NY

Track: Cancer Technologies
OP-Thurs-2-3 - Room 20

Engineered Models of Cancer and Tumor Environment II

Chairs: Claudia Fischbach, Bobak Mosadegh

2:00PM

Models Cancer and Metastasis *(invited)*

A.Skardal

Wake Forest University, Winston-Salem, NC

2:30PM

Paper-Based 3D Culture for the Study of Cancer Cells *in vitro*

B. Mosadegh[1]

[1]Weill Cornell Medical College, New York, NY

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

2:45PM
Bioengineered Tissue Microenvironments for Studying Human Tumor Metastasis
J. Lee[1,2] and B. Parekkadan[3,4,5]
[1]University of Massachusetts-Amherst, Amherst, MA, [2]Institute for Applied Life Sciences, Amherst, MA, [3]Massachusetts General Hospital & Harvard Medical School, Boston, MA,[4]Shriners Hospital for Children, Boston, MA, [5]Harvard Stem Cell Institute, Boston, MA

3:00PM **DREAM TEAM & CENTER**
Three-dimensional Vascularized Tumor-fibroblast Co-culture Platform for Drug-testing ApplicationsS.
Pradhan[1], A. M. Smith[2], I. Hassani[1], K. Henderson[1], R. D. Arnold[1], B. Prabhakarpandian[2], and E. A. Lipke[1]
[1]Auburn University, Auburn, AL, [2]CFD Research Corporation, Huntsville, AL

3:15PM
Rational Design of a 3D Tissue-engineered Brain Cancer
ModelJ. Yuan[1], B. Purow[1], F. Bafakih[1], and J. Munson[1]
[1]University of Virginia, Charlottesville, VA

Track: Biomaterials
OP-Thurs-2-4 - Room 21
Biomaterials Scaffolds II

Chairs: Guohao Dai, Chien-Chi Lin

2:00PM
Polyethylene Glycol (PEG) Affects Mechanical and Biological Properties of Poly(ester amide) Based Fibrous Scaffolds
T. Yatsenko[1], Y. Xue[1], A. Patel[1], V. Sant[1], and S. Sant[1]
[1]University of Pittsburgh, Pittsburgh, PA

2:15PM
Development of a Peptide-functionalized PEG-based Hydrogels System for Intestinal Organoid Culture
V. Hernandez-Gordillo[1], G. H. Choi[1], R. Carrier[2], and L. Griffith[1]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Northeastern University, Boston, MA

2:30PM
An Integrative Paradigm for Remodeling of Decellularized ECM-Derived Surgical Scaffolds
M. Cronce[1], I. Pomerantseva[1], X-H. Liu[2], S. Goldman[2], J. Vacanti[1], B. Grottkau[1], C. Neville[1], and C. Sundback[1]
[1]Massachusetts General Hospital, Boston, MA, [2]DSM Biomedical, Exton, PA

2:45PM
Crosslinked Keratin in PEG Matrix for Sequestration of Bone Repair Growth Factors
R. de Guzman[1]
[1]Hofstra University, Hempstead, NY

3:00PM
A Biomimetic Microsphere System for Bone Regeneration
C. Ma[1], Y. Jing[1], and X. Liu[1]
[1]Texas A&M University Baylor College of Dentistry, Dallas, TX

3:15PM
3-D Constructs For Tissue Engineering or-;Molded Vs. Printed: The Differences From A Cell Based Perspective
K-C. Feng[1] and M. Simon[1]
[1]Stony Brook Univerrsity, Stony Brook, NY

Track: Biomaterials
OP-Thurs-2-5 - Room 22
Therapeutic and Theranostic Biomaterials I

Chairs: Mathumai Kanapathipillai, Craig Duvall

2:00PM
Nanoparticle Mediated Delivery of Metabolic Glutamate Enhancers to Restrain Autoimmune Disease
J. M. Gammon[1] and C. M. Jewell[1,2,3]
[1]University of Maryland - College Park, College Park, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

2:15PM
Capillary Alginate Gel (Capgel) Biomaterials Enhance Wound Healing
B. Willenberg[1], A. Goloubev[1], A. Brown[1], G. Schultz[2], and E. Ross[1]
[1]University of Central Florida, Orlando, FL, [2]University of Florida, Gainesville, FL

2:30PM
Incorporation of Unnatural Amino Acid in Elastin-like Polypeptides by Genomically Recoded *E.coli* for Efficient Small Molecule Attachment
S. Costa[1]
[1]Duke University, Durham, NC

2:45PM
Novel Photoluminescent And Antioxidant UV-protective Biomaterials
J. Yang[1], R. van Lith[1], W. kasprzyk[1], and G. Ameer[1]
[1]Northwestern University, Evanston, IL

3:00PM
Dextran Coated Cerium Oxide As A Reactive Oxygen Scavenger
E. Alpaslan[1], H. Yazici[1], M. Vargas[2], A. Roy[1], J. Gallego[2], T. Webster[1], and T. Webster[1,3]
[1]Northeastern University, Boston, MA, [2]Universidad de Antioquia UdeA, Medellin, Colombia,[3]King Abdulaziz University, Jeddah, Saudi Arabia

3:15PM
Tissue Responses to a New Calcium Aluminosilicate Endodontic Cement
L. A. Opperman[1], K. F. Woodmansey[1], G. D. Kahout[1], R. White[1], and C. M. Primus[1]
[1]Texas A&M University Baylor College of Dentistry, Dallas, TX

Track: Biomaterials
OP-Thurs-2-6 - Room 23
Micro and Nano Structured Materials II

Chairs: Jingjiao Guan, Hossein Tavana

2:00PM
Halloysite Nanotube Coatings Suppress Leukocyte Spreading
A. Hughes[1], G. Marsh[2], R. Waugh[3], D. Foster[2], and M. King[1]
[1]Cornell University, Ithaca, NY, [2]University of Rochester, Rochester, NY, [3]University of Rochester, Ithaca, NY

2:15PM
Carbon Nanotube Functionalization and Scaffold Geometry Promote Differentiation of Myoblasts
A. Patel[1], S. Mukundan[1], W. Wang[2], A. Karumuri[2], V. Sant[1], S. Mukhopadhyay[2], and S. Sant[1]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Wright State University, Dayton, OH

2:30PM
Porous Silicon Nanoparticles: Protein Release, Photoluminescence, and Imaging in the Central Nervous System
J. Zuidema[1], A. Nagahara[1], J. Joo[1], G. Hollett[1], M. Tuszynski[1,2], and M. Sailor[1]
[1]University of California San Diego, La Jolla, CA, [2]Veterans Affairs Medical Center, San Diego, CA

2:45PM
Peptide Nanofiber-Calcium Carbonate Composite Microparticles for Mucosal Vaccine Delivery
J. Snook[1], J. Rudra[1], S. Dann[1], and A. Peniche[1]
[1]University of Texas Medical Branch, Galveston, TX

3:00PM
High-throughput Layer-by-layer (LbL) Platform For Assembly And Screening Of Multi-layered Nanofilm Libraries
Z. Dong[1], L. Tang[1,2], and W. Li[1]
[1]Texas Tech University, lubbock, TX, [2]Tongji Medical College, Wuhan, China, People's Republic of

3:15PM
Bulk and Nanoscale Polypeptide/ Nucleic Acid Complexes
L. Leon[1], M. Lueckheide[1], J. Vieregg[1], E. J. Chung[1], Y. Fang[1], and M. Tirrell[1]
[1]University of Chicago, Chicago, IL

Track: Tissue Engineering, Cardiovascular Engineering
OP-Thurs-2-7 - Room 13
Cardiovascular Tissue Engineering II

Chairs: Laura Suggs, Peter McFetridge

2:00PM
Capturing Endothelial Progenitor Cells under Shear with Peptide-grafted Hydrogels
W. Seeto[1] and E. Lipke[1]
[1]Auburn University, Auburn, AL

2:15PM
Fabricating 3D Microvascular Structures with Cell & ECM Organization Recapitulating Native Vasculature
S. Barreto[1], J. Fradkin[1], J. Trivero[1], B. Ginn[1,2], H-Q. Mao[1,2], and S. Gerecht[1]
[1]Johns Hopkins University, Baltimore, MD, [2]Johns Hopkins School of Medicine, Baltimore, MD

2:30PM
Endothelial Cell Sprouting in Agarose-Hydroxyapatite-Fibrinogen Microbeads for Vasculogenesis
E. Daley[1], A. Rioja[1], A. Putnam[1], and J. Stegemann[1]
[1]University of Michigan, Ann Arbor, MI

2:45PM
Extracellular Matrix Microstructure And Composition Regulate 3D Endothelial Network Formation
M. McCoy[1] and C. Fischbach[1]
[1]Cornell University, Ithaca, NY

3:00PM
Macrophage Phenotype and CD4+ T-cell Differentiation Impact Endothelial Sprouting
B. Kwee[1], T. Raimondo[1], and D. Mooney[1]
[1]School of Engineering and Applied Sciences and Wyss Institute at Harvard University, Cambridge, MA

3:15PM
Implantable Tissue-Engineered Blood Vessels from Human Induced Pluripotent Stem Cells
L. Gui[1], B. Dash[1], L. Qin[1], L. Zhao[1], K. Yamamoto[1], T. Hashimoto[1], H. Wu[1], G. Tellides[1], A. Dardik[1], L. Niklason[1], and Y. Qyang[1]
[1]Yale University, New Haven, CT

Track: Device Technologies and Biomedical Robotics
OP-Thurs-2-8 - Room 14
Biomedical Robotics

Chairs: Helen Huang, Smitha Rao

2:00PM
Bioprinting Viable 3D Cell-Laden Constructs with a Complex Geometry
S. Dennis[1], M. Yost[1], and T. Trusk[1]
[1]Medical University of South Carolina, Charleston, SC

2:15PM DREAM TEAM & CENTER
Optogenetic Skeletal Muscle Powered 3D Printed Biological Machines
R. Raman[1], C. Cvetkovic[1], S. Uzel[2], P. Sengupta[1], R. D. Kamm[2], and R. Bashir[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Massachusetts Institute of Technology, Boston, MA

2:30PM
Optimizing the Performance and Lifetime of Muscle-Powered Biological Machines
C. Cvetkovic[1], C. Wilder[2], M. Ferrall[2], R. Raman[1], M. Platt[2], and R. Bashir[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Georgia Institute of Technology and Emory University, Atlanta, GA

2:45PM
Novel Endoscopic Instrument Manipulator Utilizing Pre-curved Sliding Elements
C. Bryson[1], J. Till[1], and C. Rucker[1]
[1]University of Tennessee Knoxville, Knoxville, TN

3:00PM
An Autonomous Robotic System for Rapid Blood Draws and Analysis
M. Balter[1], A. Chen[1], T. Maguire[1], and M. Yarmush[1]
[1]Rutgers University, Piscataway, NJ

3:15PM
Design Of A Robotic Assistive Device For Phlebotomy
A. Kesari[1]
[1]Worcester Polytechnic Institute, Worcester, MA

Track: Biomechanics
OP-Thurs-2-9 - Room 15
Head Injury Molecular to Macro, Simulation and Protection

Chairs: Susan Margulies, Steve Rowson

2:00PM
Limitations Of Standard Twin-Wire Drop Testing For Modeling Concussion Kinematics In Football
F. Hernandez[1], P. Shull[1], and D. Camarillo[1]
[1]Stanford University, Stanford, CA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

2:15PM
Comparing the Ability of Head Impact Sensors to Measure Head Kinematics
A. Tyson[1], B. Cobb[1], S. Rowson[1], and S. Duma[1]
[1]Virginia Tech, Blacksburg, VA

2:30PM
Mechanical Effects of Dynamic Binding Between Tau Broteins on Axonal Microtubules During Traumatic Brain Injury: Predictions from a Computational Model
H. Ahmadzadeh[1], D. Smith[1], and V. Shenoy[1]
[1]University of Pennsylvania, Philadelphia, PA

2:45PM
Airbag helmets: An Alternative Protective Headgear for Bicycle Accidents
M. Kurt[1], K. Laksari[1], and D. Camarillo[1]
[1]Stanford University, Stanford, CA

3:00PM
Development of a Methodology for Assessing the Biomechanical Performance of Hockey Helmets
B. Rowson[1], S. Rowson[1], and S. Duma[1]
[1]Virginia Tech, Blacksburg, VA

3:15PM
Real-time Brain Pressure Estimation Via Pre-computation In Translational Head Impact
W. Zhao[1] and S. Ji[1]
[1]Dartmouth College, Hanover, NH

Track: Biomechanics
OP-Thurs-2-10 - Room 16
Computational Modeling, Musculoskeletal and Whole Body

Chairs: Alan Eberhardt, Babak Bazrgari

2:00PM
PA Musculoskeletal Shoulder Model With Deformable Humerus, Bone Material Inhomogeneity and Muscle Loading
J. Yao[1], Y. Shi[1], P. Saraswat[1], M. Chinnakonda[1], J. Hurtado[1], V. Oancea[1], and D. Coombs[2]
[1]Dassault Systèmes Simulia Corp., Johnston, RI, [2]DePuy Synthes Trauma, West Chester, PA

2:15PM
Simulation Of High Intensity Pressure Transduction In Human Ear Model
K. Leckness[1], X. Wang[1], and R. Gan[1]
[1]University of Oklahoma, Norman, OK

2:30PM
Simple Three-Dimensional Geometric Representation of Human Skeletal Muscle Using Finite Element Analysis For The Simulation Of Muscle Contraction.
J. Ford[1], W. Lee[1], D. Hilbelink[1], and S. Decker[1]
[1]University of South Florida, Tampa, FL

3:00PM
The Effect of Pre-Crash Velocity Reduction on Occupant Response Using a Human Body Finite Element Model
B. Guleyupoglu[1,2], M. Davis[1,2], N. Vavalle[1,2], J. Schap[1,2], K. Kusano[2,3], and S. Gayzik[1,2]
[1]Wake Forest University School of Medicine, Winston Salem, NC, [2]Virginia Tech - Wake Forest University, Winston Salem, NC, [3]Virgnia Polytechnic Institute and State University, Blacksburg, VA

3:15PM
Finite Element Prediction of Heterogeneous Strains Due to Proteoglycan-Rich Microdomains in Musculoskeletal Fibrous Tissue
J. DeLucca[1], W. Han[2], J. Peloquin[2], R. Duncan[1], R. Mauck[2], and D. Elliott[1]
[1]University of Delaware, Newark, DE, [2]University of Pennsylvania, Philadelphia, PA

3:30PM
Analyzing Joint Work Symmetry in the Standing Long Jump with a 3D Full-Body Model
L. Hickox[1], B. Ashby[1], and G. Alderink[1]
[1]Grand Valley State University, Grand Rapids, MI

Track: Cardiovascular Engineering
OP-Thurs-2-11 - Room 3-4
Sickle Cell Disease - Pathophysiology

Chairs: Manu Platt, Edward Botchwey

2:00PM
The Oxygen-Dependent Phase Space of Sickle Blood Rheology in Physiologic Conditions
X. Lu[1], J. Higgins[2,3], and D. Wood[1]
[1]University of Minnesota, Minneapolis, MN, [2]Harvard Medical School, Boston, MA,[3]Massachusetts General Hospital, Boston, MN

2:15PM
Dysregulated Sphingolipid Metabolism Enhances Microparticle Generation and Monocyte Adhesion in SCD
J. Selma[1], A. Awojoodu[1], P. Keegan[1], A. Lane[1], S. Zhang[1], M. Platt[1], and E. Botchwey [1]
[1]Georgia Institute of Technology, Atlanta, GA

2:30PM
Platelet Nucleation on Arrested Neutrophils Drives Vaso-occlusion in Sickle Cell Disease
M. Jimenez[1] and P. Sundd[1,2]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Vascular Medicine Institute, Pittsburgh, PA

2:45PM
Platelet-Neutrophil Aggregates Promote Pulmonary Arteriole Microembolism in Sickle Cell Disease
M. Bennewitz[1], E. Tutuncuoglu[1], M. Gladwin[1], and P. Sundd[1]
[1]University of Pittsburgh, Pittsburgh, PA

3:00PM
Adhesion of Deoxygenated Sickle Red Blood Cells in Microscale Flow
M. Kim[1], Y. Alapan[1], J. Little[2], and U. Gurkan[1]
[1]Case Western Reserve University, Cleveland, OH, [2]University Hospitals, Cleveland, OH

3:15PM
Microarchitectural and Mechanical Characterization of Sickle Bone
M. Green[1], I. Akinsami[2], A. Lin[2], S. Banton[2], S. Ghosh[3], B. Chen[2], M. Platt[2], I. Osunkwo[4], S. Ofori-Acquah[3], R. Guldberg[2], and G. Barabino[1,2]
[1]The City College of New York, New York, NY, [2]Georgia Institute of Technology, Atlanta, GA,[3]University of Pittsburgh School of Medicine, Pittsburgh, PA, [4]Carolinas Health Care System, Charlotte, NC

Track: Stem Cell Engineering
OP-Thurs-2-12 - Room 5-6
Directing Stem Cell Differentiation I

Chairs: Aijun Wang, Penney Gilbert

2:00PM
Rapid, Multiplexed Generation of Homozygous Gene-Deleted Human Pluripotent Stem Cells Utilizing CRISPR/Cas9
J. Carlson-Stevermer[1], M. Goedland[1], R. Prestil[1], B. Steyer[1], and K. Saha[1]
[1]*University of Wisconsin-Madison, Madison, WI*

2:15PM
Micropatterned Substrates for Spatiotemporal Control of Neural Tissue Morphogenesis
G. T. Knight[1,2] and R. S. Ashton[1,2]
[1]*University of Wisconsin, Madison, WI,* [2]*Wisconsin Institute for Discovery, Madison, WI*

2:30PM
Sox10+ Adult Stem Cells Contribute to Both Microvessel Regeneration And Fibrosis
D. Wang[1], A. Wang[1,2], Z. Tang[1], F. Wu[1], B. Lv[1], M. Sawant[1], X. Qiu[1], X. Gong[1], and S. Li[1]
[1]*UC Berkeley, Berkeley, CA,* [2]*UC Davis, Sacramento, CA*

2:45PM
Zone Specific Chondrogenic Differentiation of Human Mesenchymal Stem Cells Using Developmentally Defined Differentiation Factors
E. Jabbari[1]
[1]*University of South Carolina, Columbia, SC*

3:00PM
Regulation of Arterial Venous Differentiation Through Immobilized and Soluble Developmental Signals
T. Dorsey[1] and G. Dai[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

3:15PM
Development of High Purity V2a Interneurons for Spinal Cord Injury
N. Iyer[1], C. Brown[1], J. Butts[1], and S. Sakiyama-Elbert[1]
[1]*Washington University in St. Louis, Saint Louis, MO*

Track: Biomedical Imaging and Optics
OP-Thurs-2-13 - Room 11
New Ultrasound Imaging Technologies

Chairs: Paul Dayton, Michaelann Tartis

2:00PM
Comparison and Analysis of Multiple Tracking Location and Single Tracking Location Shear Wave Elasticity Imaging in a Rat Model of Liver Fibrosis
J. Langdon[1], L. O. Osapoetra[1], T. Ford[1], E. Elegbe[1], and S. McAleavey[1]
[1]*University of Rochester, Rochester, NY*

2:15PM
In Vivo Contrast Specific Intravascular Ultrasound Imaging of Microvascular Vasa Vasorum Surrogate
K. H. Martin[1], B. D. Lindsey[1], J. Ma[2], X. Jiang[2], and P. A. Dayton[1]
[1]*University of North Carolina and North Carolina State University, Chapel Hill, NC,* [2]*North Carolina State University, Raleigh, NC*

2:30PM
Dual-Frequency Intravascular Ultrasound Imaging of Coronary Artery
M. Yu[1], T. Ma[1], Z. Chen[1], C. Fei[2], K. K. Shung[1], and Q. Zhou[1]
[1]*University of Southern California, Los Angeles, CA,* [2]*Wuhan University, Wuhan, China, People's Republic of*

2:45PM
Evaluation of Spatio-temporal Classification Of Muscle Activity Using Sonomyography
H. Hariharan[1], N. Akhlaghi[1], H. Rangwala[1], J. Kosecka[1], J. Pancrazio[1], and S. Sikdar[1]
[1]*George Mason University, Fairfax, VA*

3:00PM
A Quantitative Approach to Characterizing Malignant Renal Cell Carcinoma using Contrast Enhanced Ultrasound
S. Kasoji[1], E. Chang[2], W. Chong[2], K. Rathmell[2], and P. Dayton[1]
[1]*University of North Carolina Chapel Hill & North Carolina State University, Chapel Hill, NC,*[2]*University of North Carolina Chapel Hill, Chapel Hill, NC*

3:15PM
Quantifying Hepatic Steatosis Using Ultrasound Thermal Strain Imaging: Animal Model Study
N. Farhat[1], M. Nguyen[2], X. Ding[1], J. Jarnagin[1], J. DeLany[1], and K. Kim[1]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*University of Pittsburgh Medical Center, Pittsburgh, PA*

Track: Neural Engineering
OP-Thurs-2-14 - Room 12
Neural Interfaces: Compatibility, Recording, and Stimulation II

Chairs: Ryan Koppes, Yinghui Zhong

2:00PM
Pallidal Neural Information Increases with Parkinsonian Severity in a Non-Human Primate Model
A. Dorval[1], A. Murali[2], A. Jensen[2], K. Baker[2], and J. Vitek[2]
[1]*University of Utah, Salt Lake City, UT,* [2]*University of Minnesota, Minneapolis, MN*

2:15PM
Syringe Injectable Electronics with Minimally Invasive Delivery and 'Neurophilic' Probe-Neuron Interfaces
G. Hong[1], T-M. Fu[1], J. Liu[1], T. Zhou[1], T. Schuhmann[1], and C. Lieber[1]
[1]*Harvard University, Cambridge, MA*

2:30PM
Syringe Injectable Macroporous Electronic Networks for *in vivo* Brain Electrophysiology
T-M. Fu[1], G. Hong[1], T. Zhou[1], T. Schuhmann[1], J. Liu[1], and C. Lieber[1]
[1]*Harvard University, Cambridge, MA*

2:45PM
In-situ Analysis of Intracellular Signaling with Diamond-Nanoneedle-based Biosensors
Z. Wang [1], Y. Yang[1], W. Zhang[1], and P. Shi[1]
[1]*City University of Hong Kong, Hong Kong, Hong Kong*

3:00PM
Modulation of Somatosensory Cortex During Brain Control of an Anthropomorphic Robotic Limb
S. Flesher[1], A. Schwartz[1], and R. Gaunt[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

3:15PM
A High Sensitivity Implantable Fully Passive Wireless Neural Recording System
S. Liu[1] and J. Chae[1]
[1]*Arizona State University, Tempe, AZ*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Cardiovascular Engineering
OP-Thurs-2-15 - Room 17
Heart Valves

Chairs: Michael Sacks, Jeffrey Holmes

2:00PM
Valvular Interstitial Cell Sensitivity to TGF-β1 is Dependent upon Cellular Sex
C. McCoy[1], A. Quinn[1], T. Weis[1], and K. Masters[1]
[1]University of Wisconsin-Madison, Madison, WI

2:15PM
Interaction between Innate Immune Cells and Valve Interstitial Cells within 3D Microenvironments: Implication for Valve Calcification and Regeneration
B. Duan[1], S. Das[1], D. Cheung[1], and J. Butcher[1]
[1]Cornell University, Ithaca, NY

2:30PM
Time Profile of Geometric Orifice Area for Artificial Heart Valves in Comparison to Conventional Effective Orifice Area
K. chun[1], N. Radia[2], D. Harrington[2], and H. Justino[1]
[1]Baylor College of Medicine, Houston, TX, [2]Rice University, Houston, TX

2:45PM
Improved Extracellular Matrix Stabilization Increases Tearing Resistance For Heart Valve Biomaterials
H. Tam[1], K. Feaver[2], N. Parchment[1], M. Sacks[2], and N. Vyavahare[1]
[1]Clemson University, Clemson, SC, [2]University of Texas Austin, Austin, TX

3:00PM
Fluid-Structure Interaction Modeling of a Patient-Specific Mitral Valve during Left Ventricular Diastole
V. Govindarajan[1], J. Mousel[1], H. Kim[2], S. Vigmostad[1], and K. Chandran[1]
[1]The Univ. of Iowa, Iowa City, IA, [2]The University of Texas Health Science Center, Houston, TX

3:15PM
The Mechanobiological Response of Mitral Valve Interstitial Cells to Stress Overload: Linking Biosynthesis to Cell and Tissue Deformation.
S. Ayoub[1], C. Hughes [1], S. Poletti [1], and M. Sacks [1]
[1]The University of Texas at Austin, Austin, TX

Track: Drug Delivery
OP-Thurs-2-16 - Room 10
Nano to Micro Devices in Delivery I

Chairs: James Lai, Alessandro Grattoni

2:00PM
Nanochannel Platforms for Long-term Tunable Drug Delivery and Immunoprotection of Insulin-producing Allografts
A. Grattoni[1]
[1]Houston Methodist Research Insitute, Houston, TX

2:15PM
Noncovalent Dispersions of Single Wall Carbon Nanotubes for Enhanced Drug Delivery to Metabolically Active Cells
P. Boyer[1], S. Baker[1], H. Shams[2], M. Mofrad[2], M. Islam[1], and K. Dahl[1]
[1]Carnegie Mellon University, Pittsburgh, PA, [2]University of California Berkeley, Berkeley, CA

2:30PM
A Unique Microfluidic Technology Can Deliver DNA into Nucleus in High Throughput
X. Ding[1,2], M. Stewart[1,2], A. Sharei[1,2], R. Langer[1,2], and K. Jensen[1]
[1]Massachusetts Institute of Technology, cambridge, MA, [2]David H. Koch Institute for Integrative Cancer Research, cambridge, MA

2:45PM DREAM TEAM & CENTER
Tuning Geometry of the Therapeutic Nanovectors and Thioaptamer Targeting: A Dual Approach to Improve Anti-Tuberculosis Treatment
F. Leonard[1], N. P. Ha[1], J. F. Alexander[1], D. G. Gorenstein[2], E. A. Graviss[1], and B. Godin[1]
[1]Houston Methodist Research Institute, Houston, TX, [2]University of Texas Health Science Center at Houston, Houston, TX

3:00PM
Electrical-Wound Dressing Demonstrates That Low-Voltages Augment Hemostasis and Clot Formation
Y. Wang[1], E. Hardy[1,2], T. Chi[1], M-Y. Huang[1], H. Wang[1], A. Brown[1], T. Barker[1], and W. A. Lam[1,2,3]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University School of Medicine, Atlanta, GA, [3]Children's Healthcare of Atlanta, Atlanta, GA

3:15PM
IL4 Conjugated Gold Nanoparticles Direct Human Macrophage Polarization *In Vitro*
T. Raimondo[1] and D. Mooney[1]
[1]Harvard University, Cambridge, MA

Track: Nano and Micro Technologiess
OP-Thurs-2-17 - Room 17
Medical Diagnostics and Screening II

Chairs: Xiaoming He He, Shramik Sengupta

2:00PM
Extracting The Interface Of An Aqueous Two-Phase System To Improve The Sensitivity Of The Lateral-Flow Immunoassay
C. Wu[1], R. Chiu[1], A. Thach[1], B. Wu[1], and D. Kamei[1]
[1]UCLA, Los Angeles, CA

2:15PM
A Shear Gradient-Activated Microfluidic Device for Real-Time Quantitative Assessment of Blood Hemostasis in vitro and ex vivo
A. Jain[1,2,3], A. Graveline[1], A. Waterhouse[1], A. Vernet[1], R. Flaumenhaft[2], and D. Ingber[1,3,4]
[1]Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA, [2]Beth Israel and Deaconess Medical Center, Harvard Medical School, Boston, MA, [3]Boston Children's Hospital, Harvard Medical School, Boston, MA, [4]School of Engineering and Applied Sciences, Harvard University, Cambridge, MA

2:30PM
Spatially Multiplexed Microgel Suspension Assay via Integrated Microfluidics
K. Duan[1], Z. Zhao[1], M. A. Al-Ameen[1], G. Ghosh[1], and J. Lo[1]
[1]University of Michigan-Dearborn, Dearborn, MI

2:45PM
High Throughput Screening using Traction Microscopy: Application for Discovery of New Bronchodilators
C. Y. Park[1], S. Burger[2], M. Frykenberg[2], D. Tambe[1], E. Zhou[1], R. Krishnan[3], A. Marinkovic[1], D. Tschumperlin[1], J. Butler[1], J. Solway[4], and J. Fredberg[1]
[1]Harvard School of Public Health, Boston, MA, [2]Northeastern University, Boston, MA, [3]Beth Israel Deaconess Medical Center, Boston, MA, [4]University of Chicago, Chicago, IL

3:00PM
Characterization Of Magnetic-Based Biomarker Extraction For Lateral Flow Assay Enhancement
T. Scherr[1], N. Adams[1], H. Ryskoski[1], M. Baglia[1], and F. Haselton[1]
[1]Vanderbilt University, Nashville, TN

3:15PM
High-throughput Analysis of 3D Spheroid Cultures using a Microarray Technique
J. Gabriel [1], J. Elisseeff[2], and V. Beachley[1]
[1]Rowan University, Glassboro, NJ, [2]Johns Hopkins University, Baltimore, MD

SPECIAL SESSION

2:00 PM - 4:00 PM - Ballroom BC

Biomedical Engineering Technology for the Elimination of Health Disparities

Chairs: Gilda Barabino, Cato Laurencin.

This session will explore the role of biomedical engineering for use in addressing health disparities. The use of technologies for addressing musculoskeletal conditions such as arthritis and osteoporosis will be explored. New emerging technologies involving mobile health (m-health) present possibilities for treatment of diabetes and hypertension. Finally, the session will address the use of biomedical technologies in developing countries, with an eye toward the adaptation of technologies to address issues here in the U.S. The 2015 BME Innovation and Career Development Travel Award winners will be announced at the session..

Speakers will include:

Cato T. Laurencin, MD, PhD
Musculoskeletal Conditions: The Role of Biomedical Device Technology in Addressing Health Disparities

Roderick Pettigrew, MD, PhD (invited) and Linda Barry, MD
Diabetes and Hypertension: M-Health Technologies for Prevention, Diagnosis and Treatment

Rebecca Richards-Kortum, PhD (invited)
The Use of Biomedical Engineering Technology in Developing Countries: Addressing Health Disparities throughout the World and in the U.S.

Track: Neural Engineering

OP-Thurs-2-18 - Room 1

Neural Progenitor and Tissue Engineering

Chairs: Nic Leipzig, Stephanie Willerth

2:00PM

Local Cyclosporine Delivery With HAMC After Stroke Stimulates Neural Stem Cells And Protects The Brain

A. Tuladhar[1], C. Morshead[1], and M. Shoichet[1]
[1]*University of Toronto, Toronto, ON, Canada*

2:15PM

Hydrogel Scaffolds for 3-D Reprogramming & Transplantation of Human Pluripotent Stem Cell-Derived Neurons

N. Bennett[1], N. Francis[1], A. Halikere[1], Z. Pang[1], and P. Moghe[1]
[1]*Rutgers University, Piscataway, NJ*

2:30PM

Hyaluronic Acid Increases Neural Stem Cell Responsiveness to SDF-1 α Signaling

C. Addington[1], J. Heffernan[1,2], R. Sirianni[2], and S. Stabenfeldt[1]
[1]*Arizona State University, Tempe, AZ,* [2]*Barrow Neurological Institute, Phoenix, AZ*

2:45PM

Differential Cytokine Regulation from Shear Stress Stimulated Endothelial Cells on Neural Progenitor Cell Survival, Proliferation, and Differentiation

C. Dumont[1], G. Dai[1], and D. Thompson[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

3:00PM

Salmon Fibrin-Hyaluronic Acid Hybrid Scaffolds Support Human Neural Stem/Progenitor Cell Function

J. Arulmoli[1], U. Sheth[1], H. Wright[1], M. Pathak[1], C. Huang[1], E. Sawyer[2], T. Zarembinski[3], D. Yanni[1], O. Razorenova[1], and L. Flanagan[1]
[1]*University of California, Irvine, Irvine, CA,* [2]*Sea Run Holdings Inc., Freeport, ME,* [3]*BioTime Inc., Alameda, CA*

3:15PM

Biomaterials for the Generation of hESC Derived Dopaminergic Neurons

M. Adil[1], T. Vazin[1], B. Ananthanarayanan[1], G. Rodrigues[2], S. Kumar[1], and D. Schaffer[1]
[1]*University of California Berkeley, Berkeley, CA,* [2]*Technical University of Lisbon, Lisbon, Portugal*

3:30PM

Spatially Multiplexed Microgel Suspension Assay via Integrated Microfluidics

K. Duan[1], Z. Zhao[1], M. A. Al-Ameen[1], G. Ghosh[1], and J. Lo[1]
[1]*University of Michigan-Dearborn, Dearborn, MI*

3:45PM

High Throughput Screening using Traction Microscopy: Application for Discovery of New Bronchodilators

C. Y. Par k[1], S. Burger[2], M. Frykenberg[2], D. Tam be[1], E. Zhou[1], R. Krishnan[3], A. Mar inkovic[1], D. Tschumperlin[1], J. Butler[1], J. Solwa y[4], and J. Fredberg[1]
[1]*Harvard School of Public Health, Boston, MA,* [2]*Northeastern University, Boston, MA,* [3]*Beth Israel Deaconess Medical Center, Boston, MA,* [4]*University of Chicago, Chicago, IL*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

3:00PM
Characterization Of Magnetic-Based Biomarker Extraction For Lateral Flow Assay Enhancement
T. Scherr [1], N. Adam s[1], H. Ryskoski[1], M. Baglia[1], and F. Haselton[1]
[1]Vanderbilt University, Nashville, TN

3:15PM
High-Throughput Analysis Of 3D Spheroid Cultures Using A Microarray Technique
J. Gabriel [1], J. Elisseeff [2], and V. Beachley[1]
[1]Rowan University, Glassboro, NJ, [2]Johns Hopkins University, Baltimore, MD

Track: Biomedical Imaging and Optics
OP-Thurs-2-19 - Room 9
Image Processing and Analysis

Chairs: Jillian Urban, Rosalind Sadleir

2:00PM
Machine Learning Classification of Low and High Head Impact Exposure in Youth Football Using DTI
F. Mokhtari[1], C. Lack[2], E. Davenport[1], J. Urban[3], C. Withlow[2], J. Stitzel[13], and J. Maldjian[2]
[1]Wake Forest University, Winston Salem, NC, [2]Wake Forest School of Medicine, Wiston Salem, NC

2:15PM
Novel Method for Three Dimensional Articulating Cartilage Modeling using Statistical Atlas
E. Abdel Fatah[1] and M. Mahfuz[1]
[1]University of Tennessee, Knoxville, TN

2:30PM
Collagen Orientation and Density Analysis: A Program for Quantification of Scar Tissue Metrics
J. Montgomery[1] and R. Gourdie[2]
[1]Virginia Tech, Blacksburg, VA, [2]Virginia Tech Carilion Research Institute, Roanoke, VA

2:45PM
A Complete Segmentation Pipeline For Anisotropic TDCS Finite Element Modeling
A. Indahlastari[1] and R. J. Sadleir[1]
[1]Arizona State University, Tempe, AZ

3:00PM
Idiopathic Inflammatory Myopathies Classification Using Deep Convolution Neural Network
M. Sapkota[1], F. Xing[1], and L. Yang[1]
[1]University of Florida, Gainesville, FL

3:15PM
Optics Based Signal and Image Processing Algorithms for Real-Time Blood Vessel Localization, Tracking and Quantification
A. Chaturvedi[1]
[1]Briteseed, LLC, Chicago, IL

SPECIAL SESSION
4:00 PM - 7:30 PM - Ballroom D
The 3rd US-Korea Joint Workshop on Biomedical Engineering

Thursday, October 8, 2015
Tampa Convention Center, Tampa, Florida, USA

Invited Oral Session I: 4:00 – 5:10 PM
Co-Chairs: Ho-Wook Jun (University of Alabama at Birmingham), Hak-Joon Sung (Vanderbilt University)

Hanjoong Jo (Georgia Tech & Emory University): Introductory Remarks
Christine Schmidt (University of Florida): Plenary Speaker
Young-Sup Yoon (Emory University)
Hyung-Suk Lee (Yonsei University)
Hyun-Kwang Seok (KIST)

Poster Session: 5:10 - 5:50 PM
Co-Chairs: Jungkyu Kim (Texas Tech University), Jennifer Shin (KAIST), Min-Ho Kim (Kent State University)

Invited Oral Session II: 5:50 – 7:10 PM
Chairs: Deok-Ho Kim (University of Washington), James Moon (University of Michigan)

Ravi Bellamkonda (Georgia Tech and Emory University): Plenary Speaker
Jungkyu Kim (Texas Tech University)
Min-Ho Kim (Kent State University)
Claire Hur (Roland Institute, Harvard University)
Hyunjoon Kong (University of Illinois at Urbana Champaign)

KBMES-KOSOMBE Dinner: 7:10 – 9: 00 PM
After the workshop, all attendees are invited to join us the reception and dinner

THURSDAY, October 8, 2015

4:30 PM - 6:00 PM

PLATFORM SESSIONS – THURS - 3

Track: Cellular and Molecular Bioengineering
OP-Thurs-3-1 - Room 18

Cell Adhesion and Interactions with the Extracellular Matrix III

Chairs: Stephanie Seidlits

4:30PM

Disruption of Endothelial Cell-Cell Junctions Independent of Intercellular Tension

C. Hardin[1], D. Tambe[2], E. Del Gado[3], J. Butler[4], J. Fredberg[4], K. Birukov[5], and R. Krishnan[6]

[1]Massachusetts General Hospital, Boston, MA, [2]University of South Alabama, Mobile, AL,[3]Georgetown University, Washington, DC, [4]Harvard School of Public Health, Boston, MA,[5]University of Chicago, Chicago, IL, [6]Beth Israel Deaconess Medical Center, Boston, MA

4:45PM

ECM Induction of a Mechanosensitive Invasive Epithelial Phenotype

S. Carey[1], K. Martin[1], and C. Reinhart-King[1]

[1]Cornell University, Ithaca, NY

5:00PM

Integrins Direct Cell Adhesion in a Substrate-Dependent Manner

A. Kourouklis[1] and H. Bermudez[1]

[1]University of Massachusetts, Amherst, MA

5:15PM

Mapping Pericellular Stiffness of Naturally-derived Extra Cellular Matrix Around Cells Cultured in 3D

M. Keating[1], A. Kurup[1], M. Alvarez-Beatriz[2], and E. Botvinick[1]

[1]University of California, Irvine, Irvine, CA, [2]Technion, Haifa, Israel

Fibronectin Fibrillogenesis Mediates TGF-&[beta]' Induced EMT in Mammary Epithelial Cells

L. Griggs[1], R. Malik [1], N. Hassan[1], B. Martinez[1], L. Elmore[1], and C. Lemmon[1]

[1]Virginia Commonwealth University, Richmond, VA

5:30PM

Cadherin-11 Regulates Collagen and Elastin Synthesis in-vivo and *in-vitro* by Activating TGF-&β and ROCK Pathways

Y. Liu[1], S. Row[1], S. Alimperti[1], A. T.George[2], S. K. Agarwal[2], and S. Andreadis[1]

[1]State University of New york at Buffalo, Amherst, NY, [2]Baylor College of Medicine, Houston, TX

Track: Cellular and Molecular Bioengineering
OP-Thurs-3-2 - Room 19

Mechanotransduction I

Chairs: Rita Alevriadou

4:30PM

Using Micromanipulation To Probe Nucleo-Cytoskeletal Force Transmission & The LINC Complex

G. Fedorchak[1], D. Osório[2], E. Gomes[2], and J. Lammerding[1]

[1]Cornell University, Ithaca, NY, [2]Institute for Molecular and Cellular Biology, Porto, Portugal

4:45PM

Nesprin-3 Regulates Vascular Endothelial Cell Shape via an Effect on Microtubules

J. Morgan[1], D. Starr[1], and A. Barakat[2]

[1]University of California Davis, Davis, CA, [2]Ecole Polytechnique, Palaiseau, France

5:00PM

Endothelial Mitochondria are Required for Cytosolic Calcium Transients Induced by Fluid Shear Stress

C. Scheitlin[1], J. Julian[1], N. Tsoukias[2], and B. R. Alevriadou[1]

[1]The Ohio State University, Columbus, OH, [2]Florida International University, Miami, FL

5:15PM

Increased E-cadherin Forces Promote Epithelial Cell Proliferation and Migration

D. Conway[1], A. Duke[1], and P. Arsenovic[1]

[1]Virginia Commonwealth University, Richmond, VA

5:30PM

Systems Analysis of Cardiac Remodeling Through Mechano-Signaling Networks

P. Tan[1] and J. Saucerman[1]

[1]University of Virginia, Charlottesville, VA

5:45PM DREAM TEAM & CENTERS

Cellular Tension Activates Piezo1, a Stretch-activated Ion Channel Involved in Neural Stem Cell Fate

D. T. Le[1], K. Ellefsen[1], C. Le[1], J. Nourse[1], J. Arulmoli[1], L. A. Flanagan[1], I. Parker[1], F. Tombola[1], and M. Pathak[1]

[1]UC Irvine, Irvine, CA

Track: Nano and Micro Technologies
OP-Thurs-3-3 - Room 20

Theranostics and Nanoparticles I

Chairs: Carlos Rinaldi, Nicholas Panaro

4:30PM

Polymerization Amplified Detection for Nanoparticle-Based Biosensing and the Serendipitous Discovery of Enz-RAFT

A. Gormley[1], R. Chapman[1], and M. Stevens[1]

[1]Imperial College London, London, United Kingdom

4:45PM

Lysozyme-Dextran Nanogels Presenting Platelet GPIb α Mimic and Enhance Platelet Adhesion

J. Myerson[1], I. Johnston[1], J. Wu[1], R. McClintock[2], Z. Ruggeri[2], M. Poncz[1], and V. Muzykantov[1]

[1]University of Pennsylvania, Philadelphia, PA, [2]The Scripps Research Institute, La Jolla, CA

5:00PM

Enhanced Vascular Imaging via a Polymeric Fastener and Cross-Linkable Liposomes

C. Smith[1], S. Misra[2], S. Zimmerman[1], and H. Kong[1]

[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Mayo Clinic, Rochester, MN

5:15PM

Biomimetic Modular Assembly of MRI/Fluorescence Imaging Probes

S. Tong[1] and G. Bao[2]

[1]Georgia Institute of Technology, Atlanta, GA, [2]Rice University, Houston, TX

5:30PM

Silver Nanoparticle-Embedded Polymersome Nanocarriers for the Treatment of Antibiotic-Resistant Infections

B. Geilich[1], A. van de Ven[1], S. Sridhar[1], and T. Webster[1]

[1]Northeastern University, Boston, MA

5:45PM

Three-component Bioactive Nanoparticle as an Image-guided Cancer Nanotheranostic Agent

R. Chauhan[1], K. James[1], M. Zhu[1], J. Li[1], D. Miller[1], R. Keynton[1], C. Ng[1], P. Bates[1], T. Malik[1], and M. O'Toole[1]

[1]University of Louisville, Louisville, KY

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Biomaterials
OP-Thurs-3-4 - Room 21
Biomaterials Scaffolds III

Chairs: Janet Zoldan, Silviya Zustiak

4:30PM
Enhancing Vascular Integration and Perfusion through Highly Dense, Compliant Hydrogels
R. Schweller[1], B. Klitzman[1], and J. West[1]
[1]Duke University, Durham, NC

4:45PM
Induction of *In Vitro* and *In Vivo* Vascularization Using a Novel Human-Derived Extracellular Matrix
M. Moore[1], V. Pandolfi[1], and P. McFetridge[1]
[1]University of Florida, Gainesville, FL

5:00PM
Self-Assembling Peptide Gel Stiffness and Culture Dimensionality Direct hMSC Differentiation
N. Hogrebe[1] and K. Gooch[1]
[1]The Ohio State University, Columbus, OH

5:15PM DREAM TEAM & CENTER
A Facile Synthetic Extracellular Matrix Approach for Functional 3D Co-Culture of Endometrial Stromal and Epithelial Cells
C. Cook[1,2], A. Hill[1,2], M. Guo[1], L. Stockdale[2], M. de Geus[1,2], K. Isaacson[3], and L. Griffith[1,2]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Center for Gynepathology Research, Cambridge, MA, [3]Harvard Medical School and Center for Minimally Invasive Gynecologic Surgery, Newton, MA

5:30PM
Binding Extracellular Matrices in Aqueous Environments using Silica Nanoparticles
L. Goldberg[1] and P. McFetridge[1]
[1]University of Florida, Gainesville, FL

5:45PM
Fabrication of Novel Citric Acid Based Biodegradable Polymer/ Pearl Powder Orthopedic Composites
E. Gerhard[1], M. Ferraro[1], and J. Yang[1]
[1]The Pennsylvania State University, University Park, PA

Track: Biomaterials
OP-Thurs-3-5 - Room 22
Biomaterials for Immunoengineering I

Chairs: Christopher Jewell, Elizabeth Lipke

4:30PM
Engineering the Local Lymph Node Environment to Promote Systemic, Antigen-specific Immune Tolerance
L. H. Tostanoski[1], Y-C. Chiu[1], J. M. Gammon[1], and C. M. Jewell[1,2,3]
[1]University of Maryland - College Park, College Park, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

4:45PM
Exogenous Delivery of Indoleamine 2,3 Dioxygenase for the Induction of Immune Tolerance
E. Bracho-Sanchez[1] and B. Keselowsky[1]
[1]University of Florida, Gainesville, FL

5:00PM
An Injectable Microparticle Vaccine System Reverses Type 1 Diabetes in NOD Mice and Modulates Cellular Tolerance
J. Stewart[1], J. Lewis[1], and B. Keselowsky[1]
[1]University of Florida, Gainesville, FL

5:15PM
Presence of Endotoxin and Protein Impurities in Alginate Hydrogels Correlate with Immune-mediated Destruction after Islet Transplantation
G. Kummerfeld[1], R. Krishnan[1], K. Laugenour[1], M. Alexander[1], B. de Haan[2], P. de Vos[2], and J. Lakey[1,3]
[1]University of Calfornia Irvine, Orange, CA, [2]University Medical Center Groningen, Groningen, Netherlands, [3]University of Calfornia Irvine, Irvine, CA

5:30PM
Lipid-Biopolymer Hybrid Nanoparticles for Intranasal Vaccination
Y. Fan[1], P. Sahdev[1], L. Ochyl[1], J. Akerberg[1], and J. Moon[1]
[1]University of Michigan, Ann Arbor, MI

5:45PM
Design and Characterization of gp140 Envelope Trimer-Coupled Liposomes for an HIV Vaccine
T. Tokatlian[1], M. Zhang[1], A. Mutafyan[1], D. Kulp[2], E. Georgeson[2], M. Kubitz[2], W. Schief[2], and D. Irvine[1]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]The Scripps Research Institute, La Jolla, CA

Track: Biomaterials
OP-Thurs-3-6 - Room 23
Bioinspired and Self Assembling Biomaterials I

Chairs: Emily Day, Delphine Gourdon

4:30PM
The Insect Respiratory System: A Source of Bio-inspiration for Tissue Vascularization
R. De Vita[1], M. Webster[1], J. Socha[1], P. Nardinocchi[2], and L. Teresi[3]
[1]Virginia Tech, Blacksburg, VA, [2]Sapienza Università di Roma, Rome, Italy, [3]Università, Roma Tre, Rome, Italy

4:45PM
Biodistribution And Therapeutic Efficacy Of Highly Angiogenic Peptides
V. Kumar[1], N. Wickremasinghe[1], Q. Liu[2], S. Shi[1], A. Azares[2], R. Dixon[2], and J. Hartgerink[1]
[1]Rice University, Houston, TX, [2]Texas Heart Institute, Houston, TX

5:00PM
Prophylactic Delivery Of Synthetic Platelets Enhance Primary And Secondary Hemostasis For Bleeding Treatment in Severely Thrombocytopenic Mice
U. D. S. Sekhon[1], V. Betapudi[2], C. Pawlowski[3], K. McCrae[2], and A. Sen Gupta[1]
[1]Case Western Reserve University, Cleveland, OH, [2]Cleveland Clinic Foundation, Cleveland, OH, [3]Case Western reserve Unversity, Cleveland, OH

5:15PM
Bio-inspired Adhesive Hydrogels from Sundew for Wound Healing Applications
L. Sun[1], Z. Bian[2], Z. Fan[3], Y. Wang[3], Y. Huang[1], K. H. Park[4], T. Yue[2], M. Schmidt[3], J. Ma[2], H. Zhu[4], and M. Zhang[3]
[1]The Ohio State University, Columbus, OH, [2]Ohio State University, columbus, OH, [3]Ohio State University, Columbus, OH, [4]The Ohio State University, columbus, OH

5:30PM
Development and Optimization of PolySTAT, a Factor XIIIa-Inspired Polymer, as an Injectable Hemostat
R. Lamm[1], L. Chan[1], X. Wang[1], N. White[1], and S. Pun[1]
[1]University of Washington, Seattle, WA

5:45PM
Sustained Response of Human Mesenchymal Stem Cells on Additively Manufactured 3D Porous Ti6Al4V
A. Cheng[1,2,3], A. Humayun[4], B. Boyan[4], and Z. Schwartz[4,5]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA, [3]Peking University, Beijing, China, People's Republic of, [4]Virginia Commonwealth University, Richmond, VA, [5]University of Texas Health Science Center at San Antonio, San Antonio, TX

Track: Tissue Engineering
OP-Thurs-3-7 - Room 13
Engineering Replacement Tissues

Chairs: Ariella Shikanov, Fan Yang

4:30PM
Biomimetic Hydrogels for the Assembly of Salivary Gland Microtissues
T. Ozdemir[1], E. Fowler[1], D. Zakheim[1], Y. Hao[1], S. Pradhan-Bhatt[1], D. A. Harrington[2], R. L. Witt[1], M. C. Farach-Carson[2], and X. Jia[1]
[1]University of Delaware, Newark, DE, [2]Rice University, Houston, TX

4:45PM **DREAM TEAM & CENTERS**
Construction and Characterization of a Pre-vascularized Bioartificial Pancreas
J. Rhett[1], H. Wang[1], H. Bainbridge[1], L. Song[1], S. G. Dennis[1], C. Czajka[2], and M. Yost[1]
[1]Medical University of South Carolina, Charleston, SC, [2]University of Pittsburgh, Pittsburgh, PA

5:00PM
Capsule Geometry, Composition and Transplant Site Affects the Performance of Encapsulated Islets
V. Manzoli[1], C. Villa[1], M. Abreu[1], D. Molano[1], and A. Tomei[1,2]
[1]Diabetes Research Institute, Miami, FL, [2]University of Miami, Miami, FL

5:15PM
Collagen-binding Heparin Significantly Reduces the Thrombogenicity of Decellularized Tissues
B. Jiang[1], J. Wertheim[1], and G. Ameer[1]
[1]Northwestern University, Evanston, IL

5:30PM
Translating Conformal Coating of Islets for Transplantation without Immunosuppression in Diabetes
V. Manzoli[1,2], C. Villa[1], R. D. Molano[1], and A. A. Tomei[1,3]
[1]University of Miami - Miller School of Medicine, Miami, FL, [2]Politecnico di Milano, Milano, Italy, [3]University of Miami, Coral Gables, FL

5:45PM
Implantation Of A Chitosan-Based Bioengineered Tubular Neuromuscular Tissue For Gut Lengthening
E. Zakhem[1], M. Elbahrawy[1], and K. N. Bitar[1,2]
[1]Wake Forest Institute for Regenerative Medicine, Winston Salem, NC, [2]Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences, Winston Salem, NC

Track: Orthopedic and Rehabilitation Engineering
OP-Thurs-3-8 - Room 14
Articular Cartilage and Joint

Chairs: Lucas Lu, Kyle Allen

4:30PM
Understanding The Mechanics Of Focal Chondral Defects In The Hip
B. Klennert[1], B. Ellis[1], T. Maak[1], A. Kapron[1], and J. Weiss[1]
[1]University of Utah, Salt Lake City, UT

4:45PM
Tribological Rehydration: Maintaining and Rebuilding Interstitial Fluid Pressure in Cartialge
A. Moore[1] and D. Burris[1]
[1]University of Delaware, Newark, DE

5:00PM
Intervertebral Lumbar Disc Height Measurements for Age and Gender
J. Ford[1], R. Foley[1], K. Bach[1], and S. Decker[1]
[1]University of South Florida, Tampa, FL

5:15PM
Assessment of Human Articular Cartilage Issued from Asymptomatic & TKR Donors
I. HADJAB[1,2], S. Sim[1,2], E. Quenneville[2], M. Garon[2], and M. D. Buschmann[1]
[1]Polytechnique Montréal, Montréal, QC, Canada, [2]Biomomentum Inc., Laval, QC, Canada

5:30PM
Determining Tension-Compression Nonlinear Mechanical Properties of Articular Cartilage from Indentation Testing
X. Chen[1], Y. Zhou[1], B. Zimmerman[1], L. Wang[1], M. Santare[1], L. Wan[2], and L. Lu[1]
[1]University of Delaware, Newark, DE, [2]Rensselaer Polytechnic Institute, Troy, NY

5:45PM
A Novel Operant-based Behavioral Assay of Mechanical Allodynia in the Orofacial Region of Rats
E. Rohrs[1], H. Kloefkorn[1], B. Jacobs[1], E. Lakes[1], J. Neubert[1], R. Caudle[1], and K. Allen[1]
[1]University of Florida, Gainesville, FL

Track: Biomechanics
OP-Thurs-3-9 - Room 15
Blast Trauma

Chairs: Pam Vandevord, Raj Prabhu

4:30PM
Development of an Experimental Model to Simulate Shock Wave Induced Pressure in Blood Vessels I of the Brain
S. Hashemi[1], D. Jahnke[1], A. Sadegh[1], and Y. Andreopoulos[1]
[1]The City College of New York, New York, NY

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

4:45PM
Free Field Blast Induced Mechanical Response, Axonal Injury and Glial Changes in Swine Brain
K. Feng[1], S. Kallakuri[1], X. Jin[1], A. Desai[1], C. Chen[1], T. Saif[1], L. Zhang[1], J. Cavanaugh[1], and A. King[1]
[1]*Wayne State University, Detroit, MI*

5:00PM
Characterizing the Role of HIF-1α in Blast Neurotrauma: Link with the Blood-Brain Barrier Disruption
B. Hubbard[1], M. Lashof-Sullivan[2], J. Eck[1], E. Lavik[2], and P. VandeVord[1,3]
[1]*Virginia Tech, Blacksburg, VA,* [2]*Case Western Reserve University, Cleveland, OH,* [3]*Veterans Affairs, Salem, VA*

5:15PM DREAM TEAM & CENTERS
Blast-Induced Cavitation Results in Distinct Injury Patterns
S. Canchi[1], Y. Hong[1], M. King[1], G. Subhash[1], and M. Sarntinoranont[1]
[1]*University of Florida, Gainesville, FL*

5:30PM
Behavioral and Inflammatory Consequences of Cerebrovascular Dysfunction in Primary Blast Injury
S. Yeoh[1]
[1]*University of Utah, Salt Lake City, UT*

5:45PM
Eye and Face Response to Blast Overpressure: An Experimental Study Using a 3D-Printed Human Face
V. Alphonse[1], A. Kemper[1], and S. Duma[1]
[1]*Virginia Tech, Blacksburg, VA*

Track: Biomechanics
OP-Thurs-3-10 - Room 16
Organ and Cell Biomechanics

Chairs: Adam Engler, Warren Ruder

4:30PM
Endothelial Cell Dual Mechanical Force Integration Through Vector Logic Gates
R. Steward Jr.[1]
[1]*University of Central Florida, Orlando, FL*

4:45PM
Quantification of *in situ* Chromatin Condensation Using Fluorescence Lifetime Imaging (FLIM)
S. Spagnol[1] and K. Dahl[1]
[1]*Carnegie Mellon University, Pittsburgh, PA*

5:00PM
Elastic Behavior and Platelet Retraction In Low- And High-Density Fibrin Gels
A. Wufsus[1], K. Rana[1], A. Brown[1], J. Dorgan[1], M. Liberatore[1], and K. Neeves[1,2]
[1]*Colorado School of Mines, Golden, CO,* [2]*University of Colorado, Aurora, CO*

5:15PM
Developing A Mechanical Model For Studying Breast Cancer Metastasis To The Lungs
S. Polio[1], N. Birch[1], J. Schiffmann [1], A. Crosby[1], and S. Peyton[1]
[1]*University of Massachusetts Amherst, Amherst, MA*

5:30PM
Asymmetric Bmp7-regulated Differences in Cell Proliferation Drive Optic Nerve Formation.
B. Filas[1], L. Taber[2], and D. Beebe[1]
[1]*Washington University School of Medicine, Saint Louis, MO,* [2]*Washington University in St. Louis, St. Louis, MO*

5:45PM
Mechanical Origins of Rightward Torsion in Embryonic Chick Brain
Z. Chen[1,2], Q. Guo[3], E. Dai[2], N. Forsch[4], and L. Taber[2]
[1]*Dartmouth College, Hanover, NH,* [2]*Washington University in St. Louis, St. Louis, MO,* [3]*FuJian University of Technology, Fuzhou, China, People's Republic of,* [4]*University of California at San Diego, San Diego, CA*

Track: Cardiovascular Engineering
OP-Thurs-3-11 - Room 3-4
Sickle Cell Disease - Engineering Therapies

Chairs: Sergey Shevkoplyas, David Wood

4:30PM
Clinical Validation of a Paper-Based Screening and Diagnostic Test for Sickle Cell Anemia in Angola
N. Piety[1], A. George[2], P. Patel[2], D. Nirenberg[2], G. Airewele[2], and S. Shevkoplyas[1]
[1]*University of Houston, Houston, TX,* [2]*Baylor College of Medicine, Houston, TX*

4:45PM
Strokes In Sickle Cell Transgenic Mice Can Be Reduced With Inhibition Of JNK Mediated Proteolytic Fragmentation Of Elastic Lamina
S. Anbazhakan[1], P. Keegan[1], S. Keilholz[1,2], and M. Platt[1]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Emory University, Atlanta, GA*

5:00PM
Nuclease Mediated Genome Editing for Treating Sickle Cell Disease Utilizing Non-Viral Delivery Strategies
R. Cottle[1], D. Archer[2], and G. Bao[3]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Emory School of Medicine, Atlanta, GA,* [3]*Rice University, Houston, TX*

5:15PM
Vessel Curvature Mediates Endothelial Dysfunction In Sickle Cell Disease
Y. Wang[1,2,3], R. Mannino[1,2,3], D. Myers[1,2,3], and W. Lam[1,2,3]
[1]*Georgia Institute of Technology, Emory University, Atlanta, GA,* [2]*Emory University, School of Medicine, Atlanta, GA,* [3]*Aflac Cancer and Blood Disorders Center, Children's Healthcare of Atlanta, Atlanta, GA*

5:30PM
Computational Fluid Dynamics Models of the Middle Cerebral Artery to Determine Scenarios Producing Elevated Velocities Linked to Childhood Strokes in Sickle Cell Disease
C. Rivera[1], A. Veneziani[2], and M. Platt[1]
[1]*Georgia Institute of Technology and Emory University, Atlanta, GA,* [2]*Emory University, Atlanta, GA*

5:45PM
Microfluidic Probing of Red Cell Adhesion as a Clinical Severity Indicator in Sickle Cell Disease
Y. Alapan[1], C. Kim[1], J. Little[2], and U. Gurkan[1]
[1]*Case Western Reserve University, Cleveland, OH,* [2]*University Hospitals, Cleveland, OH*

Track: Stem Cell Engineering
OP-Thurs-3-12 - Room 5-6
Engineering Stem Cell Environments

Chairs: Albert Keung, Ankur Singh

4:30PM
Cell surface Glycoengineering Improves Selectin-mediated Tethering and Adhesion of Mesenchymal Stem Cells (MSCs) and Cardiosphere-Derived Cells (CDCs)
S. Neelamegham[1], C. Lo[1], and J. Canty[1]
[1]State University of New York at Buffalo, Buffalo, NY

4:45PM
Self-organizing Human Cardiac Microchambers Mediated by Geometric Confinement
Z. Ma[1], J. Wang[1], P. Loskill[1], N. Huebsch[2], S. Koo[1], F. Svedlund[1], C. Grigoropoulos[1], B. Conklin[2], and K. Healy[1]
[1]University of California, Berkeley, Berkeley, CA, [2]Gladstone Institute, San Francisco, CA

5:00PM
Evaluating Bone Marrow Mesenchymal Stem Cells as a Cell Source for Liver Tissue Engineering
Q. Xu[1] and H. Matthew[1]
[1]Wayne State University, Detroit, MI

5:15PM
Local Production of VEGF by Microencapsulated ASCs is Species Specific
S. Leslie[1], B. Boyan[1], and Z. Schwartz[1]
[1]Virginia Commonwealth University, Richmond, VA

5:30PM
Characterizing the Periosteum's Stem Cell Niche
N.Y.C. Yu[1], I. Slapetova[2], R. M. Whan[2], M. L. Knothe Tate[1]
[1] Graduate School of Biomedical Engineering, University of New South Wales (UNSW), Sydney, Australia [2] Biomedical Imaging Facility, Mark Wainwright Analytical Centre, UNSW, Sydney, Australia

5:45PM
Maturation of Induced Pluripotent Stem Cell-Derived Human Liver Cells in Engineered Co-cultures
S. Allsup[1], D. Berger[1], and S. Khetani[1]
[1]Colorado State University, Fort Collins, CO

Track: Biomedical Imaging and Optics
OP-Thurs-3-13 - Room 11
Multi-modality Imaging Approaches

Chairs: Wawrzyniec Dobrucki, Fred Epstein

4:30PM
Bimodal 3D Near Infrared and Ultrasound Imaging of Blood Vessels for Real-time Image-Guided Vascular Access
A. Chen[1], M. Balter[1], T. Maguire[1], and M. Yarmush[1]
[1]Rutgers University, Piscataway, NJ

4:45PM
Guided Medulloblastoma Resection Using An Activated Probe And A Miniaturized Dual-Axis Confocal Microscope (DAC)
S. Rogalla[1], S. Haag[1], C. Zavaleta[1], N. Loewke[1], M. Mandella[1], K. Oresic-Bender[1], M. Bogyo[1], and C. Contag[1]
[1]Stanford University, Stanford, CA

5:00PM
PET Simulations Allow For Accurate Evaluation Of MRI-based Attenuation Correction Methods
M. Juttukonda[1], B. Mersereau[1], H. An[2], and D. Lalush[1]
[1]University of North Carolina at Chapel Hill & North Carolina State University, Chapel Hill, NC,[2]University of North Carolina at Chapel Hill, Chapel Hill, NC

5:15PM
Engineering of a MRI Contrast Agent for Detection Cerebral Amyloid Deposits Capable of Therapeutic Drug Delivery
J. Rosenberg[1], K. Ahlschwede[2,3], E. Agyare[3], G. Curran[4], K. Kandimalla[3,5], and S. Grant[1,6]
[1]Florida State University, Tallahassee, FL, [2]University of Minnesota, Minneapolis, MN,[3]Florida A&M University, Tallahassee, FL, [4]Mayo Clinic College of Medicine, Rochester, MN,[5]Mayo clinic college of Medicine, Rochester, MN, [6]FSU-FAMU College of Engineering, Tallahassee, FL

5:30PM
Synthesis, Characterization and In Vivo Evaluation of RAGE Targeted Nanoparticles for Molecular Imaging of Prostate Cancer
C. Konopka[1,2,3], J. Hedhli[1,2], L. Lahood[1], A. Patel[1], I. Dobrucka[2], G. Munirathinam[4], A. Kajdacsy-Balla[5], and L. Dobrucki[1,2]
[1]University of Illinois, Urbana, IL, [2]Beckman Institute for Advanced Science and Technology, Urbana, IL, [3]University of Illinois College of Medicine, Urbana, IL, [4]University of Illinois College of Medicine, Rockford, IL, [5]University of Illinois at Chicago, Chicago, IL

5:45PM
A Time-domain Fluorescence Lifetime Measurement System For Quantifying Ultrasound-switchable Fluorescence Contrast Agents
S. Yu[1]
[1]University of Texas at Arlington, Arlington, TX

Track: Neural Engineering
OP-Thurs-3-14 - Room 12
Neural Interfaces: Compatibility, Recording, and Stimulation III

Chairs: Jeffrey Capadona, Kyle Lampe

4:30PM
Towards a Retinal Prosthesis with Differential Stimulation of OFF and ON Pathways
J. Troy[1], C. Rountree[1], S. Inayat[1,2], and L. Saggere[2]
[1]Northwestern University, Evanston, IL, [2]University of Illinois at Chicago, Chicago, IL

4:45PM
Optically Addressed Wireless Stimulator for Nano-engineered Retinal Prosthesis
S. Ha[1], M. Khraiche[1], A. Akinin[1], G. Silva[1], and G. Cauwenberghs[1]
[1]University of California San Diego, La Jolla, CA

5:00PM **DREAM TEAM & CENTERS**
Porous Polydimethylsiloxane Substrates Demonstrate Feasibility as Regenerative Peripheral Nerve Interface Multi-Channel Electrodes
J. Mack[1], S. Woo[1], J. Seymour[1], X. Chen[1], E. Yoon[1], M. Urbanchek[1], P. Cederna[1], and N. Langhals[1]
[1]University of Michigan, Ann Arbor, MI

5:15PM
The Dorsal Root Ganglion: A Promising Neural Target for Somatosensory Neuroprostheses
L. Fisher[1], C. Ayers[1], W. Cusack[1], A. Nanivadekar[1], R. Gaunt[1], and D. Weber[1]
[1]University of Pittsburgh, Pittsburgh, PA

5:30PM
Thermally Drawn Nerve Guidance Channels for PNS Regeneration and Interfacing
R. Koppes[1], S. Park[1], T. Hood[1], N. Poorheravi[1], X. Jia[1], and P. Anikeeva[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

5:45PM
Comparisons of Platinum and CNT-MEA Electrodes as Peripheral Muscular Interface
C. Chen[1], W. Yi[1], X. Meng[2], C. Zhou[1], W. Wang[2], B. Cheng[2], J. Cavanaugh[1], and M. Cheng[1]
[1]Wayne State University, Detroit, MI, [2]Tsinghua University, Beijing, China, People's Republic of

Track: Bioinformatics, Computational and Systems Biology
OP-Thurs-3-15 - Room 17
From Molecules to Cells and Organs in Health and Disease

Chairs: Denise Kirschner, Jose Vilar

4:30PM
Systems Biology Track Overview
L. Saiz[1]
[1]University of California, Davis, CA

4:45PM
Quantitative Analysis of Immune Cell Cytokine Secretion Reveals Role of Cell Communication in Regulation of CXCR[3] Ligands
S. Schrier[1], A. Hill[1], and D. Lauffenburger[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

5:00PM
The DIONESUS Algorithm Provides Scalable and Accurate Reconstruction of Biological Networks to Reveal New Drug Target
M. Ciaccio[1] and N. Bagheri[1]
[1]Northwestern University, Evanston, IL

5:15PM
Exploring Cellular Heterogeneity in Development by Single-Cell Transcript Profiling
A. Coskun[1] and L. Cai[1]
[1]Caltech, Pasadena, CA

5:30PM
An Agent-based Vision for Tissue Engineering: Quantifying Biocomplexity Exploit it
H. Kaul[1]
[1]University of Sheffield, Sheffield, United Kingdom

5:45PM
Co-detection and Sequencing of Genomic DNA and Messenger RNA from the Same Single Cells Facilitated by a Microfluidic System
R. Fan[1]
[1]Yale University, New Haven, CT

Track: Drug Delivery
OP-Thurs-3-16 - Room 10
Nano to Micro Devices in Delivery II

Chairs: Edward Chow, Dean Ho

4:30PM
Nanoparticle-releasing Nanofiber Composites for Enhanced *In Vivo* Vaginal Retention
E. Krogstad[1], R. Ramanathan[1], C. Nhan[1], K. Thoreson[1], and K. Woodrow[1]
[1]University of Washington, Seattle, WA

4:45PM
Microneedle-Array Patches Loaded with Hypoxia-Sensitive Vesicles for Rapid Glucose-Responsive Insulin Delivery
J. Yu[1,2], Y. Zhang[1,2], Y. Ye[1,2], D. Ranson[1], F. Ligler[1], J. Buse[3], and Z. Gu[1,2,3]
[1]University of North Carolina at Chapel Hill and North Carolina State University, Chapel Hill, NC, [2]University of North Carolina at Chapel Hill, Chapel Hill, NC, [3]University of North Carolina School of Medicine, Chapel Hill, NC

5:00PM **DREAM TEAM & CENTER**
Development of Spray Dried Curcumin Loaded Nanoparticles to Mitigate Radiation Induced Cellular Damage
A. Akalkotkar[1], M. O'Toole[1], L. Lanceta[1], B. Nunn[1], J. Eaton[1], R. Keynton[1], and P. Soucy[1]
[1]University of Louisville, Louisville, KY

5:15PM
Release of Erythromycin from Injectable Calcium Polyphosphate-derived Brushite Cement
W. Ren[1], W. Song[1,2], and D. Markel[3]
[1]Wayne State University, Detroit, MI, [2]Virotech Biomaterials Inc., Detroit, MI, [3]Providence Hospital, Southfield, MI

5:30PM
Using Affinity Polymers for the Local Slow Release of Corticosteroids in the Treatment of Osteoarthritis
E. Rivera-Delgado[1], E. Lavik[1], and H. von Recum[1]
[1]Case Western Reserve University, Cleveland, OH

5:45PM
Asymmetric Biodegradable Microdevices for Cell-borne Drug Delivery
J. Xia[1], Z. Wang[1], D. Huang[1], Y. Yan[1], Y. Li[1], and J. Guan[1]
[1]Florida State University, tallahassee, FL

Track: Nano and Micro Technologies
OP-Thurs-3-17 - Room 7-8
Nano/Microbiotechnology I

Chairs: Zi Chen, Gabe Kwong

4:30PM
Molecular Typing of Rare Trafficking Leucocytes using a Nanowire Array Microchip for Evaluating Neurodegenerative Pathology
M. Kwak[1] and R. Fan[1]
[1]Yale University, New Haven, CT

4:45PM
Nanomagnetic Actuation: Remote Control Of Cell Signaling
J. Dobson[1], H. Bin[2], and A. El Haj[3]
[1]University of Florida, Gainesville, FL, [2]Keele University, Stoke-on-Trent, United Kingdom,[3]Keele University, stoke-on-Trent, United Kingdom

5:00PM
Development of Light-Induced Shape Memory Microparticles for Biomedical Applications
Q. Guo[1], C. Bishop[2], R. Meyer[1], L. Olasov[1], D. Schesinger[1], J. Spicer[1], J. Elisseeff[1], A. Kumar[1], and J. Green[1]
[1]Johns Hopkins University, Baltimore, MD, [2]Johns Hopkins University, Baltimore, China, People's Republic of

5:15PM
NanoCluster Beacons Enable Enzyme-Free N^6-MethyladenineDetectionJ. Obliosca1,
Y-A. Chen[1], C. Liu[1], Y-L. Liu[1], and H-C. Yeh[1]
[1]University of Texas at Austin, Austin, TX

5:30PM
Explore Intracellular Dynamics and Behaviors of MBD3 Protein by Single-molecule Fluorescence Tools
Y. Cui[1] and J. Irudayaraj[1]
[1]Purdue University, West Lafayette, IN

5:45PM DREAM TEAM & CENTER
Single Cell Electroporation via Cell Rotation in Geometrically-Aided Field Amplification Microdevices
M. Zheng[1], J. Sherba[1], J. Shan[1], H. Lin[1], D. Shreiber[1], and J. Zahn[1]
[1]Rutgers University, Piscataway, NJ

Track: Respiratory Bioengineering
OP-Thurs-3-18 - Room 1
Surface Tension and Surfactant Function in the Lung

Chairs: Carrie E. Perlman, Donald Gaver

4:30 PM
The Effect of the Hydrophobic Surfactant Proteins on the Curvature of Lipid Leaflets *(invited)*
S. Hall[1], M. Chavarha[1], R. Loney[1], and S. Rananavare[2]
[1]Oregon Health & Science University, Portland, OR, [2]Portland State University, Portland, OR

4:45 PM
A Three Dimensional Multiscale Model of Surfactant Replacement Therapy
J. Grotberg[1] and M. Filoche[2]
[1]University of Michigan, Ann Arbor, MI, [2]Ecole Polytechnique, Palaiseau, France

5:00PM
Development of a Realistic Ventilated Infant Lung Model for Assessing the Delivery Efficiency and Effectiveness of Aerosolized Surfactants
L. Holbrook[1], K. Bass[1], M. Hindle[1], and W. Longest[1]
[1]Virginia Commonwealth University, Richmond, VA

5:15PM
Model Gastric Liquid Effect on Pulmonary Alveolar Surface Tension
T. Nguyen[1] and C. Perlman[1]
[1]Stevens Institute of Technology, Hoboken, NJ

5:30PM
The Influence of Pulsatile Flow on The Uniformity of Pulmonary Airway Recruitment.
E. Yamaguchi[1], L. P. Nolan[1], and D. P. Gaver III [1]
[1]Tulane University, New Orleans, LA

5:45PM
Microfluidic Evaluation of Mucolytic and Surfactant Therapies for Eustachian Tube Dysfunction
N. Higuita-Castro[1], J. Malik[1], V. Shukla[1], J. D. Swarts[2], and S. N. Ghadiali[1]
[1]The Ohio State University, Columbus, OH, [2]University of Pittsburgh, Pittsburgh, PA

Track: Biomedical Imaging and Optics
OP-Thurs-3-19 - Room 9
PET, SPECT, and CT

Chairs: Jonathan Butcher, Guohua Cao

4:30 PM
Using PET Imaging To Quantify Cell-Surface Biomarkers In Cancer Therapy *(invited)*
A. Chang[1], R. Port[1], G. Ferl[1], and S. William s[1]
[1]Genentech, Inc., South San Francisco, CA

4:45PM DREAM TEAM & CENTER
Robust Low-Dose CT Perfusion Deconvolution via Non-Local Tensor Total Variation
R. Fang[1], M. Ni[2], J. Huang[3], Q. Li[2], and T. Li[1]
[1]Florida International University, Miami, FL, [2]Nanjing University of Science and Technology, Najing, China, People's Republic of, [3]University of Texas at Arlington, Arlington, TX

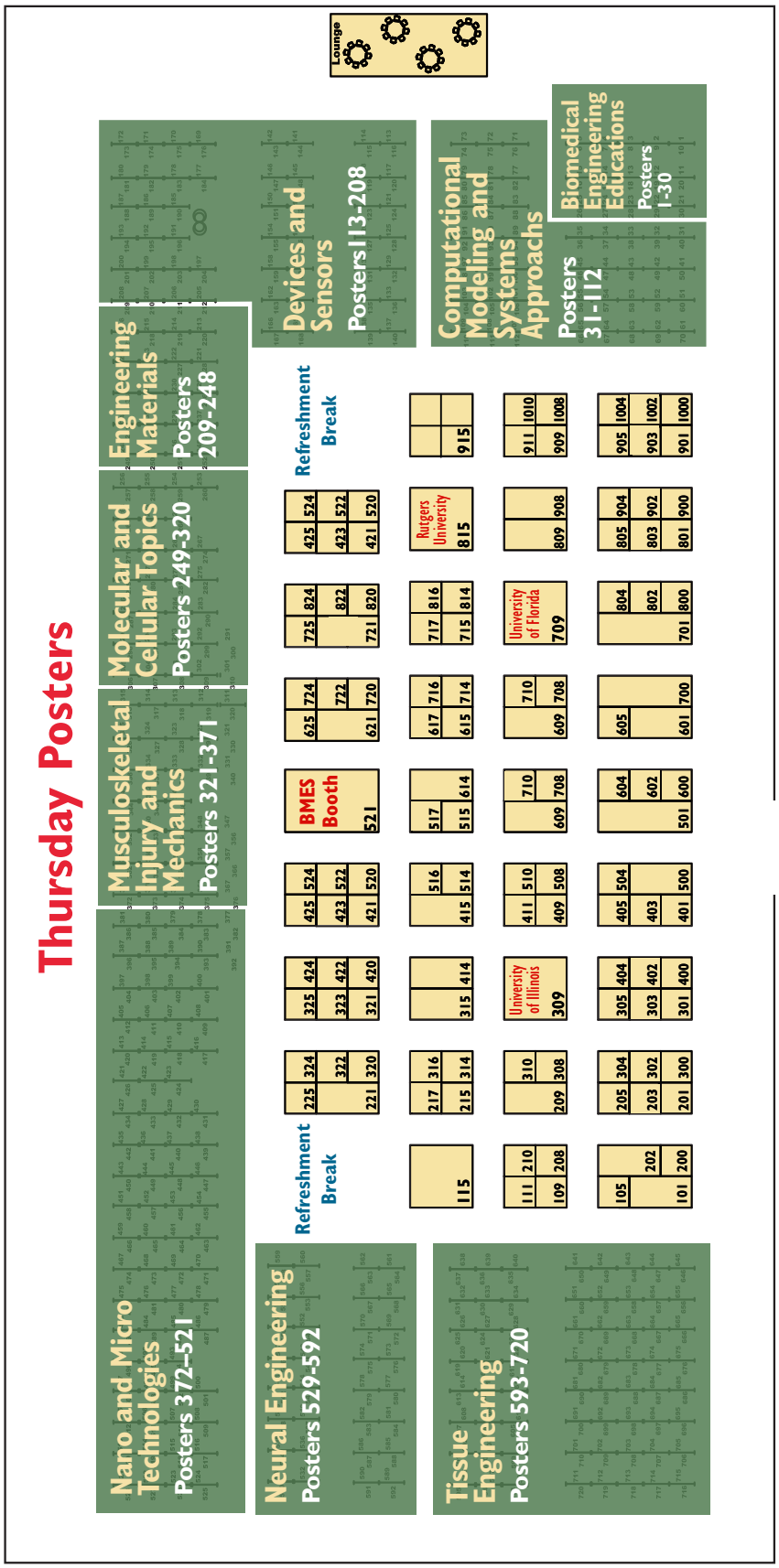
5:00PM
Comparison of Metallic Nanoparticles as Exogenous Soft Tissue Contrast for Non-Invasive 3D Live MicroCT Imaging of Avian Morphogensis
C. Gregg[1] and J. Butcher[1]
[1]Cornell University, Ithaca, NY

5:15PM
Automated Imaging Algorithms to Identify and Quantify Different Types of Fat
T. Szabo[1], T. Wellman[2], M. Ruth[3], G. Mercier[1], C. Apovian[1], R. Subramaniam[4], and P. Vermilion[5]
[1]Boston University, Boston, MA, [2]inviCRO, LLC, Boston, MA, [3]University of Calgary, Calgary, AB, Canada, [4]Johns Hopkins Hospital, Baltimore, MD, [5]University of Rochester Medical Center, Rochester, NY

5:30PM
Scatter Reduction And Correction For Multi-source Cardiac Computed Tomography
H. Gong [1] and G. Cao[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM, 3:30PM - 4:30PM



POSTER SESSION **Th**

THURSDAY, October 8, 2015

9:30 AM - 5:00 PM

POSTER SESSIONS – THURS

POSTER SESSION **Th**

Track: Biomedical Engineering Education (BME)

Biomedical Education:

Biomedical Engineering Classroom Experiences Posters

P-Th-1
Student Adaptation to the Modular Use of the Flipped Classroom Model in an Introductory BME Course
J. Foo[1], I. De Vlaminck[1], and K. Williams[1]
[1]Cornell University, Ithaca, NY

P-Th-2
Does The Availability Of Recorded Lectures Improve Student Success Rate?
S. Willerth[1], C. Sousa[1], and H. Struchtrup[1]
[1]University of Victoria, Victoria, BC, Canada

P-Th-3
Sense Of Community Among BME Undergraduates In A First-Year Program
J. Paz[1], M. Cousins[1], and M. Markey[1,2]
[1]The University of Texas at Austin, Austin, TX, 2The University of Texas MD Anderson Cancer Center, Houston, TX

P-Th-4
Writing a Peer-Reviewed Article for Publication as a Group
A. N. Blaize[1] and C. Goergen[1]
[1]Purdue University, West Lafayette, IN

P-Th-5
Student Persistence, Achievement and Attitude in a Flipped Classroom using Web-enabled Tools
C. Ankeny1
1Arizona State University, Tempe, AZ

P-Th-6
Encouraging Curiosity, Connections and the Creation of Value in a Materials/Biomaterials Sequence: Part I Materials Science
G. Bledsoe1 and S. Zustiak1
1Saint Louis University, St Louis, MO

P-Th-7
Persistence in Biomedical Engineering and STEM in an Undergraduate Program
D. Gaitan1, M. F. Olarte-Sierra1, and J. C. Briceno1
1U de los Andes, Bogota, Colombia

Track: Biomedical Engineering Education (BME)

Biomedical Education:

Design in BME Education Posters

P-Th-8
The Teaching Dead, Season II
J. La Belle[1]
[1]Arizona State University, Tempe, AZ

P-Th-9
Student-Friendly BME Senior Design Project with Assessment of ABET student Outcomes
J-M. Maarek[1]
[1]University of Southern California, Los Angeles, CA

P-Th-10
Implementing an Electronic DHF for Senior Design: Lessons Learned
C. Drummond[1]
[1]Case Western Reserve University, Cleveland, OH

P-Th-11
Multi-Phase Integration of Design Elements into the Undergraduate Biomedical Engineering Practical Curriculum at the University of Toronto
A. Shukalyuk[1] and D. Kilkenny[1]
[1]Institute of Biomaterials & Biomedical Engineering, Faculty of Applied Science & Engineering, University of Toronto, Toronto, ON, Canada

P-Th-12
Emphasizing Application In Bioelectricity Course
D. Pederson[1], R. Bercich[1], and P. Irazoqui[1]
[1]Purdue University, West Lafayette, IN

Track: Biomedical Engineering Education (BME)

Biomedical Education:

Immersive and Experiential Learning Posters

P-Th-13
Establishment of the Illinois-Njala Sustainable & Innovative Global Healthcare Technologies (INSIGHT) Program
J. Amos[1] and K. Long[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

P-Th-14
Engineering Summer Design Experience Has Greater Impact With International Collaboration
M. Ruegsegger[1], G. Ruan[2], T. Nocera[1], and R. Jones[1]
[1]The Ohio State University, Columbus, OH, [2]Nanjing University, Nanjing City, China, People's Republic of

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-15
Integrating Innovation and Entrepreneurship into the REU Experience
D. Shreiber[1], S. Engelhardt[1], T. Maguire[1], and M. Yarmush[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Th-16
Examining the Impact of a Peer-to-peer Mentoring Program Through the Lens of Social Capital Theory
J. Le Doux[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Th-17
Ph.D. Boot Camp: the Kickoff for Training Innovative Leaders in Biofabrication
K. Billiar[1], G. Gaudette[1], F. Hoy[1], M. Rolle[1], and T. Camesano[1]
[1]Worcester Polytechnic Institute, Worcester, MA

P-Th-18
Enhancing High School STEM Education Through Research-related Bioengineering Experiences
L. Tostanoski[1], A. Jones[1], and C. Jewell[1,2,3]
[1]University of Maryland, College Park, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

Track: Biomedical Engineering Education (BME)
Biomedical Education:
Innovative Learning Modules and Instructional Materials Posters

P-Th-19 DREAM TEAM & CENTER
Improving Peer-Reviewing of Reports Through Calibration and Direct Instructor Feedback
J. Linnes[1], N. Bajaj[1], A. Aboelzahab[1], A. Brightman[1], and A. Rundell[1]
[1]Purdue University, West Lafayette, IN

P-Th-20
Encouraging Curiosity, Connections, and the Creation of Value in a Materials/Biomaterials Sequence: Part II Biomaterials
S. Zustiak[1]
[1]Saint Louis University, St Louis, MO

P-Th-21
An Interactive Training Tool to Help Reduce Error Rate Associated with Shared Infusion Volume
K. Tsang[1,2], S. Pinkney[1], C. Colvin[1], and P. Trbovich[1,2]
[1]University Health Network, Toronto, ON, Canada, [2]University of Toronto, Toronto, ON, Canada

P-Th-22
Bringing Real World Expertise Into Class: An Industry Partnership To Teach Biomedical Design
L. Khuon[1,2], J. B. Zurn[3,4], G. Herrera[5,6], and K. Zurn[3,7]
[1]Drexel University, Philadelphia, PA, [2]University of Pennsylvania, Philadelphia, PA, [3]Villanova University, Villanova, PA, [4]Sunshine Labs, Longwood, FL, [5]Med Associates, Inc., St. Albans, VT, [6]Catamount Research & Development, Inc., St. Albans, VT, [7]Florida Research Instruments, Cocoa Beach, FL

P-Th-23
Engaging Students to Enrich their Learning through Developing Course Materials
M. Pool[1] and K. Gray[2]
[1]University of Illinois at Urbana Champaign, Urbana, IL, [2]West Virginia University Institute of Technology, Montgomery, WV

P-Th-24
The 'Good', the 'Bad', and the 'Ugly' Biostatistics for Bioengineering Students
Y. Kim[1]
[1]Purdue University, West Lafayette, IN

Track: Biomedical Engineering Education (BME)
Biomedical Education:
Laboratory Modules and Instructional Materials Posters

P-Th-25
Flipping the Lab: Introducing a Flipped Classroom Model Into a Laboratory Class
A. Aboelzahab[1] and T. Kinzer-Ursem[1]
[1]Purdue University, West Lafayette, IN

P-Th-26
Nanotechnology for Biomedical Engineers and STEM Majors: Bringing Multidisciplinary Nanotechnology into the Classroom
R. Perez-Castillejos[1]
[1]NJIT, Newark, NJ

P-Th-27
Educational Videos Help Improve Student Understanding in a Laboratory Course
R. Ramos[1], B. Ghosn[1], and C. Livingston[1]
[1]Rice University, Houston, TX

P-Th-28
Assessment of Student Value and Scientific Literacy in an Introductory Biomaterials Laboratory
C. Ankeny[1] and S. Stabenfeldt[1]
[1]Arizona State University, Tempe, AZ

P-Th-29
A Template for Multi-Disciplinary Team-Based Problem Solving, Design, and Assessment: Application in Biomedical Engineering
S. Zustiak[1], S. Sell[1], and G. Gaudette[2]
[1]Saint Louis University, St Louis, MO, [2]Worcester Polytechnic Institute, Worcester, MA

Track: Bioinformatics, Computational and Systems Biology
Computational Modeling and Systems Approaches:
Algorithms for Computational/Systems Biology Posters

P-Th-30
A Unified Sparse High-Dimensional Association Test for Quantitative Traits in Complex Relatedness
S. Cao[1], H. Qin1, A. Gossmann[1], H-W. Deng[1], and Y-P. Wang[1]
[1]Tulane University, New Orleans, LA

P-Th-31
Online Remote Monitoring of Heart Rate Variability
M. Thome[1], J. Salinet[1], R. Rodrigues[1], and D. Goroso[1]
[1]Mogi das Cruzes University, Mogi das Cruzes, Brazil

P-Th-32
Classifying Brain States Using Machine Learning Techniques
A. Rajan[1], S. Meyyappan[1], E. Opri[1], R. Sitaram[1], and M. Ding[1]
[1]University of Florida, Gainesville, FL

P-Th-33
NCLX Mitochondrial Exchanger Blocking: Simulation vs Experiment
E. T.N.T da Silva[1], D. Goroso[1], and R. Rodrigues[1]
[1]Mogi das Cruzes University, Mogi das Cruzes, Brazil

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-34
Assessing Granger Causality in Electrophysiology: Unipolar vs. Bipolar Signals
B. Nandi[1], A. Trongnetrpunya[1], D. Kang[1], B. Kocsis2, C. Schroeder3, and M. Ding[1]
[1]*University of Florida, Gainesville, FL,* [2]*Harvard Medical School, Boston, MA,* [3]*Nathan S. Kline Institute for Psychiatric Research, Orangeburg, NY*

P-Th-35
Use of Smartphone's Accelerometer to Estimate Physical Activity Energy Expenditure
M. Ishizaki[1], R. Rodrigues[1], and D. Goroso[1]
[1]*Mogi das Cruzes University, Mogi das Cruzes, Brazil*

P-Th-36
Nexperiment: User Friendly Model-based Design of Experiments Software
A. Sai[1], T. Mdluli[1], A. Rundell[1], and G. Buzzard[1]
[1]*Purdue University, West Lafayette, IN*

P-Th-37
Assessing Effects of Sequencing Depth on ChIP¬seq Quality and Peak Calling Performance
A. Lo[1], B. Phan[2], D. Walsten[2], R. Karchin[2], B. Maher[3], and A. Jaffe[3]
[1]*Johns Hopkins University, Holden, MA,* [2]*Johns Hopkins University, Baltimore, MD,* [3]*Lieber Institute for Brain Development, Baltimore, MD*

P-Th-38
Use of Existing CAD Models for Radiation Shielding Analysis
J. Barzilla[1], K. Lee[2], P. Wilson[3], A. Davis[3], and J. Zachman[3]
[1]*Lockheed Martin, Houston, TX,* [2]*NASA, Houston, TX,* [3]*University of Wisconsin, Madison, WI*

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Dynamics of Biological Systems Posters

P-Th-39
Integrative Modeling Identifies VEGFR1 as an Essential Regulator of VEGF-Induced Migration
J. Weddell[1] and P. Imoukhuede[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

P-Th-40
A Crosstalk-Based Linear Filter Design in Biochemical Signal Transduction Pathways
M. Laddomada[1], D. Mahan[1], and M. Pierobon[2]
[1]*Texas A&M University, Texarkana, Texarkana, TX,* [2]*University of Nebraska-Lincoln, Lincoln, NE*

P-Th-41
A Quantitative Analysis of Natural Killer Cell Response to IL-15 Stimulation
A. Throm[1] and A. French[1]
[1]*Washington University in St. Louis, St. Louis, MO*

P-Th-42 DREAM TEAM & CENTER
Characterizing Chemotherapy Effects on Hematopoietic Stem Cell Differentiation
J. Sarker[1,2], S. Robertson[2], D. Umulis[1], R. Nelson[2], and A. Rundell[1]
[1]*Purdue University, West Lafayette, IN,* [2]*Indiana University School of Medicine, Indianapolis, IN*

P-Th-43
Protease Site-directed Mutagenesis Distinguishes Cannibalistic Interactions in Proteolytic Networks
M. Ferrall[1], M. Affer[2], and M. Platt[1]
[1]*Georgia Institute of Technology and Emory University, Atlanta, GA,* [2]*Georgia Institute of Technology, Atlanta, GA*

P-Th-44
Regulation of Integrin Activation in Neovascularization by Basement Membrane Proteins and Inhibitors
N. Bajaj[1], T-C. Wu[1], S. Voytik-Harbin[1], D. Umulis[1], and A. Rundell[1]
[1]*Purdue University, West Lafayette, IN*

P-Th-45
Spatiotemporal Kinetic Modeling of the Myocardin-Related Transcription Factor-A Regulatory Axis
B. Spar[1] and C. Nelson[1]
[1]*Princeton University, Princeton, NJ*

P-Th-46
Regulation of Cell Motility and Proliferation by Cellular Signaling: Role of STAT3
T. Islam[1], Z. Speth[1], K. Banerjee[1], and H. Resat[1]
[1]*Washington State University, Pullman, WA*

P-Th-47
Fluorescence Lifetime Mapping of NADH Reveals DNA Repair Activity in Live Cells
M. Murata[1], X. Kong[1], K. Yokomori[1], and M. Digman[1]
[1]*University of California, Irvine, Irvine, CA*

P-Th-48
Dynamic Indirect Measurement of the Daily Macronutrient Oxidation Rate, Changes of Fat and Fat Free Mass u/u
Z. Ori[1]
[1]*Duke University Health System, Durham, NC*

P-Th-49
Regulation of Oxidative Stress in Endothelial Cells
H. Patel[1], C. Presnell[1], and M. Kavdia[1]
[1]*Wayne State University, Detroit, MI*

P-Th-50
The Role of the Human Amygdaloid Complex in Fear Conditioning: A Functional Connectivity Analysis
S. Yin[1], Y. Liu[2], A. Keil[1], and M. Ding[1]
[1]*University of Florida, Gainesville, FL,* [2]*University of California, Davis, Davis, CA*

Track: Cancer Technologies

Computational Modeling and Systems Approaches:

Computation Modeling of Cancer Growth and Treatment Posters

P-Th-51
Parametric Analysis of Cancer Dynamics: An Evaluation of Environmental Contributing Factors
R. Abiri[1], I. Zeller[1], and X. Zhao[1]
[1]*The University of Tennessee, Knoxville, Knoxville, TN*

Track: Respiratory Bioengineering

Computational Modeling and Systems Approaches:

Computational Modeling of the Airway Posters

P-Th-52 DREAM TEAM & CENTER
3D Agent-based Models of Airway Remodeling to Investigate Treatment Courses for Asthma
H. Kaul[1], M. Burkitt[1], C. Newby[2], and R. Smallwood[1]
[1]*University of Sheffield, Sheffield, United Kingdom,* [2]*University of Leicester, Leicester, United Kingdom*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-53
A Computation Model of Airflow in the Main Airways of the Lung
P. Gamage[1] and H. Mansy[1]
[1]*University of Central Florida, Orlando, FL*

P-Th-54
Non-Stationary Analysis for Tracking Temporal Variations In Impedance During Oscillometry.
H. hanafi[1], G. Maksym[2], and K. El-Sankary[2]
[1]*dalhousie university, halifax, NS, Canada,* [2]*Dalhousie University, halifax, NS, Canada*

P-Th-55
A Complete CFD Model of Pharmaceutical Aerosol Deposition in the Lungs: Validations with In vivo Data
W. Longest[1], G. Tian[1], and M. Hindle[1]
[1]*Virginia Commonwealth University, Richmond, VA*

P-Th-56
A Statistical Mechanical Model of Spontaneous Airway Constriction
B. Suki[1], A. Chang[2], J. Pillow[2], and P. Noble[2]
[1]*Boston University, Boston, MA,* [2]*University of Western Australia, Perth, Australia*

P-Th-57
Experimental and Numerical Analysis of Micro-beads Velocity in a Flow Induced by Cilia Motion
M. Bottier[1], M. Peña Fernández[2], G. Pelle[2], E. Bequignon[2], D. Isabey[2], A. Coste[2], E. Escudier[3], M. Manolidis[4], J. B. Grotberg[4], J-F. Papon[2], B. Louis[2], and M. Filoche[5]
[1]*Inserm U*^{955}*, Creteil, France,* [2]*Inserm U*^{955}*, Créteil, France,* [3]*Inserm U*^{933}*, Paris, France,*[4]*University of Michigan, Ann Arbor, MI,* [5]*Ecole Polytechnique, Palaiseau, France*

P-Th-58
Increased Variability in Airway Wall Thickness Can Explain Ventilation Defects (VDefs) at Lower Levels of Airway Smooth Muscle Stimulation
T. Winkler[1] and J. G. Venegas[1]
[1]*Massacusetts General Hospital and Harvard Medical School, Boston, MA*

P-Th-59
Pressure and Velocity Relationships of Inspired Air into the Human Lung
P. Aghasafari[1], I. Bin M. Ibrahim[1], R. Arambakam[1], and R. Pidaparti[1]
[1]*University of Georgia, Athens, GA*

P-Th-60
A Novel Computational Fluid-particle Dynamics (CF-PD) Model for Multicomponent Droplet-vapor Aerosol Mixture Transport, Phase Change and Deposition in an Idealized Trachea-to-G1 Airway
Y. Feng[1] and C. Kleinstreuer[1]
[1]*North Carolina State University, Raleigh, NC*

Track: Bioinformatics, Computational and Systems Biology
Computational Modeling and Systems Approaches:
General Approaches Posters

P-Th-61
Optimizing Normalization Feature For Volumetric Brain Measurement
N. Soberon[1], M. Markey[1], and N. Verma[1]
[1]*The University of Texas at Austin, Austin, TX*

P-Th-62
Theta-Rhythmic Drive Between Medial Septum and Hippocampus in Slow Wave Sleep and Microarousal: A Granger Causality Analysis
D. Kang[1], M. Ding[1], I. Topchiy[2], L. Shifflett[2], and B. Kocsis[2]
[1]*University of Florida, Gainesville, FL,* [2]*BIDMC, Harvard Medical School, Boston, MA*

P-Th-63
High-Throughput Assessment Algorithm to Predict Skin Sensitization Using *In Vitro* Alternatives to Animal Testing
S. Lee[1], T. Greenstein[1], T. Maguire[1], R. Schloss[1], and M. Yarmush[1]
[1]*Rutgers University, Piscataway, NJ*

P-Th-64
Automatic Cell Selection Method for Pap Smear Test
Q. Miao[1], J. Derbas[2], A. Eid[1], H. Subramanian[1,2], and V. Backman[1,2]
[1]*Northwestern University, Evanston, IL,* [2]*Nanocytomics LLC, Evanston, IL*

P-Th-65
Protein Osmotic Pressure in the Presence of Sodium-based Salts at Moderate Ionic Strength
C. Hale[1], D. Ornelas[1], L. Chang[1], and V. Rodgers[1]
[1]*University of California - Riverside, Riverside, CA*

Track: Bioinformatics, Computational and Systems Biology
Computational Modeling and Systems Approaches:
Multiscale Modeling Posters

P-Th-66 **DREAM TEAM & CENTER**
Computational Human Fetal Growth Model of Hypoplastic Left Heart Syndrome: Reduced Ventricular Growth Due to Decreased Preload
S. Dewan[1], A. Krishnamurthy[1], R. Kerckhoffs[1], J. Omens[1], H. Sun[2], V. Nigam[1,2], and A. Mc Culloch[1]
[1]*University of California at San Diego, La Jolla, CA,* [2]*Rady Children's Hospital at San Diego, San Diego, CA*

P-Th-67
A Predictive Multiscale Model for Simulating Platelets Activation in Shear Flows
P. Zhang[1], C. Gao[1], N. Zhang[1], M. Slepian[2], Y. Deng[1], and D. Bluestein[1]
[1]*Stony Brook University, Stony Brook, NY,* [2]*University of Arizona, Tucson, AZ*

P-Th-68
Modeling of Neonatal Hemodynamics during PDA Closure
S. Soleymani[1,2], M. Khoo[1,3], S. Noori[2,3], and I. Seri[2,4]
[1]*University of Southern California, Los Angeles, CA,* [2]*Children's Hospital Los Angeles, Los Angeles, CA,* [3]*Keck School of Medicine, USC, Los Angeles, CA,* [4]*Sidra Medical and Research Center, Doha, Qatar*

P-Th-69
Mathematical Modeling of Laser Irradiation of Port Wine Stain Blood Vessels Containing Erythrocyte-Derived Particles Doped with Indocyanine Green
J. Burns[1], W. Jia[2], V. Sun[2], J. S. Nelson[2], and B. Anvari[1]
[1]*University of California, Riverside, Riverside, CA,* [2]*University of California, Irvine, Irvine, CA*

P-Th-70
Quantifying the Consistency of Self-assembly of Single Cardiomyocytes
N. Drew[1], D. Baldo[1], J. Core[1], M. Tagle Rodriguez[1], and A. Grosberg[1]
[1]*University of California, Irvine, Irvine, CA*

P-Th-71
Flexible Tails Regulate the Functions of β-Catenin
B. zhao[1] and B. xue[1]
[1]*University of South Florida, Tampa, FL*

See page 97 for Poster floor plan

Track: Biomechanics
Computational Modeling and Systems Approaches:
Multiscale Modeling in Biomechanics Posters

P-Th-72
Structural Modeling of Lung Airway Tissue under Ventilation Breathing
I. Bin M. Ibrahim[1], R. Pidaparti[1], and P. Aghasafari[1]
[1]University of Georgia, Athens, GA

P-Th-73
Phospholipid Deformation Size Effects during Tensile Molecular Dynamics Simulations
M. Murphy[1], M. F. Horstemeyer[1], S. Gwaltney[1], T. Stone[1], M. LaPlaca[2], J. Liao[1], L. Williams[1], and R. Prabhu[1]
[1]Mississippi State University, Mississippi State, MS, [2]Georgia Institute of Technology, Atlanta, GA

Track: Biomechanics
Computational Modeling and Systems Approaches:
Computational Modeling in Biomechanics Posters

P-Th-74
Towards Online Detection Of Freezing Of Gait Using Wavelet Transform On Wireless Accelerometer Data
S. Rezvanian[1] and T. Lockhart[1]
[1]Arizona state university, Tempe, AZ

P-Th-75
A Personalized Mechanical Model of Chronic Lung Disease
M. Eskandari[1], W. Kuschner[1], and E. Kuhl[1]
[1]Stanford University, Stanford, CA

P-Th-76
Simulating Ligament Deficiency for an Anatomical Elbow Joint in a Multibody Framework
M. Rahman[1], A. Cil[1,2], and A. Stylianou[1]
[1]University of Missouri-Kansas City, Kansas City, MO, [2]Truman Medical Center, Kansas City, MO

P-Th-77
Hemodynamics of Healthy vs. Pathological Two Venous-Valves Complex – FSI Computational Model
E. Soifer[1], D. Weiss[1], U. Zaretsky[1], and S. Einav[1,2]
[1]Tel Aviv University, Tel Aviv, Israel, [2]Stony Brook University, Stony Brook, NY

P-Th-78
Effect of Geometric and Material Property Changes in the Thoracic Skeleton for an Older Occupant Finite Element Model
S. Schoell[1], A. Weaver[1], and J. Stitzel[1]
[1]Virginia Tech- Wake Forest University, Winston-Salem, NC

P-Th-79
Three-Dimensional Modeling of Circulating Cell Separation in a Bifurcating Microchannel
S. Hymel[1], H. Lan[2], and D. Khismatullin[1]
[1]Tulane University, New Orleans, LA, [2]University of California, San Diego, CA

P-Th-80
Finite Element Modeling of the Middle Ear Muscle Effect on Sound Transmission
X. Wang[1] and R. Z. Gan[1]
[1]University of Oklahoma, Norman, OK

P-Th-81
Development and Validation of an Atlas-Based Finite Element Model
L. Miller[1], J. Urban[1], and J. Stitzel[1]
[1]Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences, Winston-Salem, NC

P-Th-82
Development of the GHBMC 5th Percentile Female Finite Element Model
M. Davis[1,2], B. Koya[1], and F. S. Gayzik[1,2]
[1]Virginia Tech - Wake Forest University, Winston-Salem, NC, [2]Wake Forest School of Medicine, Winston-Salem, NC

P-Th-83
Modular Use of Validated Organs within a Simplified Human Body Finite Element Model Reduces Computational Cost
D. Schwartz[1,2], B. Koya[1,2], W. Decker[1,2], J. Stitzel[1,2], and S. Gayzik[1,2]
[1]Wake Forest School of Medicine, Winston Salem, NC, [2]Virginia Tech – Wake Forest University Center for Injury Biomechanics, Winston Salem, NC

P-Th-84
Investigating Influences on the Ankle-Brachial Index through Massively Parallel Simulation
A. Randles[1] and E. W. Draeger[1]
[1]Lawrence Livermore National Laboratory, Livermore, CA

P-Th-85
Determining a Relationship between Femoral Condyle Geometry and ACL Length
M. Boswell[1], B. Davis[1], M. Kelly[2], J. Elias[2], and D. Filipkowski[2]
[1]The University of Akron, Akron, OH, [2]Akron General Medical Center, Akron, OH

P-Th-86
Comprehensive Literature Review Reveals Insights to Parameters for New Wound Healing Models
S. Jorgensen[1] and J. Sanders[1]
[1]Tennessee Technological University, Cookeville, TN

P-Th-87
The Influence Of Impact Degrees On Pevis Acceleration During Side Impact
H. Roh[1], H. Kim[1], Y. Lee[1], and J. Hong[1]
[1]Korea University, Sejong-si, Korea, Republic of

P-Th-88
Design Of Fuzzy Controller For Stapler Of Gastrointestinal Anastomosis
S. Jung[1], T. Lee[1], D. Yang[1], and J. Hong[1]
[1]Korea university, Sejong, Korea, Republic of

P-Th-89
Biomechanical Design Of Air-Cell Pillow Considering Side Lying Lateral Position
J. Kim[1], H. Kim[1], H. Kim[1], and J. Hong[1]
[1]Korea University, Sejong-si, Korea, Republic of

P-Th-90
Using A Dynamic Musculoskeletal Model To Explore Human Pinch
A. Barry[1], D. Qiu[1], and D. Kamper[1,2]
[1]Illinois Institute of Technology, Chicago, IL, [2]Rehabilitation Institute of Chicago, Chicago, IL

Track: Device Technologies and Biomedical Robotics
Computational Modeling and Systems Approaches:
Medical Device Development and Computational Models Posters

P-Th-91
Reduction of Ureteroscopic Complications by Using a Force Feedback Training Device
Z. Najafi[1], T. Tieu[2], A. Mahajan[1], and B. Schwartz[2]
[1]University of Akron, Akron, OH, [2]Southern Illinois University School of Medicine, Springfield, IL

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-92
Arrhenius Model of Thermal Damage during Laser Interstitial Thermal Therapy for Renal Cell Carcinoma
M. Ishahak[1], L. Fontaneda[1], S. Arechavala[1], N. Salas[1,2], and R. J. Leveillee[1,2]
[1]University of Miami, Coral Gables, FL, [2]Miller School of Medicine, Miami, FL

P-Th-93
Operational Consistency Of Medical Linear Accelerator Performance Parameters
C. Nguyen[1,2], C. M. Able[2], A. H. Baydush[2], S. Isom[2], and M. T. Munley[1,2]
[1]Virginia Tech - Wake Forest School of Biomedical Engineering and Sciences, Winston Salem, NC, [2]Wake Forest School of Medicine, Winston Salem, NC

P-Th-94
Design behind Improving Efficiency in Endotracheal Tube Changes
J. Mitchell[1], P. Brown[1], and M. Olympio[2]
[1]Virginia Tech - Wake Forest University, Winston-Salem, NC, [2]Wake Forest Baptist Health, Winston-Salem, NC

P-Th-95
Optimized Musculoskeletal Parameters For Predicting Multi-Joint Wrist And Hand Movement From Limited EMG Signals
D. Crouch[1,2] and H. Huang[1,2]
[1]North Carolina State University, Raleigh, NC, [2]University of North Carolina at Chapel Hill, Chapel Hill, NC

P-Th-96
Detecting Leader-Follower Relationship in EEG Hyperscanning
L. Wan[1], S. Dikker[2,3], D. Poeppel[2,4], and M. Ding[1]
[1]University of Florida, Gainesville, FL, [2]New York University, New York, NY, [3]Utrecht University, Utrecht, Netherlands, [4]Max Planck Institute, Frankfurt, Germany

P-Th-97
Analytical Solution for Time-Dependent Potentials in a Cylindrical Fiber
W. Neu[1]
[1]Duke University, Durham, NC

P-Th-98
A Conical Antenna for Stimulating Neurological Tissue
R. Petrella[1,2] and S. Xiao[1,2]
[1]Old Dominion University, Norfolk, VA, [2]Frank Reidy Center for Bioelectrics, Norfolk, VA

P-Th-99
Design of a Low-cost Wireless Near-infrared Spectroscopy System Using Embedded Linux
D. Dias[1] and N. Kashou[1]
[1]Wright State University, Dayton, OH

P-Th-100
Seizure Detection Using Peak Counting In A Fully Implantable Wireless Device For Rodents Seizure Detection Using Peak Counting In A Fully Implantable Wireless Device For Rodents
D. Pederson[1] and P. Irazoqui[1]
[1]Purdue University, West Lafayette, IN

P-Th-101
Assessment of Electrode Surface Area in Electrical Impedance Myography Study Using Finite Element Method
M. Ahad[1] and S. Baidya[1]
[1]Georgia Southern University, Statesboro, GA

P-Th-102 **DREAM TEAM & CENTER**
Identification of Deep Brain Stimulation Targets From a Cohort of Parkinson's Disease Patients
G. Duffley[1,2], D. Chen[3], K. Foote[3,4], M. Okun[3,4], and C. Butson[1,2]
[1]University of Utah, Salt Lake City, UT, [2]Scientific Computing and Imaging (SCI) Institute, Salt Lake City, UT, [3]University of Florida, Gainesville, FL, [4]Center for Movement Disorders and Neurorestoration, Gainesville, FL

P-Th-103
Development of Practical Silicone Ventricles for Testing Direct Mechanical Ventricular Actuation
T. Fischer[1], N. Loeber[1], L. Chia[1], B. Schmitt[1], Y. Zhou[1], D. Reynolds[1], and M. Anstadt[1]
[1]Wright State University, Dayton, OH

P-Th-104
Using Human Factors to Redesign a Laparoscopic Suturing Device for Female Surgeons
J. Baril[1], D. Peterson[2], K. Horton[3], and J. Malkowski[3]
[1]University of Connecticut, East Granby, CT, [2]Texas A&M Texarkana, Texarkana, TX,[3]Medtronic, New Haven, CT

P-Th-105
The Interaction Model Development and Simulation of Wireless Laparoscopic Camera and Abdominal Wall Tissue
R. Yazdanpanah Abdolmalaki[1], X. Liu[1], and J. Tan[1]
[1]University of Tennessee, knoxville, TN

P-Th-106
Design and Implementation of a Portable ECG Signal Transmission Prototype
S. Dehghanojamahalleh[1] and M. Kaya[1]
[1]Florida Institure of Technology, Melbourne, FL

P-Th-107
The Efficacy of a Novel Surgical Tool that Reduces Complications Associated with Spinal Revision Surgery
H. Huang[1], T. Catullo[1], S. Johannesson[1], B. Kim[1], E. Urias[1], E. Chiang[1], A. Subramanya[1], and T. Sun[1]
[1]Johns Hopkins University, Baltimore, MD

P-Th-108
Impact of Geometric Variation on Sealing Capability of a Medical Valve
R. He[1]
[1]Baxter International Inc., Round Lake, IL

POSTER SESSION **Th**

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Proteomics, Genomics, and Metabolomics Posters

P-Th-109
A Systems Biology Approach to Competitive Metabolism between Omega-3 and Omega-6 Fatty Acids in Inflammatory Macrophages
S. Gupta[1], Y. Kihara[1], M. Maurya[1], P. Norris[1], E. Dennis[1], and S. Subramaniam[1]
[1]University of California, San Diego, La Jolla, CA

P-Th-110
Evaluating the Impact of Sequencing Error Correction for RNA-seq Data
L. Tong[1,2], C. Yang[1,2,3], P-Y. Wu[1], and M. D. Wang[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA, [3]Peking University, Beijing, China, People's Republic of

P-Th-111
Oxidative Stress Induced Senescence in Human Umbilical Vascular Endothelial Cells
S. Raghunandan[1]
[1]University of California, San Diego, La Jolla, CA

P-Th-112
Making Biological Sense of Important Genes in Breast Cancer and their Coordinated Behavior: Preliminary Results
C. Marrero[1]
[1]University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico

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Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Single-cell Measurements and Models Posters

P-Th-113

Single Cell Western Blotting to Study Stem Cell Heterogeneity

D. Spelke[1,2], A. Hughes[1,2], Z. Xu[1], C-C. Kang[1], E. Connelly[1], A. Herr[1], and D. Schaffer[1]

[1]University of California, Berkeley, Berkeley, CA, [2]University of California, San Francisco, San Francisco, CA

P-Th-114

Cell Deformation In A Cross-Channel: Integration Of Computational Modeling With DC Experiment

Z. Sheng[1], H. Lan[2], H. Munoz[3], D. Di Carlo[3], and D. Khismatullin[1]

[1]Tulane University, New Orleans, LA, [2]University of California - San Diego, San Diego, CA,[3]University of California - Los Angeles, Los Angeles, CA

POSTER SESSION **Th**

P-Th-115

Modeling the Mitochondrial Control of Shear-Induced Calcium Dynamics in Vascular Endothelial Cells

R. Buckalew[1], J. Parikh[2], C. Scheitlin[1], D. Terman[1], N. Tsoukias[2], and B. R. Alevriadou[1]

[1]The Ohio State University, Columbus, OH, [2]Florida International University, Miami, FL

P-Th-116

Laser Ionization/Desorption Droplet Delivery Mass Spectrometry for Single Cell Analysis

J. K. Lee[1,2], H. G. Nam[2,3], and R. Zare[1]

[1]Stanford University, Stanford, CA, [2]Institute for Basic Science, Daegu, Korea, Republic of,[3]DGIST, Daegu, Korea, Republic of

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Systems Approaches to Therapy and Therapeutics Posters

P-Th-118

Early Changes in Innate Cytokine Networks Predict Response to Antiretroviral Therapy in HIV

K. Arnold[1], L. Gama[2], G. Szeto[1], D. Irvine[1], P. Hunt[3], D. Lauffenburger[1], and E. Kallas[4]

[1]Massachusetts Institute of Technology, Cambridge, MA, [2]The Johns Hopkins University, Baltimore, MD, [3]University of California, San Francisco, San Francisco, CA, [4]University of São Paulo, São Paulo, Brazil

P-Th-119

Conserved RTK-Intrinsic Signaling Consequences Result in Distinct Bypass Resistance Capacity

S. Manole[1] and A. Meyer[1]

[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-120

Rat and Human Metabolic Network Models for Comparative Analyses in Toxicology

E. Blais[1], K. Rawls[1], I. Li[1], and J. Papin[1]

[1]University of Virginia, Charlottesville, VA

P-Th-121

A Systems View of Hysteresis in the Development of Multidrug Resistance of *Pseudomonas aeruginosa*

P. Yen[1] and J. Papin[1]

[1]University of Virginia, Charlottesville, VA

P-Th-122

Multi-Scale Systems Pharmacology Analysis Of Combination Therapy And Drug Desistance In Tuberculosis

E. Pienaar[1], V. Dartois[2], D. Kirschner[3], and J. Linderman[1]

[1]University of Michigan, Ann Arbor, MI, [2]Public Health Research Institute and New Jersey Medical School, Newark, NJ, [3]University of Michigan Medical School, Ann Arbor, MI

P-Th-123

Systems Serology To Dissect The Polyclonal Nature Of Vaccine-Induced Humoral Immunity

M. Kumar[1], A. Chung[2], K. Arnold[1], L. Dunphy[1], G. Alter[3], and D. Lauffenburger[1]

[1]Massachusetts Institute of Technology, Cambridge, MA, [2]University of Melbourne, Melbourne, Australia, [3]Ragon Institute, Cambridge, MA

P-Th-124

Experimental and Computational Method Characterizes Non-genetic Drug Resistance Mechanisms

A. Claas[1], J. Downey[1], and D. Lauffenburger[1]

[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-125

Mathematical Model Reveals Increased Protease Following Inhibition Due to Cannibalistic Regulation

W. Shockey[1], C. Wilder[1], M. Ferrall[1], and M. Platt[1]

[1]Georgia Institute of Technology and Emory University, Atlanta, GA

P-Th-126

Targeting Mitochondrial Biogenesis to Overcome Intrinsic and Acquired Drug Resistance to MAPK Pathway Inhibitors

G. Zhang[1], L. Wu[1,2], D. T. Frederick[3], Z. Wei[4], Y. C. Chae[1], X. Xu[5], C. Krepler[1], G. Mills[6], D. C. Altieri[1], K. T. Flaherty[3], and M. Herlyn[1]

[1]The Wistar Institute, Philadelphia, PA, [2]University of Pennsylvania, Philadelphia, PA,[3]Massachusetts General Hospital, Boston, MA, [4]New Jersey Institute of Technology, Newark, NJ, [5]The Hospital of the University of Pennsylvania, Philadelphia, PA, [6]The University of Texas MD Anderson Cancer Center, Houston, TX

P-Th-127

The Effect Of Halogenation Of Erythrosine B on Amyloid-Beta 40 Oligomer Aggregation and Neurotoxicity In Alzheimer's Disease Using Molecular Modeling

J. Kim[1], W. Lee[1], S. Kang[1], J. E. Shin[1], H. Jin[1], I. Kwon[2], and S. S. Jang[1]

[1]Georgia Institute of Technology, Atlanta, GA, [2]Gwangju Institute of Science and Technology, Gwangju, Korea, Republic of

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Theory and Practice of Synthetic Biology Posters

P-Th-128

Computer Capture of Systems of Engineered DNA Strands with Application to DNA Sequence Design

R. Atkinson[1] and B. Lutz[1]

[1]University of Washington, Seattle, WA

P-Th-129

Real-Time Light-Driven Temporal Control Of Gene Expression And Protein Concentration In *S. cerevisiae*

J. Melendez[1], M. Patel[2], B. Oakes[3], P. Xu[4], and M. McClean[4,5]

[1]Washington University, St. Louis, MO, [2]University of North Carolina, Chapel Hill, Chapel Hill, NC, [3]University of California, Berkeley, Berkeley, CA, [4]Princeton University, Princeton, NJ,[5]University of Wisconsin, Madison, Madison, WI

P-Th-130

Dynamic Regulation Of Toxic Synthetic Bacteria Prevents Learning In The Model Nematode *Caenorhabditis elegans*

O. Bracho[1], C. Manchery[1], E. Haskell[1], C. Blanar[1], and R. Smith[1]

[1]Nova Southeastern University, Fort Lauderdale, FL

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-131
Spatial Disturbance As A Driver Of Extinction In Synthetic Cooperative Bacteria
C. Wilson[1], W. Driscoll[2], O. Eldakar[1], J. Lopez[1], and R. Smith[1]
[1]Nova Southeastern University, Fort Lauderdale, FL, [2]University of Minnesota, Minneapolis, MN

Track: Translational Biomedical Engineering
Devices and Sensors:
Biomedical Device Design in Translational Research Posters

P-Th-132
Design And Proof Of Concept For A Single Cell Electromagnetic Loading Device
A. Valdevit[1], E. Noonan[1], S. Ferrell[1], and P. Leopold[1]
[1]Stevens Institute of Technology, Hoboken, NJ

P-Th-133
A Simple Approach for Removal of Irreparably Damaged Cells from Stored Blood
H. Xia[1], B. Strachan[1], N. Piety[1], S. Gifford[1], and S. Shevkoplyas[1]
[1]University of Houston, Houston, TX

P-Th-134
Pore Size Impacts Cell-Cell Communication and Scar Contraction in 3D-Printed Polyurethane Scaffolds
T. D. Ramchal[1], E. R. Lorden[2], Z. Wang[3], L. Bashirov[1], M. M. Ibrahim[1], E. Hammett[2], B. Klitzman[2], J. J. Yoo[3], H. Levinson[1], S. J. Lee[3], and K. W. Leong[2,4]
[1]Duke University Medical Center, Durham, NC, [2]Duke University, Durham, NC, [3]Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC, [4]Columbia University, New York, NY

P-Th-135
A Complete Blood Cell Count Biochip from a Drop of Blood
U. Hassan[1], B. Reddy[1], C. Yang[2], G. Damhorst[1], and R. Bashir[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL, [2]University High School Urbana, Urbana, IL

P-Th-136
Quantum Dot Based DNA Nanosensor For The Detection Of Mycobacterium Tuberculosis
M. Jepsen[1], C. Harmsen[1], O. Franch[1], M. Hede[2], B. R. Knudsen[1], and Y-P. Ho[1]
[1]Aarhus University, Aarhus, Denmark, [2]zymonostics, Aarhus C, Denmark

P-Th-137
A Phase Plane Metric For Intracranial Pressure After Traumatic Brain Injury
M. Qadri[1], N. H. Kim[1], S. Danish[1], and W. Craelius[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Th-138
The Foreign Body Immune Response to Implanted Materials is Dependent on Size and Shape in Rodents and Non-Human Primates
O. Veiseh[1], R. Langer[1], and D. Anderson[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-139
The Sensitivity of Microfluidic Flow Assays to von Willebrand Factor Levels in Type I von Willebrand Disease Patients Compared to Clinical Assays
M. Lehmann[1], C. Ng[2], J. Di Paola[2], and K. Neeves[1,2]
[1]Colorado School of Mines, Golden, CO, [2]University of Colorado Denver, Aurora, CO

P-Th-140
Jacquard Weaving Of Scaled Up, Tissue-Replicating Biomaterials And Implants
J. Ng[1], R. Whan[1], and M. Knothe Tate[1]
[1]University of New South Wales, Australia, Sydney, Australia

P-Th-141
The Application of BioHeat Perfusion Sensors To Quantify Pressure Ischemia Of Explanted Organs
T. O'Brien[1], A. Roghanizad[1], J. Robertson[1], and T. Diller[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-142
Towards a Point-of-Care Blood Sensor to Quantify Multiple Traumatic Brain Injury Biomarkers
B. Haselwood[1], A. Lam[1], and J. La Belle[1,2]
[1]Arizona State University, Tempe, AZ, [2]Mayo Clinic Arizona, Scottsdale, AZ

P-Th-143
Novel, Remote Low Temperature Plasma Hybrid Device For Sterilization And Therapeutic Biomedical Uses
K. A. Morrison[1], O. Asanbe[1], E. Kierkels[1], Y. Toyoda[1], W. Landford[1], X. Dong[1], C. Golkowski[2], and J. A. Spector[1,2]
[1]Weill Cornell Medical College, New York, NY, [2]Cornell University, Ithaca, NY

P-Th-144
Posterior Vertebral Fixation: Screw-to-Screw Cross-Connection Concept Investigation
E. Mattucci[1], J. Jendrus[1], M. Angelucci[1], J. Neidert[1], J. Mauger[1], and J. Isaacs[1]
[1]Widener University, Chester, PA

P-Th-145
Development of a Plantar Pressure Postural Analysis & Biofeedback Suite for WMSD Corrective Therapy
N. Quintero[1], J. Helwig[1], K. Sverrisdottir[1], J. Ruiz[1], J. Merciez[1], S. Grom[1], L. Marts III[1], N. Sonnenfeld[1], A. Das[1], and E. Divo[1,2]
[1]Embry-Riddle Aeronautical University, Daytona Beach, FL, [2]University of Central Florida, Orlando, FL

Track: Translational Biomedical Engineering
Devices and Sensors:
Biomedical Products and Devices Posters

P-Th-146
Plasma Treatment of Dentin Surfaces for Improving Adhesive/Dentin Interface Bonding
Q. Yu[1]
[1]University of Missouri, Columbia, MO

P-Th-147
Design of Microfabricated Sensor to Measure Lumbar Spinal Fusion
D. Munro[1], E. Tsai[1], A. Lingley[2], and M. Khbeis[2]
[1]University of Portland, Portland, OR, [2]University of Washington, Seattle, WA

P-Th-148
Use of Argon as a Tissue Fixation Preservative and RNA Stabilizing Agent
S. Joshi[1], J-Y. Chung[2], V. Rasanayagam[1], M. Sundar[1], and S. Hewitt[2]
[1]Delaware Research and Technology Center, American Air Liquide Inc, Newark, DE,[2]Experimental Pathology Laboratory, Laboratory of Pathology, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD

P-Th-149
Dissolution of Platinum Electrodes During Electrical Stimulation of Neural Tissue
D. Kumsa[1], P. Takmakov [2], and D. Bardot[3]
[1]US Food and Drug Administration and Medical Device Innovation Consortium, Silver Spring, MD, [2]US Food and Drug Administration, Silver Spring, MD, [3]Medical Device Innovation Consortium, St. Louis Park, MN

P-Th-150
Personalized 3D Printed Bio-absorbable Drug-eluting Stent for the Treatment of Vascular Disease
S. Misra[1] and D. Pan[1]
[1]university of Illinois at Urbana-Champaign, Urbana, IL

P-Th-151
Inductance Sensing To Detect Tissue Thickness Between Conducting Surfaces For Application In Surgical Instruments
A. Arun[1], B. Gaston[1], S. Chen[2], D. Kwiat[1], J. Imamura-Ching[1], R. Fetcher[1], H. Jiang[2], M. Harrison[1], and S. Roy[1]
[1]University of California San Francisco, San Francisco, CA, [2]San Francisco State University, San Francisco, CA

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P-Th-152
Accounting For Individual Differences Of Blind Users in Everyday Mobility Tasks
A. Adebiyi[1], G. Ragusa[1], and J. Weiland[1]
[1]University of Southern California, Los Angeles, CA

Track: Device Technologies and Biomedical Robotics
Devices and Sensors:
Biomedical Robotics Posters

P-Th-153
Isolated Mimosa pudica Mechanosensitive Cells as Tactile-Sensors for a Bio-Inspired E-Skin
Y. Wang[1], S. Ringel[2], and L. Guo[2,3]
[1]Department of Biomedical Engineering, The Ohio State University, Columbus, OH,[2]Department of Electrical and Computer Engineering, The Ohio State University, Columbus, OH, [3]Department of Neuroscience, The Ohio State University, Columbus, OH

POSTER SESSION **Th**

P-Th-154
A Magnetic Actuated Fully Insertable Camera Robot For Single Incision Laparoscopic Surgery
X. Liu[1], R. Abdolmalaki[1], G. Mancini[2], and J. Tan[1]
[1]University of Tennessee, Knoxville, Knoxville, TN, [2]University of Tennessee, Medical Center, Knoxville, TN

P-Th-155
Second Generation *In Vivo* Joint Tracking Improvements for Robotic Fluoroscopy
W. Anderson[1], C. Hurst[1], J. Shewmaker[1], J. McNeil[1], J. Penney[1], and W. Hamel[1]
[1]University of Tennessee - Knoxville, Knoxville, TN

P-Th-156
Controllability of Tendon-Driven Manipulators Does Not Decrease With Increased Complexity
V. R. Barradas[1] and F. J. Valero-Cuevas[1]
[1]University of Southern California, Los Angeles, CA

Track: Device Technologies and Biomedical Robotics
Devices and Sensors:
Biosensors Posters

P-Th-157
Development of Ultra-sensitive DNA Chip Based on Gold Nanorod Array
Z. Mei[1] and L. Tang[1]
[1]University of Texas at San Antonio, San Antonio, TX

P-Th-158
Paper-based Microfluidic Devices for Detecting Biomarkers and Nucleic Acids
X. Jiang[1], C. Cassano[1], and H. Fan[1]
[1]University of Florida, Gainesville, FL

P-Th-159
Towards the Development of a Dry Eye Point of Care Diagnostic
C. Lin[1], B. Haselwood[1], A. Meidinger[1], B. Kalen[1], G. Repp[1], and J. LaBelle[1]
[1]Arizona State University, TEMPE, AZ

P-Th-160
ISFET Operation With Polypyrrole Quasi-Reference Microelectrodes For Miniaturized Label-Free Detection Of Biomolecular Reactions
C. Duarte-Guevara[1], V. Swaminathan[1], M. Burgess[1], B. Reddy Jr[1], E. Salm[1], Y-S. Liu[2], J. Rodriguez-Lopez[1], and R. Bashir[1]
[1]UIUC, Urbana, IL, [2]TSMC, Hsinchu, Taiwan

P-Th-161
Anomaly Detection in EEG Signals for Concussion Diagnosis and Epileptic Seizure Detection
N. Malkhasyan[1] and P. Pardalos[1]
[1]University of Florida, Gainesville, FL

P-Th-162
Development of a Patient Based Point of Care Tacrolimus Biosensor for Transplant Patients
M. Doshi[1], S. Saikia[1], A. Lam[1], K. Hickie[1], S. Sridhar[1], J. LaBelle[1], and E. Steidley[2]
[1]Arizona State University, Tempe, AZ, [2]Mayo Clinic, Phoenix, AZ

P-Th-163
Design Concepts of Nucleic Acid Biosensors for Highly Sensitive miRNA Sensing
N. Larkey[1] and S. Burrows[1]
[1]Oregon State University, Corvallis, OR

Track: Cardiovascular Engineering
Devices and Sensors:
Cardiovascular Assist Devices Posters

P-Th-164
Simulation and Prototyping of a New Pneumatic-Driven Ventricular Assistant Device
G. Xiong[1], B. Mosadegh[1], and J. Min[1]
[1]Weill Cornell Medical College, New York, NY

P-Th-165
Does the Implantation Configurations of Axial Ventricular Assist Devices Matter?
W-C. Chiu[1], A. McLarty[2], S. Einav[1], M. Slepian[3], and D. Bluestein[1]
[1]Stony Brook University, Stony Brook, NY, [2]Stony Brook University Hospital, Stony Brook, NY,[3]Sarver Heart Center, Tucson, AZ

P-Th-166
Continuous and Pulsatile Pediatric Ventricular Assist Device Hemodynamics with a Viscoelastic Blood Model
B. Good[1], S. Deutsch[1], and K. Manning[1]
[1]The Pennsylvania State University, University Park, PA

P-Th-167
Magnetic Stents for Coronary Artery Luminal Regeneration
J. S. Lee[1], M. Gülcher[2], A. Mathur[3], J. Martin[1], A. Sinusas[1], and T. Fahmy[1]
[1]Yale University, New Haven, CT, [2]QualiMed Innovative Medizinprodukte GmbH, Winsen, Germany, [3]Queen Mary University of London, London, United Kingdom

Track: Device Technologies and Biomedical Robotics
Devices and Sensors:
Devices Posters

P-Th-168
Design Of A Highly Efficient Wireless Power Transfer System For Millimeter Sized Implantable Devices
H. Mei[1], Y-W. Huang[1], and P. Irazoqui[1]
[1]Purdue University, West Lafayette, IN

P-Th-169
Optimization of Transmitting Banks for Implantable Medical Devices
A. Vinca[1], S. Dubey[1], L. Lee[1], S. Rao[1], and J-C. Chiao[1]
[1]University of Texas at Arlington, Arlington, TX

P-Th-170
Microfluidic Devices with Regular Macroporous Structures for HIV Viral Capture
K. Surawathanawises[1], K. Kundrod[1], and X. Cheng[1]
[1]Lehigh University, Bethlehem, PA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-171
A Point-of-Care Assay for Monitoring Phenylalanine Levels in Serum
E. KAZURA[1], B. LUBBERS[1], E. DAWSON[2], J. PHILLIPS III[1], AND F. BAUDENBACHER[1]
[1]Vanderbilt University, Nashville, TN, [2]BioVentures, Inc., Murfeesboro, TN

P-Th-172
The Opto-Electronic Nose: A Dual Modality Sensor Enhances Chemical Detection and Identification
N. KATTA[1], J. HU[1], K-K. LIU[1], B. RAMAN[1], AND S. SINGAMANENI[1]
[1]Washington University in St. Louis, St. Louis, MO

P-Th-173
3D Printing Objects with Controllable Radiopacity
B. ALHOSSEINI HAMEDANI[1], K. VAHEESAN[1], S. GADANI[1], AND A. HALL[1]
[1]Saint Louis University, St. Louis, MO

P-Th-174
High SNR Contactless Impedance Measurements Using Thin-Film Elastomers
S. EMAMINEJAD[1] AND M. JAVANMARD[2]
[1]University of California Berkeley, Palo Alto, CA, [2]Rutgers University, Piscataway, NJ

Track: Device Technologies and Biomedical Robotics

Devices and Sensors:

Prosthetics and Physical-Assist Devices Posters

P-Th-175
EEG-Based Control of a Unidimensional Computer Cursor Using Imagined Body Kinematics
R. ABIRI[1], G. HEISE[1], F. SCHWARTZ[1], AND X. ZHAO[1]
[1]University of Tennessee, Knoxville, TN

P-Th-176
Illusory Hand Changes Amputees' Brain Activity
R. BEETEL[1] AND W. CRAELIUS[2]
[1]RJB[3] Consulting, SanFrancisco, CA, [2]Rutgers University, Piscataway, NJ

P-Th-177
Angel Arms - The Development of an Exoskeleton Arm Assisting Device
S. SCHAEFER[1], J. KISSLING[1], J. FARRIS[1], L. KENYON[1], AND B. NOWAK[1]
[1]Grand Valley State University, Grand Rapids, MI

P-Th-178
Impact of Design on Mechanical Properties of Ankle Foot Orthoses
A. WACH[1], M. WANG[1,2], T. CURRENT[3], D. JEUTTER[1], P. VOGLEWEDE[1], AND B. SILVERTHORN[1]
[1]Marquette University, Milwaukee, WI, [2]The Medical College of Wisconsin, Milwaukee, WI,[3]Hanger Prosthetics & Orthotics, Milwaukee, WI

P-Th-179
Evaluation of Optimal Elastic Ankle Exoskeleton Stiffness in Human Gait
R. NUCKOLS[1] AND G. SAWICKI[1]
[1]University of North Carolina - Chapel Hill and North Carolina State University, Raleigh, NC

P-Th-180
Differentiation of Hand Motions by Imaging Residual Limb Muscles of Transradial Amputees Using Ultrasound Imaging
N. AKHLAGHI[1], K. ALMUHANNA[1], J. J. PANCRAZIO[1], AND S. SIKDAR[1]
[1]George Mason Univiersity, Fairfax, VA

P-Th-181
The Use Of Ultrasound Imaging To Define A Control Strategy For A Muscle-Computer Interface.
K. MURTHY[1], N. AKHLAGHI[1], W. JOINER[1], AND S. SIKDAR[1]
[1]George Mason University, Fairfax, VA

Track: Orthopedic and Rehabilitation Engineering

Devices and Sensors:

Rehabilitation Engineering Posters

P-Th-182
Robotized Method for Comparative Testing of Back Support Devices
D. DIANGELO[1] AND J. SIMMONS[1]
[1]University of Tennessee Health Science Center, Memphis, TN

P-Th-183
An Investigation of the Positive Joint Power Distribution in Above-Knee (AK) Prostheses
M. CONRAD[1], M. LIU[1], G. SAWICKI[1], AND H. HUANG[1]
[1]North Carolina State University, Raleigh, NC

P-Th-184
Generalization of Fuzzy Rule-Based Tuning System Across Above-Knee Powered Prosthesis Designs
A. BRANDT[1], M. LIU[1], AND H. HUANG[1]
[1]NC State University & UNC Chapel Hill, Raleigh, NC

P-Th-185
The Mechanical Impact of an Instrumented Push-rim on a Wheelchair System
J-T. LIN[1], M. HUANG[1], AND S. SPRIGLE[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Th-186
The Impact of Drive Wheels on Manual Wheelchair Propulsion Torque
M. HUANG[1] AND S. SPRIGLE[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Th-187
High-Capacity Weighing Instrumentation for Bariatric and Disabled Individuals: Medical Device Market Shifts after the Affordable Care Act and a Proposed New Device
B. SHERROD[1], J. RIMMER[1], AND A. EBERHARDT[1]
[1]University of Alabama at Birmingham, Birmingham, AL

P-Th-188
A Magnetic Electrical Connector to Simplify the Myoelectric User Interface
T. REISSMAN[1] AND T. KUIKEN[1]
[1]Northwestern University, Chicago, IL

P-Th-189
Limiting the Available Workspace of a Robot-Human Simulation Model to Increase Accuracy
D. MENYCHTAS[1], S. CAREY[1], AND R. DUBEY[1]
[1]University of South Florida, Tampa, FL

P-Th-190
Impact Forces During Total Hip Arthroplasty
R. MCCULLOCH[1], P. MENTE[2], AND S. ROE[3]
[1]Gonzaga University, Spokane, WA, [2]NCSU / UNC, Raleigh, NC, [3]NCSU Veterinary School, Raleigh, NC

P-Th-191
Quantitative Analysis of Balance Control in Amputees Using Portable Device
A. ARRINDA[1], J. LOAYZA[1], O. GIL[1], J. PHAM[1], A. THOTA[1], AND R. JUNG[1]
[1]Florida International University, Miami, FL

P-Th-192
Chinese Tai Chi Chuan Principle to Enable Human-Robot Symbiosis on Exoskeleton Devices
K-J. WANG[1]
[1]University of Pittsburgh, Pittsburgh, PA

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-193
Development of a Visual Biofeedback System for Center of Pressure Modification During Gait
M. Browne[1,2] and G. Sawicki[1,2]
[1]NC State University, Raleigh, NC, [2]UNC Chapel Hill, Chapel Hill, NC

P-Th-194 **DREAM TEAM & CENTER**
Femoral Anteversion Angle Influence on Severe Grades of Developmental Dysplasia of the Hip using the Pavlik Harness
V. Huayamave[1], C. Rose[1], A. Kassab[1], F. Moslehy[1], E. Divo[2], and C. Price[1,3,4]
[1]University of Central Florida, Orlando, FL, [2]Embry Riddle Aeronautical University, Daytona Beach, FL, [3]International Hip Dysplasia Institute, Orlando, FL, [4]Orlando Health, Orlando, FL

P-Th-195
Repeatability of Fiducial Markers to Define a Joint Coordinate System Using 7T MRI
S. Cone[1], T. Rennard[1], L. Fordham[2], and M. Fisher[1]
[1]North Carolina State University and University of North Carolina, Raleigh, NC, [2]University of North Carolina School of Medicine, Chapel Hill, NC

P-Th-196
Biofeedback Device for Evaluation and Correction of Gait Asymmetry: A Pilot Study with Stroke Survivors
O. Rojas[1], N. Balagtas[2], I-H. Khoo[1], P. Marayong[1], and V. Krishnan[1]
[1]California State University, Long Beach, Long Beach, CA, [2]California State University, Long Beach, Cypress, CA

Track: Translational Biomedical Engineering
Devices and Sensors:
Translational Technology: Preclinical Models Posters

P-Th-197
Organ Dysfunction in Conscious Models of Bacteremia and Sepsis in Swine
A. Waterhouse[1], D. Leslie[1], D. Bolgen[1], M. Cartwright[1], B. Seiler[1], P. Lombardo[1], B. Murphy[1], N. Dimitrakakis[1], B. Pavlov[1], J. Berthet[1], S. Jurek[1], N. Gamini[1], K. Donovan[2], A. Nedder[2], M. Super[1], and D. Ingber[1,2]
[1]Harvard University, Boston, MA, [2]Boston Children's Hospital, Boston, MA

P-Th-198
A Tactilely Realistic, Patient-Specific Brain Model for Preoperative Surgical Training
C. Ploch[1], C. Mansi[1,2], and E. Kuhl[1]
[1]Stanford University, Stanford, CA, [2]King's College Hospital, London, United Kingdom

P-Th-199
A FDA Perspective on Benefit Risk Considerations of Devices for Rare Diseases
G. Liu[1], E. Chen[1], D. Lewis[1], and G. Rao[1]
[1]Food and Drug Administration, Silver Spring, MD

Track: Device Technologies and Biomedical Robotics
Devices and Sensors:
Wearable Sensors and Devices Posters

P-Th-200
Author cancellation

P-Th-201
Forearm EMG Activation Classifies Activities of Daily Living
E. Wade[1] and M. Totty[1]
[1]University of Tennessee, Knoxville, TN

P-Th-202
Microfluidic-Based Interfacial Capacitive Tactile Sensors For Three-Dimensional Force Measurements
B. Nie[1], R. Li[1], J. Brandt[2], and T. Pan[1]
[1]University of California, Davis, Davis, CA, [2]University of California, Davis, Sacramento, CA

P-Th-203
Noninvasive Physiologic Occupant Monitoring for Improved Post-Crash Emergency Response
K. Joseph[1], K. Kusano[2], and H. Gabler[2]
[1]Oakwood University, Huntsville, AL, [2]Virginia Tech, Blacksburg, VA

P-Th-205
Development Of A Sport Utility Vest That Captures Cardiographic Data In Real Time In Relationship To Arterial Pressure
A. Osuntoki[1], O. Ajibola[1], and O. Bolarinwa[1]
[1]University of Lagos, Lagos, Nigeria

P-Th-206
Wearables and Point-of-View Devices: Applications in Health Sciences and Medicine
A. Fernandez-Fernandez[1], D. Stern[1], K. Smith[1], H. Hettrick[1], M. Buck[2], M. Hotchkiss[2], and N. Smith[1]
[1]Nova Southeastern University, Fort Lauderdale, FL, [2]Ithaca College, Ithaca, NY

P-Th-207 **DREAM TEAM & CENTER**
Human Motion Tracking Under the Practical Limitations of Bluetooth Low Energy
E. Allseits[1], C. Bennett[1], V. Agrawal[1], D. Viggiano[1], and I. Gaunaurd[1]
[1]University of Miami, Coral Gables, FL

P-Th-208
Low Cost Audiometric Device to Test Hearing Loss in Developing Countries
J. Ghannam[1], M. Uddin[1], and A. Fabbri[1]
[1]University Of Connecticut, Storrs, CT

P-Th-209
Home Monitoring System for Patients with Parkinson's Disease using Wireless Sensors
S. V. Perumal[1] and R. Sankar[1]
[1]University of South Florida, tampa, FL

P-Th-210
The Design and Development of a Portable Pressure Sensing Insole for Out-of-Clinic Load Capture
E. Vandersteen[1], T. Petelenz[1], and R. Hitchcock[1]
[1]University of Utah, Salt Lake City, UT

Track: Biomaterials
Engineering Materials:
Biomaterials Non-specified Posters

P-Th-211
Amphiphilic Crosslinked Networks: Correlation Between Network Properties and Cell Proliferation.
L. Villada[1], C. Kizilkaya[1], and A. Brennan[1]
[1]University of Florida, Gainesville, FL

P-Th-212
Evaluation And Feasibility Of A Biodegradable Magnesium Staple
M. Nagelschmidt[1,2], A. Miesse[1], G. Hodgkinson[1], and D. Peterson[2,3]
[1]Medtronic, North Haven, CT, [2]University of Connecticut, Storrs, CT, [3]Texas A&M University-Texarkana, Texarkana, TX

P-Th-213
In Vitro Biocompatibility Evaluation Of Zinc As Stent Material
J. Ma[1], N. Zhao[1], and D. Zhu[1]
[1]North Carolina A&T State University, Greensboro, NC

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-214
Comparison of Mechanical Testing Methods for Biomaterials: Nanoindentation, Pipette Aspiration, and Compression Testing
K. Tong[1], R. Blaho[1], C. Buffinton[1], and D. Ebenstein[1]
[1]*Bucknell University, Lewisburg, PA*

P-Th-215
Novel Pre-mixed PMMA-CaP Composite Bone Cements for Vertebroplasty
S. Aghyarian[1], V. Kosmopoulos[2,3], I. H. Lieberman[4], and D. C. Rodrigues[1]
[1]*The University of Texas at Dallas, Richardson, TX,* [2]*University of North Texas Health Science Center, Fort Worth, TX,* [3]*University of North Texas, Denton, TX,* [4]*Texas Back Institute, Plano, TX*

P-Th-216
Assessment of Pore Size and Histology for Different Types of Explanted Hernia Mesh
E. Casey[1], K. Williams[1], X. Lu[1], B. T. Heniford[2], A. Lincourt[2], and M. Harman[1]
[1]*Clemson University, Clemson, SC,* [2]*Carolinas Medical Center, Charlotte, NC*

Track: Biomaterials
Engineering Materials:
Intelligent/Multifunctional Biomaterials Posters

P-Th-217
Manipulating the Stiffness of Polydimethylsiloxane via an Orthogonal Crosslinking Strategy
Y-C. Yeh[1], R. Truitt[1], V. Kumar[1], R. Alvarez[1], K. Margulies[1], and J. Burdick[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Th-218
Self-Reporting Phenol Red-Silk Protein Dityrosine Crosslinked Cytocompatible Hydrogels
A. Sundarakrishnan[1], E. Herrero Acero[2], D. Pouli[1], I. Georgakoudi[1], S. Yigit[1], K. Chwalek[1], B. Partlow[1], and D. Kaplan[1]
[1]*Tufts University, Medford, MA,* [2]*Austrian Centre of Industrial Biotechnology ACIB, Granz, Austria*

P-Th-219
Prevention of Collagen Induced Platelet Binding and Activation by Thermosensitive Nanoparticles
J. McMasters[1] and A. Panitch[1]
[1]*Purdue University, West Lafayette, IN*

P-Th-220
Could Poor Antibiotic Sensitivity Against Bacteria Be A Reason To Biomaterial Related Infections?
N. Ghimire[1], Y. Sun[2], and Y. Deng[1]
[1]*The University of South Dakota, Sioux Falls, SD,* [2]*University of Masaachusetts, Lowell, MA*

P-Th-221
A Shape Memory External Stent To Prevent Dialysis Graft Failure
T. Boire[1], E. Wise[1], W. Kaplan[1], C. Brophy[1], and H-J. Sung[1]
[1]*Vanderbilt University, Nashville, TN*

P-Th-222
An Ovine Model to Study Osseointegration of Gamma Titanium Aluminide
P. Richiez[1], P. Sundaram[2], N. Diffoot[3], A. Rodriguez[2], and H. Perez[4]
[1]*University of Puerto Rico Mayaüez Campues, Mayagüez, Puerto Rico,* [2]*University of Puerto Rico Mayaüez Campus, Mayagüez, Puerto Rico,* [3]*University of Puerto Rico Mayaüez Campus, Mayagüez, PR, Puerto Rico,* [4]*SVSL, Arecibo, PR, Puerto Rico*

P-Th-223
A Synthetic Injectable Hydrogel for MMP-mediated Drug Delivery after Spinal Cord Injury
P. Elias[1], H. Wei[1], D. Sellers[1], S. Manavi[1], A. Fischedick[1], P. Horner[1], and S. Pun[1]
[1]*University of Washington, Seattle, WA*

P-Th-224
Bactericidal Surface Chemistry That Enhances Implant Biointegration
S. Hou[1], A. Deyett[1], and K. J. Jeong[1]
[1]*University of New Hampshire, Durham, NH*

Track: Drug Delivery
Engineering Materials:
Novel Materials and Self Assembly Posters

P-Th-225
Gold Nanorod-Coated Double Nanoemulsion for Image-Monitored Controlled Drug Delivery
Z. Cao[1] and Y. Park[1]
[1]*University of Cincinnati, Cincinnati, OH*

P-Th-226 **DREAM TEAM & CENTER**
A Nanomedicine Solution for Focal Prostate Cancer Treatment: Nanodroplet Mediated Histotripsy (NMH)
O. Aydin[1], E. Vlaisavljevich[1], Y. Yuksel Durmaz[2], Z. Xu[1], and M. ElSayed[1]
[1]*University of Michigan, Ann Arbor, MI,* [2]*Medipol University, Istanbul, Turkey*

P-Th-227
Genetically Encoded Zwitterionic Polypeptides (ZiPPs): Promising Stealth Polymers for Drug Delivery
S. Banskota[1], J. Bhattacharyya[1], X. Li[1], P. Yosefpour[1], and A. Chilkoti[1]
[1]*Duke University, Durham, NC*

P-Th-228
Control of Long Term Catheter-Associated Urinary Tract Infections: A Novel Antimicrobial and Anti-Adhesive Catheter Coating
C. Nix[1], S. Patkar[1], Z. Zhang[1], and Y. Zhong[1]
[1]*Drexel University, Philadelphia, PA*

P-Th-229
ATP-responsive DNA-graphene Hybrid Nanoaggregates For Anticancer Drug Delivery
Y. Ye[1,2], R. Mo[1,2,3], T. Jiang[1,2], W. Sun[1,2], and Z. Gu[1,2]
[1]*University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC,*[2]*University of North Carolina at Chapel Hill, Chapel Hill, NC,* [3]*China Pharmaceutical University, Nanjing, China, People's Republic of*

P-Th-230
ON-OFF Fluorescent Micelles as a Transdermal Drug Delivery System
D. Velluto[1,2] and M. Resmini[2]
[1]*University of Miami, Miami, FL,* [2]*Queen Mary University of London, London, United Kingdom*

P-Th-231 **DREAM TEAM & CENTER**
Controlled Drug Release from Random Poly(D,L-lactide-co-glycolide)
D. Koo[1], P. Zavala[2], C. Kim[3], and V. Balema[1]
[1]*Sigma Aldrich, Milwaukee, WI,* [2]*Concordia University, Mequon, WI,* [3]*University of Wisconsin-Milwaukee, Milwaukee, WI*

P-Th-232
Membrane Encapsulated DNA Devices for In Vivo Nanomedicine Applications
S. Perrault[1], J. Hahn[2], and W. Shih[2] [1]Wyss
Institute for Biologically Inspired Engineering at Harvard, Boston, MA, [2]*Wyss Institute at Harvard, Boston, MA*

Track: Drug Delivery
Engineering Materials:
Delivery Systems for Immune Modulation Posters

P-Th-233
The Local Delivery Of Fingolimod In Islet Transplantation
A. Frei[1], P. Buchwald[2], and C. Stabler[1]
[1]*University of Florida, GAINESVILLE, FL,* [2]*University of Miami, Miami, FL*

P-Th-234
Antigen Binding Drives the Specificity of Multivalent Soluble Antigen Arrays Developed for Multiple Sclerosis
B. L. Hartwell[1], J. O. Sestak[1], H. Shinogle[1], and C. Berkland[1]
[1]*The University of Kansas, Lawrence, KS*

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-235
Tuning Immune Activation with Adjuvant-Loaded Spiky Gold Nanoparticles
J. NAM[1] AND J. MOON[1]
[1]University of Michigan, Ann Arbor, MI

P-Th-236
Heparin-based Delivery Of IL-12 Immunotherapy Differs Between Mouse and Human
K. NGUYEN[1], B. KOPPOLU[2], S. SMITH[2], S. RAVINDRANATHAN[2], M. Z. SIDDIQUI[3], AND D. ZAHAROFF[2]
[1]Cell and Molecular Biology Program, University of Arkansas, Fayetteville, Fayetteville, AR,[2]Department of Biomedical Engineering, University of Arkansas, Fayetteville, Fayetteville, AR,[3]Department of Biological Sciences, University of Arkansas, Fayetteville, AR, Fayetteville, AR

P-Th-237
A pH-Responsive Polymer Incorporated PLGA Drug Delivery System For Immunotherapy
L. YANG1, B. KESELOWSKY1, AND C. DUVALL2
1J Crayton Pruitt Family Department of Biomedical Engineering, Gainesville, FL, 2School of Biomedical Engineering, Nashville, TN

POSTER SESSION **Th**

Track: Biomaterials
Engineering Materials:
Therapeutic and Theranostic Biomaterials Posters

P-Th-238
Polymerized Hemoglobin Accelerates Wound Healing in Diabetic Mice
P. KRZYSZCZYK[1], R. FAULKNOR[1], K. RICHARDSON[2], M. YARMUSH[1], A. PALMER[2], AND F. BERTHIAUME[1]
[1]Rutgers University, Piscataway, NJ, [2]The Ohio State University, Columbus, OH

P-Th-239
Advanced Nanoparticle-Loaded Antibacterial Gellan Hydrogels for Treatment of Burn Infections
S. SHUKLA[1] AND A. SHUKLA[1]
[1]Brown University, Providence, RI

P-Th-240
In Vitro Evaluation of Doxorubicin-Loaded, Enzymatically Activated Polymeric NIR-Fluorescent Theranostic Nanoprobes
T. OZEL[1] AND T. BETANCOURT[1]
[1]Texas State University, San Marcos, TX

P-Th-241
Effect of pH Variation on the Antimicrobial Activity of Dextran-coated Nanoparticles
H. YAZICI[1], E. ALPASLAN[1], AND T. WEBSTER [1,2]
[1]Northeastern University, Boston, MA, [2]King Abdulaziz University, Jeddah, Saudi Arabia

P-Th-242
Development of a Collagen Type I Bead Based Injectable with Anti-Cancer Properties
K. KWIST[1], T. NGOBILI[1], C. MOODY[1], AND B. BOOTH[1]
[1]Clemson University, Clemson, SC

P-Th-243
Gold-nanoparticles Combinde Alendronate for Inhibition of Bone Resorption
D. LEE[1], D. N. HEO[1], S. J. LEE[1], M. HEO[1], AND Y. W. CHOI[1]
[1]Kyung hee university, Seoul, Korea, Republic of

P-Th-244
Degradation of Poly(simvastatin)-Containing Copolymers and Blends
T. ASAFO-ADJEI[1], H. FRANKEL[1], T. DZIUBLA[1], AND D. PULEO[1]
[1]University of Kentucky, Lexington, KY

P-Th-245
Synthesis And Characterization Of Thiolated Gellan And Hyaluronic Acid To Develop A Permanent Biomimetic Vitreous Substitute
D. LEE[1], J. STRUCKHOFF[1], J. LIANG[1], P. HAMILTON[1], AND N. RAVI[1,2]
[1]Washington University, St. Louis, MO, [2]Department of Veterans Affairs, St Louis Medical Center, St. Louis, MO

P-Th-246
Immunomodulatory Protein-Conjugated PLGA:A Medical Device Implant Material
C. RAPIER1, E. CHEN1, W. LIU1, AND A. LEE1
1University of California Irvine, Irvine, CA

Track: Cellular and Molecular Bioengineering
Molecular and Cellular Topics:
Cell Adhesion and Interaction with ECM Posters

P-Th-247
Integrins Involved in Sensing and Adhering to Electrospun Nanofibers
D. BOWERS[1] AND J. BROWN[1]
[1]The Pennsylvania State University, University Park, PA

P-Th-248
Nucleus Pulposus Cell Morphology: Effects of Collagen Substrate Stiffness and Configuration
L. RESUTEK[1], H. KIM[1], C. LUNA[1], AND A. H. HSIEH[1,2]
[1]University of Maryland, College Park, MD, [2]University of Maryland, Baltimore, MD

P-Th-249
Macrophage Proliferation Rate as a Function of Substrate Stiffness
M. MAURER[1] AND H. HAYENGA[1]
[1]University of Texas at Dallas, Richardson, TX

P-Th-250
Surface Expression of Adhesion Proteins on Adipose Stem Cells Grown in TGF- β3 and Cyclic Pressure
C. QUISENBERRY[1], A. NAZEMPOUR[1], B. VAN WIE[1], AND N. ABU-LAIL[1]
[1]Washington State University, Pullman, WA

P-Th-251
Characterization of Endothelial Cell-Specific Molecule 1 (Endocan) as a Novel Anti-Inflammatory Therapeutic Using a Bioinspired Microfluidic Assay
F. SOROUSH[1], X. ZHENG[2], V. BHALLA[2], AND M. KIANI[1]
[1]Temple University, Philadelphia, PA, [2]Stanford University School of Medicine, Stanford, CA

P-Th-252
Extracellular Matrix Modification Improves The Adhesion And Phenotype Of iPSC - Derived hBMECs For Use In A 3-D *In Vitro* Microvessel Model
M. KNIGHT[1], Z. XU[1], L. MAYO[1], AND P. SEARSON[1]
[1]Johns Hopkins University, Baltimore, MD

P-Th-253
Regulation of Human Nucleus Pulposus Cell Phenotype and Behavior by Laminin-Mimetic Peptide Coupled Substrates
D. BRIDGEN[1], J. SANCHEZ-ADAMS[1], L. JING[1], W. RICHARDSON[1], M. ERICKSON[1], F. GUILAK[1], J. CHEN[1], AND L. SETTON [1]
[1]Duke University, Durham, NC

P-Th-254
Evaluation of Mechanical Tension Required for Integrin Activation on Softer Substrates
Z. RAHIL[1], S. HABA[1], T. HA[1], B. HARLEY[1], AND D. LECKBAND[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

P-Th-255
Expression Of Focal Adhesions In Response To Cyclic Loading Of Substrate In MCF12A Cells
J. SERRANO[1], J. CORA[1], P. SUNDARAM[2], AND N. DIFFOOT[2]
[1]University of Puerto Rico at Mayaguez, Mayaguez, Puerto Rico, [2]University of Puerto Rico at Mayaguez, Mayaguez, PR, Puerto Rico

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-256
Nanoscale Extracellular Matrix Alters Endothelial Function Under Disturbed Flow
K. Nakayama[1,2], V. Narayanan[1], M. Gole[2], T. Walker[3], W. Yang[1], E. Lai[1], M. Ostrowski[1], G. Fuller[1], A. Dunn[1], and N. Huang[1,2]
[1]Stanford University, Palo Alto, CA, [2]Veterans Administration Palo Alto, Palo Alto, CA,[3]Oregon State University, Corvallis, OR

P-Th-257
A Chemo-mechanical Model for Extracellular Matrix and Nuclear Rigidity Regulated Size of Focal Adhesion Plaques
X. Cao[1], Y. Lin[2], T. Driscoll[1], J. Franco-Barraza[3], E. Cukierman[3], R. Mauck[1], and V. Shenoy[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]University of Hong Kong, Hong Kong, Hong Kong, [3]Fox Chase Cancer Center, Philadelphia, PA

P-Th-258
Atrial Natriuretic Peptide Down-Regulates Neutrophil Recruitment on Inflamed Endothelium by Reducing Cell Deformability that Effectively Increases Fracture Force.
V. Morikis[1], S. Simon[1], F-R. Curry[1], and V. Heinrich[1]
[1]University of California, Davis, Davis, CA

P-Th-259
Formin-dependent Linear Actin Bundles Preferentially Regulate Mature E-cadherin Adhesions
V. Maruthamuthu[1] and M. Gardel[2]
[1]Old Dominion University, Norfolk, VA, [2]The University of Chicago, Chicago, IL

P-Th-260
The Role of VEGF-ECM Crosstalk on Neural Stem Cell Migration
C. Millar-Haskell[1], C. Addington[1], and S. Stabenfeldt[1]
[1]Arizona State University, Tempe, AZ

P-Th-261
Induction of Smooth Muscle Phenotype in Human Fibroblast Strain for Smooth Muscle Culture Models
J. Morgan[1] and J. Gleghorn[1]
[1]University of Delaware, Newark, DE

P-Th-262
Fabrication of 3D Cell Culture Using Bioactive Scaffolds
I-H. Baek[1]
[1]Kist europe, Saarbrücken, Germany

P-Th-263
Dual Detection of Cells Response Using Fluorescence Microscopy and Impedance Spectroscopy
M. Parviz[1,2], K. Gaus[3], and J. J. Gooding[1,2]
[1]School of Chemistry, UNSW, Sydney, Australia, [2]Australian Centre for NanoMedicine, Sydney, Australia, [3]Single Molecule Laboratory, UNSW, Sydney, Australia

P-Th-264
Role of Glutamine Metabolism in Vascular Remodeling in Pulmonary Arterial Hypertension
C. Caneba[1], N. Chawla[1], K. Masters[1], and N. Chesler[1]
[1]University of Wisconsin - Madison, Madison, WI

P-Th-265
Spatial Patterning of EMT is Regulated by Fibronectin Fibrillogenesis
L. Griggs[1], J. Narang[1], and C. Lemmon[1]
[1]Virginia Commonwealth University, Richmond, VA

P-Th-266
Effects of Collagen Content on Stem Cell Function: Implications for Vocal Fold Wound Healing
A. Zerdoum[1], S. Liu[1], R. Duncan[1], and X. Jia[1]
[1]University of Delaware, Newark, DE

P-Th-267
Extracellular Matrix Fibronectin Attenuates Platelet-Derived Growth Factor-Signaling
C. Farrar[1] and D. Hocking[1]
[1]University of Rochester, Rochester, NY

P-Th-268
A Bioinspired Microfluidic Assay for Investigation of the Role of Protein Kinase C-delta (PK) in Regulating Human Neutrophil Migration during Acute Inflammation
F. Soroush[1], B. Prabhakarpandian[2], L. Kilpatrick[3], and M. Kiani[1]
[1]Temple University, Philadelphia, PA, [2]CFD Research Corporation, Huntsville, AL, [3]Center for Inflammation, Translational, and Clinical Lung Research, Philadelphia, PA

P-Th-269
Desmosomes Are Subject To Mechanical Tension
S. Baddam[1], P. Arsenovic[1], and D. Conway[1]
[1]Virginia Commonwealth University, Richmond, VA

P-Th-270
The Effects of oxLDL and IFN-γ-activated Tissue Resident Cells on the Progression of Atherosclerosis
R. Josi[1] and D. Khismatullin[1]
[1]Tulane University, New Orleans, LA

P-Th-271
Cell-Cell and Cell-Matrix Adhesion Regulate TGF&[beta]1-Induced Epithelial-Mesenchymal Transition
J. O'Connor[1] and E. Gomez[1]
[1]The Pennsylvania State University, University Park, PA

P-Th-272
Non-lipid Amphiphiles Modulate Forces at Focal Adhesions
S. Son[1], G. Moroney[1], and P. Butler[1]
[1]Penn State University, State College, PA

P-Th-273
Adult Human Mesenchymal Stem Cell Adhesion on Optically Transparent Carbon Substrates Modified with Electrochemically-Adsorbed Protein
M. Wechsler[1], T. Benavidez[1], M. Farrer[1], R. Bizios[1], and C. Garcia[1]
[1]University of Texas at San Antonio, San Antonio, TX

P-Th-274
Spreading Responses to Substrate Curvatures of Fibroblasts and Stem Cells Plated on Micro Glass Ball Embedded Gels
S. J. Lee[1] and S. Yang[1]
[1]Florida Institute of Technology, Melbourne, FL

P-Th-275
The Effect of Substrate Curvature on Myosin-based Frictional Slip and Elongation of Focal Adhesions
T. Araki[1], S. Yokoyama[1], T. Matsui[1], T. Ohishi[1], K. Kato[2], and S. Deguchi[1]
[1]Nagoya Institute of Technology, Nagoya, Japan, [2]National Institutes of Natural Sciences, Okazaki, Japan

Track: Cellular and Molecular Bioengineering

Molecular and Cellular Topics:

Cell Motility Posters

P-Th-276
Preosteoblast Migration Under Fluid Shear
B. Riehl[1], J. S. Lee[1], L. Ha[1], and J. Y. Lim[1]
[1]University of Nebraska-Lincoln, Lincoln, NE

P-Th-277
Constricted Cell Migration Damages DNA and Drives Lamin Segregation
J. Irianto[1], A. Athirasala[1], R. Diegmiller[1], I. L. Ivanovska[1], R. A. Greenberg[1], and D. E. Discher[1]
[1]University of Pennsylvania, Philadelphia, PA

P-Th-278
Directional Collective Migration of the Epithelial Cell Monolayer Under HGF Gradient
H. Jang[1], C. Y. Park[2], and Y. Park[1]
[1]Korea University, Seoul, Korea, Republic of, [2]Harvard School of Public Health, Boston, MA

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-279
WASP and HS1 Contribute to Dendritic Cell Migration and Force Generation
A. Bendell[1] and D. Hammer[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Th-280
Migration Assays: Scratch Wound vs. Microfluidics
L. Lee[1], S. Bean[1], S. Loh[1], M. Nashawi[1], S. Rao[1], V. Lin[1], and J-C. Chiao[1]
[1]*University of Texas at Arlington, Arlington, TX*

P-Th-281
Alterations of Flagella-Driven Cellular Motility in Stressed Conditions
D. Fijalka[1], K. Clark[1], N. Wagner[1], S. Karpowicz[1], and G. Xu[1]
[1]*University of Central Oklahoma, Edmond, OK*

Track: Cellular and Molecular Bioengineering
Molecular and Cellular Topics:
Cellular and Molecular Other Posters

POSTER SESSION **Th**

P-Th-282
The Influence of Genetic Variation on Bone Formation
M. Varshney[1]
[1]*Stony Brook University, Smithtown, NY*

P-Th-283
A Direct Force Probe Reveals The Mechanics Of Nuclear Homeostasis In The Mammalian Cell
S. neelam[1], T. Chancellor[2], Y. lo[2], J. Nickerson[3], K. Roux[4], R. Dickinson[1], and T. Lele[1]
[1]*university of florida, gainesville, FL,* [2]*University of florida, gainesville, FL,* [3]*University of Massachusetts, Worcester, MA,* [4]*Sanford research center, University of South Dakota, sioux fals, SD*

P-Th-284
Metabolic Engineering of Cryopreservation Outcome Using Non-reducing Carbohydrates
J. Solocinski[1], Q. Osgood[1], M. Wang[1], A. Connolly[1], and N. Chakraborty[1]
[1]*University of Michigan Dearborn, Dearborn, MI*

P-Th-285
Characterization of Brain Heterogeneity Using a Novel Fixation/Sorting Method
J. Sadick[1], V. Fonseca[1], M. Boutin[1], D. Hoffman-Kim[1], and E. Darling[1]
[1]*Brown University, Providence, RI*

P-Th-286
Potential Role of Pro-oxidative Mechanism in Cellular Damages in Autism Mice
M. H. Hwang[1], H. J. Cho[1], J. Simmons[1], and Y. W. Lee[1]
[1]*Virginia Tech, Blacksburg, VA*

P-Th-287
Choroidal Endothelial Cell Functions Under Elevated Pressure and High Glucose Concentration
K. Hamalainen[1], M. Wechsler [1], R. Bizios[1], and M. Reilly[1]
[1]*University of Texas at San Antonio, San Antonio, TX*

P-Th-288
The Effect Of Very Low Dose X-Ray Radiation On The Proliferation Of 3T3 Fibroblasts
K. Truong[1], S. Bradley[1], B. Baginski[1], C. Hellyer[1], J. Wilson[1], K. Earle[1], S. Flannery[1], M. Rusin[1], E. Takacs[1], and D. Dean[2]
[1]*Clemson University, Clemson, SC,* [2]*Clemson University, Central, SC*

P-Th-289
The Correlation Between Substrate Stiffness and TGF- β Induced Activation of Hepatic Stellate Cells
S. Marampudi[1], J. Narang[2], and C. Lemmon[2]
[1]*Virginia Commonwealth University, Gainesville, VA,* [2]*Virginia Commonwealth University, Richmond, VA*

P-Th-290
Microstructural Features Correlate With Improved Clot Strength Of Cold-Stored Platelets
P. Nair[1,2], S. Pandya[1,2], K. Reddoch[1,2], S. Dallo[1], H. Pidcoke[3], A. Cap[1,3], and A. Ramasubramanian[1,2]
[1]*The University of Texas at San Antonio, San Antonio, TX,* [2]*The University of Texas Health Science Center at San Antonio, San Antonio, TX,* [3]*U.S. Army Institute of Surgical Research, Fort Sam Houston, TX*

P-Th-291
Author Cancellation

P-Th-292
Poloxamer 188 Reduces Membrane Defect Size and Restores Membrane Elasticity to Saponin-injured Cells *In Vitro*
M. Poellmann[1], N. Gothard[1], M. Cho[2], and R. Lee[1]
[1]*University of Chicago, Chicago, IL,* [2]*University of Illinois at Chicago, Chicago, IL*

P-Th-293
Investigating the Potential for Cryopreservation of Human Granulocytes with Concentrated Glycerol
A. Moss[1] and A. Higgins[1]
[1]*Oregon State University, Corvallis, OR*

P-Th-294
Blue Light Irradiation-induced *Escherichia coli* Growth Reduction Varies With Growth Phase
C. A. Mitchell[1], M. Hadjifrangiskou[2], and B. Rogers[1]
[1]*Vanderbilt University, Nashville, TN,* [2]*Vanderbilt University School of Medicine, Nashville, TN*

P-Th-295
Attenuation of a β-induced Apoptosis by Tea Polyphenols via Modulation of a β Oligomerization
S. Chastain[1], K. Pate[1], and M. Moss[1]
[1]*University of South Carolina, Columbia, SC*

P-Th-296
Rapid Processing to Prepare Cryopreserved Blood for Transfusions
J. Lahmann[1], C. Cruz-Sanchez[1], C. Huntley[1], J. Benson[2], and A. Higgins[1]
[1]*Oregon State University, Corvallis, OR,* [2]*Northern Illinois University, DeKalb, IL*

P-Th-297
Mechano-Genetic Network Monitors Shear Stress Sensor Activity And Regulates Transcription Factors
Z. Kis[1] and R. Krams[1]
[1]*Imperial College London, London, United Kingdom*

P-Th-298
Synergistic Impact of Nicotine and Laminar Shear Stress Induces Cytoskeleton Collapse and Apoptosis in Human Endothelial Cells
Y-H. Lee[1], R-S. Chen[1], C-H. Yeh[1], and F-M. Ho[2]
[1]*National Central University, Taoyuan, Taiwan,* [2]*Tao-Yuan General Hospital, Taoyuan, Taiwan*

P-Th-299
Application Of ATAC-seq For Comparison Of Tumor-Normal Epigenetic State
R. Malpani[1], I. Lee[1], and W. Timp[1]
[1]*Johns Hopkins Univeristy, BALTIMORE, MD*

P-Th-300
Shear Stress on Human iPSC-Derived Brain Microvascular Endothelial Cells
Z. Xu[1], M. Knight[1], J. Destefano[1], and P. Searson[1]
[1]*Johns Hopkins University, Baltimore, MD*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-301
Cell Spreading Drives Nuclear Flattening
Y. Li1, D. Lovett2, Q. Zhang1, R. A. Kuchibhotla1, S. Neelam1, R. Zhu3, G. Gundersen3, R. Dickinson1, and T. Lele1
1University of Florida, Gainesville, FL, 2Florida Biologix, Alachua, FL, 3Columbia University, New York, NY

P-Th-302
An *In Vitro* Method To Screen Skin Sensitizers
T. Greenstein1, S. Lee1, L. Shi1, R. Schloss1, and M. Yarmush1
1Rutgers University, Piscataway, NJ

Track: Cellular and Molecular Bioengineering

Molecular and Cellular Topics:

Mechanotransduction Posters

P-Th-303
A Dynamic Role for the ER Stress Response in the Modulation of VCAM-1 Expression by Shear Stress
K. Bailey[1], D. Zararia[1], S. Simon[1], and A. Passerini[1]
[1]UC Davis, Davis, CA

P-Th-304
Effect of Matrix Stiffness on Human Pluripotent Stem Cells is Dependent upon Biochemical Cues
S. Lee[1], X. Tong[1], and F. Yang[1]
[1]Stanford University, Stanford, CA

P-Th-305
In vivo Diametric Regulation of Single Axons Induced by Mechanical Stretch in Drosophila
A. Fan[1], A. Tofangchi[1], and T. Saif[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

P-Th-306
TGFb and Anisotropic Stretch Coordinate RhoA Mediated Collagen Fiber Remodeling in Mitral Valve Interstitial cells in a Time Dependent Manner
L. Pagnozzi[1], M. Shin[1], and J. Butcher[1]
[1]Cornell University, Ithaca, NY

P-Th-307
Live-Cell Imaging of Sarcomeric Remolding under Uniaxial Mechanical Loads
H. Yang[1], L. Schmidt[1], X. Yang[1], T. Borg[2], and B. Gao[1]
[1]Clemson University, Clemson, SC, [2]Medical University of South Carolina, Charleston, SC

P-Th-308
Gap Junction Protein Localization & Activity Exhibit Glycocalyx Dependence
S. Mensah[1] and E. Ebong[1]
[1]Northeastern University, Boston, MA

P-Th-309
Vinculin Activation- and Tension-dependent Changes in Focal Adhesion Composition
A. LaCroix[1] and B. Hoffman[1]
[1]Duke University, Durham, NC

P-Th-310
Force-activated Protein Dynamics in Focal Adhesion Assembly
K. Rothenberg[1] and B. Hoffman[1]
[1]Duke University, Durham, NC

P-Th-311
Force Regulation of Formin-mediated Actin Assembly
H. Lee[1], Z. Li[1], S. Ono[2], S. Eskin[1], C. Zhu[1], and L. McIntire[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA

P-Th-312
Locally Modulating Actomyosin Contractility Regulates Cell Proliferation within Epithelial Tissues
M. Siedlik[1] and C. Nelson[1]
[1]Princeton University, Princeton, NJ

P-Th-313
Primary Cilia: Sensors of Electrical Field Stimulation
S. Cai[1], J. Bodle[1], P. Mathieu[1], M. Hamouda[1], G. McCarty[1], and E. Loboa[1]
[1]North Carolina State University, Raleigh, NC

P-Th-314
The Role of Vinculin Tension in Mediating Locally-correlated Cell Movement
E. Gates[1], A. Urs[1], and B. Hoffman[1]
[1]Duke University, Durham, NC

P-Th-315
Interstitial Flow Promotes and Directs Macrophage Migration in 3D ECM
R. Li[1], T. Lee[1], and R. Kamm[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-316
Mechanotransmission in a Multicomponent, Multicell Model of the Endothelium
M. Dabaghmeshin[1], P. Jalali[1], P. Butler[2], and J. M. Tarbell[3]
[1]Lappeenranta University of Technology, Lappeenranta, Finland, [2]Penn State University, Philedelphia, PA, [3]The City College of New York, New York, NY

P-Th-317
Quantitative Analysis of Calcium Dynamics in Endothelial Cell under Elevated Hydrostatic Pressure
Y. R. Wu[1], J. W. Shin [2], Y. G. Kang[2], S. H. Park[2], S. R. Gu[1], H. Y. Ban[2], Y. M. Kim[2], H. L. Kim[2], and J-W. Shin[1,2,3]
[1]Department of Health Science and Technology, Inje University, Gimhae, Korea, Republic of,[2]Department of Biomedical Engineering, Inje University, Gimhae, Korea, Republic of,[3]Cardiovascular and Metabolic Disease Center /Institute of Aged Life Redesign/UHARC, Inje University, Gimhae, Korea, Republic of

P-Th-318
Microfluidic Co-Culture Device For Investigating Cell Interactions During Mechanical Stimulation
K. Middleton[1], D. Cen[1], X. Mei[1], and L. You[1]
[1]University of Toronto, Toronto, ON, Canada

P-Th-319
Fluid Shear Control of ERK Phosphorylation in MSCs
B. Marmie[1], B. Riehl[1], J. S. Lee[1], L. Ha[1], and J. Y. Lim[1]
[1]University of Nebraska-Lincoln, Lincoln, NE

P-Th-320
Endothelial Glycocalyx-Mediated Nitric Oxide Production in Response to Selective AFM Pulling
A. M. Weber[1], R. Mathews[1], and J. Tarbell[1]
[1]City College of New York, New York, NY

P-Th-321
Visualizing Shockwave Induced Mechano-activation of Piezo1 by FRET
Y. Pan[1], L. Shi[1], M. Berns[1], and Y. Wang[1]
[1]UCSD, La Jolla, CA

P-Th-322
ATP-Stimulated Nitric Oxide Production is Differentially Regulated by Conventional and Novel Protein Kinase C Isozymes
T. Muzorewa[1], D. Buerk[1], D. Jaron[1], and K. Barbee[1]
[1]Drexel University, Philadelphia, PA

P-Th-323
Ultrasound Stimulation of Insulin Release from Pancreatic Beta Cells
I. Suarez[1], A. Jeremic[1], and V. Zderic[1]
[1]The George Washington University, Washington, DC

POSTER SESSION **Th**

See page 97 for Poster floor plan

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Biomechanics of Rehabilitation Posters

P-Th-324
Clinically Obese Human Subjects Have Poorer Postural Stability Than Normal Control Subjects
A. Haider[1], A. Yang[1], G. Pagnotti[1], S. Tikkireddy[1], K. Cottell[1], D. Telem[1], A. Pryor[1], R. Tong[2], C. Rubin[1], and M. L. Chan[1]
[1]Stony Brook University, Stony Brook, NY, [2]The Chinese University of Hong Kong, Hong Kong, Hong Kong

P-Th-325
Multiple Plane Motion Tracking Quality Assessment of a Therapy-Based Exer-Gaming System
L. Melling[1], J. Rylander[1], C. Rábago[2,3], and J. Wilken[2,3]
[1]Baylor University, Waco, TX, [2]Center for the Intrepid, Brooke Army Medical Center, Ft. Sam Houston, TX, [3]DoD-VA Extremity Trauma and Amputation Center of Excellence, Ft. Sam Houston, TX

P-Th-326
Investigation of Gait Kinematics at Various Elevations in a Virtual Reality Environment
A. Martori[1] and S. Carey[1]
[1]University of South Florida, Tampa, FL

P-Th-327
Medial-Lateral Center of Mass Displacement Increases in Roll and Pitch Disturbance during Walking in Young Adults
J. Van Dehy[1], T. Onushko[1], E. Zabre[1], and B. Schmit[1]
[1]Marquette University, Milwaukee, WI

P-Th-328
Mechanical Energy Differences in Individual Segments during Arm-Constrained Human Rolling
M. Hassan[1], L. Vu[1], and N. Hakansson[1]
[1]Wichita State University, Wichita, KS

P-Th-329
Evaluation of Fall Recovery and Gait Adaptation to Tripping Perturbations
M. Peterson[1], M. Jongprasithporn[1,2], and S. Carey[1,3]
[1]HSR&D Center of Innovation on Disability and Rehabilitation Research, James A. Haley VAMC, Tampa, FL, [2]King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand,[3]University of South Florida, Tampa, FL

P-Th-330
Developing Patient-Specific, Dynamic Biomechanical Models of the Knee for Surgical Simulations
L. Mustafa[1], A. Pena[1], J. Batlle[2], and R. Jung[1]
[1]Florida International University - Adaptive Neural Systems (ANS) Laboratory, Miami, FL,[2]Baptist Health South Florida, Coral Gables, FL

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Biomechanics Other Posters

P-Th-331
Tumor Microenvironment Effects on Cell Adhesion Strength
S. McMaster[1]
[1]University of South Florida, Tampa, FL

P-Th-332
Effect Of Spine Stabilization Exercise Using A 3-D Whole Body Tilt Exercise Device On Muscle Forces In The Spine
C. H. Yu[1], K. S. Han[1], S. H. Shin[1], and T. K. Kwon[1]
[1]Chonbuk National University, Jeonju, Korea, Republic of

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Concussion and Head Injury Biomechanics Posters

P-Th-333
Electromyography (EMG) Measurement of Blast Induced Chinchilla Middle Ear Muscle Reflex
Z. Yokell[1], D. Nakmali[1], and R. Gan[1]
[1]University of Oklahoma, Norman, OK

P-Th-334
The Effect of Sulci Depth on Strain Distribution in the Brain Due to Impacts
S. Anwar[1], S. Hashemi[1], and A. Sadegh[1]
[1]The City College of New York, New York, NY

P-Th-335
An *In-Silico* Investigation of Soccer-Related Traumatic Brain Injury
K. Brown[1,2], A. Desai[1], Y. Mao[3], M. Horstemeyer[1], J. Liao[1,2], L. Williams[1,2], H. Rhee[2], and R. Prabhu[1,2]
[1]Mississippi State University, Mississippi State, MS, [2]Center for Advanced Vehicular Systems, Mississippi State, MS, [3]Predictive Design Technologies, Atlanta, GA

P-Th-336
Impact Response Characteristics of the Hybrid III and NOCSAE Headforms
B. Cobb[1], A. Zadnik[1], and S. Rowson[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-337
Do Facemasks Affect Helmet Performance?
S. Rowson[1] and E. Terrell[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-338
Shortcoming of Head Impact Power (HIP) Criterion Under Different Acceleration Curves
A. Sadegh[1] and S. Mansoor Baghaei[1]
[1]The City College of New York, New York, NY

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Human Performance/Sports Biomechanics Posters

P-Th-339
Influence Of Tendon Stiffness On Muscle-Tendon Interaction Dynamics During Cyclic Contractions
J. Doering[1] and G. Sawicki[1]
[1]UNC-NC State Joint Department of Biomedical Engineering, Raleigh, NC

P-Th-340
Effect of Additional Weight on Upper Limb Pose During Activities of Daily Living
D. Lura[1], S. Carey[2], and R. Dubey[2]
[1]Florida Gulf Coast University, Fort Myers, FL, [2]University of South Florida, Tampa, FL

P-Th-341
Testing of a Functional Glenohumeral Joint Center Location Method to Improve Shoulder Angle Quantification in Elevated Arm Positions
J. Howenstein[1], C. LeVasseur[1], and M. Sabick[1]
[1]Saint Louis University, St. Louis, MO

P-Th-342
Street Crossing Time Is Too Short For Older Adults
E. Vieira[1], D. Brunt[1], H-H. Lim[1], L. Kinsey[1], and L. Errington[1]
[1]Florida International University, Miami, FL

P-Th-343
Influence of Head Cooling by Phase Change Materials on the Core Body Temperature and Head Temperature using a 3D Whole Body Model
P. Bulusu1
1University of Cincinnati, Cincinnati, OH

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Injury Biomechanics Posters

P-Th-344
Use of Anthropometric Data in the Biomechanical Injury Analysis of Vehicular Collisions
W. Lee[1] and Y. Lu[2]
[1]University of South Florida, Tampa, FL, [2]Forensic Engineering Technologies, Lake Mary, FL

P-Th-345
Evaluation of Chiropractic Textile Traction Procedure Related to Stretch Injuries of the Brachial Plexus
W. Lee[1]
[1]University of South Florida, Tampa, FL

P-Th-346
The Effect of Medial Hamstring Weakness on Lateral Hamstring Function During Running
L. Moir[1], D. Piovesan[1], and A. Schmitz[1]
[1]Gannon University, Erie, PA

P-Th-347
Investigation of Torsional Stiffness at Different Angles of Knee Flexion: A Cadaveric Study
T. Le[1], V. Owens[1], B. Nguyen[1], and H. Vo[1]
[1]Mercer University, Macon, GA

P-Th-348
Quantification of Rib Fracture Timing During Frontal Sled Tests
A. Kemper[1], S. Beeman[1], and S. Duma[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-349
Anterior and Posterior Shear Tolerance of the Lumbar Spine
S. Shimada[1] and N. Merrier[1]
[1]Biomechanical Consultants of CA, Davis, CA

P-Th-350
A Finite Element Model of a 50th percentile Male for Simulating Pedestrian Accidents
C. Untaroiu[1], W. Pak[1], J. Schap[2], and S. Gayzik[2]
[1]Virginia Tech, Blacksburg, VA, [2]Wake Forest University, Winston-Salem, NC

P-Th-351
The Injury Implications of Evasive Braking prior to Straight Crossing Path Intersection Crashes
J. Scanlon[1], K. Kusano[1], and H. Gabler[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-352
Effect of Knee Bolsters and Knee Bolster Airbags on Occupant Injury Risk in Frontal Sled Tests
D. Albert[1], S. Beeman[1], and A. Kemper[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-353
Human Volunteer Neck Forces and Moments During Low-Speed Frontal Sled Tests
S. Beeman[1], A. Kemper[1], and S. Duma[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-354
Asymmetrical Injury Risk in Frontal Oblique Impact
R. Chen[1] and H. Gabler[1]
[1]Virginia Tech, Blacksburg, VA

P-Th-355
Lateral Shear Tolerance of the Lumbar Spine
N. Merrier[1] and S. Shimada[1]
[1]Biomechanical Consultants of California, Davis, CA

P-Th-356
Pelvic Response Of A Total Human Body Finite Element (FE) Model During Simulated Under Body Blast (UBB) Impacts
C. Weaver[1] and J. Stitzel[1]
[1]Wake Forest University, Winston-Salem, NC

P-Th-357
Bony and Soft Tissue Injury Risk Sensitivity of Drivers in Simulated Motor Vehicle Crashes
J. Gaewsky[1], A. Weaver[1], B. Koya[1], and J. Stitzel[1]
[1]Virginia Tech - Wake Forest University, Winston-Salem, NC

P-Th-358
Shoulder Soft TIssue Injury Mechanisms in Vehicular Collisions
W. Lee[1] and S. Gutierrez[2]
[1]University of South Florida, Tampa, FL, [2]Florida Orthopaedics Institute, Tampa, FL

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Neuromuscular Biomechanics Posters

P-Th-359
The Effects of Military Body Armor on Knee Strength
M. Phillips[1], C. Starnes[1], R. Shapiro[1], and B. Bazrgari[1]
[1]University of Kentucky, Lexington, KY

P-Th-360
The Use of Stochastic Resonance in a Two Dimensional Fitts' Task
E. Diller[1] and C. Cao[2]
[1]Wright State University, Fairborn, OH, [2]Wright State University, Dayton, OH

P-Th-361
Control of Balance During Quiet Standing in an Individual with FXTAS
J. Lee[1], D. Baker[1], R. Imamura[1], N. Merrier[2], and S. Shimada[2]
[1]CSU Sacramento, Sacramento, CA, [2]Biomechanical Consultants of CA, Davis, CA

P-Th-362
A Biomechanical Comparison of Intrapelvic and Extrapelvic Fixation for Anterior Column with Posterior-hemitransverse Acetabular Fractures
G. Gillispie[1], P. Brown[1], J. Stitzel[1], and E. Carroll[1]
[1]Virginia Tech/Wake Forest SBES, Winston-Salem, NC

P-Th-363
Human Balance: Study and Evaluation by Motion Capture, EOG and EMG Biopotentials
S. Carey[1] and A. Lopez[1]
[1]University of South Florida, Tampa, FL

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Orthopaedic Biomechanics Posters

P-Th-364
Modeling Interfragmentary Strains to Predict Nonunion in High- and Low-Risk Fracture Geometries
A. Glass-Hardenbergh[1] and H. Dailey[1]
[1]Lehigh University, Bethlehem, PA

P-Th-365
Biomechanical Variations within the Vertebral Body Under Fatigue Loading in Sagittal Plane
C. Maglaras[1], E. Noonan[1], A. Ritter[1], and A. Valdevit[1]
[1]Stevens Institute of Technology, Hoboken, NJ

P-Th-366
Dynamic Properties of Human Incudostapedial Joint Measured with Frequency Temperature Superposition
S. Jiang[1], N. Don[1], and R. Z. Gan[1]
[1]University of Oklahoma, Norman, OK

See page 97 for Poster floor plan

P-Th-367
Eye, Head, and Trunk Coordination during Target Tracking Tasks - Implications for Whiplash Injury
I. Gadotti[1], L. Elbaum[1], Y. Jung[1], V. Garbalosa[1], S. Kornbluth[1], B. Da Costa[1], K. Maitra[1], and D. Brunt[1]
[1]*Florida International University, Miami, FL*

P-Th-368
Configuration Space Analysis of Elbow and Forearm Motion
B. Feibel[1], F. Unukpo[2], A. Hollister[1], C. Storey[1], A. Dyess-Tregre[2], P. O'Neal[2], and A. Ogden[1]
[1]*LSU Health Shreveport, Shreveport, LA,* [2]*LATech University, Ruston, LA*

P-Th-369
Configuration Space Analysis Of The Human Knee
P. Ensminger[1], F. Unukpo[2], A. Hollister[1], C. Storey[1], A. Dyess-Tregre[2], P. O'Neal[2], and A. Ogden[1]
[1]*LSU Health Shreveport, Shreveport, LA,* [2]*LATech University, Ruston, LA*

P-Th-370
Falling Onto an Outstretched Hand: A Multibody Model of a Common Injury
M. Sharifi Renani[1], M. Rahman[1], A. Cil[1,2], and A. Stylianou[1]
[1]*University of Missouri-Kansas City, Kansas City, Kansas City, MO,* [2]*Truman Medical Centers, Kansas City, MO*

P-Th-371
Fine-wire Climbing Exercise Enhances Mechanical Properties of the Mouse Femur
J. Joll[1], B. Vickery[1], J. Rupert[1], K. Biro[1], J. Wallace[2], C. Byron[3], J. Organ[1], and M. Allen[1]
[1]*Indiana University School of Medicine, Indianapolis, IN,* [2]*Purdue University School of Engineering and Technology - Indianapolis, Indianapolis, IN,* [3]*Mercer University College of Liberal Arts, Macon, GA*

POSTER SESSION **Th**

Track: Biomechanics
Musculoskeletal Injury and Mechanics:
Orthopaedic: Implant and Prosthetic Biomechanics Posters

P-Th-372
Torso Rotation as a Marker of Limiting Factors on Body Powered Prosthetic Terminal Devices
K. Lostroscio[1]
[1]*University of South Florida, Rockledge, FL*

P-Th-373
Accuracy Study of a Measurement System to Determine the Leg Length and the Hip Rotation Center During Total Hip Replacement Surgery
R. Grunert[1,2], M. Schmidt[2], T. Wendler[2], N. Hammer[2], R. Möbius[2], M. Werner[1], and T. Prietzel[2]
[1]*Fraunhofer Institute for Machine Tools and Forming Technology, Dresden, Germany,*[2]*University Leipzig, Leipzig, Germany*

P-Th-374
Finite Element Model of Implant Press Fit in Humeral Diaphysis for Prosthetic Limb Attachment
D. Pawar[1], A. Drew[1], and K. Bachus[1]
[1]*University of Utah, Salt Lake City, UT*

Track: Nano and Micro Technologies
Nano and Micro Technologies:
BioMEMS Posters

P-Th-375
Engineer A Functional, 3-D Vascular Niche To Support Neural Stem Cell Regeneration
M. Winkelman[1] and G. Dai[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Th-376
Experimental Investigation of Enzymatic Stability on Graphene
B. Hou[1] and A. Radadia[1]
[1]*Louisiana Tech University, Ruston, LA*

P-Th-377
Multimodal Measurement of Electrical Signals in Neuronal Networks
N. Stone[1], A. Santiago-Lopez[1], and Y. Kim[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

P-Th-378
Microfluidic Platform For The Study Of Water Transport In The Central Nervous System
J. Lechowicz[1], J. Xu[1], S. Alford[1], and A. Linninger[1]
[1]*University of Illinois at Chicago, Chicago, IL*

Track: Nano and Micro Technologies
Nano and Micro Technologies:
Cells, Tissues and Organs on a Chip Posters

P-Th-379
Engineering Hybrid Biomaterials for *In Vitro* Blood Brain Barrier Model Development
C. Hovell[1], C. Weiler[1], G. Barabino[2], L. Taite[1], and Y. Kim[1]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*City College of New York, New York, NY*

P-Th-380
Novel Cell Seeding Funnel And Microelectrode Array (MEA) Arrangement To Separate And Localize Neurons From Different Brain Regions
D. Soscia[1], N. Fischer[1], E. Mukerjee[1], B. Benett[1], H. Enright[1], S. Felix[1], E. Kuhn[1], K. Kulp[1], S. Pannu[1], and E. Wheeler[1]
[1]*Lawrence Livermore National Laboratory, Livermore, CA*

P-Th-381
Development of a Fluidic Microdevice for Engineering Pancreatic Islet Microenvironments
G. Lenguito[1], S. Rawal[1], P. Buchwald[1], and A. Agarwal[1]
[1]*University of Miami, Miami, FL*

P-Th-382
A Vascular Injury Model Using Focal Heat-induced Activation of Endothelial Cells
J. Sylman[1], D. Artzer[1], K. Rana[1], and K. Neeves[1,2]
[1]*Colorado School of Mines, Golden, CO,* [2]*University of Colorado Denver, Denver, CO*

P-Th-383
Lab-On-a-Brane: Physiologically Relevant Planar Blood Vessel Mimics to Study Transendothelial Communication
K. Budhwani[1], V. Thomas[1], and P. Sethu[1]
[1]*University of Alabama at Birmingham, Birmingham, AL*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-384
Mature, Perfused Microvasculature *In Vitro*: The Role of Pericytes in Vessel Formation and Stability
J. Andrejecsk[1], D. Phan[1], and C. Hughes[1]
[1]*University of California, Irvine, Irvine, CA*

P-Th-385
Microfluidic Analysis of the Invasite Motility of Glioblastoma Tumor Initiating Cells
J. M. Lin[1,2], L. Guillou[3], and S. Kumar[1,2]
[1]*UC-Berkeley, Berkeley, CA,* [2]*UC Berkeley-UCSF Graduate Program in Bioengineering, Berkeley, CA,* [3]*Ecole Polytechnique, Palaiseau, France*

P-Th-386
Development of a Biomimetic Microfluidic Flow Profile Generator (BioMFG) Enabling Mechanobiological Responses of Valvular Interstitial Cell
J. Lee[1], X. Wang[1], C. Lacerda[1], and J. Kim[1]
[1]*Texas Tech University, Lubbock, TX*

P-Th-387
A Multi-Gradient Platform for Chemotactic Analysis of Single Cells
S. Roberts[1] and N. Agrawal[1]
[1]*George Mason University, Fairfax, VA*

P-Th-388
Miniaturized Hepatic Cell Cultures in PuraMatrix on a Micropillar/Microwell Chip Platform for Drug Toxicity Studies
A. Roth[1], P. Lama[1], and M-Y. Lee[1]
[1]*Cleveland State University, Cleveland, OH*

P-Th-389
Smoking Lung-on-a-chip: A Microphysiological Model of Cigarette Smoke-induced Airway Disease
M. Mondrinos[1], W. Byun[1], C. Blundell[1], and D. Huh[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Th-390
Pumpless Microfluidic Blood Brain Barrier Model for Drug Screening
Y. Wang[1], E. Abaci[1], J. Hickman[2], and M. Shuler[1]
[1]*Cornell University, Ithaca, NY,* [2]*University of Central Florida, Orlando, FL*

P-Th-391
Patterning Of Cellular Interfaces With A Self-Healing Substrate
A. Curtis[1], D. Li[1], M. Y. Kim[1], and E. Hui[1]
[1]*University of California, Irvine, Irvine, CA*

P-Th-392
Biomimetic Human Respiratory Platform for In Vitro Drug Development
J-H. Huang[1], P. Nath[1], A. Arefin[1], J. Harris[1], Y. Shou[1], and R. Iyer[1]
[1]*Los Alamos National Laboratory, Los Alamos, NM*

P-Th-393
Engineering a Multi-Functional Cardiac Physiomimetic Microsystem
A. Alassaf[1], V. Mayo[1], K. Pimentel[2], S. Bhansali[2], and A. Agarwal[1]
[1]*University of Miami, Miami, FL,* [2]*Florida International University, Miami, FL*

P-Th-394
Fabrication and Characterization of Ultrathin Transparent Glass Membranes for Cell Culture
A. Mazzocchi[1], S. Casillo[1], R. Carter[1], and T. Gaborski[1]
[1]*Rochester Institute of Technology, Rochester, NY*

P-Th-395
Using Double Emulsion Technology to Study Foam Cell Aggregates in the Pathogenesis of Atherosclerosis
W. Leong[1], Z. Chen[1], O. Adebowale[1], S. Suryaprakash[1], and K. Leong[1]
[1]*Columbia University, New York, NY*

Track: Nano and Micro Technologies
Nano and Micro Technologies:
Medical Diagnostics and Screening Posters

P-Th-396
Targeted Nano-particle Adhesion Studied by Multi-scale Dynamic Simulations
M. Wang[1] and J. Haun[1]
[1]*UC Irvine, Irvine, CA*

P-Th-397
Tuning Electrochemical Impedance Spectroscopy
C. Lin[1], D. Probst[1], and J. Labelle [1]
[1]*Arizona State University, Tempe, AZ*

P-Th-398
One Step Microfluidic Immunomagnetic Separation of Tumor Initiating Cells Based On Multiple Markers
C. Sun[1] and C. Lu[1]
[1]*Virginia Tech, Blacksburg, VA*

P-Th-399
A Novel Electrical Stimulation Based High Throughput Screening Platform for Muscle Cell Investigation
H. Y. Shin[1], Y-S. Choi[1], M. S. Kim[2], and S. C. Park[1]
[1]*Samsung Advanced Institute of Technology, Suwon-si, Korea, Republic of,* [2]*Konyang University, Daejeon, Korea, Republic of*

P-Th-400
Screening Small Molecule-Membrane Interactions Using Droplet Interface Bilayers
G. Taylor[1] and S. Sarles[1]
[1]*University of Tennessee, Knoxville, TN*

P-Th-401
Exploring The Effect Of Nanostructure On Electrochemical DNA Sensing: Tuning Dynamic Range With Nanoporous Gold Electrodes
P. Daggumati[1], Z. Matharu[1], and E. Seker[1]
[1]*University of California, Davis, Davis, CA*

P-Th-402
Detection of Synovial Fluid Degradation through Magnetic Particle Collection
Y. Shah[1], E. Yarmola[1], D. Arnold[1], J. Dobson[1], and K. Allen[1]
[1]*University of Florida, Gainesville, FL*

P-Th-403
Detection Of Protein Biomarkers Based On Fluorescence Quenching of Polymer-Coated Conjugated Polymer Nanoparticles
H. Culver[1] and N. Peppas[1]
[1]*University of Texas at Austin, Austin, TX*

P-Th-404 DREAM TEAM & CENTER
Label-free Detection of DNA Hybridization Using Capacitive Interdigitated Electrodes
L. Wang[1], L. Yang[1], M. Veselinovic[1], Y. Obeidat[1], B. Geiss[1], T. Chen[1], and D. Dandy[1]
[1]*Colorado State University, Fort Collins, CO*

Track: Biomaterials
Nano and Micro Technologies:
Micro and Nano Structured Materials Posters

P-Th-405
Mathematical Rendering of Trabecular Bone Microstructure
A. H. Morshed[1] and X. Wang[1]
[1]*University of Texas at San Antonio, San Antonio, TX*

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-406
Magnesium Based Polycaprolactone (PCL) Nanofiber For Tissue Engineering Applications
N. Rijal[1] and N. Bhattarai[1]
[1]North Carolina A&T State University, Greensboro, NC

P-Th-407
PLGA/Chitosan Microspheres for Controlled Release of Therapeutic Drugs
S. Rahman[1] and N. Bhattarai[1]
[1]North Carolina A&T State University, Greensboro, NC

P-Th-408
Pull Spinning: A Novel Nanofiber Fabrication Technique
N. Sinatra[1], L. Deravi[1], C. Chantre[1], S. Deravi[1], A. Nesmith[1], T. Grevesse[1], H. Yuan[1], G. Gonzalez[1], J. Goss[1], A. Deitche[1], D. West[2], V. Phillips[2], L. MacQueen[1], M. Badrossamy[1], M. Phillips[2], and K. Parker[1,2]
[1]Disease Biophysics Group, Wyss Institute for Biologically Inspired Engineering, School of Engineering and Applied Science, Harvard University, Cambridge, MA, [2]Department of Mathematical Sciences, United States Military Academy, West Point, NY

P-Th-409
Development of Enzyme-laden Microdevices for Cell-mediated Eenzyme Delivery
J. Xia[1], Z. Wang[1], and J. Guan[1]
[1]Florida State University, Tallahassee, FL

P-Th-410
Conducting Polymer-Encapsulated Microspheres for Improved Electrical Performance of Bioelectronics.
M. Antensteiner[1], F. Fallahianbijan[1], M. Khorrami[1], and M. R. Abidian[1]
[1]Pennsylvania State University, State College, PA

P-Th-411
Microfiber Fabrication from Nanoparticle Polymeric Solutions for Cellular Encapsulation
C. W. Peak[1], J. K. Carrow[1], A. Thakur[1], and A. K. Gaharwar[1]
[1]Texas A&M University, College Station, TX

P-Th-412
Decreasing Bacterial And Macrophage Density On Nanophase Hydroxyapatite Coated Onto Titanium Surfaces
G. Bhardwaj[1], H. Yazici[1], and T. Webster[1]
[1]Northeastern University, Boston, MA

P-Th-413
Nanostructured Vapor Deposited Surface Treatments Improve Bone-Anchored Hearing Aid Integration
M. Stolzoff[1], J. E. Burns[2], A. Aslani[2], E. J. Tobin[2], and T. J. Webster[1]
[1]Northeastern University, Boston, MA, [2]N² Biomedical, Bedford, MA

P-Th-414
Stimuli-Responsive Polymer Shells on Surface-Modified Gold Nanomaterials for Biosensing Applications
C. N. Koepke[1], H. R. Culver[1], and N. A. Peppas[1]
[1]University of Texas at Austin, Austin, TX

P-Th-415
Alginate Encapsulated Islets allow for Adequate Tissue Oxygenation at Hypoxic Conditions
N. Neel[1], R. Krishnan[1], V. Fleming[1], M. Alexander[1], and J. Lakey[1,2]
[1]University of Calfornia Irvine, Orange, CA, [2]University of Calfornia Irvine, Irvine, CA

P-Th-416
Alginate Microcapsules Exhibit Dynamic Changes in Size and Volume with Changes in Temperature
M. Nguyen[1], A. Najdahmadi[1], H-W. Tang[1], R. Krishnan[1], K-H. Chan[1], M. Alexander[1], E. Botvinick[2], and J. Lakey[1,2]
[1]University of Calfornia Irvine, Orange, CA, [2]University of Calfornia Irvine, Irvine, CA

P-Th-417
Electrospun Silk Doped with Selenium Nanoparticles to Enhance Antibacterial Properties
S. Chung[1], M. Stolzoff[1], B. Ercan[1], and T. Webster[1,2]
[1]Northeastern University, Boston, MA, [2]King Abdulaziz University, Jeddah, Saudi Arabia

P-Th-418
Cold Atmospheric Plasma (CAP) Surface Modified 3D Printed PLA Scaffolds for Orthopedic Tissue Engineering
M. Wang[1], P. Favi[1], H. Yazici[1], A. Roy[1], M. Keidar[2], and T. Webster[1]
[1]Northeastern university, Boston, MA, [2]The George Washington University, Washington, DC

P-Th-419
Reverse Micelle based Preparation of Pore-Size-Controllable Porous Electrospun Nanofibrous Meshes
W. Mao[1]
[1]Kangwon National University, Chuncheon, Korea, Republic of

P-Th-420 **DREAM TEAM & CENTER**
Novel Methods for Producing Crosslinked, Bio-absorbable, Micropatterned Gelatin Films
D. Neale[1], B. Willenberg[1,2], C. Magin[3], A. Brennan[1,3], and G. Schultz[1]
[1]University of Florida, Gainesville, FL, [2]University of Central Florida, Orlando, FL, [3]Sharklet Technologies, Inc., Aurora, CO

P-Th-421
Single-cell Encapsulation in Tunable Microgels for Mimicking Stem Cell Niches *In Vitro*
A. Mao[1], J-W. Shin[1], J. Hoggatt[2], D. Scadden[2], D. Weitz[1], and D. Mooney[1]
[1]Harvard University, Cambridge, MA, [2]Harvard Medical School, Boston, MA

P-Th-422
Wet-Stretching' Electrospun Nanofibers to Enhance Macromolecular and Functional Properties
D. Brennan[1], M. Deemer[1], M. Horvath[1], J. Medina[1], M. Siracusa[1], N. Sweeney[1], M. Torculas[1], P-T. Vu[1], A. Wilkinson[1], X. Hu[1], and V. Beachley[1]
[1]Rowan University, Glassboro, NJ

P-Th-423
Bone Regeneration by Rapid Osteoblast Recruitment using Microgrooved Topographed Implant
J-K. Yoon[1], H. N. Kim[1,2], S. H. Bhang[3], J-Y. Shin[1], N. L. Jeon[1], and B-S. Kim[1]
[1]Seoul National University, Seoul, Korea, Republic of, [2]Korea Institute of Science and Technology (KIST), Seoul, Korea, Republic of, [3]Sungkyunkwan University, Suwon, Korea, Republic of

P-Th-424
Engineered Nanotopography on Electrospun Microfibers Alters Cytokine Production in Macrophages
N. Schaub[1], A. D'Amato[1], E. Yund-Harmon[2], D. Corr[1], M. Lennartz[3], and R. Gilbert[1]
[1]Rensselaer Polytechnic Institute, Troy, NY, [2]Sage College, Albany, NY, [3]Albany Medical College, Albany, NY

P-Th-425
Key Factors Influencing Alginate Microcapsule Size, Dimensions And Long-Term Stability
R. Krishnan[1], G. Kummerfeld[1], J. Yakel[1], A. Dalisay[1], A. Yoon[1], K-H. Chan[1], M. Alexander[1], and J. Lakey[1,2]
[1]University of Calfornia Irvine, Orange, CA, [2]University of Calfornia Irvine, Irvine, CA

P-Th-426
Mechanically Tuned Fibrous HA Scaffolds with NGF for Directed Neurite Growth
T. Whitehead[1] and H. Sundararaghavan[1]
[1]Wayne State University, Detroit, MI

P-Th-427
Injectable Thermoresponsive Hydrogel for Protein Release
N. Jalili[1], M. Jaiswal[1], and A. Gaharwar[1]
[1]Texas A&M University, College Station, TX

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-428
Alginate Composition and Temperature Influence Microcapsule Permeability
G. KUMMERFELD[1], R. KRISHNAN[1], A. NAJDAHMADI[1], E. BOTVINICK[2], AND J. LAKEY[1,2]
[1]University of Calfornia Irvine, Orange, CA, [2]University of Calfornia Irvine, Irvine, CA

Track: Nano and Micro Technologies
Nano and Micro Technologies:
Micro and Nano Total Analysis Systems Posters

P-Th-429
Polymerase Chain Reactions Inside Practically Significant Microfluidic Chips
W. WU[1,2] AND A. MANZ[1,2]
[1]Mechatronics department, University of Saarland, Saarbrücken, Germany, Saarbrucken, Germany, [2]KIST Europe GmbH, Saarbrücken, Germany, Saarbrucken, Germany

P-Th-430
Computational Modeling and Design of Microfluidic Cardiovascular Models Integrating On-chip Biosensing
J. WONG[1], E. YOUNG[1], AND C. SIMMONS[1]
[1]University of Toronto, Toronto, ON, Canada

P-Th-431
Transport Activity of Multidrug Efflux Pump, P-glycoprotein, in Giant Liposomes
S. PARK[1], Y. J. KANG[1], AND S. MAJD[1]
[1]Pennsylvania State University, University Park, PA

P-Th-432
Probing Interclonal Heterogeneities in Patient-derived Glioma Stem Cell Populations via Micro/Nanoscale Technologies
D. GALLEGO-PEREZ[1], L. CHANG[1], J. SHI[1], J. MA[1], S. KIM[1], X. ZHAO[1], V. MALKOC[1], X. WANG[1], K. KWAK[1], D. HANSFORD[1], I. NAKANO[1], AND L. J. LEE[1]
[1]The Ohio State University, Columbus, OH

P-Th-433
A Microfluidics Based Magnetic Beads Assay For Label Free Cell Analysis
F. LIU[1], P. KC[1], G. ZHANG [1], AND J. ZHE [1]
[1]The University of Akron, Akron, OH

Track: Cancer Technologies
Nano and Micro Technologies:
Micro and Nanotechnologies for Cancer Posters

P-Th-434
Dielectrophoretic High-throughput Gene Expression Profiling of Single Circulating Tumor Cells
D. NAWARATHNA[1], D. WIJESINGHE[1], D. EWERT[1], AND C. SUN[1]
[1]North Dakota State University, Fargo, ND

P-Th-435
A Microfluidic Platform That Cultures Primary Cells for Clinical and Preclinical Drug Tests
S. ZEINALI [1] AND M. ELITAS[2]
[1]Sabanci Unversity, Istanbul, Turkey, [2]Sabanci University, Tuzla/Istanbul, Turkey

P-Th-436
Development of a Skin Patch Capable of Detecting Melanomas through Protein Capture, Protection and Analysis
A. NIXON[1], A. LUCHINI[2], L. LIOTTA[2], AND R. MAGNI[2]
[1]George Mason University, Fairfax, VA, [2]George Mason University, Manassas, VA

P-Th-437
Implantable Micro-porous Poly(&[epsilon]-caprolactone) Scaffolds For Early Detection Of Breast Cancer Metastasis
S. RAO[1], S. AZARIN[2], G. SPICER[3], G. BUSHNELL[1], B. AGUADO[3], J. STOEHR[3], V. BACKMAN[3], J. JERUSS[1], AND L. SHEA[1]
[1]The University of Michigan, Ann Arbor, MI, [2]The University of Minnesota, Minneapolis, MN,[3]Northwestern University, Evanston, IL

P-Th-438
Polymeric Mechanical Amplifiers of Tumor Cell Mechanotransduction and Cell Death
M. J. MITCHELL[1] AND R. LANGER[1]
[1]MIT, Cambridge, MA

P-Th-439
Enhancing Target Cell Capture And Minimizing Non-Specific Binding Using Pulsatile Flow For High Efficiency Isolation Of Circulating Tumor Cells.
T. HAGLUND[1]
[1]University of Alabama at Birmingham, Birmingham, AL

P-Th-440
Circulating miR-122 Detection in Patients with Cirrhosis, HCV infection and HCV+Hepatocelluar Carcinoma by Tethered Lipoplex Nanoparticles (TLN)
X. WANG[1], K. KWAK[1], A. ZHANG[1], C. SCHMIDT[1], T. SCHMITGEN[1], AND J. LEE[1]
[1]the Ohio State University, columbus, OH

P-Th-441
Targeted Elimination of CD44 Expressing Cells using Ferric Oxide Nanoparticles in Head & Neck Cancer
R. THAPA[1,2], J. GORSKI[1], A. BOGEDIN[1], M. MAYWOOD[1], C. CLEMENT[1], S. HOSSAINI NASR[3], D. HANNA[1], X. HUANG[3], B. ROTH[1], G. MADLAMBAYAN[1], AND G. WILSON[2]
[1]Oakland University, Rochester, MI, [2]William Beaumont Hospital, Royal Oak, MI, [3]Michigan State University, East Lansing, MI

P-Th-442
Silencing Gli1 with Spherical Nucleic Acids to Overcome Multidrug Resistant Cancer
J. MELAMED[1] AND E. DAY[1]
[1]University of Delaware, Newark, DE

P-Th-443
Wnt/ β Catenin Inhibitory Nanoparticles for Treatment of Triple Negative Breast Cancer
R. EDELSTEIN[1], J. GAGIANAS[1], AND E. DAY[1]
[1]University of Delaware, Newark, DE

P-Th-444
Combination Photothermal Immunotherapy for Treating Neuroblastomas
J. CANO-MEJIA[1], L. CHAKRABARTI[2], K. WRIGHT[2], C. BOLLARD[2], A. SANDLER[2], J. FISHER[3], R. Y. CRUZ[2], AND R. FERNANDES[2]
[1]University of Maryland, Hyattsville, MD, [2]Children's National Health System, Washington, DC, [3]University of Maryland, College Park, MD

P-Th-445
Hyaluronic Acid Nanoparticles for the Treatment of Multiple Myeloma
A. JOAQUIN[1], K. SOLOMON[1], M. NAMBIAR[1], C. TU[1], AND J. ZOLDAN[1]
[1]University of Texas at Austin, Austin, TX

P-Th-446
Mussel-Inspired Coating of Spiky Gold Nanoparticles for Enhanced Stability and Therapeutic Efficacy
J. NAM[1] AND J. MOON[1]
[1]University of Michigan, Ann Arbor, MI

P-Th-447 **DREAM TEAM & CENTER**
Novel DNA-Graphene Based Biosensor For Colorectal Cancer Diagnosis Via Detection Of Lynch Syndrome
M. D. KHAN[1], A. APHALE[1], I. G. MACWAN[1], J. LIU[2], M. HINGORANI[2], AND P. PATRA[1]
[1]University of Bridgeport, Bridgeport, CT, [2]Wesleyan University, Middletown, CT

P-Th-448
Microraft Array-Based Pancreatic Cancer Cell Proliferation Assay
M. DISALVO[1,2], L. WILLIAMS[1], J. J. YEH[1], C. SIMS[1], AND N. ALLBRITTON[1,2]
[1]University of North Carolina at Chapel Hill, Chapel Hill, NC, [2]North Carolina State University, Raleigh, NC

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-449
Integrated Microfluidic Chip For High Throughput CTC Sorting And Detection With High Specificity
R. Jack[1], M. G. Grafton[1], D. Rodrigues[1], C. Griffith[1], D. Jue[1], R. Cieslak[1], M. Zeinali[1], D. Simeone[1], and S. Nagrath[1]
[1]University of Michigan, Ann Arbor, MI

P-Th-450 **DREAM TEAM & CENTER**
HSP70 Inhibition Synergistically Enhances the Effects of Magnetic Fluid Hyperthermia
K. A. Court[1], M. Lingegowda[2], H. Hatakeyama[2], C. Rodriguez-Aguayo[2], S. Wu[2], A. K. Sood[2], C. Rinaldi[3], and M. Torres-Lugo[1]
[1]University of Puerto Rico, Mayaguez, PR, Puerto Rico, [2]MD Anderson Cancer Center, Houston, TX, [3]University of Florida, Gainsville, FL

P-Th-451
High Throughput Anti-Cancer Drug Screening With Microprinted Tumor Spheroids
P. Thakuri[1] and H. Tavana[2]
[1]The University of Akron, Akron, OH, [2]University of Akron, Akron, OH

P-Th-452
In Vivo Tumor Targeting of Brainstem Gliomas with Magnetic Nanoparticles
A. Bohorquez[1], F. Delgado[1], C. Paul[1], and C. Rinaldi[1]
[1]University of Florida, Gainesville, FL

P-Th-453
Dielectrophoretic Attraction and Isolation of Circulating Tumor Cells using Graphene Oxide Functionalized Gold Electrodes
T. H. Kim[1], H. J. Yoon[1,2], M. Kozminsky[1], C. Riley[1], and S. Nagrath[1]
[1]University of Michigan, Ann Arbor, MI, [2]South Dakota State University, Brookings, SD

P-Th-454
Photothermal Ablation of Bladder Cancer using Phosphatidylserine Targeted Carbon Nanotubes
N. Virani[1], C. Davis[2], P. Hauser[2], R. Hurst[2], J. Slaton[2], and R. Harrison[1]
[1]University of Oklahoma, Norman, OK, [2]University of Oklahoma Health Sciences Center, Oklahoma City, OK

P-Th-455
Direct, Multiplexed Molecular Profiling Using Fluorescence Lifetime Imaging
M. Rahim[1], R. Kota[1], E. Gratton[1], and J. Haun[1]
[1]University of California Irvine, Irvine, CA

P-Th-456
Optimized High-Energy Dissipating Nanoparticles for Magnetic Hyperthermia in Ovarian Cancer Cells
F. Merida[1], A. Chiu-Lam[2], A. C. Bohorquez[2], L. Maldonado-Camargo[2], J. Mendez[1], M. Sanchez[1], M. Torres-Lugo[1], and C. Rinaldi[2]
[1]University of Puerto Rico, Mayaguez, Puerto Rico, [2]University of Florida, Gainesville, FL

P-Th-457
Comparison of Monte Carlo and Numerical Radiation Dose Enhancement Calculations
A. Paro[1] and M. Su[1]
[1]Northeastern University, Boston, MA

P-Th-458
Nanochannel Platform for Minimally-invasive Implantation and Intratumoral Delivery
R. L. Hood[1], G. Bruno[1,2], P. Jain[1], and A. Grattoni[1]
[1]Houston Methodist Research Institute, Houston, TX, [2]Politecnico di Torino, Turin, Italy

P-Th-459
Parsing Apart the Effects of Strain and Alignment in Tumor Cell Invasion
J. Miller[1], L. Hapach[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

P-Th-460
Circulating Tumor Cell Capture Using Dielectrophoresis
J. Pender[1], D. Laudenbach[1], B. Verma[1], and D. Nawarathna[1]
[1]North Dakota State University, Fargo, ND

P-Th-461
Suppressing Migration of Brain Cancer Cells using Laminin Conjugated Gold Nanoparticles
Q. Wang[1], S. K. Ng[1], W. Liu[1], and M. Su[1]
[1]Northeastern University, Boston, MA

P-Th-462
Treatment of Cutaneous Malignant Melanoma Using Photothermal Ablation and Targeted Carbon Nanotubes
P. McKernan[1], B. Lavine[2], R. Ramesh[3], and R. Harrison[1]
[1]University of Oklahoma, Norman, OK, [2]Oklahoma State University, Stillwater, OK,[3]University of Oklahoma Health Science Center, Oklahoma City, OK

P-Th-463 **DREAM TEAM & CENTER**
Label-free Dielectrophoretic Binning of Tumor Cells based on their Mitochondrial Phenotype
A. Rohani[1], Y-H. Su[1], J. Kashatus[1], D. Kashatus[1], and N. Swami[1]
[1]University of Virginia, Charlottesville, VA

Track: Nano and Micro Technologies

Nano and Micro Technologies:

Microfluidics Posters

P-Th-464
Open-Surface Microfluidics For Nucleic Acid Analysis
A. Almeida[1], P. Neuzil[1], and A. Manz[1]
[1]KIST-europe, Saarbrücken, Germany

P-Th-465
3D-Printed Oxygen Control Insert for a 24-Well Plate
M. Brennan[1], M. Rexius-Hall[1], and D. Eddington[1]
[1]University of Illinois at Chicago, Chicago, IL

P-Th-466
A Chaotic Mixer for Rapid and Continuous Recalcification of Citrated Whole Blood
M. Lehmann[1], K. Rana[1], A. Wufsus[1], K. Davis[1], and K. Neeves[1,2]
[1]Colorado School of Mines, Golden, CO, [2]University of Colorado Denver, Aurora, CO

P-Th-467
Enhanced Microfluidic Immunomagnetic Separation Based on Microfabricated Ferromagnetic Patterns
C. Sun[1], R. Yu[2], H. Hassanisaber [1], S. Ma[1], and C. Lu[1]
[1]Virginia Tech, Blacksburg, VA, [2]Washington University in St. Louis, St. Louis, MO

P-Th-468
A Negative Pressure Adjustable Microfluidic Oxygen Regulator Based On The Venturi Effect
T. Christoforidis[1] and D. T. Eddington[1]
[1]University of Illinois at Chicago, Chicago, IL

P-Th-469
Continuous and Rapid Plasma Extraction Microfluidic Device for Plasmapheresis
J-C. Hyun[1], Y-G. Jung[1], and S. Yang[1]
[1]Gwangju Institute of Science and Technology (GIST), Gwangju, Korea, Republic of

P-Th-470
A Simple, Tunable Acoustofluidic Pump via Oscillating Sharp-edge for Cells Delivery
P-H. Huang[1], N. Nama[1], Z. Mao[1], P. Li[1], and T. J. Huang[1]
[1]The Pennsylvania State University, University Park, PA

P-Th-471
Capture of Circulating Tumor Cells (CTCs) in Microfluidic Devices for Patient Treatment Monitoring
J. Varillas[1], W. Sheng[1], K. Chen[1], T. George[1], C. Liu[1], and H. Fan[1]
[1]University of Florida, Gainesville, FL

POSTER SESSION **Th**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-472
Rapid and Affordable Generation of a Microdroplet Array with an Air-spray gun
L. Phelps[1], C. Danielson[1], G. Pappas[1], A. Melvin[1], and K. Park[1]
[1]*Louisiana State University, Baton Rouge, LA*

P-Th-473
Rapid Assembly of Co-Cultures within a Multilayer Microfluidic Platform
B. Nablo[1] and D. Reyes[1]
[1]*National Institute of Standards and Technology, Gaithersburg, MD*

P-Th-474
Rapid Assembly of Synthetic Lipid Bilayers for Membrane Based Studies
M-A. Nguyen[1] and S. Sarles[1]
[1]*University of Tennessee, Knoxville, TN*

P-Th-475
Thin Film Polystyrene Microchannels for Long Term Cell Culture
P. Erb[1], M. Gamcsik[1], and G. Walker[1]
[1]*North Carolina State University, Raleigh, NC*

P-Th-476
Secondary Anchor Targeted Cell Release Integrated Spiral Mixer for the Selective Isolation of Cell Types
A. Ansari[1] and P. Imoukhuede[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

P-Th-477
Use Of Ascorbic Acid To Monitor Effects On Prostate Cancer Migration
S. Loh[1], L. Lee[2], S. Bean[2], M. Nashawi[2], S. Rao[2], V. Lin[2], and J-C. Chiao[2]
[1]*University of Texas at Arlington, Mansfield, TX,* [2]*University of Texas at Arlington, Arlington, TX*

P-Th-478
Microprocessor-Based Integration of Microfluidic Platforms for the Realization of Multithreaded Optimization Algorithms
E. Ezra[1], I. Maor[1], I. Shalom[1], D. Bavli[1], E. Keinan[1], and Y. Nahmias[1]
[1]*The Hebrew University of Jerusalem, Jerusalem, Israel*

P-Th-479
Aqueous Micro-droplet Generation using Water Immiscible Room Temperature Ionic Liquids in a Microfluidic Device
J. W. Hwang[1,2], Y-S. Choi[2], R. Bashir[3], and W-J. Chang[4]
[1]*University of Wisconsin-Milwaukee, Milwaukee, WI,* [2]*CHA University, Seongnam, Korea, Republic of,* [3]*University of Illinois at Urbana-Champaign, Urbana, IL,* [4]*University of Wisconsin-Milwaukee, MILWAUKEE, WI*

P-Th-480
A High-throughput Microfluidic Device for Leukoreduction of Platelet Rich Plasma
H. Xia[1], B. Strachan[1], S. Gifford[1], and S. Shevkoplyas[1]
[1]*University of Houston, Houston, TX*

P-Th-481 **DREAM TEAM & CENTER**
Enhanced Capture of Particles and Pathogens from Blood in a Bifurcated Microfluidic Device
J. Lahmann[1], M. Ryder[1], J. Fowler[1], E. Durant[1], R. Raman[1], B. Yu[1], S. Seals[1], J. Baio[1], K. Sharp[1], K. Schilke[1], A. Higgins[1], and J. McGuire[1]
[1]*Oregon State University, Corvallis, OR*

P-Th-482
Cell Stiffness Based Mechanotyping and Classification from Inertial Microfluidics
Y. Deng[1] and A. Chung[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Th-483
Modeling Particle Vaccine And Dendritic Cell Trafficking With "Lymphatics-on-a-chip"
A. Atalis[1,2], T. Kassis[1], J. B. Dixon[1], and K. Roy[1,2]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Emory University, Atlanta, GA*

P-Th-484
Precise Micro-Culture Patterning For Long-Term Single Cell Analysis
K. Zaidi[1] and N. Agrawal[1]
[1]*George Mason University, Fairfax, VA*

P-Th-485
Exciting Multiple Vibration Modes in Resonant Microfluidic Biosensors
R. Jain[1], A. Sriram[1], and B. Lutz[1]
[1]*University of Washington, Seattle, WA*

P-Th-486
Hybrid Soft/Stereolithography Microfluidic Devices
A. Au[1], T. Chang[1], S. Kang[1], A. Karkamkar[1], and A. Folch[1]
[1]*University of Washington, Seattle, WA*

Track: Nano and Micro Technologies
Nano and Micro Technologies:
Nano and Micro Tech Other Posters

P-Th-487
Analysis of *C. elegans* Behavior During Aging Using a Microfabricated WorMotel Multi-well Device
M. Churgin[1] and C. Fang-Yen[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Th-488
Metal Oxide Nanoparticle Ingestion Alters Alkaline Phosphatase Activity
N. Martucci[1], R. Burela[2], and G. Mahler[1]
[1]*Binghamton University, Binghamton, NY,* [2]*Binghamton University, Binghamton University, NY*

P-Th-489
Ultrasensitive Detection of Soluble Proteins from Single Cells Using Chemically Amplified Nanosensors
V. Herrera[1], M. Rahim[1], F. McWhorter[1], W. Liu[1], and J. Haun[1]
[1]*University of California, Irvine, Irvine, CA*

P-Th-490
Development of a Novel, Low-Cost, One-Step Soft Mold Embossing Process for Customized Well- Plates
A. Conway[1,2], S. Sun[2], S. Maher[1,2], J. Turgeon[1,2], F. Sinatra[2], J. Hsiao[2], J. Adams[1], D. Kyle[1], and W. Saadi[2]
[1]*University of South Florida, Tampa, FL,* [2]*Draper Laboratory, Tampa, FL*

P-Th-491
Micron Resolution Benchtop Fabrication for Applications in Lab on Chip.
N. Abbas[1] and M. Khraiche[1]
[1]*University of California, San Diego, San Diego, CA*

Track: Nano and Micro Technologies
Nano and Micro Technologies:
Nano/Microbiotechnology Posters

P-Th-492
Magnetic Micropatterning of Different Types of Cells for Analyzing Their Interactions
K. Shimizu[1], S. Yamamoto[1], M. Okochi[2], and H. Honda[1]
[1]*Nagoya University, Nagoya, Japan,* [2]*Tokyo Institute of Technology, Tokyo, Japan*

P-Th-493
On-Chip Chromatographic Separation and Online Spectroscopic Detection of Protein Mixtures
M. Goel[1] and S. Gupta[1]
[1]*Indian Institute of Technology, New Delhi, India*

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-494
Towards Development of First LF-CBB-SIST (Label-Free Cell-Based Biosensor using SERS Immuno-Sensor Technology) For Intracellular Proteins Detection
V. Bhardwaj[1], S. Srinivasan[1], and A. McGoron[1]
[1]*Florida International University, Miami, FL*

P-Th-495
The Development And Characterization Of SDF1-elastin-like-peptide Nanoparticles For Wound Healing
A. Yeboah[1], R. Cohen[1], R. Faulknor[1], M. Yarmush[1,2], and F. Berthiaume[1]
[1]*Rutgers University, Piscataway, NJ,* [2]*Massachusetts General Hospital and Shriners Burns Hospital, Boston, MA*

P-Th-496
Utilization of Gold Nanoparticles and DNA Aptamers to Create a Cross-Reactive Sensor for Illicit Drug Detection
J. Yoho[1,2], J. Chávez[2], J. Hagen[2], and N. Kelley-Loughnane[2]
[1]*University of Dayton, Dayton, OH,* [2]*Wright-Patterson Air Force Base, WPAFB, OH*

P-Th-497
Spatially Patterning and Photo-Releasing Lentivirus on Substrates for Gene Expression
S-H. Kim[1], S. J. Yu[2], S-G. Im[2], and N. S. Hwang[1]
[1]*Seoul National University, Seoul, Korea, Republic of,* [2]*KAIST, Daejeon, Korea, Republic of*

P-Th-498
Detection of Specific Nucleic Acid Sequences in a Mixed Solution with Solid-State Nanopores
F. Wang[1], O. Zahid[1], and A. Hall[1]
[1]*Wake Forest University School of Medicine, Winston-Salem, NC*

P-Th-499
Dielectrophoresis-assisted 3D nano-electroporation for High-throughput Cell Transfection in Adoptive Immunotherapy
L. Chang[1], X. wang[1], P. Bertani[1], D. Gallego-Perez[1], X. zhao[1], V. Malkoc[1], W. Lu[1], and J. Lee[1]
[1]*the Ohio State University, columbus, OH*

P-Th-500
PLA2-responsive and SPIO-loaded Phospholipid Micelles
Q. Gao[1], A. Tsourkas[1], and Z. Cheng[1]
[1]*university of Pennsylvania, Philadelphia, PA*

P-Th-501
A Solid-State Nanopore Assay For Investigating Single-Stranded Binding Protein Interactions With DNA
O. Zahid[1], M. Marshall[2], J. Ruzicka[2], V. Henrich[2], E. Taylor[2], and A. Hall[1]
[1]*Wake Forest University School of Medicine, Winston-Salem, NC,* [2]*University of North Carolina at Greensboro, Greensboro, NC*

P-Th-502
Novel Graphene Oxide Biocompatible Coatings On 316 Stainless Steel Meshes for Vascular Stent Applications
A. Alcantara-Guardado[1], B. P. Oropeza[1], Y. Lin[1], T. Boland[1], and B. Joddar[1]
[1]*University of Texas at El Paso, El Paso, TX*

P-Th-503
Rotational Diffusivity Of Nanoparticles And Biological Fluid Viscosity In Concentrated Protein Solutions
D. Bejleri[1], L. Su[1], A. Bohorquez[1], and C. Rinaldi[1]
[1]*University of Florida, Gainesville, FL*

P-Th-504
Understanding the Role of Nanoscale Topography of Polymer Surfaces on Inhibiting Bacterial Adhesion and Growth for Catheter Applications
L. Liu[1] and T. Webster[1]
[1]*Northeastern University, Boston, MA*

P-Th-505
Parallelization of Microfluidic Mixers for Large-scale Production of Lipid-polymer Nanoparticles
M. Toth[1] and Y. Kim[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

P-Th-506
Characterization of Conductive Polymer Nanoparticles as Photothermal Therapy Agents
T. Cantu[1], K. Walsh[1], S. Mirshra[2], J. Tracey[2], J. Tunnell[3], J. Irvin[1], and T. Betancourt[1]
[1]*Texas State University, San Marcos, TX,* [2]*North Carolina State University, Raleigh, NC,*[3]*University of Texas at Austin, Austin, TX*

P-Th-507
Development of a Technology Platform based on Combination of Magnetic Quantum Dots and Micropatterned Magnets for Manipulating and Analyzing Single Cells and Molecules
G. Ruan[1] and J. Winter[2]
[1]*Nanjing University, China, Nanjing City, China, People's Republic of,* [2]*the Ohio State University, Columbus, OH*

P-Th-508
Analysis on Penetration of Nano Particles through Polymeric Gloves Using Atomic Force Microscope
S. Sinha[1], S. Nalamati[1], S. Kaewyoo[1], and E. Kirkor[1,2]
[1]*University of New Haven, West Haven, CT,* [2]*Anchor Science LLC, Branford, CT*

P-Th-509
Nano-endoscope for Local Light Delivery and Collection from a Single Cell
S. Cheemalapati[1], J. Winskas[1], K. Konnaiyan[1], A. Pyayt[1], H. Wang[1], and A. Zhdanov[1]
[1]*USF, Tampa, FL*

P-Th-510
Microfluidic Biosensor for Diagnosis of Urinary Tract Infections
D. Wu[1] and M. Thomas[1]
[1]*Wichita State University, Wichita, KS*

P-Th-511
Characterization and Computational Modeling of Proteins using 2-Port SAW Sensors
V. Dhagat[1], J. Kahl[2], P. Dufilie[2], D. Kalonia[1], and F. Jain[1]
[1]*University of Connecticut, Storrs, CT,* [2]*Phonon Corp., Simsbury, CT*

P-Th-512
Cytotoxic Effects of Zno Nanoparticles in an *In Vitro* Human Intestine Epithelium Model
F. Moreno Olivas[1], E. Tako [2], and G. Mahler[1]
[1]*SUNY Binghamton, Binghamton, NY,* [2]*Agricultural Research Services, USDA, Ithaca, NY*

P-Th-513
Development of a Biomolecule-screening Assay to Identify Mucus-penetrating Peptides
F. Gao[1] and D. Ghosh[1]
[1]*University of Texas at Austin, Austin, TX*

Track: Nano and Micro Technologies

Nano and Micro Technologies:

Paper Fluidics Posters

P-Th-514
Paper Microfluidic Platform for Detection of Viral Gastroentericis
S.Weigum[1], A. Ranjan[1], and Z, Lu[1]
[1]*Texas State University, San Marcos, TX*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Nano and Micro Technologies

Nano and Micro Technologies:

Theranostics and Nanoparticles Posters

P-Th-515
Evaluation of Magnetic Nanoparticles for Hyperthermia and Magnetic Particle Imaging by Their Dynamic Hysteresis Curves
S. Ota[1], Y. Wang[1], R. Kitaguchi[1], T. Yamada[1], and Y. Takemura[1]
[1]*Yokohama National University, Yokohama, Japan*

P-Th-516
Polymeric Theranostic Nanoparticles: Controlled Drug Release and Biocompatability
A. Goodfriend[1], T. Welch[1], K. Nguyen[2], C. Thomas[3], A. Nugent[1], and J. Forbess[1]
[1]*University of Texas Southwestern Medical Center at Dallas, Dallas, TX,* [2]*University of Texas Arlington, Arlington, TX,* [3]*University of Texas Dallas, Dallas, TX*

P-Th-517
Nanostructured Glyco-Functional Liposomes to Elucidate Carbohydrate Mediated Targeting
J. Chen[1], H-N. Son[1], J. Hill[1], P. Stayton[1], A. Convertine[1], and D. Ratner[1]
[1]*University of Washington, Seattle, WA*

P-Th-518
Toward Novel Theranostics for Osteoporotic Disease: Bisphosphonate Functionalized Gold Nanoparticles
C. Conners[1], V. Bhethanabotla[1], and V. Gupta[1]
[1]*University of South Florida, Tampa, FL*

P-Th-519
A Facile Method for the Synthesis of Porous Polymeric Pesicles
L. Yan[1], E. Higbee[1], A. Tsourkas[1], and Z. Cheng[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Th-520
Bioconjugated Lipid Polymer Hybrid Nanoparticles Targeting Myocardial Ischemic Reperfusion Injury to Reduce Infarction Size
E. Takami[1], F. Erogbogbo[1], S. Villas-Boas[2], E. McKenzie[2], B. Readhead[3], J. Dudley[4], and P. Gladding[5]
[1]*San Jose State University, San Jose, CA,* [2]*University of Auckland, Auckland, New Zealand,*[3]*Mount Sinai School of Medicine, New York, CA,* [4]*Mount Sinai School of Medicine, New York, NY,* [5]*Theranostics Laboratory, Auckland, New Zealand*

P-Th-521
In Vitro Antioxidant Activity of Tannic Acid Nanoparticles Prepared by Flash NanoPrecipitation
D. Amin[1], C. Tang[2], R. Prud'homme[3], and P. Messersmith[4]
[1]*Northwestern University, Chicago, IL,* [2]*Virginia Commonwealth University, Richmond, VA,*[3]*Princeton University, Princeton, NJ,* [4]*UC Berkeley, Berkeley, CA*

Track: Neural Engineering

Neural Engineering:

Device-based Approaches for Axonal Growth and Guidance Posters

P-Th-529
An Investigation of Glycosaminoglycan Mimetic Scaffolds for Axonal Growth
R. Menezes[1], B. Pfister[1], and T. Arinzeh[1]
[1]*New Jersey Institute of Technology, Newark, NJ*

P-Th-530
Carbon Nanotube/Conducting Polymer Coatings for Electrically Stimulated Drug Release in Denervated Muscle
J. Eles[1] and X. Cui[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Th-531
Gradient Generation Platform for Schwann Cell and Neuron Migration Guidance in 2D and 3D Cultures
K. Krick[1], I-M. Siu[1], A. Hoke[1], T. Brushart[1], and H-Q. Mao[1,2]
[1]*Johns Hopkins School of Medicine, Baltimore, MD,* [2]*Johns Hopkins University Whiting School of Engineering, Baltimore, MD*

P-Th-533
Promoting Regeneration of Injured Rat Neurites Using Low-Frequency Uniform Electric Field Application
M. Purdy[1], W. Zaidi[1], N. Syed[1], R. Midha[1], and C. Dalton[1]
[1]*University of Calgary, Calgary, AB, Canada*

P-Th-534
Nanofiber Scaffolds with Integrated Neuronal Progenitors for the Re-engineering of Auditory Nerve
S. Hackelberg[1], S. Tuck[1], A. Rastogi[2], C. White[1], L. Liu[1], D. Prieskorn[1], J. Miller[1], R. Duncan[1], and J. Corey[1,2]
[1]*The University of Michigan, Ann Arbor, MI,* [2]*VA Ann Arbor Healthcare Center, Ann Arbor, MI*

P-Th-535
Collagen-Graphene Film Patterning for Spatial Control of Neuronal Networks
A. Santiago-Lopez[1], N. Stone[1], H. Lee[1], and Y. Kim[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

P-Th-536
Magnetically-Templated Hydrogels for Peripheral Nerve Repair
C. Lacko[1], A. Garcia[1], C. Rinaldi[1], and C. Schmidt[1]
[1]*University of Florida, Gainesville, FL*

Track: Neural Engineering

Neural Engineering:

Neural Interfaces: Compatibility, Recording and Stimulation Posters

P-Th-537
The Foreign Body Response to the Utah Slant Electrode Array in Human Peripheral Nerve
M. Christensen[1], H. Wark[1], D. Hutchinson[1], and P. Tresco[1]
[1]*University of Utah, Salt Lake City, UT*

P-Th-538
Synchronization of EEG and Behavioral Recordings in Healthy And Hemi-Parkinsonian Rodents Using a Low Power Micro-Recording Embedded System
C. Polar[1] and A. Dorval[1]
[1]*University of Utah, Salt Lake City, UT*

P-Th-539
Effect of NIR Laser Pulse Width on Gold-nanorod Mediated Photothermal Neural Inhibition
H. Jung[1], S. Yoo[1], and Y. Nam[1]
[1]*KAIST, Daejeon, Korea, Republic of*

P-Th-540
A Novel Method for Neuron Stimulation - Visible Light Stimulation using Gold Nanoparticles
P. Bazard[1], R. Frisina[1], J. Walton[1], and V. Bhethanabotla[1]
[1]*University of South Florida, Tampa, FL*

P-Th-541
EIROF-coated Carbon Fiber Ultramicroelectrodes for Neural Stimulation and Recording
F. Deku[1], A. Ghazavi[1], A. Mertiri[2], S. Cogan[1], and T. Gardner[2]
[1]*University of Texas at Dallas, Richardson, TX,* [2]*Boston University, Boston, MA*

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-542
Linear Techniques for Reducing Noise in High Channel Count Feline Sciatic Nerve Data
Z. B. Kagan[1], V. J. Mathews[1], and D. J. Warren[1]
[1]University of Utah, Salt Lake City, UT

P-Th-543
Local Field Potential Signatures of Stimulation Frequency in Deep Brain Stimulation for Depression
V. Tiruvadi[1,2], P. Riva-Posse[2], A. Crowell[2], O. Smart[2], C. Inman[2], and H. Mayberg[2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA

P-Th-544
Intraoperative Functional Mapping of Hand Premotor Cortex for Chronic Implantation of Subdural Strip Electrodes
R. Molina[1], N. Maling[2], J. Shute[1], E. Opri[1], P. J. Rossi[1], K. Foote[1], M. Okun[1], and A. Gunduz[1]
[1]University of Florida, Gainesville, FL, [2]Case Western Reserve University, Cleveland, OH

P-Th-545
ECM Coatings to Modulate the Foreign Body Response to Chronically Implanted Microelectrode Arrays
M. Polei[1], R. Oakes[1], N. Nolta[1], J. Skousen[1], and P. Tresco[1]
[1]University of Utah, Salt Lake City, UT

P-Th-546
Magnetic and Conductive Nanocomposite Coatings for an Improved Neural Interface
N. Snyder[1], T. Cui[1], K. Catt[1], and L. Bruk[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Th-547
Model Comparing the Effect of the Glial Scar and Electrochemical Interface on Neural Recordings
K. Malaga[1], K. Schroeder[1], P. Patel[1], Z. Irwin[1], D. Thompson[1], N. Bentley[2], C. Chestek[1], and P. Patil[1,2]
[1]University of Michigan, Ann Arbor, MI, [2]University of Michigan Health System, Ann Arbor, MI

P-Th-548
In Vivo Impedance Characterization of PEDOT:TFB Coated and Chronically Implanted Multi Electrode Arrays
S. Gok[1], M. Sahin[1], J. Pancrazio [2], and H. Charkhkar[2]
[1]New Jersey Institute of Technology, Newark, NJ, [2]George Mason University, Fairfax, VA

P-Th-549
Development Of A Micro-Channel Sieve Electrode For Bi-Directional Peripheral Nerve Interfacing
R. Coker[1], E. Zellmer[1], and D. Moran[1]
[1]Washington University in St Louis, Saint Louis, MO

P-Th-550
A Survey of Individuals with Upper Limb Loss Regarding Novel Prosthetic Control Techniques
S. Engdahl[1], B. Christie[1], B. Kelly[1], A. Davis[1], C. Chestek[1], and D. Gates[1]
[1]University of Michigan, Ann Arbor, MI

P-Th-551
Developing Nerve Electrodes With Low Tissue Adherence
C. Stephan[1], J. Bernabei[2], M. Boban[1], A. Tuteja[1], and T. Bruns[1]
[1]University of Michigan, Ann Arbor, MI, [2]Duke University, Durham, NC

P-Th-552
Vestibulo-ocular and Vestibulo-sympathetic Reflex Responses Evoked by infrared stimulation of the Vestibular System
W. Jiang[1], G. Holstein[2], G. Martinelli[3], R. Rabbitt[4], and S. Rajguru[5]
[1]University of Miami, miami, FL, [2]Icahn School of Medicine at Mount Sinai, New Tork, NY,[3]Icahn School of Medicine at Mount Sinai, New York, NY, [4]University of Utah, Salt Lake City, UT, [5]University of Miami, Miami, FL

P-Th-553
Adjusting Tetramethyl Orthosilicate Layer Composition and Loading Paradigm To Ameliorate The Acute Phase of Inflammation Associated With Microdevice Implantation
M. McDermott[1,2] and K. Otto[1,2]
[1]University of Florida, Gainesville, FL, [2]Purdue University, West Lafayette, IN

P-Th-554
Toward High-throughput Neural Engineering: Multielectrode Array-compatible Microperfusion System for Organotypic Brain Slice Cultures
J. Liu[1] and Y. Berdichevsky[1]
[1]Lehigh University, Bethlehem, PA

P-Th-555
Influence of Neural Electrode Metallization on Impedance and Robustness for Long Term Implants
R. Caldwell[1], L. R. Caldwell[1], R. Sharma[1], F. Solzbacher[1], and P. Tathireddy[1]
[1]University of Utah, Salt Lake City, UT

P-Th-556
Modeling The Behavior of Coated Neural Probes Post-insertion To Predict The Role Of Probe Material And Geometry On Chronic Injury
S. Singh[1], M-C. Lo[1], J. Strohl[1], I. Ahmed[1], V. Damodaran[2], H. Kaplan[2], J. Kohn[2], J. Zahn[1], and D. Shreiber[1]
[1]Rutgers University, Piscataway, NJ, [2]New Jersey Center for Biomaterials, Piscataway, NJ

P-Th-557
Long-Term Neuronal Recording And Analysis Of Patterned Activity Using Multi-Electrode Arrays
P Wijdenes[1], C. Dalton[1], R. Armstrong[1], W. Zaidi[1], and N. Syed[1]
[1]University of Calgary, Calgary, AB, Canada

P-Th-558
NKCC1 Activity in SH-SY5Y Cells using Aldosterone and Bumetanide as Ion Channel Modulators
H. K. Chittam[1], P. Bazard[1], R. Frisina[1], V. Bhethanabotla[1], and J. Walton[1]
[1]University of South Florida, Tampa, FL

P-Th-559
In Vivo Assay to Evaluate the Cytotoxicity of Platinum Compounds for Stimulating Neural Electrodes
K. Kovach[1], D. Kumsa[2], V. Srivastava[2], E. Hudak[3], B. Hahn[4], J. T. Mortimer[2], and J. Capadona[2]
[1]Louis Stokes Cleveland VA Medical Center, Cleveland, OH, [2]Case Western Reserve University, Cleveland, OH, [3]Advanced Bionics, Valencia, CA, [4]Boston Scientific Corporation, Valencia, CA

P-Th-560
A Primitive Neurostimulator Demonstrated with Frog Sciatic Nerve and Gastrocnemius Muscle
A. Parodi[1], L. C. Boswell[1], and J-W. Choi[1]
[1]Louisiana State University, Baton Rouge, LA

P-Th-561
Extracellular Recordings Of Local Field Potentials And Spikes From Clustered Neuronal Networks Using Planar-Type Microelectrode Arrays
S. Joo[1] and Y. Nam[1]
[1]KAIST, Daejeon, Korea, Republic of

P-Th-562
EEG Microstate Correlates of Major Depressive Disorder and Response to Seizure Therapy
S. Atluri[1,2], W. Wong[1], D. M. Blumberger[1,2], Z. J. Daskalakis[1,2], and F. Farzan[1,2]
[1]University of Toronto, Toronto, ON, Canada, [2]Centre for Addiction and Mental Health, Toronto, ON, Canada

P-Th-563
Measuring and Modeling Plasmonic Heating by Gold Nanoelectrodes for Stimulation of Neurons
D. Corral[1], P. Bazard[1], K. Hall[1], R. Frisina[1], J. Walton[1], and V. Bhethanabotla[1]
[1]University of South Florida, Tampa, FL

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-564
Changes in EEG Spectra of Children with Severe Disabilities in Response to Power Mobility Training
N. Zweifel[1], L. K. Kenyon[1], J. Farris[1], N. Aldrich[1], and S. Rhodes[1]
[1]*Grand Valley State University, Grand Rapids, MI*

Track: Neural Engineering
Neural Engineering:
Neuro-rehabilitation Posters

P-Th-565
Safety and Efficacy of Transcranial Direct Current Stimulation as an Enhancement of Recovery from Motor Deficits following Neonatal Hypoxic-Ischemic Encephalopathy Stroke
C. Anderson[1]
[1]*University of Florida, Gainesville, FL*

P-Th-566
Novel MR-Compatible Robot Measuring Ankle Kinematics, Kinetics, And Movement Latencies
J. Daly[1], A. Ravindran[2], K. Roenigk[3], S. Grover[3], K. Hrovat[3], J. Zimbelman[3], E. Beall[4], and R. Scheidt[5]
[1]*University of Florida and DVA Medical Center Gainesville, Gainesville, FL,* [2]*university of Florida, Gainesville, FL,* [3]*LS Cleveland VA Medical Center, Cleveland, OH,* [4]*Cleveland Clinic Foundation, Cleveland, OH,* [5]*marquette univeristy and RIC, Chicago, IL*

P-Th-567
Emergence of EMG-EMG Coherence between Shoulder Abductor and Finger Flexors in Individuals with Chronic Stroke: Preliminary Findings
Y. Lan[1], J. Yao[2], and J. Dewald[2]
[1]*Northwestern University, Chicago, IL,* [2]*Northwestern University, CHICAGO, IL*

P-Th-568
A Brain-Machine Interface for Closed-Loop Peripheral Nerve Stimulation to Improve Hand Function in Spinal Cord Injury Patients
C. Schildt[1]
[1]*University of Kentucky, Lexington, KY*

P-Th-569
Testing A Novel Method To Reduce Muscle Fatigue During Isokinetic Functional Electrically Stimulated Contractions
V. Babbar[1,2], A. Bergquist[2], M. Popovic[1,2], and K. Masani[1,2]
[1]*Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto, ON, Canada,* [2]*Toronto Rehabilitation Institute, University Health Network, Toronto, ON, Canada*

P-Th-570
Data-Driven Musculoskeletal Hindlimb Model Providing Peripheral Feedback to CPG Network
I. Perez[1], D. Won[1], L. Tong[1], N. Carusetta[1], J. Nataraj[1], and G. Daneshgaran[2]
[1]*California State University, Los Angeles, Los Angeles, CA,* [2]*University of California, Los Angeles, Los Angeles, CA*

Track: Orthopedic and Rehabilitation Engineering, Tissue Engineering
Tissue Engineering:
Articular Cartilage and Joints Posters

P-Th-571
Effects of Latarjet Repair on Glenohumeral Instability in the Presence of Combined Bony Defects
R. Patel[1], P. Walia[2,3], L. Gottschalk[2], M. Jones[2], S. Fening[4], and A. Miniaci[2]
[1]*Hinsdale Orthopaedics, Hinsdale, IL,* [2]*Cleveland Clinic, Cleveland, OH,* [3]*Cleveland State University, Cleveland, OH,* [4]*Case Western Reserve University, Cleveland, OH*

P-Th-572
Intra-articular Transport of Fluorescent Macromolecules in Healthy and Diseased Rats
T. K. Mwangi[1], E. Hernandez-Nieves[1], S. B. Adams[2], and L. A. Setton[1]
[1]*Duke University, Durham, NC,* [2]*Duke University Medical Center, Durham, NC*

P-Th-573
In-Situ Cartilage Characterization with Reduced Computational Demands
D. Burris[1], A. Moore[1], J. DeLucca[1], and D. Elliott[1]
[1]*University of Delaware, Newark, DE*

P-Th-574
Effect of Anisotropy and Tissue Region on Electrical Conductivity in Porcine Meniscus
K. Kleinhans[1], J. McMahan[1], and A. Jackson[1]
[1]*University of Miami, Coral Gables, FL*

P-Th-575
Expansion of Chondrogenic Cells on Decellularized Extracellular Matrix Derived Microcarriers
E. Marr[1], O. Burnsed[1], A. Saraogee[1], R. Guldberg[1], and T. McDevitt[2]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Gladstone Institute, San Francisco, CA*

P-Th-576
Quantification of Early Structural Joint Changes in a Murine Model of Post-Traumatic Osteoarthritis
M. David[1], M. Smith[1], A. White[1], R. Locke[1], and C. Price[1]
[1]*University of Delaware, Newark, DE*

P-Th-577
Magnetic Depletion-Based Assay of Interleukin 1 Beta Concentration
A. Monsalve[1], A. Garraud[1], K. Allen[1], and J. Dobson[1]
[1]*University of Florida, Gainesville, FL*

P-Th-578
Hypothermically Stored Human Amniotic Membrane Allograft as a Substrate for Articular Cartilage Regeneration
J. Vines[1,2], S. Tabet[3], H. Walthall[2], and H-W. Jun[1]
[1]*University of Alabama at Birmingham, Birmingham, AL,* [2]*NuTech Medical, Birmingham, AL,*[3]*New Mexico Orthopaedics, Albuquerque, NM*

P-Th-579
IL-6 is Primary Regulator of Sensory Neuron Sensitization to Heat Stimuli by Degenerative Disc Tissue
J. Stover[1], B. Lawrence[1], and R. Bowles[1]
[1]*University of Utah, Salt Lake City, UT*

P-Th-580
Structural Differences Between Distinct Tendon Types Arise During Fetal Development
S. Sparavalo[1], C. A. M. Bray[1], T. M. Brock-Fisher[1], N. M. Easton[1], C. A. Guinard[1], S. M. Wells[1], J. M. Lee[1], and S. P. Veres[1,2]
[1]*Dalhousie University, Halifax, NS, Canada,* [2]*Saint Mary's University, Halifax, NS, Canada*

P-Th-581
Proliferative Therapy-Induced Changes in the Cellular Response of Human Tenocytes
E. Ekwueme[1], M. Mohiuddin[1], J. Yarborough[1], P. G. Brolinson[2], D. Saris[3], H. Fernandes[3], and J. Freeman[1]
[1]*Rutgers University, Piscataway, NJ,* [2]*Edward Via Virginia College of Osteopathic Medicine, Blacksburg, VA,* [3]*University of Twente, Enschede, Netherlands*

P-Th-582
Mechanism for Simulated Motion of the Human Hand
L. Lane[1], R. Stoer[1], C. Sanchez[1], R. Koehler[1], S. Coss[1], J. Lee[1], K. Smith[1], M. Martinez[1], C. Dang[1], M. Plugge[1], and D. Grow[1]
[1]*New Mexico Tech, Socorro, NM*

POSTER SESSION **Th**

See page 97 for Poster floor plan

Track: Orthopedic and Rehabilitation Engineering, Tissue Engineering
Tissue Engineering:
Bone Posters

P-Th-583
Development Of A Hydroxyapatite Reinforced, Load-Bearing Scaffold For Bone Tissue Engineering
P. Patel[1], B. Taylor[1], C. Sahyoun[1], S. Patel[2], A. Mont[2], and J. Freeman[1]
[1]*Rutgers University, Piscataway, NJ,* [2]*New Jersey Institute of Technology, Newark, NJ*

P-Th-584
Development of a Bone Bioreactor for Forensic Applications
V. Mealing[1], M. Harman[1], M. Pysh[1], E. Mikhailova[1], C. Drapcho[1], and K. Weisensee[1]
[1]*Clemson University, Clemson, SC*

P-Th-585
Sleeve Gastrectomy Reduced Mechanical Strength of Bone in Axial and Bending Directions: A Study Using 4-Point Bending and Finite Element Analysis
J. Abraham[1], B. Yu[1], G. Pagnotti[1], V. Patel[1], A. Yang[1], M. Altieri[1], A. Pryor[1], D. Telem[1], C. Rubin[1], and M. L. Chan[1]
[1]*Stony Brook University, Stony Brook, NY*

P-Th-586
Biomechanical Analysis of Coaxial and Cortical Trajectory Pedicle Screws in Lumbar Spine Fusion Constructs
P. Brown[1], G. Gillispie[1], J. Mitchell[1], J. West[2], J. Stitzel[1], and W. Hsu[2]
[1]*VT-WFU School of Biomedical Engineering and Sciences, Winston Salem, NC,* [2]*Wake Forest Baptist Medical Center, Winston Salem, NC*

P-Th-587
LRP4 Knockout Induces Canonical Wnt Signaling: Implications for Bone Formation
L. Gorrell[1], A. Mixon[1], A. Srinivasan[1], and S. Kotha[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Th-588
Geometry of the Humerus in Chondrodystrophic, Brachycephalic, and Non-chondrodystrophic Dogs
E. Smith[1], D. Marcellin-Little[2], O. Harrysson[2], and E. Griffith[2]
[1]*North Carolina State University/University of North Carolina at Chapel Hill, Raleigh, NC,*[2]*North Carolina State University, Raleigh, NC*

Track: Orthopedic and Rehabilitation Engineering, Tissue Engineering
Tissue Engineering:
Musculoskeletal Tissue Engineering Posters

P-Th-589
Targeted Engineering of the Nucleus Pulposus Using a Tissue Specific Acellular Matrix
R. A. Wachs[1], S. Xin[1], H. I. Huda[1], E. N. Hoogenboezem[1], D. N. Stanton[1], S. L. Porvasnik[1], and C. E. Schmidt[1]
[1]*University of Florida, Gainesville, FL*

P-Th-590
Broadband Ultrasound Frequency Sensitivity and Composition as Critical Effects of Wave Propagation in Assessment of Musculoskeletal Tissue
J. Jiao[1], X. Li[1], J. Muir[1], R. Sahul[2], E. Nesvijski[2], and Y-X. Qin[1]
[1]*Stony Brook University, Stony Brook, NY,* [2]*TRS Technologies Inc., State College, PA*

P-Th-591
The Role of Hydroxyapatite Nanoparticles in Enhancing Cartilage-Cartilage Integration in Osteoarthritic environments
K. Comella[1]
[1]*Florida International University, Miami, FL*

P-Th-592
Estimation of Nutrient Transport in the Intervertebral Disc Using Stains and Mathematical Modeling
M. Giers[1], B. Munter[2], G. Ide[1], K. Eyster[2], M. R. Caplan[2], A. Newcomb[1], B. Kelly[1], N. Crawford[1], M. Preul[1], and N. Theodore[1]
[1]*St. Joseph's Hospital and Medical Center, Phoenix, AZ,* [2]*Arizona State University, Tempe, AZ*

P-Th-593
Demonstration of Mechanical Integrity in an Acellular Porous Meniscus Replacement
E. Lakes[1], P. McFetridge[1], and K. Allen[1]
[1]*University of Florida, Gainesville, FL*

Track: Biomechanics, Tissue Engineering
Tissue Engineering:
Biomechanics in Tissue Engineering and Regenerative Medicine Posters

P-Th-594
Micropillar Array To Study Microtissue Morphogenesis Under Local And Global Mechanical Stimuli
M. Asmani[1], Y. Li[1], C. Kotei[1], D. Olsen[1], F. Meng[1], and R. Zhao[1]
[1]*SUNY at Buffalo, Buffalo, NY*

P-Th-595
Influences On Felxural Strength And Deformation Behavior Of LED Cured Microhybrid And Nanofilled Dental Resin Composites
A. Osuntoki[1], O. Ajibola[1], O. Adeleye[1], O. Fakinlede[1], and I. Adegbulugbe[1]
[1]*University of Lagos, Lagos, Nigeria*

P-Th-596
Wound Healing Revealed by a Novel Automated Indentation Technique
S. Sim[1,2], M. Garon[2], E. Quenneville[2], and M. D. Buschmann[1]
[1]*Polytechnique Montreal, Montreal, QC, Canada,* [2]*Biomomentum Inc., Laval, QC, Canada*

P-Th-597
Effects Of Substrate Stiffness On Direct Reprogramming From Fibroblasts To Neurons And The Underlying Molecular Mechanisms
S. Y. Wong[1,2], J. Soto[1,2], J. Chu[1], H. Park[1], M-M. Poo[1,3], and S. Li[1,2]
[1]*University of California, Berkeley, Berkeley, CA,* [2]*University of California, San Francisco, San Francisco, CA,* [3]*Chinese Academy of Sciences, Shanghai, China, People's Republic of*

P-Th-598
Induced Wound Reveals Tension in Human Dermal Equivalents
L. Tinnin[1], C. Anderson[1], M. Vaughan[1], and G. Xu[1]
[1]*University of Central Oklahoma, Edmond, OK*

Track: Tissue Engineering
Tissue Engineering:
Bioreactor Systems for Tissue Engineering Posters

P-Th-599
Native to Engineered Valvular Tissue Integration Under Flex-Flow States
D. Stewart[1], K. Comella[1], S. Rath[1], and S. Ramaswamy[1]
[1]*Florida International University, Miami, FL*

P-Th-600
The Effect of Hydrostatic Pressure and &[beta]-TCP/PCL Scaffold on Osteogenic Differentiation of hMSCs
S. H. Park[1], S. A. Park[2], Y. G. Kang[1], J. W. Shin[1], H. L. Kim[1], Y. M. Kim[1], S. R. Gu[3], Y. R. Wu[3], H. Y. Ban[1], M. W. Lee[1], and J-W. Shin[1,3,4]
[1]*Department of Biomedical Engineering, Inje University, Gimhae-si, Korea, Republic of,*[2]*Korea Institute of Machinery & Materials, Daejeon, Korea, Republic of,* [3]*Department of Health Science and Technology, Inje University, Gimhae-si, Korea, Republic of,*[4]*CMDC/Institute of Aged Life Redesign/UHRC, Inje University, Gimhae-si, Korea, Republic of*

P-Th-601
Design and Tests of a Novel Biaxial Stretch Bioreactor for Tissue-Engineered Heart Valves
Y. Lei[1] and Z. Ferdous[1]
[1]*The University of Tennessee, Knoxville, TN*

POSTER SESSION Th

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-602
MRI Perfusion Culture System For Cartilage Tissue Engineering MRI Perfusion Culture System for Cartilage Tissue Engineering
Z. Han[1] and S. Othman[1]
[1]*College of Engineering, Lincoln, NE*

P-Th-603 **DREAM TEAM & CENTER**
Quantitative Systems Pharmacology for Microphysiological Systems (MPS): Data Interpretation and Multi-MPS Integration
J. Yu[1], N. Cilfone[1], E. Large[2], U. Sarkar[1], J. Wishnok[1], S. Tannenbaum[1], D. Hughes[2], D. Lauffenburger[1], L. Griffith[1], C. Stokes[3], and M. Cirit[1]
[1]*MIT, Cambridge, MA,* [2]*CN Bio Innovation Ltd, Welwyn Garden City, United Kingdom,* [3]*Stokes Consulting, Redwood City, CA*

P-Th-604
Metabolite Monitoring as a Method of Real-Time Nondestructive Analysis of Bone Tissue Engineered Constructs for Regenerative Medicine
A. Simmons[1], C. Williams[1], and V. Sikavitsas[1]
[1]*University of Oklahoma, Norman, OK*

Track: Tissue Engineering, Cardiovascular Engineering

Tissue Engineering:

Cardiovascular Tissue Engineering Posters

P-Th-605
Regulation of Vascular Smooth Muscle Cell Sheet on Degradable Hydrogel
N. G. Rim[1], J. Kim[1], and J. Wong[1]
[1]*Boston University, Boston, MA*

P-Th-606
Iron Oxide Nanoparticle-mediated Cardiac Priming of MSCs to Treat Myocardial Infarction
J. Han[1], B. Kim[2], J-Y. Shin[1], S. Ryu[1], M. Noh[1], J. Woo[2], J-S. Park[2], Y. Lee[1], N. Lee[3], T. Hyeon[1], D. Choi[2], and B-S. Kim[1]
[1]*Seoul National University, Seoul, Korea, Republic of,* [2]*Yonsei university, Seoul, Korea, Republic of,* [3]*Kookmin University, Seoul, Korea, Republic of*

P-Th-607
Generation of Capillaries in Patterned Type I Collagen Gels In Vitro
N. Boland[1], R. Linville[1], G. Covarrubias[1], and J. Tien[1]
[1]*Boston University, Boston, MA*

P-Th-608
Accelerated Endothelial Differentiation of Stem Cells on Cardiac Matrix Hydrogel with Tailored Properties
M. Jeffords[1], J. Wu[2], M. Shah[1], Y. Hong[2], and G. Zhang[1]
[1]*University of Akron, Akron, OH,* [2]*University of Texas at Arlington, Arlington, TX*

P-Th-609
Combination of Aligned Electrospun PLCL and Fibroblast-Derived Matrix for the Differentiation and Maturation of Cardiomyocytes
M. Suhaeri[1,2], R. Subbiah[1,2], P. Du[1], and K. Park[1,2]
[1]*Korea Institute of Science and Technology, Seoul, Korea, Republic of,* [2]*Korea University of Science and Technology, Daejon, Korea, Republic of*

P-Th-610
Response of Cardiac Cells to Physiologically Relevant Levels of Mechanical Stress
A. Rogers[1], V. Fast[1], and P. Sethu[1]
[1]*University of Alabama at Birmingham, Birmingham, AL*

P-Th-611
Highly Aligned Elastin Incorporated Collagen Fibers for Vascular Tissue Engineering
T-U. Nguyen[1], C. Bashur[1], and V. Kishore[1]
[1]*Florida Institute of Technology, Melbourne, FL*

P-Th-612
Impact of Electrospun Conduit Composition on Vascular Graft Production and Remodeling after Aortal Implantation
M. Shojaee[1], K. Birthare[1], and C. Bashur[1]
[1]*Florida Institue of Technology, Melbourne, FL*

P-Th-613
MOVED TO ORAL PRESENTATION

P-Th-614
Developing Efficient Recellularization Strategies for Decellularized Porcine Myocardial Scaffold
P. KC[1], M. Shah[1], B. Brazile[2], J. Liao[2], and G. Zhang[1]
[1]*The University of Akron, Akron, OH,* [2]*Mississippi State University, Starkville, MS*

P-Th-615
Heterogeneous Human Placenta Matrix Release from PLGA Microparticles to Modulate Angiogenesis
M. Moore[1], S. Tonello[1], B. Sharma[1], J. Dobson[1], and P. McFetridge[1]
[1]*University of Florida, Gainesville, FL*

P-Th-616
3D Differentiation of Reprogrammed Amniotic Fluid Derived Stem Cells for Congenital Heart Repair
C. Tsao[1], S. Pok[1], A. Velasquez-Mao[1], and J. Jacot[1,2]
[1]*Rice University, Houston, TX,* [2]*Texas Children's Hospital, Houston, TX*

P-Th-617
Influence of Porcine Heart Orientation on Its Decellularization Efficiency
P-F. Lee[1], E. Chau[1], R. Cabello[1], A. T. Yeh[2], L. Sampaio[1], A. S. Gobin[1], and D. A. Taylor[1]
[1]*Texas Heart Institute, Houston, TX,* [2]*Texas A&M University, College Station, TX*

P-Th-618
Development of a Hypertensive Ovine Model to Study Vascular Graft Implantation
S. Row[1], M. Koobatian[1], A. Shahini[1], C. Koenigsknecht[1], S. Andreadis[1], and D. Swartz[1]
[1]*State University of New york at Buffalo, Amherst, NY*

P-Th-619
Application Of Solar Cell Derived Electrical Stimulation To The Vascular Tissue Regeneration
G-J. Jeong[1]
[1]*Seoul National University, Seoul, Korea, Republic of*

P-Th-620
A Microfluidic Platform to Tissue Engineer Arterioles
M. Traore[1], R. Hongyi Li[1], and S. George[1]
[1]*Washington University in Saint Louis, Saint Louis, MO*

P-Th-621
Nutrient Transport in Dynamic Culture of Engineered Valves
M. Salinas[1], V. Unnikrishnan [2], and S. Ramaswamy[1]
[1]*Florida International University, Miami, FL,* [2]*University of Alabama, Tuscaloosa, AL*

P-Th-622
Isotropic Silk Patches for Myocardial Repair Following Infarction
K. Sullivan[1], W. Stoppel[1], D. Kaplan[1], and L. Black[1]
[1]*Tufts University, Medford, MA*

P-Th-623
Modulating Structure and Function of Vascular Smooth Muscle Cell Sheets
E. Lee[1], H. Bendre[1], M. Robinson[1], A. Kalmykov[1], and J. Wong[1]
[1]*Boston University, Boston, MA*

P-Th-624
iPSC-Cardiomyocyte Maturation in Cardiac Cell Conditioned Hydrogel
Y. Gao[1] and J. Jacot[1,2]
[1]*Rice University, Houston, TX,* [2]*Texas Children's Hospital, Houston, TX*

P-Th-625
Using the Embryonic Heart as an Instructive Template for Cardiac Tissue Engineering
I. Batalov[1], S. Kim[1], and A. Feinberg[1]
[1]*Carnegie Mellon University, Pittsburgh, PA*

P-Th-626
Differentiation and Characterization of Adipose Stem Cells for Blood Vessel Tissue Engineering
J. Arrizabalaga[1] and M. Nollert[1]
[1]*University of Oklahoma, Norman, OK*

POSTER SESSION **Th**

See page 97 for Poster floor plan

Track: Tissue Engineering
Tissue Engineering:
Engineering Replacement Tissues Posters

P-Th-627
Designing Surface Cues of a Synthetic Hydrogel Scaffold for Retinal Pigment Epithelium Tissue Engineering
C. White[1] and R. Olabisi[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Th-628
Controlled Tissue Transdifferentiation by Nanochannel Electroporation
D. Gallego-Perez[1], S. Ghatak[1], D. Pal[1], V. Malkoc[1], S. Gnyawali[1], L. Chang[1], J. Otero[1], L. J. Lee[1], and C. K. Sen[1]
[1]The Ohio State University, Columbus, OH

P-Th-629
3D Tissue Engineering Using Template Based Casting
T. Kruse[1], H. Strey[1], and D. Rubenstein[1]
[1]Stony Brook University, Stony Brook, NY

POSTER SESSION **Th**

P-Th-630
Developing a Bio-inspired Hybrid Nanosack for the Delivery of Pancreatic Islet and FGF-2 to Improve Islet Engraftment in the Omentum
P. Hwang[1], D-J. Lim[1], A. Tambralli[1], G. Alexander[1], S. Gilbert[1], L. Tian[1], A. Shalev[1], and H-W. Jun[1]
[1]University of Alabama at Birmingham, Birmingham, AL

P-Th-631
A Three-Dimensional Anisotropic Tissue Fabricated Using Natural ECM Scaffold in Rotating Wall Vessel Bioreactor
Q. Xing[1], Z. Qian[1], K. Yates[1], M. Tahtinen[1], and F. Zhao[1]
[1]Michigan Technological University, Houghton, MI

P-Th-632
Monitoring Decellularization of Rat Livers With Computed Tomography Scanning
S. Geerts[1], S. Ozer[1], M. Yarmush[1], and B. Uygun[1]
[1]Massachusetts General Hospital, Harvard Medical School, Boston, MA

Track: Tissue Engineering
Tissue Engineering:
Engineering Tissue Interfaces Posters

P-Th-634
Multi-Cellular *In Vitro* Rat Primary Co-culture System To Mimic Liver Function And Response
S. S. Bale[1], S. Geerts[1], W. McCarty[1], I. Golberg[1], O. B. Usta[1], R. Jindal[1], and M. L. Yarmush[1,2]
[1]Center for Engineering in Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, [2]Rutgers University, Piscataway, NJ

P-Th-635
Simulated Body Fluid Nucleation of 3D Printed Elastomeric Scaffolds for Osteochondral Regeneration
N. Castro[1] and L. Zhang[1]
[1]The George Washington University, Washington, DC

P-Th-636
MOVED TO ORAL PRESENTATION

P-Th-637
Strategies to Overcome Tissue Hypoxia in Islet Encapsulation
N. Neel[1], R. Krishnan[1], N. Corrales[1], S. Padayao[1], M. Alexander[1], J. McQuilling[2], E. Opara[2], and J. Lakey[1,3]
[1]University of California Irvine, Orange, CA, [2]Wake Forest University, Winston-Salem, NC,[3]University of Calfornia Irvine, Irvine, CA

P-Th-638
Formulation of a Co-differentiation Media for Osteochondral Tissue Engineering
D. Dorcemus[1,2] and S. Nukavarapu[1,2,3]
[1]University of Connecticut, Storrs, CT, [2]Institute for Regenerative Engineering, Farmington, CT, [3]Uconn Health, Farmington, CT

P-Th-639
Electrospinning of Personalized Scaffolds for Wound Healing by Robotic Electrospinner
J. Gerstenhaber[1], Y-E. Har-El[1], and P. Lelkes[1]
[1]Temple University, Philadelphia, PA

Track: Tissue Engineering, Orthopedic and Rehabilitation Engineering
Tissue Engineering:
Musculoskeletal Tissue Engineering Posters

P-Th-640
Optimization of Mechanical and Electrical Stimuli to Make Stronger 3D Engineered Skeletal Muscles
H. Kim[1], V. Chan[1], D. Neal[1], and H. H. Asada[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-641
Magnetic Silk Fibroin E-Gel Scaffolds for Bone Tissue Engineering Applications
Z. Karahaliloglu[1], E. Yalcin[2], M. Demirbilek[1], and E. B. Denkbaş[1]
[1]Hacettepe University, Ankara, Turkey, [2]Pharmaceuticals and Medical Devices Agency, Ankara, Turkey

P-Th-642
Corin is a Key Regulator of Osteogenesis in Mesenchymal Stem Cells via Angiogenic Mechanisms
R. Nordberg[1], A. Charoenpanich[1], and E. Loboa[1]
[1]University of North Carolina Chapel Hill & North Carolina State University, Raleigh, NC

P-Th-643
Achieving Synergistic Interactions Between Stem Cells And Neonatal Chondrocytes In 3D For Catalyzed Cartilage Formation Requires The Use Of 3D Hydrogels
H. Rogan[1], J. Lai[1], and F. Yang[1]
[1]Stanford University, Stanford, CA

P-Th-644
Synthesis and Fabrication of Porous PGS-Nanosilicate Scaffolds for Bone Tissue Engineering
P. Joshi[1], P. Kerativitayanan[1], and A. K. Gaharwar[1]
[1]Texas A&M University, College Station, TX

P-Th-645
Development of a Real-time Oxygen Tension Measurement System to Accurately Measure Cellular Energy Production via Oxygen Consumption Rates of Engineered, Human Skeletal Muscle Bundles
B. Davis[1], J. Santoso[1], M. Walker[1], and G. Truskey[1]
[1]Duke University, Durham, NC

P-Th-646
Assessing the Osteogenic Differentiation of Human Mesenchymal Stem Cells Co-Cultured with Human Vein Endothelial Cells on a Peptide Amphiphile Nanomatrix
L. Deng[1], D. Patel[1], J. Vines[1], A. Javed[1], S. Gilbert[1], and H-W. Jun[1]
[1]University of Alabama at Birmingham, Birmingham, AL

P-Th-647
Characterization of Glucose Uptake in Human Engineered Skeletal Muscle Bundle Constructs
M. Godsey[1] and G. Truskey[1]
[1]Duke University, Durham, NC

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-648
Enhancing Mesenchymal Stem Cell Differentiation in Decellularized Bone Marrow Environments
R. Stephenson[1]
[1]*University of Utah, Salt Lake City, UT*

P-Th-649
Evaluation of Progenitor Cell Co-culture on Osteogenic Differentiation
J. Shaul[1] and K. Burg[2]
[1]*Clemson University, Clemson, SC,* [2]*Kansas State University, Manhattan, KS*

P-Th-650
Effect of Delayed Treatment on Cranio-maxillofacial Bone Healing
P. Carlisle[1], D. Silliman[1], T. Guda[1,2], and P. Brown Baer[1]
[1]*US Army Institute of Surgical Research, Ft. Sam Houston, TX,* [2]*University of Texas at San Antonio, San Antonio, TX*

P-Th-651
Osteogenic Differentiation of Progenitor Cell Co-cultures on Bone Graft Substitutes
J. Shaul[1] and K. Burg[2]
[1]*Clemson University, Clemson, SC,* [2]*Kansas State University, Manhattan, KS*

P-Th-652
Tendon Grafts using Mechanostimulated Decellularized Human Umbilical Vein Seeded with Adult Stem Cells
Z. Mussett[1], S. Bonhoure[1], and V. Sikavitsas[1]
[1]*University of Oklahoma, Norman, OK*

P-Th-653
Microribbon-Based Hydrogels Guided Mesenchymal Stem Cells To Undergo Endochondral Ossification In Vivo
B. Conrad[1], L-H. Han[2], and F. Yang[3]
[1]*Stanford, Stanford, CA,* [2]*Drexel University, Philadelphia, PA,* [3]*Stanford University, Stanford, CA*

P-Th-654
Biomechanical Characterization of Porcine Skeletal Muscle Extracellular Matrix
B. Brazile[1], S. Patnaik[1], S. Lin[1], X. Shi[1], S. Liao[1], R. Prabhu[1], H. Rhee[1], L. Williams[1], and J. Liao[1]
[1]*Mississippi State University, Mississippi State, MS*

P-Th-655
Dynamic Analysis Of Variable Modulus Scaffolds For Bone Regeneration
R. Chung[1] and A. Valdevit[1]
[1]*Stevens Institute of Technology, Hoboken, NJ*

P-Th-656
Lubricin Mimic Reduces Friction on the Articular Cartilage Surface
A. Lawrence[1], X. Xu[1], S. Calve[1], C. Neu[1], and A. Panitch[1]
[1]*Purdue University, West Lafayette, IN*

P-Th-657
The Mechanism of Enhanced Skeletal Muscle Differentiation by Combined Effects of Aligned Topology and Electrical Field
U. H. Ko[1], H. Bang[1], T. L. P. Anh[1], J. Lee[1], M. Kim[1], H. Shin[1], S. Park[2], and J. Shin[1]
[1]*KAIST, Daejeon, Korea, Republic of,* [2]*Korea Institute of Industrial, Cheonan, Korea, Republic of*

P-Th-658
Effect Of Myostatin And Follistatin On Human Myoblasts
D. Joglekar[1], D. Browe[1], E. Ekwueme[1], and J. Freeman[1]
[1]*Rutgers-The State University of New Jersey, Piscataway, NJ*

P-Th-659
Roles of Heat Shock Protein 70 in Osteogenic and Chondrogenic Differentiation of Human Mesenchymal Stem Cells
C. Li[1], K. Sunderic[1], and S. Wang[1]
[1]*CCNY/CUNY, New York, NY*

Track: Tissue Engineering, Neural Engineering
Tissue Engineering:
Neural Tissue Engineering Posters

P-Th-660
BDNF Mimetic Peptides Immobilized to Collagen as a Therapeutic Hydrogel for TBI
C. Lowe[1] and D. Shreiber[1]
[1]*Rutgers University, Piscataway, NJ*

P-Th-661
Polypyrrole/Alginate Conductive Hydrogels for Neural Stem Cell Scaffold Application
S. Yang[1], S. Kim[1], J. C. Yang[1], Y. Jang[1], and J. Y. Lee[1]
[1]*Gwangju Institute of Science and Technology, Gwang ju, Korea, Republic of*

P-Th-662 **DREAM TEAM & CENTER**
Patterned Extracellular Matrix on "Nerve Friendly" Polymers for Neurite Guidance and Regeneration
G. Harris[1], S. Bandini[1], H. Wang[2], N. Madigan[2], A. Windebank[2], M. Yaszemski[2], J. Schwartz[1], and J. Schwarzbauer[1]
[1]*Princeton University, Princeton, NJ,* [2]*Mayo Clinic, Rochester, MN*

P-Th-663
Hyaluronic Acid Hydrogel is Neuroprotective in Spinal Cord Injury
S. Kushchayev[1], M. Giers[2], D. Eng[3], N. Martirosyan[2], J. Eschbacher[2], M. Mortazavi[4], N. Theodore[2], A. Panitch[5], and M. Preul[2]
[1]*Mercy Catholic Medical Center, Philadelphia, PA,* [2]*St. Joseph's Hospital and Medical Center, Phoenix, AZ,* [3]*Arizona State University, Tempe, AZ,* [4]*California Neurological Institute, Valencia, CA,* [5]*Purdue University, Lafayette, IN*

P-Th-664
Tissue Engineered Living Scaffolds Consisting of Aligned Astrocytes for Nervous System Repair
K. Katiyar[1,2,3], C. Winter[1], N. Hernandez[1], J. Harris[1,2], L. Struzyna[1], and D. K. Cullen[1,2]
[1]*University of Pennsylvania, Philadelphia, PA,* [2]*Philadelphia Veteran's Affairs, Philadelphia, PA,* [3]*Drexel University, Philadelphia, PA*

P-Th-665
Transplantable Engineered Micro-Columns For Controlled Neural Network Delivery into Brain
J. Burrell[1,2], L. Struzyna[1,2], K. Browne[1,2], J. Harris[1,2], and D. K. Cullen[1,2]
[1]*University of Pennsylvania, Philadelphia, PA,* [2]*Philadelphia Veterans Affairs Medical Center, Philadelphia, PA*

P-Th-667
Reconstructing the Nigrostriatal Pathway with Living Micro-Tissue Engineered Axonal Tracts
L. A. Struzyna[1,2], J. P. Harris[1,2], K. D. Browne[1,2], J. Burrell[1,2], H. I. Chen[1,2], and D. K. Cullen[1,2]
[1]*University of Pennsylvania, Philadelphia, PA,* [2]*Philadelphia Veterans Affairs Medical Center, Philadelphia, PA*

Track: Tissue Engineering
Tissue Engineering:
Printing and Patterning in Tissue Engineering Posters

P-Th-668
Biodegradable Alginate As A Bioink For Bioprinting
J. Jia[1], D. Richards[1], S. Pollard[1], Y. Tan[1], J. Rodriguez[1], R. Visconti[2], T. Trusk[2], M. Yost[2], H. Yao[1], R. Markwald[2], and Y. Mei[1]
[1]*Clemson University, Charleston, SC,* [2]*MUSC, Charleston, SC*

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-669
3D Printable Hydrogel Matrix Derived from Decellularized Aortic Valve Leaflets Promotes Fibroblastic Differentiation
D. Cheung[1], B. Duan[1], and J. Butcher[1]
[1]*Cornell University, Ithaca, NY*

P-Th-670
Collagen Methacrylamide: A Versatile Biomaterial For Multi-Scale Scaffold Control
K. Drzewiecki[1] and D. Shreiber[1]
[1]*Rutgers University, Piscataway, NJ*

P-Th-671
High-throughput 3D Spheroid Culture using Inkjet Bioprinting
J. Rodriguez-Devora[1], C. Moody[1], A. Desai[1], K. Burg[1], and D. Dean[1]
[1]*Clemson University, Clemson, SC*

P-Th-672
Exploiting Temporal Differences in Cell-ECM Adhesion to Pattern Co-cultures of Tumor and Endothelial Cells
K. Bhadriraju[1], J. Hong[1], and D. Reyes[1]
[1]*National Institute of Standards and Technology, Gaithersburg, MD*

P-Th-673
Process-induced Cell Injury during Laser Cell Printing
Z. Zhang [1], R. Xiong[1], A. Compaan[1], W. Chai [1], L. Zhou[1], and Y. Huang[1]
[1]*University of Florida, Gainesville, FL*

P-Th-674
3D Printing of Novel Gradient Osteochondral Scaffolds to Bridge the Gap between Cartilage and Bone
M. Nowicki[1], N. Castro[1], M. Plesniak[1], and L. G. Zhang[1]
[1]*The George Washington University, Washington, DC*

P-Th-675
Extrusion of 3D Alginate Tubes using Two-step Gelation Approach
Y. Jin[1], A. Compaan[1], T. Bhattacharjee[1], T. Angelini[1], G. Sawyer[1], and Y. Huang[1]
[1]*University of Florida, Gainesville, FL*

P-Th-676
Deformation Compensation during Inkjet Printing of Vascular-like Structures
K. Christensen[1], A. Compaan[1], C. Xu[1], Z. Zhang [1], W. Chai [1], and Y. Huang[1]
[1]*University of Florida, Gainesville, FL*

P-Th-677
A 3D Bioprinting System Based on Visible Light Stereolithography
Z. Wang[1], R. Adulla[1], B. Parker[1], S. Ghosh[1], and K. Kim[1]
[1]*University of British Columbia Okanagan, Kelowna, BC, Canada*

P-Th-678
Tissue Printing of Complex Structures through Micro Extrusion
I. Garcia-Sierra[1], N. Diffoot-Carlo[1], G. Navarro-Vale[1], and P. A. Sundaram[1]
[1]*University of Puerto Rico, Mayaguez, PR*

P-Th-679 **DREAM TEAM & CENTER**
Fiber-Assisted Molding (FAM) of Helical and Curve Surfaces for Cell and Tissue Alignment
V. Hosseini[1], P. Kollmannsberger[1], S. Ahadian[2], S. Ostervidov[2], H. Kaji[3], V. Vogel[1], and A. Khademhosseini[2,4]
[1]*ETH Zurich, Zürich, Switzerland,* [2]*WPI-Advanced Institute for Materials Research, Sendai, Japan,* [3]*Tohoku Unversity, Sendai, Japan,* [4]*Harvard Medical School, Boston, MA*

P-Th-680
3-D Bio-printed Glioblastoma-Vascular Niche
V. Lee[1], S-S. Yoo[2], H. Zou[3], and G. Dai[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY,* [2]*Harvard Medical School / Brigham and Women's Hospital, Boston, MA,* [3]*Icahn School of Medicine at Mount Sinai, New York, NY*

P-Th-681
Spatial Manipulation And Patterning Of Micro-Particles And Biological Cells Using Acoustic Forces
J. R. Cooper[1], R. Guldiken[1], and N. D. Gallant[1]
[1]*University of South Florida, Tampa, FL*

P-Th-682
3D Printing of Human Pigmented Skin
K. Reeser[1], S. Freeman[1], S-S. Yoo[2], S. Jin[1], and K. Ye[1]
[1]*Binghamton University, SUNY, Binghamton, NY,* [2]*Harvard Medical School/Brigham and Women's Hospital, Boston, MA*

P-Th-683
3D Printing of Complex Biological Scaffolds Using Soft Hydrogels
T. J. Hinton[1] and A. Feinberg[1]
[1]*Carnegie Mellon University, Pittsburgh, PA*

P-Th-684
Using Acoustic Fields To Pattern Cells Or Microparticles In Collagen Hydrogels In Situ
E. Comeau[1], M. Vander Horst[1], C. Raeman[1], D. Hocking[1], and D. Dalecki[1]
[1]*University of Rochester, Rochester, NY*

P-Th-685
Bioactive Composite Living Fibers for Organ Weaving
M. Akbari[1], A. Tamayol[2], L. Serex[2], N. Faramarzi[2], E. Lesha[2], S. R. Shin[2], F. Tarlan[2], and A. Khademhosseini[2]
[1]*Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA,* [2]*Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, Cambridge, MA*

Track: Tissue Engineering

Tissue Engineering:

Tissue Engineering Other Posters

P-Th-686
Decellularized Liver Extracellular Matrix for Long-Term Culture of Human Liver Cells
C. Lin[1], D. Faulk[2], S. Badylak[2], and S. Khetani[1]
[1]*Colorado State University, Fort Collins, CO,* [2]*University of Pittsburgh, Pittsburgh, PA*

P-Th-687
Integrated Effects Of Hydroxyapatite And Vascular Endothelial Growth Factor (VEGF) On Angiogenesis
Y. Wu[1], R. Fu[1], S. Mohanty[1], and G. Ghosh[1]
[1]*University of Michigan, Dearborn, Dearborn, MI*

P-Th-688
Efficacy Of Electrical Stimulation On Accelerating Wound Repair With Full Thickness *In Vitro* Skin Tissues
Y. Ito[1], R. Gifford[2], P. Pemberton[3], M. Brenckle[1], R. Abbott[1], D. Kaplan[1], and F. Omenetto[1]
[1]*Tufts University, Medford, MA,* [2]*Tufts University, Meford, MA,* [3]*UC Berkeley, Berkeley, CA*

P-Th-689
Effect of Scale on Initiation of Intracellular Ice Formation during Freezing of 2D Tissue Constructs
S. Harhen[1] and J. Karlsson[1]
[1]*Villanova University, Villanova, PA*

P-Th-690
Development of 3D Microvascular Networks within Gelatin Hydrogels using Thermoresponsive Sacrificial Microfibers
J. B. Lee[1,2], X. Wang[1,2], B. Baer[2], S. Faley[2], and L. Bellan[1,2]
[1]*Dept. of Biomedical Engineering, Vanderbilt University, Nashville, TN,* [2]*Dept. of Mechanical Engineering, Vanderbilt University, Nashville, TN*

P-Th-691
Characterization of Collagen Type I and II Gels for Articular Cartilage Tissue Engineering
N. Vazquez-Portalatin[1], C. Kilmer[1], J. Liu[1], and A. Panitch[1]
[1]*Purdue University, West Lafayette, IN*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-692
Interactions of Type I Collagen with Liquid and Supercritical Carbon Dioxide
D. Casali[1] and M. Matthews[1]
[1]*University of South Carolina, Columbia, SC*

P-Th-693
Adipose Particle Size for Lipofilling: Effects on Tissue Metabolism, Necrosis and Long Term Survival
T. Jones[1], L. Kokai[1], K. Marra[1], and J. P. Rubin[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Th-694
Genetic Engineering of Interleukin-35-secreting Mesenchymal Stromal Cells for Therapeutic Anti-inflammatory Applications
J. Brown[1], C. Rodman[1], C. Porada[1], G. Almeida-Porada[1], A. Mohs[1], and E. Opara[1]
[1]*Wake Forest Institute of Regenerative Medicine, Winston-Salem, NC*

P-Th-695
Mechanistic Analysis of Lymphocyte Responses Toward Native and Antigen-Removed Xenogeneic Myocardium
K. Gates[1] and L. Griffiths[1]
[1]*UC Davis, Davis, CA*

P-Th-696
The Influence of Fluid Shear Forces, Oxygen, and Nutrient Mass Transport in Osteoblastic 3D Cultures in Perfusion Bioreactors using microcomputer tomography.
C. Williams[1], A. Simmons[1], D. Papavassiliou[1], and V. Sikavitsas[1]
[1]*University of Oklahoma, Norman, OK*

P-Th-697
Comparison of Imaging Modalities for High Throughput Evaluation in Combinatorial Studies
C. Bertucci[1], S. Ramamoorthy[1], P. Karande[1], and D. Thompson[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Th-698
Relating Organization and Morphology of Large Collagen Fibers to Optical Parameters from Quantitative Polarized Light Microscopy
D. Padova[1], S. Correa[1], and C. Raub[1]
[1]*The Catholic University of America, Washington, DC*

P-Th-699
Relating Optical Retardance to Compressive Strain in Collagen Hydrogels
S. Correa[1], R. Garabedian[1], P. Gibbons[1], R. Huynh[1], D. Padova[1], and C. Raub[1]
[1]*The Catholic University of America, Washington, DC*

P-Th-700
Effects of Mild Heating on Mesenchymal Stem Cell Differentiation in a 3D Biphasic Scaffold Mimicking Cartilage and Subchondral Bone
K. Sunderic[1], D. Dawkins[1], C. Li[1], and S. Wang[1]
[1]*City College of New York, New York, NY*

P-Th-701 **DREAM TEAM & CENTER**
A Novel Method to Induce Strong Chondrogenesis of BMSCs and Promote Articular Surface Repair using Fluocinolone Acetonide and TGF-&[beta]3
E. Hara[1], M. Ono[1], H. Pham[1], W. Sonoyama[1], S. Kubota[1], M. Takigawa[1], M. Young[2], B. Olsen[3], T. Matsumoto[1], and T. Kuboki[1]
[1]*Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama-shi, Japan,* [2]*National Institutes of Craniofacial and Dental Research, National Institutes of Health, Bethesda, MD,* [3]*Harvard School of Dental Medicine, Boston, MA*

Track: Translational Biomedical Engineering, Translational Biomedical Engineering

Tissue Engineering:

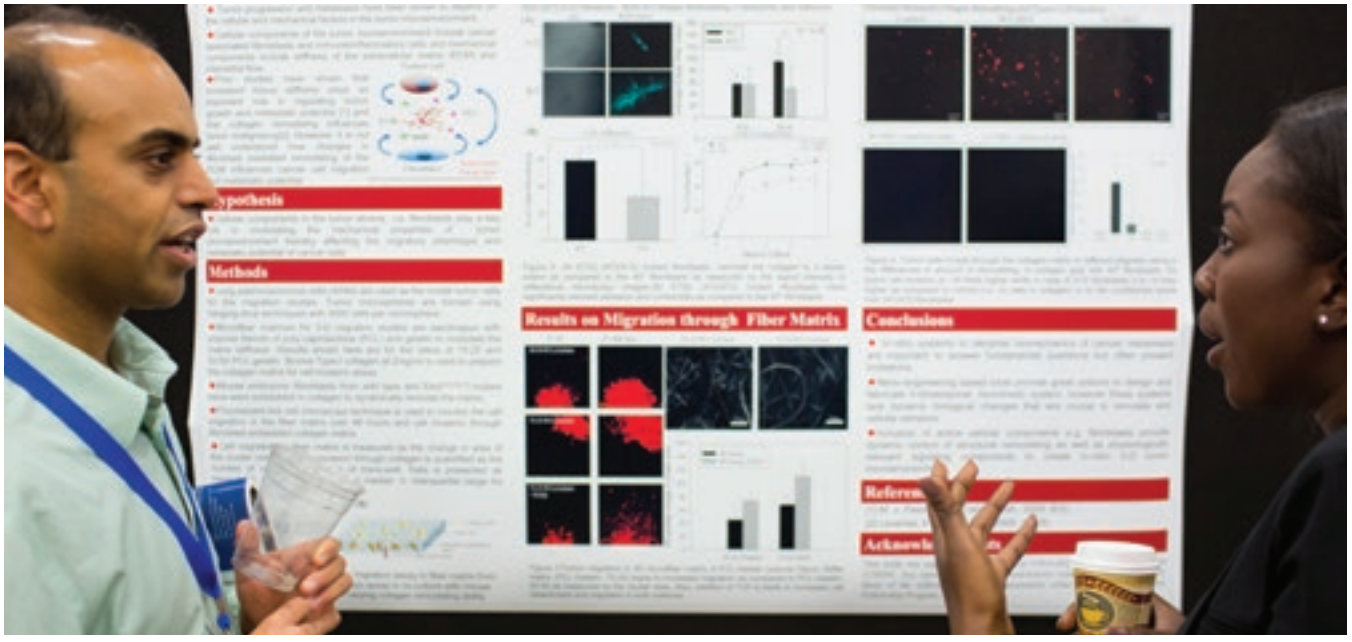
Translational Therapeutics for Regenerative Medicine Posters

POSTER SESSION **Th**

P-Th-702
Effects of Matrix Metalloproteinases on the Performance of Platelet Gel Spiked with Cardiac Stem Cells in Heart Repair
J. Tang[1,2,3], D. Shen[3], J. Zhang[3], and K. Cheng[1,2]
[1]*University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC,* [2]*College of Veterinary Medicine, North Carolina State University, Raleigh, NC,* [3]*The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China, People's Republic of*

P-Th-703
Evolving Design of Synthetic Nanomolecular Mutagens and Recombinagens for Precise Genomic and Regenerative Treatment of Hematological Disorders in Disparate Populations
F. Reza[1] and P. M. Glazer[1]
[1]*Yale University, New Haven, CT*

P-Th-704
Therapeutic Potential of Lung Stem Cells in Pulmonary Fibrosis
J. Cores[1,2], E. Henry[1,2], M. Hensley[1], and K. Cheng[1,2]
[1]*North Carolina State University, Raleigh, NC,* [2]*University of North Carolina, Chapel Hill, NC*



See page 97 for Poster floor plan

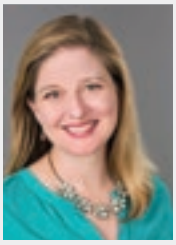
TODAY'S HIGHLIGHT

PLATFORM SESSIONS Fri-1
8:00am - 9:30am
See pages 133-140, Convention Center

EXHIBIT HALL OPEN
9:30am - 5:00pm
Convention Center, Exhibit Hall

POSTER SESSION Fri
9:30am - 5:00pm
See pages 152-186, TCC, Exhibit Hall

Poster Viewing with Authors & Refreshment Break
9:30am - 10:30am



PLENARY SESSION
10:30am - 12:00 noon
Convention Center Ballroom BC

NIH NIBIB Lecture
Wendy Murray

WOMEN IN BME Luncheon
12:15pm - 1:30pm
Convention Center, Ballroom D
Additional ticket purchase required

PLATFORM SESSIONS Fri-2
1:45pm - 2:45pm
See pages 141-145, Convention Center

PLATFORM SESSION Fri-3
3:00pm - 4:00pm
See pages 146-151, Convention Center

Poster Viewing with Authors & Refreshment Break
4:00pm - 5:00pm
Convention Center Exhibit Hall

PLENARY SESSION
5:15pm - 6:15pm
Convention Center, Ballroom BC

Prosthetics Advancements: How One Little Dolphin Learned to Swim Again

Kevin Carroll, PhD

BMES BASH
6:30pm - 9:00pm
Convention Center, Riverwalk
Save time: exchange your ticket for a wristband before the event.

SPECIAL SESSION

Meet the Expert 2015 Schedule

New for 2015 is the "Meet the Expert" theater located on the Exhibition Hall floor. "Meet the Expert" was conceived as a method to allow attendees to explore various biomedical engineering disciplines and career options. The format of the theater allows closer interaction and personal connection with invited experts who will be presenting throughout the week.

Friday, October 9

9:30 – 10:30 AM
Industry Career Chat
Samit Gupta[1], Paul Torres[2]

Description: Networking event for students to meet with current industry professionals. Attendees are encouraged to bring business cards; please no resumes.

1:00 – 1:30 PM
Launch Your Big Idea – Research on the International Space Station National Lab
Debbie Wells II[1]

[1]Center for the Advancement of Science in Space

Description: Hear the latest in space research and opportunities to plug into research activities on the International Space Station

1:45 – 2:45 PM
Systems Biology Highlights
Shannon Hughes[1], Michelle Berny-Lang[2], Chang Liu[3]

[1]NCI, [2]NIH, [3]UC Irvine

Description: A dynamic panel discussion highlighting funding opportunities and research projects in systems biology, with a special emphasis on cancer and synthetic biology.

3:00 – 4:30 PM
BME Department Showcase: The Industry Connection

Description: Meet faculty and students from various BME departments that have successfully collaborated with industry, and see how they enable their students to launch their careers in industry after graduation.

PLATFORM SESSIONS
Fri-1

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

FRIDAY, October 9, 2015

8:00 AM - 9:30 AM

PLATFORM SESSIONS – FRI - 1

Track: Cellular and Molecular Bioengineering, Stem Cell Engineering

OP-Fri-1-1 - Room 18

Stem Cell Bioengineering

Chairs: Kris Saha, Deak-Ho Kim

8:00AM

Molecular Outcomes Of Biophysical Alterations To The Muscle Stem Cell Niche

R. Cheng[1], H. Liu[1], S. Davoudi[1], C. Simmons[1], and P. Gilbert[1]

[1]University of Toronto, Toronto, ON, Canada

8:15AM

Vimentin Knockdown in Mesenchymal Stem Cells Modifies Cell Deformability

P. Sharma[1], Z. Bolten[1], D. Wagner[2], and A. H. Hsieh[1,3]

[1]University of Maryland, College Park, MD, [2]University of Notre Dame, Notre Dame, IN,[3]University of Maryland, Baltimore, MD

8:30AM

Tensile Forces Induce Differentiation of Human Embryonic Stem Cells

T. Topal-Aydin[1], L. G. Villa-Diaz[1], S. Takayama[1], and P. H. Krebsbach[1]

[1]University of Michigan, Ann Arbor, MI

8:45AM

CAMP and EPAC Signaling Functionally Replace OCT4 During iPSC Reprogramming

A. Fritz[1], M. Adil[1], S. Mao[1], and D. Schaffer[1]

[1]University of California Berkeley, Berkeley, CA

9:00AM

Live Multiplexed Imaging of Stem Cell Mechanotransduction and Mechanoadaptation

I. Jalilian[1], R. Oldfield[1], P. Gunning[1], and M. Knothe Tate[1]

[1]UNSW, Sydney, Australia

9:15AM

Nanog Restores the Actin Polymerization Capacity of Senescent Cells

P. Mistriotis[1], X. Wang[1], N. Rong[1], A. Shahini[1], V. Bajpai[1], M. Asmani[1], R. Zhao[1], and S. Andreadis[1]

[1]University at Buffalo, Buffalo, NY

Track: Cellular and Molecular Bioengineering

OP-Fri-1-2 - Room 19

Mechanotransduction II

Chairs: Eno Ebong

8:00AM

Knockdown of Mechanosensitive miRNA cluster—miR-106b~25 Decreases Vascular Proliferation and Prevents Atherosclerosis in ApoE-/- mice

S. Kumar[1], C. W. Kim[1], and H. Jo[2]

[1]Emory University, Atlanta, GA, [2]Emory University and Georgia Tech, Atlanta, GA

8:15AM

Mechanotransduction-Not Just a Local Affair

D. Leckband[1], I. Muhamed[1], J. Wu[1], P. Seghal[2], X. Kong[2], A. Tajik[2], and N. Wang[2]

[1]University of Illinois, Urbana, IL, [2]Univ of Illinois, Urbana, IL

8:30AM

Wnt On, Wnt Off: Aging Limits Wnt/ beta-catenin Signaling By Desensitizing Osteocytes To Repetitive Loading

N. Holguin[1], M. Brodt[1], and M. Silva[1]

[1]Washington University, Saint Louis, MO

8:45AM

Global Endothelial Cell DNA Methylation Patterns Are Differentially Regulated By An Arteriogenesis-Amplifying Shear-Reversal Waveform

J. Heuslein[1] and R. Price[1]

[1]University of Virginia, Charlottesville, VA

9:00AM

Cellular Mechanosensing is Controlled by EMT and Paxillin Splicing in Triple Negative Breast Cancer

M. Rubashkin[1], J. Mouw[1], A. Mekhdjian[2], M. Pickup[1], C. Dufort[1], G. Ou[1], A. Dunn[2], and V. Weaver[1]

[1]University of California - San Francisco, San Francisco, CA, [2]Stanford University, Stanford, CA

9:15AM

Integrins Mediate Inflammation

M. Previtera[1,2], A. Sengutpa[1], and R. Patel[1]

[1]JFK Medical Center, Edison, NJ, [2]Seton Hall University, South Orange, NJ

Track: Nano and Micro Technologies

OP-Fri-1-3 - Room 20

Theranostics and Nanoparticles II

Chairs: James Moon, Leon Bellan

8:00AM

Antibacterial Efficacy and Mechanism of Selenium Nanoparticles on Reducing Infectious Bacteria

M. Stolzoff[1], S. Q. Wang[2], and T. J. Webster[1]

[1]Northeastern University, Boston, MA, [2]Memorial Sloan Kettering Cancer Center, Basking Ridge, NJ

8:15AM
Development and Characterization of Oxygenated Microbubbles for Local Delivery of Oxygen
J. Kusunose[1] and C. Caskey[1,2]
[1]Vanderbilt University Institute of Imaging Science, Nashville, TN, [2]Vanderbilt University, Nashville, TN

8:30AM
Optical Properties of Erythrocyte-Derived Particles Doped with Indocyanine Green
J. Burns[1], B. Bahmani[1], D. Bacon[1], R. Saager[2], W. Jia[2], and B. Anvari[1]
[1]University of California, Riverside, Riverside, CA, [2]University of California, Irvine, Irvine, CA

8:45AM
Engineered Nanoparticles for Theranostics of Malignant Peripheral Nerve Sheath Tumors
E. Sweeney[1], J. Vojtech[1], R. Sze[1], C. Li[1], Y. Zhu[1], and R. Fernandes[1]
[1]Children's National Medical Center, Washington, DC

9:00AM
Semiconductor Quantum Dots as Delivery and Imaging Platforms for Intracellular Assembly
L. Field[1,2], J. Delehanty[1], and I. Medintz[1]
[1]Naval Research Lab, Washington, DC, [2]University of Maryland, College Park, MD

9:15AM
Rational Design of Surface Modified Gold Nanoparticles for the Modulation of Amyloid-β Aggregation
N. van der Munnik[1], D. Soto-Ortega[1], M. Moss[1], and M. Uline[1]
[1]University of South Carolina, Columbia, SC

PLATFORM SESSIONS
Fri-1

Tracks: Biomechanics, Biomaterials
OP-Fri-1-4 - Room 21
Biomechanics in Biomaterials and Tissue Engineering

Chairs: Roland R. Kaunas, Tony Kim

8:00AM
Radiation Induced Changes in the Extracellular Matrix
J. Miller[1], D. Parker[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

8:15AM
Non-destructive Passive Measurement Of Mouse Embryonic Cardiomyocyte Contraction Metrics Using Phase Contrast Image Analysis
N. Calvo[1] and C. Simmons[1]
[1]University of Florida, Gainesville, FL

8:30AM
In-vivo Tensile Properties of Remodeled ECM Scaffolds in the Temporomandibular Joint
J. Lowe[1,2], W. Chung[1,3], B. Brown[1,3], S. Johnson[3], S. Badylak[1,3], and A. Almarza[1,2,3]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Center for Craniofacial Regeneration, Pittsburgh, PA, [3]McGowan Institute of Regenerative Medicine, Pittsburgh, PA

8:45AM
Quantification and Localization of Damage in Collagenous Tissues using Collagen Mimetic Peptide
J. Zitnay[1], Y. Li[1], S. M. Yu[1], S. Reese[1], and J. Weiss[1]
[1]University of Utah, Salt Lake City, UT

9:00AM
Peak Extraction Force Of Kirschner (K-) Wire And Reference Probe Indentation Parameters As Predictors Of Bone Mineral Density (BMD).
S. Denning[1], A. Dincer[1], R. Pisano[1], T. Bowen[2], D. Ebenstein[1], and E. Kennedy[1]
[1]Bucknell University, Lewisburg, PA, [2]Geisinger Health System, Danville, PA

9:15AM
Mechanical Characterization of Patterned Single Layer Vascular Cell Sheets
B. LeSavage[1], D. Backman[1], S. Shah[1], and J. Wong[1]
[1]Boston University, Boston, MA

Track: Biomaterials
OP-Fri-1-5 - Room 22
Biomaterials for Immunoengineering II

Chairs: Cheryl Gomillion

8:00AM
Spatially Localized Recruitment Of Anti-Inflammatory Monocytes And Microvascular Network Remodeling By SDF-1 Delivery From Heparin-Based Hydrogels
M. Ogle[1], J. Krieger[1], J. McFaline-Figueroa[1], C. Segar[1], J. Temenoff[1], and E. Botchwey[1]
[1]Georgia Institute of Technology, Atlanta, GA

8:15AM
Electrospun Poly(Dimethyl Siloxane)-Based Microfibrous Meshes for Improved T Cell Expansion
A. Dang[1], S. De Leo[1], D. Bogdanowicz[1], H. Lu[1], and L. Kam[1]
[1]Columbia University, New York, NY

8:30AM
Bio-inspired Lymphoid tissues for B and T cell Lymphomas
Y. Tian[1], L. Cerchietti[2], and A. Singh[1]
[1]Cornell University, Ithaca, NY, [2]Weill Cornell Medical College, New York, NY

8:45AM
Anti-PD1 and Artificial Antigen Presenting Cell Dual Therapy for Melanoma
R. Meyer[1], A. Kosmides[1], K. Aje[1], J. Schneck[1], and J. Green[1]
[1]Johns Hopkins University, Baltimore, MD

9:00AM
Macrophages Effect Vessel Development when Encapsulated with Endothelial Cells in a 3D Biomimetic PEG-based Hydrogel
E. Moore[1] and J. West[1]
[1]Duke University, Durham, NC

9:15AM
Effect Of Lactoferrin and Lysozyme On Mucus Barrier Properties
T. Carlson[1], J. Lock[1], and R. Carrier[1]
[1]Northeastern University, Boston, MA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Biomaterials
OP-Fri-1-6 - Room 23
Bioinspired and Self Assembling Biomaterials II

Chairs: Rachael Sirianni, Feng Zhao

8:00AM
Programmable Biofilm-Based Materials from Engineered Curli Nanofibers
P. Nguyen[1,2], Z. Botyanszki[1,2], P. K. Tay[1,2], and N. Joshi[1,2]
[1]Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Boston, MA

8:15AM
Microfluidic Reconstitution of HDL-apoE for CNS Therapeutics
A. Santiago-Lopez[1], Y. Sei[1], and Y. Kim[1]
[1]Georgia Institute of Technology, Atlanta, GA

8:30AM
8:00AMFabrication of 3D Biomimetic Microfluidic Networks
K. Heintz[1], J. West[2], and J. Slater[1]
[1]University of Delaware, Newark, DE, [2]Duke University, Durham, NC

8:45AM DREAM TEAM & CENTER
Multivalent Polymers: From Drug Carriers to Receptor Oligomerizing Therapeutics
A. Gormley[1], R. Chandrawati[1], A. Christofferson[2], C. Loynachan[1], R. Chapman[1], D. Aili[3], I. Yarovsky[2], and M. Stevens[1]
[1]Imperial College London, London, United Kingdom, [2]RMIT University, Melbourne, Australia,[3]Linköping University, Linköping, Sweden

SPECIAL SESSION
8:00 AM – 9:30 AM - Room 39
Whitaker International Program: Funding Opportunity for Young Biomedical Engineers

The Whitaker International Program, founded in 2005 provides funding to emerging U.S.-based leaders in biomedical engineering to conduct a study and/or research project, with the underlying objective of building international bridges. Grant projects – including research, coursework, public policy work – are intended to enhance both the recipient's career and the BME field. The goal of the Whitaker Program is to assist the development of professional leaders who are not only superb scientists, but who will advance the profession through an international outlook. The Whitaker Program has two sub-programs: Fellows and Scholars Program, and the Summer Program. For more information, including program details, the online application and deadlines, visit: http://www.whitaker.org.

see page 65 for details.

WHITAKER International Program

9:00AM
Peptide-Induced Localization of RNA to Protocell Membranes
N. Kamat[1] and J. Szostak[1]
[1]Harvard University and Massachusetts General Hospital, Boston, MA

9:15AM
Self-Assembly of Cationic Polymers and Regulatory Nucleic Acids to Restrain Immune Function
K. L. Hess[1] and C. M. Jewell[1,2,3]
[1]University of Maryland - College Park, College Park, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

Track: Tissue Engineering
OP-Fri-1-7 - Room 13
Engineering Tissue Interfaces

Chairs: Stelios Andreadis, Michael Detamore

8:00AM
Nanocomposite Gradient Hydrogel for Interface Tissue Engineering
L. Cross[1], S. Palani[1], and A. K. Gaharwar[1]
[1]Texas A&M University, College Station, TX

8:15AM
On-Demand Dissolution of 3D Synthetic Extracellular Matrix for Systems Biology Assays
J. Valdez[1], C. Chopko-Ahrens[1], and L. Griffith[1]
[1]MIT, Cambridge, MA

8:30AM
A Quantitative, High-Throughput Platform for Investigating Fusion of Multicellular Spheroids
M. Susienka[1] and J. Morgan[1]
[1]Brown University, Providence, RI

8:45AM
A Three-Dimensional Culture Model Of The Human Neuromuscular Junction
M. Afshar Bakooshli[1], E. Lippmann[2], S. Davoudi[1], R. Ashton[2], and P. Gilbert[1]
[1]University of Toronto, Toronto, ON, Canada, [2]University of Wisconsin-Madison, Madison, WI

9:00AM
Bioinspired Silicate Nanocomposites For Osteochondral Therapy
J. K. Carrow[1], A. Thakur[1], G. Lokhande[1], L. Cross[1], and A. K. Gaharwar[1]
[1]Texas A&M University, College Station, TX

9:15AM
Fabrication of a Fibrin-Based Myocardial Layer for Use in a Modular Cardiac Patch
M. O'Brien[1], K. Hansen[1], G. Gaudette[1], and G. Pins[1]
[1]Worcester Polytechnic Institute, Worcester, MA

Track: Orthopedic and Rehabilitation Engineering, Tissue Engineering
OP-Fri-1-8 - Room 14
Musculoskeletal Tissue Engineering and Mechanobiology

Chairs: Vincent Wang, Robert Bowles

8:00AM
Laminin-functionalized Hydrogels Promote Juvenile Cell Phenotype and Morphology for Nucleus Pulposus Cells of the Intervertebral Disc
P. Hwang[1], L. Jing[1], R. Fitch[1], R. Isaacs[1], W. Richardson[1], J. Chen[1], and L. Setton[1]
[1]Duke University, Durham, NC

8:15AM
Calcium Signaling of *In Situ* Chondrocytes Under Unconfined Compression
M. Lv[1], Y. Zhou[1], X. Chen[1], L. Wang[1], and L. Lu[1]
[1]*University of Delaware, Newark, DE*

8:30AM
Treadmill Running Mitigates the Post-Injury Hypoxic Response in a Murine Model of Tendinopathy
K. Trella[1,2], J. Li[2], J. Galante[2], R. Wysocki[2], J. Sandy[2], A. Plaas[2], and V. Wang[1,2]
[1]*University of Illinois-Chicago, Chicago, IL,* [2]*Rush University Medical Center, Chicago, IL*

8:45AM
Incorporation Of Laminin Into Collagen-GAG Scaffolds For Muscle Tissue Engineering
A. Moy[1], W. Grier[1], K. Garg[1], M. Boppart[1], and B. Harley[1]
[1]*University of Illinois at Urbana - Champaign, Urbana, IL*

8:45AM
Epigenetic CRISPRi Cell Engineering for the Treatment of Intervertebral Disc Degeneration
N. Farhang[1], J. Brunger[2], J. Stover[1], P. Thakore[2], C. Gersbach[2], B. Lawrence[1], F. Guilak[2], L. Setton[2], and R. Bowles[1]
[1]*University of Utah, SLC, UT,* [2]*Duke University, Durham, NC*

9:15AM
Functional TMJ Disc Engineering: Novel concurrent radial tension – uniaxial compression bioreactor.
C. Juran[1], M. F. Dolwick[1], and P. McFetridge[1]
[1]*University of Florida, Gainesville, FL*

PLATFORM SESSIONS
Fri-1

SPECIAL SESSION
8:00 AM - 9:30 AM - Ballroom D
Special Session - Best Practices in Leadership and Management

This session will explore best practices of executive leadership and mid-level management. Experience professionals will provide with real world examples and experiences to illustrate topics of discussion.

SPECIAL SESSION
12:45pm - 1:45pm - Room 12
Special Session - Best Practices in Quality & Regulatory

This session will explore the best practices in ensuring highest product quality and navigating the regulatory process:
- *Investigational Device Exemption / PMA Application Process*
- *Establishing and maintaining Design Controls*

Track: Neural Engineering
OP-Fri-1-9 - Room 15
Neuro-rehabilitation

Chairs: Anita Singh, Hananeh Esmalbeigi

8:00AM
Perturbation Awareness Cannot Change the Generalization of Treadmill-learning to Overground Walking
D. Mariscal[1], P. Iturralde[1], and G. Torres-Oviedo[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

8:15AM
Motor Unit Coherence Among Muscles Of The Flexion Synergy In Individuals With Chronic Hemiparetic Stroke
L. Miller[1,2], F. Negro[3], C. Heckman[1], D. Farina[3], and J. Dewald[1]
[1]*Northwestern University, Chicago, IL,* [2]*Florida International University, Miami, FL,*[3] *University Medical Center Gottingen, Gottingen, Germany*

8:30AM
Using Bioengineering Scaffolds and Body Weight Supported Treadmill Training to Improve Motor Function after Spinal Cord Injury
A. Singh[1,2], B. King[2], J. Witko[2], A. Herman[2], A. Vernengo[2], and B. Tom[1]
[1]*Widener University, Chester, PA,* [2]*Rowan Univ, Glassboro, NJ*

8:45AM
Gelatin Methacrylate with Graphene Nanoplatelets for Targeting Neural Cell Laden Printing
W. Zhu[1], B. Harris[2], and L. G. Zhang[1]
[1]*The George Washington University, Washington, DC,* [2]*Georgetown University Medical Center, Washington, DC*

9:00AM
Neuronal Response after Injury in Simulated and Cultured Networks
K. O'Neill[1], T. Siu[1], T. Shinbrot[1], and B. Firestein[1]
[1]*Rutgers University, Piscataway, NJ*

9:15AM
Custom Peptide Modulation of the BK channel Alters Pre- and Postsynaptic Coding in Auditory Midbrain Neurons
E. Brecht[1], B. Beck[1,2], L. Scott[3], and J. Walton[1]
[1]*University of South Florida, Tampa, FL,* [2]*University of Florida, Gainesville, FL,* [3]*University of Texas-Austin, Austin, TX*

Track: Translational Biomedical Engineering
OP-Fri-1-10 - Room 16
Translational Therapeutics for Regenerative Medicine

Chairs: Jeremy Mercuri, Chao-Min Cheng

8:00AM
Side by Side Comparison of Electrospun Soy-based Scaffolds and Oasis® in a Rat Model of Full Thickness Excisional Wound Healing
Y-E. Har-el[1], J. A. Gerstenhaber[1], S. M. Baharlou[1], T. Y. Lo[1], D. Hindin[2], and P. I. Lelkes[1]
[1]*Temple University, Philadelphia, PA,* [2]*Temple University School of Medicine, Philadelphia, PA*

8:15AM
A Novel Insulin-Mediated Cell Therapy for Chronic Wound Closure
A. Aijaz[1], R. Faulknor[1], F. Berthiaume[1], and R. Olabisi[1]
[1]*Rutgers University, Piscataway, NJ*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

8:30AM
Long-Term Mitigation of Hypertrophic Scar Contraction and Stiffening via a Biodegradable Scaffold
E. Lorden[1], K. Miller[2], L. Bashirov[2], M. Ibrahim[2], E. Hammett[1], Y. Jung[3], M. A. Selim[2], K. W. Leong[4], and H. Levinson[2]
[1]Duke University, Durham, NC, [2]Duke University Medical Center, Durham, NC, [3]Korea Institute of Science and Technology, Seoul, Korea, Republic of, [4]Columbia University, New York, NY

8:45AM
Thin, Elastic Polymer Films Prevent Unwanted Adhesions in a Semi-Laparoscopic Rat Model
S. Mayes[1], S. Zawko[1], J. Ali[2], and D. Peterson[1,3]
[1]Alafair Biosciences, Austin, TX, [2]The University of Texas Dell Medical School, Dept. of Surgery, Austin, TX, [3]Austin Brain & Spine, Austin, TX

9:00AM
Personalized Medicine Approach to Improving Reconstructive Surgery Outcomes for Breast Cancer Survivors
K. Degen[1,2], K. Moyer[3], and R. Gourdie[1,2]
[1]Virginia Tech, Roanoke, VA, [2]Virginia Tech Carilion Research Institute, Roanoke, VA, [3]Carilion Clinic, Roanoke, VA

9:15AM DREAM TEAM & CENTER
MK2 Inhibitory Peptide Delivered via Nano-Polyplexes Blocks Inflammation and Modulates Vascular Smooth Muscle Cell Phenotype
B. Evans[1], K. Hocking[1], M. Osgood[2], I. Voskresensky[2], C. Brophy[2], and C. Duvall[1]
[1]Vanderbilt University, Nashville, TN, [2]Vanderbilt University Medical Center, Nashville, TN

Track: Cardiovascular Engineering
OP-Fri-1-11 - Room 3-4
Microcirculation

Chairs: Anjelica Gonzalez, Bingmei Fu

8:00AM
Sphingosine-1-phosphate (S1P) Can Preserve Endothelial Surface Glycocalyx (ESG) for the Maintenance of Normal Microvessel Permeability
L. Zhang[1], J. Fan[1], M. Zeng[1], J. Tarbell[1], F-R. Curry[2], and B. Fu[1]
[1]The City College of the City University of New York, New York, NY, [2]University of California, Davis, Davis, CA

8:15AM
Low Magnitude Shear Stress Stabilizes Microvessel Integrity
P. Galie[1], A. Bagley[2], P. Janmey[3], and C. Chen[4]
[1]Rowan University, Glassboro, NJ, [2]MIT, Boston, MA, [3]University of Pennsylvania, Philadelphia, PA, [4]Boston University, Boston, MA

8:30AM
Arteriogenesis And Inflammatory Cell Recruitment In A Murine Flap Delay Model
S. Seaman[1], Y. Cao[1], and S. Peirce[1]
[1]University of Virginia, Charlottesville, VA

8:45AM
Linking the Cathepsin B-Mediated Cleavage of Mac-1 Integrins to the Control of Neutrophil Adhesion by Fluid Shear Stress
M. Akenhead[1], Z. Branham[1], and H. Shin[1]
[1]University of Kentucky, Lexington, KY

9:00AM
Shape Matters: Effect of Red Blood Cell Shape on Perfusion of an Artificial Microvascular Network
N. Piety[1], W. Reinhart[2], P. Pourreau[1], R. Abidi[1], and S. Shevkoplyas[1]
[1]University of Houston, Houston, TX, [2]Kantonsspital Graubünden, Chur, Switzerland

9:15AM
A Microfluidic Model of Bleeding
K. Rana[1], A. Wufsus[1], and K. Neeves[1,2]
[1]Colorado School of Mines, Golden, CO, [2]University of Colorado, Aurora, CO

Track: Cellular and Molecular Bioengineering
OP-Fri-1-12 - Room 5-6
Young Innovators Session I: Cellular Engineering

Chairs: Michael King

8:00AM
Incorporation Of Retinoic Acid Releasing Microspheres Into Aggregates Of Pluripotent Stem Cells For Inducing Neuronal Differentiation
J. Gomez[1], J. Edgar[1], E. Bibault[1], A. Montgomery[1], N. Khadem Motaram[1], and S. Willerth[1]
[1]University of Victoria, Victoria, BC, Canada

8:15AM
Proteomic Analysis of Pericyte Derived Extracellular Matrix
L. Brown[1], P. Sava[1], C. Garcia[1], and A. Gonzalez[1]
[1]Yale University, New Haven, CT

8:30AM
Quantitation of PDGFRs on Fibroblasts Reveals Serum, Intra-Family Ligand, And Cross-Family Ligand Regulation
S. Chen[1], X. Guo[1], O. Imarenezor[1], and P. Imoukhuede[1]
[1]University of Illinois Urbana Champaign, Urbana, IL

8:45AM
Controlling Cell Geometry Affects the Spatial Distribution of Load Across Vinculin
K. Rothenberg[1], S. Neibart[1], A. LaCroix[1], and B. Hoffman[1]
[1]Duke University, Durham, NC

9:00AM
Nanotopographically-Controlled Model of Duchenne Muscular Dystrophy Cardiomyopathy
J. Macadangdang[1], X. Guan[1,2], S. Czerniecki[1], R. Lucero[1], M. Childers[1], D. Mack[1], and D-H. Kim[1]
[1]University of Washington, Seattle, WA, [2]Wake Forest University, Winston-Salem, NC

9:15AM
Integrin Binding Dictates Smooth Muscle Stiffness Sensing via FAK
W. Herrick[1], S. Rattan[1], T. Nguyen[1], M. Grunwald[1], C. Barney[2], A. Crosby[1], and S. Peyton[1]
[1]University of Massachusetts, Amherst, Amherst, MA, [2]Purdue University, West Lafeyette, IN

Track: Biomedical Imaging and Optics
OP-Fri-1-13 - Room 11
Image Guided Focused Ultrasound Therapies

Chairs: Charles Caskey, Kim Butts Pauly

8:00AM
MR-guided Transcranial Focused Ultrasound in the Treatment of Essential Tremor: Comparison of Beam Simulations to MR Thermometry in 23 patients *(invited)*
K. Butts Pauly[1], U. Vyas[1], C. Halpern[1], M. Wintermark[1], J. Elias[2], and P. Ghanouni[1]
[1]Stanford University, Stanford, CA, [2]University of Virginia, Charlottesville, VA

8:30AM
Development of an Optically-Guided System for Transcranial Ultrasound Neuromodulation
V. Chaplin[1], L. Clements[2], M. Miga[2], and C. Caskey[1]
[1]Vanderbilt University Institute of Imaging Science, Nashville, TN, [2]Vanderbilt University, Nashville, TN

8:45AM
Methods to Accelerate Thermal Ablation with MR-guided Focused Ultrasound
V. Chaplin[1], P. Gaur[1], P. Dayton[2], C. Arena[2], W. Grissom[1], and C. Caskey[1]
[1]Vanderbilt University Institute of Imaging Science, Nashville, TN, [2]University of North Carolina, Chapel Hill, NC I

9:00AM
Non-Invasive Estimation Of Acoustic Attenuation For High Intensity Focused Ultrasound Treatments
S. Johnson[1], A. Farrer[1], C. Dillon[2], D. Christensen[1], and A. Payne[2]
[1]University of Utah, Salt Lake City, UT, [2]Utah Center for Advanced Imaging Research, Salt Lake City, UT

915AM
NDevelopment of MRI-guided Focused Ultrasound for Delivery of Neurotherapy in Mice
T. Trouard[1], M. Valdez[1], S. Yuan[1], R. Rath[1], T. Matsunaga[1], and M. Romanowski[1]
[1]University of Arizona, Tucson, AZ

9:15AM
The MRI-Targeted Delivery of Brain-Penetrating Non-Viral GDNF Gene Vectors to the Striatum with Focused Ultrasound Reverses Neurodegeneration in a Parkinson's Disease Model
B. Mead[1], P. Mastorakos[2], W. Miller[1], J. S. Suk[2], A. Klibanov[1], J. Hanes[2], and R. Price[1]
[1]University of Virginia, Charlottesville, VA, [2]Johns Hopkins University, Baltimore, MD

PLATFORM SESSIONS
Fri-1

Track: Bioinformatics, Computational and Systems Biology
OP-Fri-1-14 - Room 17
Multiscale Approaches

Chairs: Stacey Finley, Victor Rodgers

8:00AM
A Systems Biology Approach to Uncovering Mechanisms Governing Host-Pathogen Interactions: Tuberculosis as a Case Study (invited)
D. Kirschner[1]
[1]The University of Michigan Medical School, Ann Arbor, MI

8:30AM
Hypoxia, Cancer Stem Cells, and CCR5: the Interplay In Triple-Negative Breast Cancer Invasion and Metastasis.
K-A. Norton[1], N. Pandey[1], T. Wallace[1], and A. Popel[1]
[1]Johns Hopkins University, Baltimore, MD

8:45AM
Validating An Agent-Based Model Of Collagen Network Remodeling
K. Gooch[1] and J. Reinhardt[1]
[1]The Ohio State University, Columbus, OH

9:00AM
Agent-based Modeling Suggests Cell Contraction Drives Organization of Endometriotic Cells
T. Jaraczewski[1], A. Fleszar[1], M. Lohr[1], M. Murrell[1], and P. Kreeger[1]
[1]University of Wisconsin-Madison, Madison, WI

9:15AM
Solving Multicomponent Reaction-transport with Coupled Cellular Trajectories and Data-driven Cellular Activation Models
Y. Lu[1], M. Y. Lee[1], T. Sinno[1], and S. Diamond[1]
[1]University of Pennsylvania, Phildadelphia, PA

Track: Drug Delivery, Tissue Engineering
OP-Fri-1-15 - Room 10
Drug Delivery in Tissue Engineering

Chairs: Elizabeth Dirk, James Moon

8:00AM
Programmable Release of Multiple Growth Factors from Aptamer-functionalized Hydrogels for Angiogenesis
Y. Wang[1], M. Battig[1], X. Zhang[1], L-J. Duan[2], and G-H. Fong[2]
[1]Penn State University, State College, PA, [2]University of Connecticut Health Center, Farmington, CT

8:15AM
Engineering Extracellular Vesicles as Multifactorial Cell-Derived Delivery Vehicles for Therapeutic Vascularization
T. Lamichhane[1], D. Patel[1], A. Jeyaram[1], and S. Jay[1]
[1]University of Maryland, College Park, MD

8:30AM
On-demand Controlled Release of Acoustically-Responsive Scaffolds using Therapeutic Ultrasound
A. Moncion[1], K. J. Arlotta[1], O. D. Kripfgans[1], R. T. Franceschi[1], A. J. Putnam[1], and M. L. Fabiilli[1]
[1]University of Michigan, Ann Arbor, MI

8:45AM
Dietary Lipids and Emulsifiers Affect Particle Transport in Intestinal Mucus
J. Lock[1], T. Carlson[1], and R. Carrier[1]
[1]Northeastern University, Boston, MA

9:00AM
Sustained Release of a P2X7 Receptor Antagonist Using an Injectable Nanohydrogel Improves Locomotion And Bladder Function After Spinal Cord Injury
I. Yazdi[1], A. Munoz[1], C. Rivera[1], N. Taghipour[1], T. B. Boone[1], and E. Tasciotti[1]
[1]Houston Methodist Research Institute, Houston, TX

9:15AM **DREAM TEAM & CENTER**
Evaluation of Ciprofloxacin, Metronidazole Encapsulated Injectable Self-Assembled Biomimetic Nanomatrix Gel on *Enterococcus faecalis* and *Treponema denticola*
S. Kaushik[1], J. Scoffield[1], G. Alexander[1], A. Andukuri[1], T. Walker[1], S. C. Choi[2], B. Brott[1], H-W. Jun[1], J-H. Park[3], and K. Cheon[1]
[1]University of Alabama at Birmingham, Birmingham, AL, [2]Kyung Hee University, Birmingham, AL, [3]Kyung Hee University, BIrmingham, AL

Track: Nano and Micro Technologies
OP-Fri-1-16 - Room 7-8
Nano/Microbiotechnology II

Chairs: Mandy Esch, Wilbur Lam

8:00AM
Virus-Dendron Hybrid Nanostructures for Cell Delivery and Imaging Applications
A. Wen[1], K. Pangilinan[1], P. Cao[1], R. Advincula[1], and N. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

8:15AM
The Sequence-Specific Cellular Uptake of Spherical Nucleic Acids
S. Narayan[1], C. H. Choi[1], L. Hao[1], C. Calabrese[1], and C. Mirkin[1]
[1]*Northwestern University, Evanston, IL*

8:30AM
MEMS Device Integrated with Vertically Aligned Carbon Nanotubes for Virus Capture and Detection
Y-T. Yeh[1] and S. Zheng[1]
[1]*The Pennsylvania State University, University Park, PA*

8:45AM
Exosomal miR-122 Detection in Drug Induced Acute Liver Injury Paptients by Tethered Lipoplex Nanoparticles (TLN)
X. Wang[1], K. Kwak[1], A. Zhang[1], W. Lee[2], K. Ghoshal[1], V. Chowdhary[1], and J. Lee[1]
[1]*The Ohio State University, Columbus, OH,* [2]*UT Southwestern Medical Center, Columbus, OH*

9:00AM
Nanoparticle Ingestion Alters Iron and Zinc Absorption in the Small Intestine
Z. Guo[1], E. Tako[2], and G. Mahler[1]
[1]*Binghamton University, Binghamton, NY,* [2]*Cornell University, Ithaca, NY*

9:15AM
Carbon Nanotube-Based Microdevices for Tracking Single Macrophages by Raman Scattering
Z. Wang[1], J. Xia[1], L. Sun[1], P. Tran[1], S. Luo[1], Y. Ren[1], T. Liu[1], and J. Guan[1]
[1]*Florida State University, Tallahassee, FL*

Track: Respiratory Bioengineering, Translational Biomedical Engineering
OP-Fri-1-17 - Room 1
Translational Engineering in Lung Disease

Chairs: Jason H. Bates, Rebecca Heise

8:00AM
Extracellular Matrix Coating of Nanoparticles Modulates Uptake and Payload Release by Lung Cells
P. Punnakitikashem [1], P. Ravikumar [2], J. Wu[1], K. Nguyen[1], C. Hsia[2], and Y. Hong[1]
[1]*University of Texas at Arlington, Arlington, TX,* [2]*University of Texas Southwestern Medical Center, Dallas, TX*

8:15AM
Decellularized Lung Extracellular Matrix Electrospun with Poly-L-Lactic Acid for Tissue Engineering
B. Young[1], R. Pouliot[1], B. Blakeney[1], B. Allen[1], G. Schreyak[1], and R. Heise[1]
[1]*Virginia Commonwealth University, Richmond, VA*

8:30AM
Biomimetic Alveolar Interstitium Model for Investigation of Nanomaterials-induced Fibrosis
R. Mezan[1], K. Wang[1], L. Wang[1], Y. Rojanasakul[1], and Y. Yang[1]
[1]*West Virginia University, Morgantown, WV*

8:45AM
Deposition of Liquid Film onto Targeted Airway Surfaces of the Lung
J. Kim[1], J. O'Neill[1], N. V. Dorrello[1], M. Bacchetta[1], and G. Vunjak-Novakovic[1]
[1]*Columbia University, New York, NY*

9:00AM
Nanoparticle-Facilitated Inhalational Delivery of Erythropoietin Receptor cDNA in Unsedated or Anesthetized Rats
P. Ravikumar[1], P. Punnakitikashem[2], O. Moe [1], K. Nguyen [2], and C. Hsia [1]
[1]*UT Southwestern Medical Center, Dallas, TX,* [2]*University of Texas at Arlington, Arlington, TX*

9:15AM
Time-Dependent Expression of MicroRNA-146a Regulates Mechanotransduction and Pro-Inflammatory Cytokine Production in Lung Epithelia
K. Nelson[1], B. Whitson[2], and S. Ghadiali[1]
[1]*The Ohio State University, Columbus, OH,* [2]*The Ohio State University Wexner Medical Center, Columbus, OH*

Track: Cancer Technologies
OP-Fri-1-18 - Ballroom BC
Cancer Immunoengineering

Chairs: Susan Thomas, Shannon Stott

8:00AM
Activation of Microbubbles with Pulsed Ultrasound Elicits An Anti-Tumor Immune Response That Surpasses anti-PD-1 Treatment in Murine Melanoma.
K. Timbie[1], L. Badr[1], B. Campbell[1], J. McMichael[1], A. Buckner[1], T. Bullock[1], and R. Price[1]
[1]*University of Virginia, Charlottesville, VA*

8:15AM
Vascular Remodeling Enhances the Dissemination of Tumor-Derived Factors to Pre-metastatic Niches
N. Rohner[1,2] and S. N. Thomas[1,2,3]
[1]*George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA,* [2]*Parker H. Petit Institute for Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta, GA,* [3]*Winship Cancer Institute, Emory University School of Medicine, Atlanta, GA*

8:30AM
Nanoscale T cell Activation Platform for Customized Antigen-Specific T cell Stimulation and Biophysical Characterization in Cancer Immunotherapy
A. Kosmides[1] and J. Schneck[1]
[1]*Johns Hopkins University, Baltimore, MD*

8:45AM
Therapeutic Tumor Lysate Vaccine for B Cell Lymphoma: Comparative Efficacy and Mechanistic Properties of Various Formulations
P. Pradhan[1], J. Leleux[1], J. Liu[1], and K. Roy[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

9:00AM
Biodegradable Hydrogels as A New CD8+ T Cell Stimulation Platform
J. Hickey[1], H-Q. Mao[1], and J. Schneck[1]
[1]*Johns Hopkins University, Baltimore, MD*

9:15AM
Quantification of Tumor and T Cell Mass during T Cell Mediated Cytotoxicity for Cancer Immunotherapy
N. H. D. Kim[1], M. Teitell[1], and T. Zangle[1]
[1]*University of California, Los Angeles, Los Angeles, CA*

Track: Biomedical Engineering Education (BME)

OP-Fri-1-19 - Room 9

Novel Techniques for Incorporating Design into BME Curricula

Chairs: Michealann Tartis, Craig Goergen

8:00AM

Biomedical Engineering Education: Anecdotes from New Mexico Tech *(invited)*

D. Grow [1,2]

[1]New Mexico Tech., Socorro, NM [2]University of New Mexico, Albuquerque, NM

8:15AM DREAM TEAM & CENTER

MedTech Innovation Course: A Mutually Beneficial Model for Physicians, Industry, and Engineers

J. Ali[1], H. Landaverde[2], and S. Mayes[3]

[1]University of Texas at Austin, Dell Medical School, Austin, TX, [2]University of Texas at Austin, Austin, TX, [3]Alafair Biosciences, Austin, TX

8:30AM

Capstone Projects Have Improved Outcomes From Combined Partnership With Clinical and Commercialization Experts

M. Ruegsegger[1], C. DiGiovine[1], T. Berner[1], S. Metzler[1], and T. Nocera[1]

[1]The Ohio State University, Columbus, OH

8:45AM

Lessons Learned From A 10-Year Collaboration Between Biomedical Engineering And Industrial Design Students in Capstone Design Projects

J. Goldberg[1] and P. Malassigne[2]

[1]Marquette University, Milwaukee, WI, [2]Milwaukee Institute of Art and Design, Milwaukee, WI

9:00AM

Effectively Teaching Engineering Design in the Online Classroom

E. Logsdon[1], A. Maybhate[1], A. Drummond[1], and E. Haase[1]

[1]Johns Hopkins University, Baltimore, MD

9:15AM

Spiral Curriculum for Biomedical Engineering - Reinforcing Professional Skills

M. Grimm[1] and H. Lai[1]

[1]Wayne State University, Detroit, MI

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

FRIDAY, October 9, 2015

1:45 PM - 2:45 PM

PLATFORM SESSIONS – FRI - 2

Track: Stem Cell Engineering
OP-Fri-2-1 - Room 18
Directing Stem Cell Differentiation II

Chairs: Tim Downing, Eduardo Silva

1:45PM

Lineage Specific Chemo- and Mechanosensitivity of Primary Cilia in Adipose-derived Stem Cells

J. Bodle[1,2], M. Hamouda[1], and E. Loboa[1,2]

[1]North Carolina State University, Raleigh, NC, [2]University of North Carolina, Chapel Hill, NC

2:00PM

A Comparative Study Of Chondrogenesis Using Aggregated Or Single Mesenchymal Stem Cells In 3D Biomimetic Hydrogels

H. Rogan[1] and F. Yang[1]

[1]Stanford University, Stanford, CA

2:15PM

Nanoparticle-mediated Transdifferentiation of Astrocytes into Non-glial Cells

X. Li[1], K. Kozielski [1], Y-H. Cheng [1], J. Green [1], and H-Q. Mao[1]

[1]JHU, Baltimore, MD

2:30PM

Enhancing Cardiac Differentiation via Statistically Optimized Engagement of 3D Extracellular Matrix

J. Jung[1] and B. Ogle[1]

[1]University of Minnesota - Twin Cities, Minneapolis, MN

Track: Cellular and Molecular Bioengineering
OP-Fri-2-2 - Room 19
Mechanotransduction III

Chairs: Naomi Chesler

1:45PM

Injection of Cross-linked Hyaluronic Acid Alters the Mechanical Environment of Collagen Gel Type I Gels and Activates the Rho/ROCK Pathway in Aged Fibroblasts

A. De Jesus[1], S. Chinnathambi[1], M. El-Hattab[1], and E. Sander[1]

[1]University of Iowa, Iowa City, IA

1:45PM

M1-M2 Polarization Alters the Motility and Force Generation of Primary Human Macrophages

L. Hind[1], E. Lurier[2], K. Spiller[2], M. Dembo[3], and D. A. Hammer[4]

[1]University of Wisconsin-Madison, Madison, WI, [2]Drexel University, Philadelphia, PA, [3]Boston University, Boston, MA, [4]University of Pennsylvania, Philadelphia, PA

1:45PM

Osteocyte Mechanobiology in Live Allograft Biological Systems (LABS)

E. Budyn[1,2], M. Bensidhoum[3], S. Sanders[1], E. Schmidt[2], S. Sasnouski[4], P. Tauc[1], E. Deprez[1], and H. Petite[3]

[1]Ecole Normale Superieure de Cachan, Cachan, France, [2]University of Illinois at Chicago, Chicago, IL, [3]University Paris 7, Paris, France, [4]Ecole Normale Superieure de Cachan, cachan, France

1:45PM

Time Evolution of Photodamage in Fibroblasts as a Measure of Cell Contractility

S. Knoll[1], W. Ahmed[2], and T. Saif[1]

[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Institut Curie, section de recherche, Paris, France

Track: Biomaterials
OP-Fri-2-3 - Room 20
Biomechanics, Injury I - Gait and Motion

Chairs: Kyle Allen, Steve Fening

1:45PM

In Vivo Assessment of Tissue Engineered Myocardial Patch for the Local Dynamic Stability in Single and Dual-Task Concussed Gait: Preliminary Results

P. C. Fino[1], P. G. Brolinson[2], and T. E. Lockhart[3]

[1]Virginia Tech, Blacksburg, VA, [2]Edward Via College of Osteopathic Medicine, Blacksburg, VA,[3]Arizona State University, Tempe, AZ

2:00PM

Temporo-Spatial Gait Parameters of Older Adults during Single vs. Dual-Task Gait

M. Plevka[1], A. Wrigley[1], and E. Vieira[1]

[1]Florida International University, Miami, FL

2:15PM

Quantifying Rodent Locomotion Using Automated Gait Analysis Through Hues and Areas (AGATHA)

H. Kloefkorn[1] and K. Allen[1]

[1]University of Florida, Gainesville, FL

2:30PM

Loss of Anterior Stability of Shoulder Across a Range of Motion Due to Combined Bony Defects

P. Walia[1,2], L. Gottschalk[1], R. Patel[3], M. Jones[1], S. Fening[4], and A. Miniaci[1]

[1]Cleveland Clinic, Cleveland, OH, [2]Cleveland State University, Cleveland, OH, [3]Hinsdale Orthopaedics, Hinsdale, IL, [4]Case Western Reserve University, Cleveland, OH

Tracks: Biomechanics, Cellular and Molecular Bioengineering
OP-Fri-2-4 - Room 21
Cell and Tissue Biomechanics I

Chairs: Brandon Dixon, Charles Corey Hardin

1:45PM

Fiber-Enabled, 3D-Printed Cellular Micropatterning for Robust and Affordable Cellular Biomechanics Studies

D. Wolozny[1], M. Anderson[1], and W. Ruder[1]

[1]Virginia Tech, Blacksburg, VA

2:00PM

Lamin A/C Deficiency Reduces Circulating Tumor Cell Resistance to Fluid Shear Stress

M. J. Mitchell[1,2], C. Denais[2], M. Chan[2], Z. Wang[2], J. Lammerding[2], and M. R. King[2]

[1]MIT, Cambridge, MA, [2]Cornell University, Ithaca, NY

2:15PM

Modulation of the Sickle Cell Disease Erythrocyte Adhesion via ICAM-4 Activation

J. Zhang[1], B. Andemariam[2], and G. Lykotrafitis[1]

[1]University of Connecticut, Storrs, CT, [2]University of Connecticut Health Center, Farmington, CT

2:30PM

Mechanical Folding Instability Specifies Branch Locations During Airway Branching Morphogenesis

V. Varner[1] and C. Nelson[1]

[1]Princeton University, Princeton, NJ

Track: Biomaterials
OP-Fri-2-5 - Room 22
Biomaterials for Immunoengineering III

Chairs: David Zaharoff, Angela Pannier

1:45PM

Injectable, Tough Alginate Cryogels for Delivery of Immunomodulatory Agents

T-Y. SHIH[1,2], S. BLACKLOW[1], W. A. LI[1,2], S. BENCHERIF[1,2], S. KOSHY[1,2,3], AND D. MOONEY[1,2]

[1]School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA, [3]Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA

2:00PM

Changes in Material Chemistry Enhance the Immunomodulatory Effect of Biomaterial Surface Energy

K. HOTCHKISS[1], S. L. HYZY[1], S. BRENNER[2], Z. SCHWARTZ[1], B. D. BOYAN[1,3], AND R. OLIVARES-NAVARRETE[1]

[1]Virginia Commonwealth University, Richmond, VA, [2]Institut Straumann AG, Basel, Switzerland, [3]Georgia Institute of Technology, Atlanta, GA

2:15PM

A Hemostatic, Tissue Adhesive With Immunomodulatory Properties

J. SKOUSEN[1], M. POLEI[1], AND P. TRESCO[1]

[1]University of Utah, Salt Lake City, UT

2:30PM

Biomaterials-Based Artificial Germinal Center Niches to Generate Antigen-Specific B Cells for Adoptive Immunotherapy

K-H. ROH[1], K. BAI[1], AND K. ROY[1]

[1]Georgia Institute of Technology, Atlanta, GA

Track: Biomaterials
OP-Fri-2-6 - Room 23
Micro and Nano Structured Materials III

Chairs: Deak-Ho Kim, Jay Henderson

1:45PM

Amorphous Titanium Oxide Nanocoating Directs MSC Differentiation on Microstructured Stainless Steel

V. GARCIA-PEREZ[1], S. L. HYZY[2], S. E. RODIL[1], A. ALMAGUER-FLORES[1], Z. SCHWARTZ[2], B. D. BOYAN[2], AND R. OLIVARES-NAVARRETE[2]

[1]Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, [2]Virginia Commonwealth University, Richmond, VA

2:00PM

Controlled Release of bFGF from Nano-film to Maintain Undifferentiated Human iPS Cell Cultures

J. HONG[1]

[1]Chung-Ang University, Seoul, Korea, Republic of

2:15PM

The Effects of Physical Cues on Reprogramming of Fibroblasts into Induced Cardiomyocytes

J. SIA[1], P. YU[2], R. SUN[1], AND S. LI[1]

[1]UC Berkeley, Berkeley, CA, [2]Gladstone Institutes, San Francisco, CA

2:30PM

Influence of Synergistic Topographical and Biomolecular Cues on the Differentiation of Mesenchymal Stem Cells in Sparse-Fiber Composites Toward a Ligament Phenotype

P. THAYER[1], S. VERBRIDGE[1], K. EDGAR[1], T. GROVE[1], AND A. GOLDSTEIN[1]

[1]Virginia Tech, Blacksburg, VA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Tissue Engineering
OP-Fri-2-7 - Room 13
Bioreactor Systems for Tissue Engineering

Chairs: Teng Ma, Eun Jung Lee

1:45PM

Bioreactor System With Isolated Compartments Supporting Bilayer Barrier Tissue Models On Gelatin Biopapers.

R. PIRLO[1], L. BISCHEL[2], P. WU[3], AND B. RINGEISEN[1]

[1]U.S. Naval Research Laboratory, Washington, DC, [2]American Society for Engineering Education, Washington, DC, [3]Southern Oregon University, Ashland, OR

2:00PM

Bioprocess Development for the Expansion of Skin Derived Precursor Schwann Cells

T. WALSH[1], J. BIERNASKIE[1], R. MIDHA[1], AND M. KALLOS[1]

[1]University of Calgary, Calgary, AB, Canada

2:15PM

Strategy for Efficient Perfusion of Microvessel Lumens in Engineered Tissues Using a Novel Perfusion Bioreactor

S. RIEMENSCHNEIDER[1] AND R. TRANQUILLO[1]

[1]University of Minnesota, Minneapolis, MN

2:30PM

Real-Time Monitoring of Oxygen Uptake in Hepatic Bioreactor Shows CYP450-Independent <wbr>Mitochondrial Toxicity of Acetaminophen and Amiodarone

S. PRILL[1], D. BAVLI[2], G. LEVY[2], E. EZRA[2], E. SCHMÄLZLIN[3], M. JAEGER[1], M. SCHWARZ[4], C. DUSCHL[1], M. COHEN[2], AND Y. NAHMIAS[2]

[1]Branch Bioanalytics and Bioprocesses (Fraunhofer IZI-BB, Potsdam, Germany, [2]The Hebrew University of Jerusalem, Jerusalem, Israel, [3]Colibri Photonics GmbH, Potsdam, Germany,[4]University of Tuebingen, Tubingen, Germany

Track: Orthopedic and Rehabilitation Engineering
OP-Fri-2-8 - Room 14
Bone

Chairs: Susannah Fritton

1:45PM

Progressive Spinal Kyphosis in Perlecan Deficient Mice

A. PARAJULI[1], R. MORGAN[1], C. KIRN-SAFRAN[1], AND L. WANG[1]

[1]University of Delaware, Newark, DE

2:00PM

Effect of Estrogen Deficiency on Interstitial Fluid Flow around Osteocytes

V. GATTI[1], E. AZOULAY[1], L. CARDOSO[1], AND S. FRITTON[1]

[1]City College of New York, New York, NY

2:15PM
Bone Quality Abnormalities in Patients with Low-Energy or High Risk of Fracture
S. Pagano[1] and D. Pienkowski[1]
[1]University of Kentucky, Lexington, KY

2:30PM
Nanofibrous Mineralized Electrospun Scaffold as a Substrate for Bone Tissue Regeneration
H. Park[1], D-J. Lim[2], and H. Park[1]
[1]Chung-Ang University, Seoul, Korea, Republic of, [2]U of Alabama at Birmingham, Birmingham, AL

Track: Neural Engineering
OP-Fri-2-9 - Room 15
Closed Loop Control of Neural Interfaces/Networked Neural Sensors, Actuators, and Instrumentation

Chairs: Teresa Murray, Karen Moxon

1:45PM
Open Source System for Controlling Microelectrode Depth within Subcortical Brain Structures
L. Rosedahl[1] and M. Johnson[1]
[1]University of Minnesota, Minneapolis, MN

2:00PM
Using a Biological Reward Signal In Closed-Loop Actor-Critic Reinforcement Learning BMIs
N. Prins[1], S. Debnath[1], J. Sanchez[1], and A. Prasad[1]
[1]University of Miami, Coral Gables, FL

2:15PM
Brain-Controlled Functional Electrical Stimulation for Grasp and Release in Chronic, Complete, Cervical Spinal Cord Injury
K. Gant[1], L. Zimmerman[1], Z. Xie[1], J. Sanchez[1], and A. Prasad[1]
[1]University of Miami, Miami, FL

2:30PM
Utah Slanted Electrode Array Recording and Stimulation Restores Movement and Sensation to Human Amputees
D. Page[1], S. Wendelken[1], T. Davis[1], H. Wark[1], C. Duncan[1], D. Warren[1], D. Hutchinson[1], and G. Clark[1]
[1]University of Utah, Salt Lake City, UT

Track: Device Technologies and Biomedical Robotics
OP-Fri-2-10 - Room 16
Implantable Devices

Chairs: Justin Williams, Kevin Otto

1:45PM
Spin Insertion of Flexible Microelectrode for Neural Recording and Stimulation
M. Arafat[1], M. Ward[1], and P. Irazoqui[1]
[1]Purdue university, West Lafayette, IN

2:00PM
Transparent Graphene Neural Electrodes for Integrated Electrophysiology, Imaging and Optogenetics
J. Williams[1], D-W. Park[1], A. Schendel[1], S. Mikael[1], S. Brodnick[1], T. Richner[1], J. Ness[1], J. Novello[1], M. Hyat[1], F. Atry[2], S. Frye[2], R. Pashaie[2], S. Thongpang[3], and Z. Ma[1]
[1]University of Wisconsin, Madison, WI, [2]University of Wisconsin-Milwaukee, Milwaukee, WI,[3]Mahidol University, Bangkok, Thailand

2:15PM
The Use of Vagus Nerve Stimulation to Treat Cardiovascular and Metabolic Diseases
S. Lee[1], E. Annoni[1], X. Xie[1], I. Libbus[2], B. KenKnight[2], and E. Tolkacheva[1]
[1]University of Minnesota, Minneapolis, MN, [2]Cyberonics Inc, Houston, TX

2:00PM
Tuning the Administration Rate of Therapeutics Delivered Through a Nanochannel Membrane via Electric Field Manipulation
T. Geninatti[1,2], G. Bruno[1,3], and A. Grattoni[1]
[1]Houston Methodist Research Institute, Houston, TX, [2]University of Chinese Academy of Sciences, Beijing, China, People's Republic of, [3]Politecnico di Torino, Turin, Italy

Track: Cardiovascular Engineering
OP-Fri-2-11 - Room 3-4
Stents

Chairs: Aaron Baker

1:45PM
Mis-sizing of Stent Promotes Intimal Hyperplasia: Impact of Endothelial Shear and Intramural Stress
H. Chen[1], B. Bigelow [2], D. Bhatt [3], and G. Kassab[1]
[1]California Medical Innovations Institute, San Diego, CA, [2]St. Vincent Hospital, Indianapolis, IN, [3]Brigham and Women's Hospital, and Harvard Medical School, Boston, MA

2:00PM
Screening Of Nanoparticles And Nanoparticle Delivery Strategies For Treatment Of Atherosclerosis Via Coated Angioplasty Balloons
R. IYER[1,2], S. YAMAN[1,2], A. E. KURIAKOSE[1,2], AND K. T. NGUYEN[1,2]
[1]The University of Texas at Arlington, Arlington, TX, [2]The University of Texas Southwestern Medical Center at Dallas, Dallas, TX

2:15PM
Delivery of Paclitaxel to Arterial Segments via a Perfusion Catheter: An *ex vivo* and *in vivo* Study
M. ATIGH[1], E. TURNER[1], U. CHRISTIANS[2], AND S. K. YAZDANI[1]
[1]University of South Alabama, Mobile, AL, [2]University of Colorado, Auroro, CO

2:30PM
Evaluation of Inflammation on a Self-Assembled Nanomatrix Stent Coating *In Vitro*
G. ALEXANDER[1], J. VINES[1], M. COLLIER[1], P. HWANG[1], J. KIM[1], B. BROTT[1], AND H-W. JUN[1]
[1]University of Alabama at Birmingham, Birmingham, AL

Track: Cellular and Molecular Bioengineering
OP-Fri-2-12 - Room 5-6
Young Innovators Session II: Regenerative Medicine and Drug/Cell Delivery Processes

Chairs: Michael King

1:45PM
Micelle Delivery of Parthenolide to Acute Myeloid Leukemia Cells
M. Baranello[1], L. Bauer[1], C. Jordan[2], and D. Benoit[1]
[1]University of Rochester, Rochester, NY, [2]University of Colorado Health Sciences Center, Denver, CO

1:57PM
Design of a Novel 3D Printed Bioactive Nanocomposite Scaffold for Improved Osteochondral Regeneration
N. Castro[1], R. Patel[1], and L. G. Zhang[1]
[1]The George Washington University, Washington, DC

2:09PM
Elastomeric Cell-laded Nanocomposite Microfibers for Engineering Complex Tissues
C. W. Peak[1], J. Carrow[1], A. Thakur[1], A. Singh[2], and A. K. Gaharwar[1]
[1]Texas A&M University, College Station, TX, [2]Cornell University, Cornell, NY

2:21PM
Engineering Synthetic Insulin-Secreting Cells Using Hyaluronic Acid Microgels Integrated with Glucose-Responsive Nanoparticles
J. Di[1,2], J. Yu[1,2], Y. Ye[1,2], D. Ranson[1], A. Jindal[1], and Z. Gu[1,2]
[1]University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC,[2]University of North Carolina at Chapel Hill, Chapel Hill, NC

2:33PM
Shape-engineering of Virus-based Nanomaterials for Applications in Medicine
N. F. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

Track: Biomedical Imaging and Optics, Tissue Engineering
OP-Fri-2-13 - Room 11
Applications of Imaging in Tissue Engineering

Chairs: Chris Price, Chris Bashur

1:45PM
Single-Cell Lens-Free Imaging of Cell Migration in Diverse Microenvironments
C. PAUL[1], E. MATHIEU[2], R. STAHL[2], G. VANMEERBEECK[2], K. KONSTANTOPOULOS[1], AND L. LAGAE[2]
[1]Johns Hopkins University, Baltimore, MD, [2]imec, Leuven, Belgium

2:00PM
Development of an Optical Probe for Detection of Chondrocyte Apoptosis Following Cartilage Injury
Y-H. HUANG[1], J. ZHOU[1], H. WENG[1], J. BORRELLI[2], AND L. TANG[1]
[1]University of Texas at Arlington, Arlington, TX, [2]Texas Health Arlington Memorial Hospital, Arlington, TX

2:15PM
In Situ Microscale Quantification of Solute Transport via Image Correlation Spectroscopy
B. GRAHAM[1], J. SHOGA[1], AND C. PRICE[1]
[1]University of Delaware, Newark, DE

2:30PM
Modified En Bloc Staining and Clearing for Improved Imaging of Musculoskeletal Cells *In Situ*
I. BERKE[1], J. MIOLA[1], M. SMITH[1], AND C. PRICE[1]
[1]University of Delaware, Newark, DE

Track: Bioinformatics, Computational and Systems Biology
OP-Fri-2-14 - Room 17
Molecules and Molecular Systems

Chairs: Ilya Vakser, Leonor Saiz

1:45PM
Exploring the Binding Properties of Proteins by Computational Mapping
S. VAJDA[1] AND D. KOZAKOV[1]
[1]Boston University, Boston, MA

2:00PM
Three-Dimensional Modeling of Single Stranded DNA Aptamers
I. JEDDI[1] AND L. SAIZ[1]
[1]University of California, Davis, Davis, CA

2:15PM
Computational Modeling of General RTK Dimerization Kinetics
S. B. MAMER[1] AND P. I. IMOUKHUEDE[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

2:30PM
A Computational Model Of Cell-Generated Traction Forces And Fibronectin Assembly
D. MAIR[1], T. PETET[1], L. SCOTT[1], S. WEINBERG[2], AND C. LEMMON[1]
[1]Virginia Commonwealth University, Richmond, VA, [2]Old Dominion University, Suffolk, VA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Drug Delivery
OP-Fri-2-15 - Room 10
Translation to the Clinic / Personalized Medicine & Novel Materials and Self Assembly

Chairs: Dean Ho, Eilaf Ahmed

1:45PM
Phenotypic Personalized Medicine: Individualized Drug Interaction Mapping in Patient-Specific Immunosuppression
A. Zarrinpar[1], D-K. Lee[1], A. Silva[1], N. Datta[1], T. Kee[1], C. Eriksen[1], K. Weigle[1], V. Agopian[1], F. Kaldas[1], D. Farmer[1], R. Busuttil[1], C-M. Ho[1], and D. Ho[1]
[1]*UCLA, Los Angeles, CA*

2:00PM
Tenofovir Alafenamide Fumarate Subcutaneous Implants for Long-acting HIV Pre-exposure Prophylaxis
A. Aesram[1], S. Gunasekaran[2], R. Veazey[3], T. Hope[2], and P. Kiser[1]
[1]*Northwestern University, Evanston, IL,* [2]*Northwestern University, Chicago, IL,* [3]*Tulane University, New Orleans, LA*

2:15PM
Real Time *in vivo* Volumetric Two-Photon Imaging to Study the Effect of Particle Size on Nanoparticle Transport in the Brain
P. Gadamsetty[1], J. Rosch[1], C. Schaffer[1], and W. Olbricht[1]
[1]*Cornell University, Ithaca, NY*

2:30PM
Targeted CNS Transfection Via The Delivery of Brain-Penetrating Non-Viral Gene Vectors Across the Blood-Brain Barrier with Focused Ultrasound
B. Mead[1], P. Mastorakos[2], J. S. Suk[2], J. Song[1], J. Hanes[2], and R. Price[1]
[1]*University of Virginia, Charlottesville, VA,* [2]*Johns Hopkins University, Baltimore, MD*

Track: Nano and Micro Technologies
OP-Fri-2-16 - Room 7-8
Paper Fluidics

Chairs: Dan Ratner, Jacqueline Linnes

1:45PM
Paper-Based Test for Screening Newborns for Sickle Cell Anemia in Resource-Limited Settings
N. Piety[1], A. George[2], P. Patel[2], D. Nirenberg[2], G. Airewele[2], and S. Shevkoplyas[1]
[1]*University of Houston, Houston, TX,* [2]*Baylor College of Medicine, Houston, TX*

2:00PM
Home Phenylalanine Monitoring for PKU Therapy in a Paper-based Device from a Sample of Whole Blood
R. Robinson[1], L. Wong[1], and E. Fu[1]
[1]*Oregon State University, Corvallis, OR*

2:15PM
Single-step Concentration and Detection of a Malaria Biomarker in Serum
D. Pereira[1], R. Chiu[1], S. Zhang[1], B. Wu[1], and D. Kamei[1]
[1]*UCLA, Los Angeles, CA*

2:30PM
Paper Lysis, Extraction Support Material and Detection Tool for HPV the Etiologic Agent of Cervical Cancer
M. Karakaya[1,2], J. C. Linnes[3], S. Okur[2], and C. M. Klapperich[1]
[1]*Boston University, Boston, MA,* [2]*Izmir Katip Celebi University, Izmir, Turkey,* [3]*Purdue University, West Lafayette, IN*

Track: Respiratory Bioengineering
OP-Fri-2-17 - Room 1
Ventilation of the Injured Lung

Chairs: Conne Hsia, Susan Margulies

1:45PM
A Patient-Specific Validation and Computational Lung Model for Predicting Regional Tissue Aeration *(invited)*
W. Wall[1] and C. Roth[1]
[1]*TU München, Garching b. München, Germany*

2:00PM
Actively-Accelerated Deflation During Mechanical Ventilation Promotes Edematous Alveolar Clearance
Y. Wu[1] and C. Perlman[1]
[1]*Stevens Institute of Technology, Hoboken, NJ*

2:15PM
Effect of Non-uniform Acinar Pressures on the Parenchymal Tethering Airways
H. Fujioka[1], J. Ryans[1], D. Halpern[2], and D. Gaver[1]
[1]*Tulane University, New Orleans, LA,* [2]*University of Alabama, Tuscaloosa, AL*

2:30PM
A Disposable Device For Measuring Lung Impedance In Mechanically Ventilated patients
J. Bates[1], B. Smith[1], G. Roy[1], D. St. Pierre[1], and B. Ma[1]
[1]*University of Vermont, Burlington, VT*

Track: Cancer Technologies, Biomedical Imaging and Optics
OP-Fri-2-18 - Room 9
Imaging in Cancer

Chairs: Arthur Gmitro, Erik Taylor

1:45PM
Ultrasound Acoustic Angiography Imaging of Angiogenesis as a Cancer Biomarker
S. Shelton[1], S. Rao[1], Y. Lee[2], M. Lee[3], E. Cherin[3], S. Foster[3], S. Aylward[4], and P. Dayton[1]
[1]*UNC/NCSU, Chapel Hill, NC,* [2]*UNC, Chapel Hill, NC,* [3]*Sunnybrook Health Sciences Centre, Toronto, ON, Canada,* [4]*Kitware Medical Imaging, Carrboro, NC*

2:00PM **DREAM TEAM & CENTER**
Macroscopic Patterns of Glioblastoma Tumor Architecture
E. Taylor[1], Y. Ding[2], S. Zhu[1], E. Chen[1], G. Aninwene[1], M. Hoffman[1], C. Fuller[2], and R. Gilbert[1]
[1]*Northeastern University, Boston, MA,* [2]*MD Anderson Cancer Center, Houston, TX*

2:15PM
Multi-Modality Imaging in a Mammary Window Chamber PDX Tumor Mouse Model
A. Gmitro[1], H. M. Leung[1], and R. Schafer[1]
[1]*University of Arizona, Tucson, AZ*

2:30PM
In Vivo, Single Cell Imaging of Drug Target Engagement in Cancer Therapy
M. Dubach[1], C. Vinegoni[1], and R. Weissleder[1]
[1]*Harvard Medical School, Boston, MA*

SPECIAL SESSION

1:45 PM - 5:00 PM - Ballroom A

BMES-NSF Special Session on Research in BME & Grant Writing

Pre-registration required

BMES and the National Science Foundation (NSF) will convene a special session focused on innovative research in biomedical engineering and grant writing. The session will bring together NSF Bioengineering and Engineering Healthcare grantees, young investigators, junior and senior faculty, post-doctoral fellows and graduate students for idea exchange and networking related to conducting and funding cutting-edge research in BME. The session will showcase NSF funded research and researchers, foster collaboration and idea exchange, familiarize participants with NSF funding mechanisms, and provide strategies for preparing competitive grant proposals. The research areas where the NSF Biomedical Engineering Program supports fundamental and transformative research will also be discussed. Participants at all levels will gain an increased awareness of NSF funded research, a better understanding of NSF funding opportunities and how to prepare successful grant applications, and a chance to establish new relationships leading to future collaborations. This material is based upon work supported by the National Science Foundation under Grant No. CBET –1540059.

FRIDAY, October 9, 2015

3:00 PM - 4:00 PM

PLATFORM SESSIONS – FRI - 3

Track: Stem Cell Engineering

OP-Fri-3-1 - Room 18

Other Stem Cell Applications

Chairs: Akhilesh Gaharwar, Jin Nam

3:00PM

Non-viral Genetically Engineered Adipose Mesenchymal Stem Cells for Brain Tumor Therapy

A. Mangraviti[1], S. Tzeng[1], D. Gullotti[1], K. Kozielski[1], M. Seng[1], S. Abbadi[1], P. Schiapparelli[1], R. Sarabia-Estrada[1], H. Brem[1], B. Tyler[1], A. Olivi[1], J. Green[1], and A. Quinones-Hinojosa[1]

[1]Johns Hopkins University, Baltimore, MD

3:15PM

Role For Stiffness In Vascular Fate

L. Wong[1], D. Glaser[1], and K. McCloskey[1]

[1]UC Merced, Merced, CA

3:30PM

Myosin Binding Protein C Downregulation And Contractile Defects of IPSC-derived Cardiomyocytes

A. Ribeiro[1], M. Mandegar[2,3], O. Schwab[1], E. Balandina[2,3], B. Conklin[2,3], and B. Pruitt[1]

[1]Stanford University, Stanford, CA, [2]Gladstone Institutes, San Francisco, CA, [3]University of California San Francisco, San Francisco, CA

3:45PM

Effect of Local Anesthetics on Human Mesenchymal Stromal Cell Secretion and Macrophage Immunomodulation

I. Marrero-Berrios[1], A. Gray[1], T. Maguire[1], J. Weinberg[2], D. Manchikalapati[2], J. SchianodiCola[2], M. Yarmush[1], R. Schloss[1], and J. Yarmush[2]

[1]Rutgers, The State University of New Jersey, Piscataway, NJ, [2]New York Methodist Hospital, Brooklyn, NY

Track: Tissue Engineering

OP-Fri-3-2 - Room 19

Inflammation and Immunomodulation in Tissue Engineering II

Chairs: Ankur Singh, Susan Thomas

3:00PM

Immunoprotected Allogeneic Transplantation And Microencapsulation Of Islets In A Hyaluronic Acid And Collagen Hydrogel

S. Harrington[1,2,3], J. Williams[2], S. Rawal[2], K. Ramachandran[3], and L. Stehno-Bittel[1,2,3]

[1]University of Kansas, Lawrence, KS, [2]University of Kansas Medical Center, Kansas City, KS,[3]Likarda, LLC, Kansas City, KS

3:15PM

T cells are Required for M2-Macrophage Polarization in ECM Scaffold-Treated Volumetric Muscle Injury

K. Sadtler[1], B. Allen[1], K. Estrellas[1], M. Wolf[1], F. Housseau[2], D. Pardoll[2], and J. Elisseeff[1]

[1]Translational Tissue Engineering Center, Johns Hopkins University School of Medicine, Baltimore, MD, [2]Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University School of Medicine, Baltimore, MD

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

3:30PM
Implications of Low Level Chronic LPS on Vascular Dynamics and Tumor Progression
M. Cox[1], L. Li[2], and S. Verbridge[1]
[1]Virginia Tech - Wake Forest University, Blacksburg, VA, [2]Virginia Tech, Blacksburg, VA

3:45PM
Microengineered Human Gut-on-a-Chip for Dissecting Intestinal Inflammatory Disease
H. J. Kim[1,2] and D. Ingber[2]
[1]UT Austin, Austin, TX, [2]Wyss Institute at Harvard University, Boston, MA

Track: Biomechanics
OP-Fri-3-3 - Room 20
Biomechanics, Injury II: Spine

Chairs: Jason Luck, Gary Bledsoe

3:00PM
Intervertebral Implant Design Can Influence Viscoelastic Response Under Dynamic Loading
A. Valdevit[1], R. Chung[1], M. Dawoud[1], P. Ullrich, Jr[2], M. Gallager[2], and J. Schneider[2]
[1]Stevens Institute of Technology, Hoboken, NJ, [2]Titan Spine, LLC, Mequon, WI

3:15PM
Lower Back Biomechanics during Manual Material Handling Task; the Effects of Aging
I. Shojaei[1], M. Vazirian[1], E. Croft[1], M. A. Nussbaum[2], and B. Bazrgari[1]
[1]University of Kentucky, Lexington, KY, [2]Virginia Tech, Blacksburg, VA

3:30PM
Age-related Alterations in Trunk Intrinsic Stiffness
M. Vazirian[1], I. Shojaei[1], R. Tromp[1], M. Nussbaum[2], and B. Bazrgari[1]
[1]University of Kentucky, Lexington, KY, [2]Virginia Tech, Blacksburg, VA

3:45PM
Viscoelasticity of the Human Lumbar Spine
B. Bigler[1], A. Schmidt[1], J. Shridharani[1], A. Knight[1], A. Alonso[1], J. Y. Zhang[2], C. Bass[1], and C. Cox[1]
[1]Duke University, Durham, NC, [2]Johns Hopkins Applied Physics Lab, Laurel, MD

Track: Biomedical Engineering Education (BME)
OP-Fri-3-4 - Room 21
Interactive Education: How to Engage, Excite, and Teach BME Students

Chairs: Jacqueline Linnes, Renata Ramos

3:00PM
SimVascular: Open Source Software for Cardiovascular Blood Flow Simulations in Research and Education *(invited)*
A. Marsden[1]
[1]Stanford University, Palo Alto, CA

3:15PM
Teambuilding & Leadership Interventions Improve Undergraduate Bioengineering Students' Leadership Self-Construal
D. Rosch[1] and P. I. Imoukhuede[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL

3:30PM
Active Online Learning to Complement Biomedical Engineering Courses
K. Dahl[1] and B. Johnson[2]
[1]Carnegie Mellon University, Pittsburgh, PA, [2]Acrobatiq, Pittsburgh, PA

3:45PM
A Novel Approach To Undergraduate Clinical Exposure: Clinical Immersion
J. D. Ackerman[1], J. K. Rains[2], and B. B. Fasse[2]
[1]Emory University, Atlanta, GA, [2]Georgia Institute of Technology, Atlanta, GA

Track: Biomaterials
OP-Fri-3-5 - Room 22
Therapeutic and Theranostic Biomaterials II

Chairs: Rachael Oldinski, Jennifer Leight

3:00PM
Opsonin-coated Hollow Fibers Modified With a Tethered Liquid Perfluorocarbon Layer For Dialysis-like Therapy of Sepsis Using Reduced Anticoagulants
T. Didar[1], A. Graveline[1], M. Cartwright[1], M. Super[1], A. Watters[1], and D. Ingber[1]
[1]Harvard University, Boston, MA

3:15PM
Copolymer Properties Reinstate Stemness and Therapeutic Potential of Human Mesenchymal Stem Cells
S. Crowder[1], D. Balikov[1], S. Hyun Lee[1], and H-J. Sung[1]
[1]Vanderbilt University, Nashville, TN

3:30PM
Nanoemulsified Volatile Ansesthetics: Formulation and Induction Studies
B. Ashrafi[1], R. D. Molano[2], Z. Peng[3], A. Pileggi[2], E. Pretto[3], and C. Fraker[2]
[1]University of Miami, Miami, FL, [2]University of Miami Diabetes Research Institute, Miami, FL,[3]University of Miami School of Medicine, Miami, FL

3:45PM
Broad-Spectrum Affinity Hemofilter for the Removal of Pathogens in a Porcine Model of Sepsis
D. Leslie[1], A. Waterhouse[1], D. Bolgen[1], M. Cartwright[1], A. Watters[1], T. Doyle[1], B. Seiler[1], P. Lombardo[1], B. Murphy[1], M. Rodas[1], N. Dimitrakakis[1], B. Pavlov[1], B. Dusel[1], J. Orlando[1], J. Berthet[1], S. Jurek[1], N. Gamini[1], K. Donovan[2], A. Nedder[2], M. Super[1], and D. Ingber[1,2]
[1]Harvard University, Boston, MA, [2]Boston Children's Hospital, Boston, MA

Track: Biomaterials
OP-Fri-3-6 - Room 23
Biomaterials for Controlling Cell Environment I

Chairs: Yi Hong, Danielle Benoit

3:00PM
Design Of Thiol-ene Hydrogels Using Facile Techniques For Studying Breast Cancer Dormancy
L. Sawicki[1] and A. Kloxin[1]
[1]University of Delaware, Newark, DE

3:15PM
Bioinspired Proteins Designed as Microenvironments for Cell Differentiation
Y. Kim[1], J. Renner[1], and J. Liu[1]
[1]Purdue University, West Lafayette, IN

3:30PM **DREAM TEAM & CENTER**

Development of Novel Anti-Inflammatory Ceramic Coating for Impant

S. Das[1], S. D. O. S. Lautenschlager[2], R. McCormack[1], A. Behrmann[3], B. Ramachandran[3], T. S. Sakthivel[1], S. Saraf[1], S. Barkam[1], D. Towler[3], W. Self[1], and S. Seal[1]

[1]University of Central Florida, Orlando, FL, [2]State University of Maringá, Maringá, Brazil,[3]Sanford-Burnham Medical Research Institute, Orlando, FL

3:45PM

Chitosan Interaction with the 'Universal' Bacterial Communication Molecule, Autoinducer-2

M. Rhoads[1,2] and W. Bentley[1,2]

[1]University of Maryland College Park, College Park, MD, [2]Institute for Bioscience and Biotechnology Research, College Park, MD

Track: Tissue Engine
OP-Fri-3-7 - Room 13
Tissue Engineered Models for Study of Disease and Drug Discovery I

Chairs: Pamela Kreeger, Kristyn Masters

3:00PM

A 3D *In Vitro* Model Of Microvascular Remodeling In Adipose Tissue

E. Bellas[1,2] and C. Chen[1,2]

[1]Boston University, Boston, MA, [2]Harvard University, Boston, MA

3:15PM

Engineering an *In Vitro* Model of Human Non-alcoholic Fatty Liver Disease and Insulin Resistance

M. Davidson[1], K. Ballinger[1], A. LeJeune[1], and S. Khetani[1]

[1]Colorado State University, Fort Collins, CO

3:30PM

Tumor Growth Response to Controlled Oxygen Gradients

S. Lam[1] and S. George[1]

[1]Washington University in St. Louis, St. Louis, MO

3:45PM

Design And Fabrication Of "EZ Imaging Perfusion Chamber" For Study Of Immune Cell-Endothelium Interaction In Tissue-Engineered Blood Vessel (TEBV)

K. Adebowale[1], Z. Chen[1], W. Leong[1], and K. Leong[1]

[1]Columbia University, New York, NY

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Orthopedic and Rehabilitation Engineering
OP-Fri-3-8 - Room 14
Rehabilitation Engineering

Chairs: Gregory Sawick

3:00PM

Scoliosis Analog Model for the Evaluation of Bracing Technology

D. DiAngelo[1] and C. Chung[1]

[1]University of Tennessee Health Science Center, Memphis, TN

3:15PM

Voluntary Activation of Tendon Transfers to Restore Elbow Extension in Tetraplegia

C. Peterson[1,2], M. Bednar[2,3], A. Bryden[4,5], M. Keith[4,5], E. Perreault[1,6], and W. Murray[1,2,6]

[1]Rehabilitation Institute of Chicago, Chicago, IL, [2]Edward HInes, Jr. VA Hospital, Hines, IL,[3]Loyola University, Maywood, IL, [4]Case Western Reserve Universtiy, Cleveland, OH,[5]Cleveland FES Center at MetroHealth, Cleveland, OH, [6]Northwestern University, Evanston, IL

3:30PM

Acquisition and Analysis of Underfoot Load Data from Lower Extremity Fracture Patients

A. Lajevardi-Khosh[1], B. I. Tresco[1], M. Ackerman[1], T. Petelenz[1], and R. Hitchcock[1]

[1]University of Utah, Salt Lake City, UT

3:45PM

Children With Cerebral Palsy Achieve Lower Limb Muscle Stretch Through Climbing

J. Miller[1] and S. Russell[1]

[1]University of Virginia, Charlottesville, VA

Track: Neural Engineering
OP-Fri-3-9 - Room 15
Glial Cell Engineering/Addressing Degeneration

Chairs: Stephanie Seidlits, Deanna Thompson

3:00PM

Brief Electrical Stimulation to Delay Onset of Glaucoma

J. Stukel[1], L. Coughlin[2,3], R. Willits[1], and D. Inman[2]

[1]The University of Akron, Akron, OH, [2]NEOMED, Rootstown, OH, [3]Kent State University, Kent, OH

3:15PM

Quercetin And Metabolites Reduce A&[beta]-Induced Apoptosis Associated With Alzheimer's Disease

K. Pate[1], M. Rogers[1], and M. Moss[1]

[1]University of South Carolina, Columbia, SC

3:30PM

Directional Migration of Oligodendrocyte Precursors in an Applied Electric Field

Y. Li[1], P-S. Wang[2], G. Lucas[3], R. Li[2], and L. Yao[4]

[1]Wichita State University, Wichita, KS, [2]Stowers Institute of Medical Research, Kansas City, KS,[3]School of Medicine-Wichita, University of Kansas Medical Center, Wichita, KS, [4]Wichita State University, Wichita, KS

3:45PM

Fiber Diameter Alters the Initial Astrocyte Response to Electrospun Poly-L-lactic Acid Fibers

C. Johnson[1], G. Desmond[1], J. Zuidema`[2], N. Schaub[1], and R. Gilbert[1]

[1]Rensselaer Polytechnic Institute, Troy, NY, [2]University of California San Diego, La Jolla, CA

Track: Device Technologies and Biomedical Robotics, Cardiovascular Engineering
OP-Fri-3-10 - Room 16
Cardiovascular Devices

Chairs: Dan Moran, Baruch Lieber

3:00PM
Noninvasive Detection System for Estimating Cutaneous Blood Perfusion Level
Y-H. Peng[1] and J-M. Maarek[1]
[1]University of Southern California, Los Angeles, CA

3:15PM
Evaluation of Cardiac Energetics for a Transmural Cardiac Assist Device
E. Hord[1], C. Bolch[2], E. Tuzun[3], and J. Criscione[1]
[1]Texas A&M University, College Station, TX, [2]CorInnova, Inc., Houston, TX, [3]Texas A&M Institute for Preclinical Studies, College Station, TX

3:30PM
3D-printing Elastomeric Bioresorbable Vascular Stents
J. Yang[1], E. Baker[2], H. Ware[1], R. van Lith[1], F. Zhou[1], C. Sun[1], and G. Ameer[1]
[1]Northwestern University, Evanston, IL, [2]Northwestern University, Evanton, IL

3:45PM
Evaluation of Flow Diversion Performance of Five Commercial Neurovascular Stents Through MicroCT Geometry Based Numerical Modeling in an Idealized Brain Aneurysm Model
R. Dholakia[1], C. Sadasivan[1], D. Fiorella[1], H. Woo[1], and B. Lieber[1]
[1]Stony Brook University, Stony Brook, NY

Track: Cardiovascular Engineering
OP-Fri-3-11 - Room 3-4
Imaging in Cardiovascular Systems

Chairs: Albert Titus, Ngan Huang

3:00PM **DREAM TEAM & CENTER**
Aortic Blood Flow Characterization using Phase Contrast MRIs in Turner Syndrome
G. Mylavarapu[1], E. Gutmark[1,2], S. Ringgard[3], C. Trolle[3], C. Gravholt[3], P. Backeljauw [4], and I. Gutmark-Little[5]
[1]University of Cincinnati, Cincinnati, OH, [2]University of Cincinnati Medical Center, Cincinnati, OH, [3]Aarhus University Hospital, Aarhus, Denmark, [4]Cincinnati Children's Hospital Medical Center, Cincinnati, OH, [5]Cincinnati Childrens Hospital Medical Center, Cincinnati, OH

3:15PM
Effect of Core Temperature on Peripheral and Cerebral Vasculature in MRI Studies
A. Crouch[1] and J. Greve[1]
[1]University of Michigan, Ann Arbor, MI

3:30PM
Relationship Between Microcalcifications In Fibrous Caps And Calcification Patterns In Human Atheroma
N. Maldonado[1], A. Kelly-Arnold[1], D. Laudier[1], L. Cardoso[1], and S. Weinbaum[1]
[1]The City College of New York, New York, NY

3:45PM
Enzyme-Dependent Fluorescence Recovery after Photobleaching (ED-FRAP) in a Whole Heart
A. Moreno[1], R. Jaimes[1], S. Glancy[1], and M. Kay[1]
[1]The George Washington University, Washington, DC

Track: Translational Biomedical Engineering, Biomedical Imaging and Optics
OP-Fri-3-12 - Room 5-6
Imaging Technologies in Clinical Translation

Chairs: Mark Palmer, Melinda Harman

3:00PM
Patient-Specific Assessment of pre-TPV Angioplasty Coronary Compression Using the Finite Element Method.
S. Amendola[1], P. Bhatla[2], S. Chakravarti[2], A. Ludomirsky[2], M. Argilla[2], P. Berman[2], D. McElhinney[3], and V. Flamini[1]
[1]NYU, Brooklyn, NY, [2]NYU, Manhattan, NY, [3]Stanford University, Stanford, CA

3:15PM
Diffuse Optical Measurements of Head and Neck Tumor Hemodynamics for Early Prediction of Radiation Therapy Outcomes
L. Dong[1], D. Irwin[1], Y. Shang[1], L. Chen[1], B. Shelton[1], S. Stevens[1], M. Kudrimoti[1], and G. Yu[1]
[1]University of Kentucky, Lexington, KY

3:30PM
Effect of Head impacts on White Matter Fiber Tracts in Youth Football
N. Bahrami[1], D. H. Sharma[1], C. T. Whitlow[1], E. M. Davenport[1], J. E. Urban[1], Y. Jung[1], G. A. Gioia[2], J. D. Stitzel[1], and J. A. Maldjian[1]
[1]Wake Forest University, Schoold of Medicine, Winston Salem, NC, [2]Children's National Medical Center, Washington DC, DC

3:45PM
A Non-Invasive, Image-Based, Smartphone App for Diagnosing Anemia
R. Mannino[1,2,3], E. Tyburski[1,2,3], J. Boudreaux[2,3], and W. Lam[1,2,3]
[1]Georgia Institute of Technology and Emory University, Atlanta, GA, [2]Emory University School of Medicine, Atlanta, GA, [3]Children's Healthcare of Atlanta, Atlanta, GA

Tracks: Biomedical Imaging and Optics, Biomechanics
OP-Fri-3-13 - Room 11
Applications of Imaging in Biomechanics

Chairs: Elena Talkacheva, Peter Johansen

3:00PM
Architectural Basis of Lingual Muscular Hydrostats
G. Aninwene II[1], E. Taylor[1], M. Hoffman[1], and R. Gilbert[1]
[1]Northeastern Unuiversity, Boston, MA

3:15PM
Microstructural Characterization of Human Ocular Tunics for Whole Eye Numerical Modeling
M. Spang[1], T. Sorensen[2], C. Whitford[3], A. Elsheikh[3], and C. Boote[1]
[1]Cardiff University, Cardiff, United Kingdom, [2]Diamond Light Source Ltd, Didcot, United Kingdom, [3]University of Liverpool, Liverpool, United Kingdom

3:30PM
Bioprosthetic Heart Valve Leaflet 3D Strain Mapping using Digital Image Correlation
S. Heide-Jørgensen[1], J. Taborsky[1], S. K. Krishna[1], T. Bechsgaard[2], J. L. Hønge[2], R. Zegdi[3], and P. Johansen[1]
[1]Faculty of Science and Technology, Aarhus University, Aarhus, Denmark, [2]Aarhus University Hospital, Aarhus, Denmark, [3]Hôpital Européen Georges Pompidou, Paris, France

3:45PM
Effects of an Exercise Surrogate on Lumen Expansion in Murine Models.
P. Castle1, U. Scheven1, A. Cao1, and J. Greve1
[1]University of Michigan, Ann Arbor, MI

Track: Bioinformatics, Computational and Systems Biology
OP-Fri-3-14 - Room 17

Cell Signaling and Therapeutics

Chairs: Jose Luis Puglisi, Cheemeng Tan

3:00PM
Quantitative Analysis of the Akt/mTOR Signaling Axis
A. Rahman[1] and J. Haugh[1]
[1]North Carolina State University, Raleigh, NC

3:15PM
Druggability of Cellular Network Motifs
F. Wu[1], C. Ma[2], and C. Tan[1]
[1]University of California Davis, Davis, CA, [2]Zhejiang University, Hangzhou, China, People's Republic of

3:30PM
Mechanistic Model of Angiogenesis Inhibitor Thrombospondin-1 in Cancer
S. Finley[1]
[1]University of Southern California, Los Angeles, CA

3:45PM
Dynamic Phosphorylation Signatures Following Stimulation Distinguish Latent HIV-Infected Primary CD4+ T Cells from Uninfected Cells
L. Fong[1], E. Sulistijo[1], and K. Miller-Jensen[1]
[1]Yale University, New Haven, CT

Track: Drug Delivery
OP-Fri-3-15 - Room 10

Multifunctional or Hybrid Systems

Chairs: Steven Jay, Tara Deans

3:00PM
A Multipurpose Prevention Technology or "Virus Trap and Safety Net" for the Delivery of Antivirals, Proteins, and Oligonucleotides against STIs
K. M. Tyo[1], T. W. Grooms-Williams[1], N. Matoba[1], and J. M. Steinbach[1]
[1]University of Louisville, Louisville, KY

3:15PM
Polyelectrolyte Multilayers Assembled from Immune Signals Promote Antigen-specific T Cell Response
P. Zhang[1] and C. Jewell[1,2,3]
[1]University of Maryland, COLLEGE PARK, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

3:30PM
Multispectral PLGA Nanoparticles To Assess Cellular Uptake And Distribution *In Vitro* and *In Vivo*
D. Medina[1], J. Yamaguchi[1], K. Householder[1], T. Kovalik[1], S. Bowen[1], and R. Sirianni[1]
[1]Barrow Neurological Institute, Phoenix, AZ

3:45PM
In vivo Delivery of Transcription Factors with Multifunctional Oligonucleotides
K. Lee[1], M. Rafi[2], X. Wang[2], R. Tang[2], N. Lingampalli[2], and N. Murthy[2]
[1]University of California, Berkeley, Albany, CA, [2]University of California, Berkeley, Berkeley, CA

Track: Nano and Micro Technologiesy
OP-Fri-3-16 - Room 7-8

Micro and Nano Total Analysis Systems

Chairs: Beth Pruitt, Rong Fan

3:00PM
An Acoustofluidic Device for Liquefying Human Sputum Samples On-chip
P-H. Huang[1], L. Ren[1], S. Li[1], and T. J. Huang[1]
[1]The Pennsylvania State University, University Park, PA

3:15PM
Enhancement of Surface Binding by Laser Heating Induced Mass Transport
B. Wang[1] and X. Cheng[1]
[1]Lehigh University, Bethlehem, PA

3:30PM
Single-Cell, 42-Plex Detection of Immune Effector Proteins Reveals Deep Functional Heterogeneity and Dynamic Population Architecture
R. Fan[1]
[1]Yale University, New Haven, CT

3:45PM
A High-Throughput, Low-Volume, Sensitive Microfluidic Multiplex Immunoassay
M. Ghodbane[1], E. Stucky[1], T. Maguire[1], R. Schloss[1], D. Shreiber[1], J. Zahn[1], and M. Yarmush[1,2]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ, [2]Massachusetts General Hospital, Boston, MA

Tracks: Respiratory Bioengineering
OP-Fri-3-17 - Room 1

Airway Modeling and Imaging

Chairs: Bernard Sapoval, Gordana Vunjak-Novakovic

3:00PM
Role of Collagen Fibers in Translating Airway Smooth Muscle Force to Narrowing of Airways
H. Parameswaran[1], D. Marquis[1], K. Duval[1], B. Harvey[1], and K. Lutchen[1]
[1]Boston University, Boston, MA

3:15PM
Collagen Crosslinking Reagent Utilized to Stiffen Soft Palate in Equine Snoring
S. Hunt[1], J. Kuo[2], M. Brown[3], and T. Hedman[4]
[1]University of Kentucky, Lexington, KY, [2]Orthopeutics, L.P, Lexington, KY, [3]Crosscoat Medical, LLC, Lexington, KY, [4]University of Kentucky; Orthopeutics, L.P.; Crosscoat Medical, LLC, Lexington, KY

3:30PM
Patterned, Tubular Scaffolds Mimic Longitudinal and Radial Mechanics of the Neonatal Trachea
E. Mansfield[1], V. Greene[1], and D. Auguste[1]
[1]The City College of New York, New York, NY

3:45PM
Minimizing Ventilation Heterogeneity Using Multiple Frequencies of Oscillation
J. Hermann[1], M. Tawhai[2], and D. Kaczka[1]
[1]University of Iowa, Iowa City, IA, [2]University of Auckland, Auckland, New Zealand

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Cancer Technologies
OP-Fri-3-18 - Room 9

Personalized Medicine in Cancer

Chairs: Adam Engler, Cynthia Reinhart-King

3:00PM

Sorting Out Tumor Cell Heterogeneity: Phenotypic Isolation of Differentially Invasive Subpopulations

S. Carey[1], Z. Goldblatt[1], L. Hapach[1], M. Lampi[1], A. Braun[1], A. Rahman[1], K. Martin[1], and C. Reinhart-King[1]

[1]Cornell University, Ithaca, NY

3:15PM

Metastatic State of Cancer Cells may be Indicated by Attachment Strength

A. Fuhrmann[1], T. Tlsty[2], and A. Engler[1,3]

[1]UC San Diego, La Jolla, CA, [2]UC San Francisco, San Francisco, CA, [3]Sanford Consortium for Regenerative Medicine, La Jolla, CA

3:30PM

Nanoscale Aptamer-Based Carrier for Personalized Treatment of Small Cell Lung Carcinoma

K. Windham[1], R. Whitener[1], J. Wower[1], and M. Byrne[2]

[1]Auburn University, Auburn, AL, [2]Rowan University, Glassboro, NJ

3:45PM

Isolation And Characterization Of Pancreatic Circulating Tumor Cells By Graphene Oxide Based Chip

Y. Wang[1], H. J. Yoon[1], M. Morgan[1], S. Fouladdel[1], E. Azizi[1], M. Wicha[1], K. Cuneo[1], D. Simeone[1], and S. Nagrath[1]

[1]University of Michigan, Ann Arbor, Ann Arbor, MI

Track: Translational Biomedical Engineering
OP-Fri-3-19 - Room 25

Biomedical Products and Devices

Chairs: Chao-Min Cheng, Hansen Mansy

3:00PM

Neurological Impairments Following Mild Blast-induced Traumatic Brain Injury: A Multidisciplinary Investigation

R. Shi[1], N. Race[1], E. Lungwitz[2], S. Alvarez[1], S. Song[1], A. Kim[1], T. Zhang[1], B. Ziaie[1], and W. Truitt[2]

[1]Purdue University, West Lafayette, IN, [2]Indiana University School of Medicine, Indianapolis, IN

3:15PM

Localized Therapeutic Hypothermia Protects Residual Hearing Against Cochlear Implantation Trauma

I. Tamames[1], C. King[2], F. Telischi[1], S. Huynh[1], J. Truettner[1], D. Dietrich[1], and S. Rajguru[1]

[1]University of Miami, Miami, FL, [2]Lucent Medical Systems, Kirkland, WA

3:30PM

Biocompatibility Evaluation of Modified Tetronic Adhesive for Soft Tissue Applications

L. Sanders[1], K. Webb[1], T. Mefford[1], and J. Nagatomi[1]

[1]Clemson University, Clemson, SC

3:45PM

Development And Characterization Of A Rapid Polymerizing Collagen For Soft Tissue Augmentation

S. Grant[1], D. Grant[1], J. Zhu[2], R. Brooks[2], and D. DeVore[2]

[1]University of Missouri, Columbia, MO, [2]Eternogen, LLC, Columbia, MO

POSTER SESSION Fri 9:30AM – 5:00PM

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM, 4:00PM - 5:00PM

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM, 4:00PM - 5:00PM

FRIDAY, October 9, 2015

9:30 AM - 5:00 PM

POSTER SESSIONS

Track: Cancer Technologies, Drug Delivery

Cancer:

Cancer Drug Delivery Posters

P-Fr-1

Non-thermal Radiofrequency Disrupts Normal Pancreatic Adenocarcinoma Phenotype

V. Keshishian1, M. Ware1, N. Lara2, S. Curley1, and S. Corr1,2
1Baylor College of Medicine, Houston, TX, 2Rice University, Houston, TX

P-Fr-2

Enhancing anti-Cancer Drug Uptake in Breast Cancer Tumor GEM Model Using Microbeam Radiation Therapy.

S. Chang[1], A. J. Madden[1], J. N. Rivera[1,2], C. Santos[1], D. Darr[1], L. Hunter[1], and W. C. Zamboni[1]
[1]University of North Carolina- Chapel Hill, Chapel Hill, NC, [2]North Carolina State University, Chapel Hill, NC

P-Fr-3

Polymeric Nanoparticles for Non-Viral Gene Therapy Extend Brain Tumor Survival *In Vivo*

A. Mangraviti[1], S. Tzeng[1], K. Kozielski[1], Y. Wang[1], Y. Jin[1], D. Gullotti[1], M. Pedone[1], N. Buaron[2], A. Liu[1], D. Wilson[1], S. Hansen[1], F. Rodriguez[1], G-D. Gao[3], F. DiMeco[4], H. Brem[1], A. Olivi[1], B. Tyler[1], and J. Green[1]
[1]Johns Hopkins University, Baltimore, MD, [2]Ben Gurion University of the Negev, Be'er Sheva, Israel, [3]The Fourth Military Medical University, Xi'an, China, People's Republic of, [4]"C.Besta" Neuroligica Istituto, Milan, Italy

P-Fr-4

Nano-'Carbobitaceae' for Sustained Inhibition of Cancer Stem Cells via STAT-3 Modulation

F. Ostadhossein[1,2], S. Kumar Misra[1,2], P. Mukherjee[1], R. Bhargava[1], and D. Pan[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL, [2]Carle foundation hospital, Urbana, IL

P-Fr-5

HIFU in Synergy with Sorafenib-Loaded Thermosensitive Liposomes for Treatment of Prostate Cancer

H. Murad[1], J. Arora[1], G. Halliburton[1], S. Ashe[1], V. John[1], and D. Khismatullin[1]
[1]Tulane univeristy, New Orleans, LA

P-Fr-6

Anti-angiogenic Heparin Conjugate on Orthotopic Glioblastoma Mouse Model

J. H. Seol[1], S. J. Park[1], and D. Y. Lee[1]
[1]Hanyang university, Seoul, Korea, Republic of

P-Fr-7

Specific Binding of Functionalized Droplets to Integrin Receptor & α v & β^3

N. Smith[1], M. Fabiilli[2], R. Seda[1], D. Li[1], J. Pitre[1], B. Fowlkes[1], and J. Bull[1]
[1]University of Michigan, Ann Arbor, MI, [2]University of Michigan Medical School, Ann Arbor, MI

P-Fr-8

Localized activation of bacterial quorum sensing for bacteria-based drug delivery applications

E. Leaman[1], B. Geuther[1], and B. Behkam[1]
[1]Virginia Tech, Blacksburg, VA

P-Fr-9

CXCR4-overexpressing Adipose-derived Stem Cells Exhibited Enhanced Tropism towards Brain Tumor in an intracranial glioblastoma xenograft model

X. Jiang[1], C. Wang[1], and F. Yang[1]
[1]Stanford University, Stanford, CA

P-Fr-10

The Effect of Nonthermal Atmospheric Pressure Plasma for the Lung Cancer Cells Viability

S. Karki[1] and H. Ayan[2]
[1]University of Toledo, Toledo, OH, [2]University, Toledo, OH

P-Fr-11

In Vitro Binding Analysis of Phosphonate and Carboxylate Copolymers for Use as Bone-Targeting Radiopharmaceuticals

S. Smith[1] and C. Batich[1]
[1]University of Florida, Gainesville, FL

P-Fr-12

Targeting Cancer-associated Fibroblasts In Pancreatic Adenocarcinoma

L. Brinton[1], D. Bauknight[1], S. Dasa[1], and K. Kelly[1]
[1]University of Virginia, Charlottesville, VA

Track: Drug Delivery, Cancer Technologies

Cancer:

Cancer Drug Delivery Posters

P-Fr-13

Photosensitizer-loaded CD4+ And CD8+ T cells As Living Drug Delivery Vehicles

A-R. Blaudszun[1], G. Moldenhauer[2], M. Schneider[3], and A. Philippi[1]
[1]KIST Europe Forschungsgesellschaft mbH, Saarbrücken, Germany, [2]German Cancer Research Center, Heidelberg, Germany, [3]Saarland University, Saarbrücken, Germany

P-Fr-14

Viral Nanoparticles For Targeted Delivery To Ovarian Cancer

A. Czapar[1], M. Knarr[1], A. DiFeo[1], and N. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-15
Targeted Lung Cancer Dual Therapy Using Multi-Drug Core-Shell Nanoparticles
J. Menon[1,2], A. Kuriakose[1,2], R. Iyer[1,2], D. Saha[2], and K. Nguyen[1,2]
[1]The University of Texas at Arlington, Arlington, TX, [2]The University of Texas Southwestern Medical Center, Dallas, TX

P-Fr-16
Regulating Tumor Suppressing Gene Using a Pendant-Chain Delivery System
K. M. Rao[1], C-S. Ha[1], B. J. Park[2], and Y. H. Yun[3]
[1]Pusan National University, Busan, Korea, Republic of, [2]Pusan National Univeristy, Busan, Korea, Republic of, [3]University of Akron, Akron, OH

P-Fr-17
A FRET-Based Imaging Strategy to Rapidly Quantify Biodegradation of Degradable Nanomedicines
D. C. Radford[1], J. Yang[1], R. Zhang[1], and J. Kopecek[1]
[1]University of Utah, Salt Lake City, UT

P-Fr-19
Intracellular Delivery of Bioactive Chemotherapeutic Using Dual-Crosslinked Alginate Microspheres
S. Fenn[1], T. Miao[1], R. Scherrer[1], and R. Oldinski[1]
[1]University of Vermont, Burlington, VT

P-Fr-20
HIFU-Triggered Sorafenib-Loaded TSLs for Targeted Drug Therapy in Renal Cell Carcinoma
H. Murad[1], C. Abshire[1], J. Liu[1], J. Arora[1], V. John[1], B. Lee[1], and D. Khismatullin[1]
[1]Tulane univeristy, New Orleans, LA

P-Fr-21
Multifunctional spherical polymeric nanoconstructs (SPNs) loaded with Docetaxel and Curcumin for cancer therapy and PET/CT imaging.
C. Stigliano[1], J. Key[1,2], M. Ramirez[1], S. Aryal[1,3], and P. Decuzzi[1,4]
[1]Houston Methodist Research Institute, Houston, TX, [2]Yonsei University, Gangwon, Korea, Republic of, [3]Kansas State University, Manhattan, KS, [4]IIT, Genova, Italy

P-Fr-22
Development And Implementation Of A Control System For Indocyanine Green (ICG) Injections
G. Carpenter III[1], E. Sherer[1], P. O'Neal[1], I. Magana[1], P. Adhikari[1], H. Grigsby[1], and K. Evans[1]
[1]Louisiana Tech University, Ruston, LA

P-Fr-23
Stealth Nanoparticle Interaction with the Extracellular Matrix as a Barrier in Tumour Targeting
H. Labouta[1], C. Sarsons[1], T. Nguyen[1], J. Kennard[1], W. Ngo[1], K. Terefe[1], K. Rinker[1], and D. Cramb[1]
[1]University of Calgary, Calgary, AB, Canada

P-Fr-24
Pancreatic Cancer Susceptibility to Ascorbate Therapy May be Due to Aquaporins
D. Erudaitius[1]
[1]University of California Riverside, Riverside, CA

P-Fr-25
Development of Gold-Lipid Nanocomposites to Improve the Delivery of Chemotherapeutics to Tumors
C. Dobson[1], C. Pickering[1], A. David[1], P. Panizzi[1], and R. Arnold[1]
[1]Auburn University, Auburn, AL

P-Fr-26 DREAM TEAM & CENTER
Inhibitory Effects of Trans-cinnamaldehyde in the Progression and Aggression of Breast Cancer Cells
M. Thompson[1], E. Schmelz[1], P. Dillon[2], and L. Bickford[1]
[1]Virginia Tech, Blacksburg, VA, [2]University of Virginia, Charlottesville, VA

P-Fr-27
Selective Inhibition of MG-63 Osteosarcoma Cell Proliferation Induced By Curcumin-Loaded Self-assembled Arginine-Rich-RGD Nanospheres
R. Chang[1], L. Sun[1], and T. Webster[1,2]
[1]Northeastern University, Boston, MA, [2]King Abdulaziz University, Jeddah, Saudi Arabia

P-Fr-28
Development and Characterization of Gold-Lipidic Nanocomposites for Chemotherapeutic Delivery
C. Pickering[1], C. Dobson[1], M. Eggert[1], A. David[1], and R. Arnold[1]
[1]Auburn University, Auburn University, AL

P-Fr-30
Nanoparticle Delivery of a Hydrophobic and Highly Toxic Metal Chelator to Cancer Cells
Y. J. Kang[1], C-F. Kuo[1], and S. Majd[1]
[1]Penn State University, University Park, PA

P-Fr-33
Microcarrier Culture Enhances Release of Therapeutic miRNA in Extracellular Vesicles by HEK293T Cells
P. Amaya[1], E. Plencner[1], O. Elgamal[1], D. Sutaria[1], M. Phelps[1], T. Schmittgen[1], and J. Chalmers[1]
[1]Ohio State University, Columbus, OH

Track: Cancer Technologies

Cancer:

Cancer Immunoengineering Posters

P-Fr-35
Nanodisc Vaccine Platform for Elicitation of Anti-tumor Cytotoxic CD8+ T Lymphocytes
R. Kuai[1], A. Schwendeman[1], and J. Moon[1]
[1]University of Michigan, Ann Arbor, MI

P-Fr-36
Assessment of a Plant Viral Nanoparticle-based HER-2 Breast Cancer Vaccine Platform
S. Shukla[1] and N. F. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

P-Fr-37
Gold Nanoparticles as a Robust Platform for Cancer Vaccines
E. Reiser[1], J. P. Mattos Almeida[1], A. Lin[1], A. Foster[2], and R. Drezek[1]
[1]Rice University, Houston, TX, [2]Bellicum Pharmaceuticals, Houston, TX

P-Fr-38
GP Ib α-Mediated Platelet Adhesion to Highly Metastatic Breast Cancer Cells
S. Lynch[1] and D. Khismatullin[1]
[1]Tulane University, New Orleans, LA

P-Fr-39
Novel Azurin and p53 Expressing Avirulent *Salmonella Typhimurium* as Therapeutic against Glioblastoma
N. Mehta[1], R. Bellamkonda[1], K. Patil[1], and E. Gaupp[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Fr-40
TNF-& α and IFN-&γ Immunomodulation of Breast Cancer Cells for Whole Tumor Cell Vaccine Delivery
S. Ravindranathan[1], K. Maxwell[1], and D. Zaharoff[1]
[1]University of Arkansas, Fayetteville, AR

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Cancer Technologies

Cancer:

Cancer Mechanobiology Posters

P-Fr-41
The Effect of Fluid Shear Stress on Ovarian Cancer Cell Viability and Organization
A. Hyler[1], R. Davalos[1], P. Roberts[2], M. Stremler[1], and E. Schmelz[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA, [2]National Institutes of Health, Bethesda, MD

P-Fr-42
The Role of Shear Stress and Matrix Composition on Endothelial to Mesenchymal Transformation
S. Mina[1], B. Murray[1], P. Huang [1], and G. Mahler [1]
[1]Binghamton University, Binghamton, NY

P-Fr-43
Matrix Compliance Regulates Tetraploidy in Mammary Epithelial Cells
A. Simi[1], M. Cichon[2], D. Radisky[2], and C. Nelson[1]
[1]Princeton University, Princeton, NJ, [2]Mayo Clinic Cancer Center, Jacksonville, FL

P-Fr-44
Focused Ultrasound Decreases Proliferation Rate and Metastatic Potential of Prostate Cancer Cells
H. Yu[1], D. Luo[1], H. Murad[1], and D. Khismatullin[1]
[1]Tulane University, New Orleans, LA

P-Fr-45
A Comparison Between 2D And 3D Platforms For Cancer Drug Screening
T. Nguyen[1] and S. Peyton[1]
[1]University of Massachusetts Amherst, Amherst, MA

P-Fr-46
Tumor Cell Contractility and Metastatic Potentials
K. H. Choi[1] and M. T. A. Saif[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL

P-Fr-47
Micropillars Mimic Collagen Mechanics And Architecture In A S1P Metastasis Model.
J. Narang[1], S. Spiegel [1], and C. Lemmon[1]
[1]Virginia Commonwealth University, Richmond, VA

P-Fr-48
Mechanical Differentiation of Tumor Cells by Squeezing Through Microconstriction Arrays
N. Kamyabi[1], Z. Khan[1], and S. A. Vanapalli[1]
[1]Texas Tech University, Lubbock, TX

P-Fr-49
Biomechanical Investigation of how Myoferlin Influences Epithelial-to-Mesenchymal Transition and Erlotinib-Resistance in Lung Cancer Cells
L. Volakis[1], V. Shukla[1], T. Yamada[2], D. Kniss[2], and S. Ghadiali[2]
[1]The Ohio State University, Columbus, OH, [2]The Wexner Medical Center at The Ohio State University, Columbus, OH

P-Fr-50
The Role Of Cytoskeleton And Nucleus In Cell Decision-Making Under Confinement
A. Afthinos[1], P. Pachidis[1], and K. Konstantopoulos[1]
[1]Johns Hopkins University, Baltimore, MD

P-Fr-51
Decrease of Lamin A/C Expression Enhances Nuclear Deformability and 3-D Migration in Cancer Cells
C. Denais[1], R. Gilbert[1], K. Zhang[1], P. Davidson[1], M. Vortmeyer-Krause[2], M. Kea-te Lindert[2], K. Wolf[2], and J. Lammerding[1]
[1]Weill Institute for Cell and Molecular Biology, Ithaca, NY, [2]Radboud University Medical Centre, Nijmegen, Netherlands

Track: Cancer Technologies

Cancer:

Engineered Models of Cancer and the Tumor Microenvironment Posters

P-Fr-52
Contact Inhibition of Locomotion in a Fibrillar-Like Microenvironment During Breast Cancer Progression
D. Milano[1], N. Ngai[2], S. Muthuswamy[2], and A. Asthagiri[1]
[1]Northeastern University, Boston, MA, [2]University of Toronto, Toronto, ON, Canada

P-Fr-53
A 3D Stratified Colon Model for Colorectal Cancer Progression
M. Devarasetty[1], A. Skardal[1], and S. Soker[1]
[1]Wake Forest University, Winston Salem, NC

P-Fr-54
Engineering an Organotypic Colon through Recellularization for Studying Cancer Driver Genes with Transposon-based Mutagenesis
H. J. Chen[1], Z. Wei[2], N. Copeland[2], N. Jenkins[2], and M. Shuler[1]
[1]Cornell University, Ithaca, NY, [2]Houston Methodist Research Institute, Houston, TX

P-Fr-55
A Hydrogel Platform to Understand Features Driving Breast Cancer Metastasis to Bone Marrow
L. Jansen[1], T. McCarthy[1], and S. Peyton[1]
[1]University of Massachusetts Amherst, Amherst, MA

P-Fr-56
Interstitial Fluid Pressure (IFP) Drives Collective Invasion via Expression of Epithelial-Mesenchymal Transition (EMT) Markers in an Engineered Model of a Human Breast Tumor
A. Piotrowski[1], J. Tien[2], and C. Nelson[1]
[1]Princeton University, Princeton, NJ, [2]Boston University, Boston, MA

P-Fr-57
Microvesicles Released from Tumor Cells Induce Local Extracellular Matrix Reorganization by Disrupting Epithelium Contractility
F. Bordeleau[1], B. Chan[1], M. Antonyak[1], R. Cerione[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

P-Fr-58
Vascularized Organotypic Microfluidic Assays to Study Breast Cancer Cell Extravasation
J. Jeon[1,2], S. Bersini[3], M. Moretti[3], and R. Kamm[1]
[1]MIT, Cambridge, MA, [2]KAIST, Daejeon, Korea, Republic of, [3]Istituto Ortopedico Galeazzi, Milan, Italy

P-Fr-59
The Role of Interferon-Beta in Angiogenesis and Cancer Progression
D. Glaser[1], J. Weber[1], and S. George[1]
[1]Washington University, St. Louis, MO

P-Fr-60
Multiplexed Imaging to Study the Inflammatory Breast Cancer Stem Cell Microenvironment
N. Trenton[1], K. Chu[2], J. Zimak[1], A. Wolfe[2], W. Woodward[2], W. Hittelman[2], and M. Diehl[1]
[1]Rice University, Houston, TX, [2]MD Anderson Cancer Center, Houston, TX

P-Fr-61
Engineered Tumor Microenvironments To Investigate Matrix Rigidity Mediated Angiogenic Activity Of Cancer Cells
J. Li[1], Y. Wu[1], M. Al-Ameen[1], N. Schimmel[1], and G. Ghosh[1]
[1]University of Michigan, Dearborn, Dearborn, MI

P-Fr-62
Hyaluronic acid (HA)-based Scaffold with Electrospun PCL Fibers for Mimicking Brain Tumor Microenvironment
J. Cha[1], H. M. Kim[1], S-G. Kang[2], and P. Kim[1]
[1]KAIST, Daejeon, Korea, Republic of, [2]Yonsei University College of Medicine, Seoul, Korea, Republic of

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-63
Microfluidic Gastric Micrutumor Formation for High-throughput Drug Screening
M. Jang[1], S. Jung[1], J-H. Cheong[2], S. J. Lee[3], and P. Kim[1]
[1]KAIST, Daejeon, Korea, Republic of, [2]Yonsei University, Seoul, Korea, Republic of, [3]NNFC, Daejeon, Korea, Republic of

P-Fr-64
Anti-migratory Effect of Heparin Derivatives for Using Therapeutic Manner in Glioblastoma Multiforme
D. Y. Lee[1] and H. H. Hwang[1]
[1]Hanyang University, Seoul, Korea, Republic of

P-Fr-65
Extracellular Matrix Control of Metastasis and Dormancy
L. Barney[1] and S. Peyton[1]
[1]University of Massachusetts, Amherst, Amherst, MA

P-Fr-66
In Vitro Breast Tumor Model to Investigate the Role of Tumor Microenvironment in Disease Progression
S. Kidambi[1] and A. Daverey[1]
[1]University of Nebraska-Lincoln, Lincoln, NE

P-Fr-67
Targeted Cellular Ablation Based On The Morphology Of Malignant Glioblastoma Cells
J. Ivey[1], E. Latouche[1], M. Sano[1,2], J. Rossmeisl[1], R. Davalos[1], and S. Verbridge[1]
[1]Virginia Tech- Wake Forest University, Blacksburg, VA, [2]Stanford University School of Medicine, Stanford, CA

P-Fr-68
Cancer-Associated Fibroblasts Mediate Angiongesis Independently of VEGF
M. K. Sewell-Loftin[1], S. van Hove[1], B. T. Hughes[1], G. Longmore[1], and S. George[1]
[1]Washington University in St. Louis, St. Louis, MO

P-Fr-69
Tumor-associated Macrophages Regulate Metastatic Behavior of Ovarian Cancer Cells
M. Carroll[1], L. Stopfer[1], O. Velazquez[1], M. Pechmann[1], and P. Kreeger[1]
[1]University of Wisconsin, Madison, WI

POSTER SESSION **Fri**

P-Fr-70
Hydrodynamic Analysis of CTC-Cluster Transit Through Capillary Constrictions
S. Au[1], B. Storey[2], Y-L. Chen[3], A. F. Sarioglu[1], S. Maheswaran[1], D. Haber[1], S. Stott[1], and M. Toner[1]
[1]Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, [2]Olin College, Needham, MA, [3]Academia Sinica, Taipei, Taiwan

P-Fr-71
Mechanical Characterization and in-vitro Model of Tumor Microenvironment Maintenance by Pancreatic Stellate Cells
A. De La Pena[1], A. Rubiano[1], D. Delitto[1], S. Hughes[1], and C. Simmons[1]
[1]University of Florida, Gainesville, FL

P-Fr-72
Engineered Cancer Cell Spheroids Display Biological Properties of Tumors
S. Ham[1] and H. Tavana[2]
[1]The University of Akron, Akron, OH, [2]University of Akron, Akron, OH

P-Fr-73
Effects of Astrocytes from Brain Microenvironments on Motility and Morphology of Tumor Cells
M. Shumakovich[1] and K. Stroka[1]
[1]University of Maryland, College Park, MD

P-Fr-74
A Metastasis-on-a-Chip System for Modeling Colon Carcinoma Metastasis *In Vitro*
M. Devarasetty[1], A. Atala[1], S. Soker[1], and A. Skardal[1]
[1]Wake Forest School of Medicine, Winston-Salem, NC

P-Fr-75
A 3-D Primary Hepatocyte and Tumor Organoid Platform for Metastasis Research and Drug Screening
E. Wang[1], M. Devarasetty[1], S. Soker[1], and A. Skardal[1]
[1]Wake Forest School of Medicine, Winston-Salem, NC

P-Fr-76
Microengineered Three Dimensional Models Mimic Tumor Microenvironments Associated with Early vs. Advanced Breast Tumors
M. Singh[1], S. Oesterriech[2], and S. Sant[1,3,4]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Cancer Research Center, University of Pittsburgh Cancer Institute, Pittsburgh, PA, [3]Swanson School of Bioengineering, Pittsburgh, PA,[4]McGowan Institute for Regenerative Medicine, Pittsburgh., PA

P-Fr-77
Microengineered Breast Cancer Invasion Platform
D. Truong [1], A. Liave[1], J. Puleo[2], G. Mouneimne [3], R. Kamm[4], and M. Nikkhah[1]
[1]Arizona State University, Tempe, AZ, [2]University of Arizona, Tempe, AZ, [3]University of Arizona, Tucson, AZ, [4]Massachusetts Institute of Technology, Cambridge, MA

P-Fr-78
Use of a Patient-derived 3D Glioblastoma Model to Assess the Effect of Microenvironmental Factors on Cancer Progression and Response to Radiotherapy
J. Yuan[1], K. Kingsmore[1], A. Berr[1], and J. Munson[1]
[1]University of Virginia, Charlottesville, VA

P-Fr-79
In Vitro Assessment of Cancer Treatments with Three Dimensional Microtissues
J. Gao[1], S. K. Ng[1], M. Wang[1], and M. Su[1]
[1]Northeastern University, Boston, MA

P-Fr-80
A Bioengineered 3D Brain Tumor Model To Mimic Microanatomical Architectures Of Tumor-Vasculature Interactions
C. Wang[1], X. Jiang[1], C. Wilson[1], G. Grant[1], and F. Yang[1]
[1]Stanford University, Stanford, CA

P-Fr-81
Impact of Wnt/β-catenin Signaling and Lactate on Angiogenesis in the Tissue Engineered Tumor Microenvironment
V. Shirure[1], A. Lezia[1], M. Waterman[2], and S. George[1]
[1]Washington University in St Loui, St. Louis, MO, [2]University of California, Irvine, Irvine, CA

P-Fr-82
Tumors in a Dish: A 3D-printed Breast Cancer Model to Study Tumor Angiogenesis
S. Freeman[1], K. Reeser[1], V. Shah[1], C. Ma[1], S. Jin[1], and K. Ye[1]
[1]Binghamton University, SUNY, Binghamton, NY

P-Fr-83
Silica Nanoparticle Transport in Simulated Tumor Microenvironments: The Role of Surface Functionalization and Cellular Autophagy.
A. Nagesetti[1], G. Dulikravich[1], and A. J. McGoron[1]
[1]Florida International University, Miami, FL

P-Fr-84
Elucidating the Role of Microenvironmental Factors on Cancer Stem Cell Fate to Combat Tumor Growth
D. Reynolds[1], K. Charoen[1], M. Grinstaff[1], and M. Zaman[1]
[1]Boston University, Boston, MA

P-Fr-85
Role of Interstitial Flow in Glioma Microenvironment as Assessed by Dynamic Contrast Enhanced MRI
K. Kingsmore[1], S. Cui[1], F. Epstein[1], and J. Munson[1]
[1]University of Virginia, Charlottesville, VA

P-Fr-86
Glioblastoma Cell Phenotype Influenced by Substrate Nanotopography
A. Beliveau[1], G. Thomas[1], Q. Wen[1], and A. Jain[1]
[1]Worcester Polytechnic Institute, Worcester, MA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-87
Expansion of Patient Derived Glioblastoma Stem Cells in Temperature Responsive Scaffolds
J. Heffernan[1,2], D. Overstreet[1,2], S. Bowen[1], S. Borwege[1], N. Sanai[1], S. Mehta[1], B. Vernon[2], and R. Sirianni[1,2]
[1]Barrow Neurological Institute, Phoenix, AZ, [2]Arizona State University, Tempe, AZ

P-Fr-88
Elucidating the Perivascular Niche in Glioblastoma: A Role for Extracellular Fluid Pressure
M. Calhoun[1] and J. Winter[1]
[1]The Ohio State University, Columbus, OH

P-Fr-89
Investigating the Melanoma Extracellular Matrix Environment
M. Fenn[1], G. Ye[1], A. Abedinpoor[1], S. Seal[2], S. Das[2], and V. Kishore[1]
[1]Florida Institute of Technology, Melbourne, FL, [2]University of Central Florida, Orlando, FL

P-Fr-91
Bio-adhesive *Ex Vivo* Engineered Organoids for Patient-derived Multiple Myeloma
A. Purwada[1], A. Neri[2], G. Inghirami[3], and A. Singh[1]
[1]Cornell University, Ithaca, NY, [2]University of Milano and Hematology-CTMO, Milano, Italy,[3]Weill Cornell Medical College, New York, NY

P-Fr-92
Brain-Mimetic Microenvironments for Culture of Primary Glioblastoma Multiforme Cells
W. Xiao[1], J. Liang[1], C. Walthers[1], A. Ehsanipour[1], L. Ta[1], D. Nathanson[1], and S. Seidlits[1]
[1]University of California Los Angeles, Los Angeles, CA

Track: Cancer Technologies
Cancer:
Personalized Medicine and Biomarkers in Cancer Posters

P-Fr-93
A Continuous Flow Microspotter for the Implementation of a High-Throughput Drug Screening and Cytotoxicity Evaluation System
J. Arellano[1], J. Gammon[1], T. Howell[1], M-M. Janat-Amsbury[1], and B. Gale[1]
[1]University of Utah, Salt Lake City, UT

P-Fr-94
The Heterogeneous Response of Bone Marrow Metastases to EGFR Targeting Drugs and Chemotherapy
E. Brooks[1], M. Goldman[1], and S. Peyton[1]
[1]University of Massachusetts Amherst, Amherst, MA

P-Fr-95
Cross-Platform DNA Copy-Number Alterations Predict Astrocytoma Survival and Response to Chemotherapy
K. Aiello[1] and O. Alter[1]
[1]University of Utah, Salt Lake City, UT

Track: Cancer Technologies
Cancer: Cancer Other Posters

P-Fr-96
Irreversible Electroporation for Ovarian Cancer Therapy Can Target Resilient Tumor-Initiating Cells
A. Rolong[1], E. Schmelz[1], and R. Davalos[1]
[1]Virginia Tech, Blacksburg, VA

P-Fr-97
Comparison of Prostate Cancer and Non-Prostate Cancer Exosomes Using Raman Spectroscopy
D. Valenzuela Medina[1] and K. Moore[1]
[1]San Jose State University, San Jose, CA

P-Fr-98
The Effect of Radiofrequency and Non-Radiofrequency Induced Hyperthermia on Endothelial Cell Permeability
J. Ho[1], R. Serda[1], L. Vergara[1], M. Ware[1], S. Corr[1], and S. Curley[1]
[1]Baylor College of Medicine, Houston, TX

Track: Cardiovascular Engineering
Cardiopulmonary Bioengineering:
Angiogenesis Posters

P-Fr-99
Specification of Arterio-Venous Identity in Engineered Constructs Requires Mural Cell Recruitment
W. Altalhi[1,2], X. Sun[1], M. Husain[1], and S. Nunes[1,3,4]
[1]University health network, Toronto general hospital, Toronto, ON, Canada, [2]Laboratory medicine and pathology, University of Toronto, Toronto, Canada, [3]University of Toronto, Toronto, ON, Canada, [4]Heart & Stroke/Richard Lewar Centre of Excellence, Toronto, ON, Canada

P-Fr-100
Quantitation of Angiogenic Receptor Levels and Heterogeneity in Fibroblasts-endothelial Co-culture
S. Chen[1] and P. Imoukhuede[1]
[1]University of Illinois at Urbana-Champaign, Champaign, IL

P-Fr-101
Nanoparticles For Protein Delivery And Gene Therapy: An Alternative Treatment For Hindlimb Ischemia
L. Noukeu[1,2], S. Banerjee[2,3], L. Tang[1,2], and K. Nguyen[1,2]
[1]The University of Texas at Arlington, Arlington, TX, [2]The University of Texas Southwestern Medical Center, Dallas, TX, [3]VA North Texas Health Care System at Dallas, Dallas, TX

P-Fr-102
Acoustic Fields As A Tool For Fabricating Three-Dimensional Microvascular Networks
E. Comeau[1], D. Dalecki[1], and D. Hocking[1]
[1]University of Rochester, Rochester, NY

Track: Cardiovascular Engineering
Cardiopulmonary Bioengineering:
Cardiovascular Flow Modeling in Health and Disease Posters

P-Fr-103
Comparison of Blood Viscosity Models in Real and Stylized Carotid Arteries with Stenosis
E. Rogers[1], J. Ford[2], S. Decker[2], D. McMillan[3], and W. Lee[3]
[1]University of South Florida, St. Petersburg, FL, [2]University of South Florida, Morsani College of Medicine, Tampa, FL, [3]University of South Florida, Tampa, FL

P-Fr-104
Model of Altered Circulation Time and Wall Shear Stress in Arteriovenous Fistula
L. F. Laquian[1,2], Y. He[1,2], and S. Berceli[1,2]
[1]University of Florida, Gainesville, FL, [2]Malcom Randall Veterans Affairs Medical Center, Gainesville, FL

P-Fr-105
Patient-Specific Computational Fluid Dynamics based on 4D Flow MRI
S. Garcia-Rodriguez[1], C. Francois[1], and A. Roldan-Alzate[1]
[1]University of Wisconsin-Madison, Madison, WI

P-Fr-106
Cerebral Hemodynamics during Apnea
R. Alex[1], F. Tian[1], H. Liu[1], K. Machiraju[2], E. Altuwaijri[1], D. Watenpaugh[3], and K. Behbehani[1,4]
[1]The University of Texas at Arlington, Arlington, TX, [2]The University of Texas at Arlington, Arlngtoh, TX, [3]Sleep Consultants Inc., Arlington, TX, [4]UT Arlington, Arlington, TX

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-107
Porcine Small Intestinal Submucosal Valve Dynamics In The Aortic Position.
O. Mankame[1], M. Lordeus[1], and S. Ramaswamy[1]
[1]Florida International University, Miami, FL

P-Fr-108
Low-cost Method to Create *In Vitro* Surrogates of Common Vessel Bifurcations for Cell Plating and Flow Studies
S. Kudernatsch[1] and D. Peterson[1]
[1]Texas A&M University - Texarkana, Texarkana, TX

P-Fr-109
Blood Flow Patterns in Stenosed Coronary Artery Models
A. R. Kaazempur-Mofrad[1]
[1]University of California Berkeley, Berkeley, CA

P-Fr-110
Design Principles for Engineered Lymphatics that Drain Type I Collagen Scaffolds
R. Thompson[1], B. Coisman[1], G. Price[1], K. Wong[1], and J. Tien[1]
[1]Boston University, Boston, MA

P-Fr-111
Modelling and Simulation of Fluid Flow through a Dynamic Electrochemical Biodegradation Test Apparatus
S. Hughes[1] and A. Mahapatro[1]
[1]Wichita State University, Wichita, KS

Track: Cardiovascular Engineering
Cardiopulmonary Bioengineering:
General Cardiovascular Engineering Posters

P-Fr-112
FXIa and Platelet Polyphosphate as Therapeutic Targets During Human Blood Clotting on Collagen/Tissue Factor Surfaces Under Flow
S. Zhu[1], R. Travers[2], J. Morrissey[2], and S. Diamond[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]University of Illinois, Urbana, IL

P-Fr-113
Platelet-targeting Sensor Reveals Heterogeneity in Spatial Distribution of Thiol Isomerase Activity in Formed Thrombus in Mice
S. Zhu[1], J. Welsh[1], and S. Diamond[1]
[1]University of Pennsylvania, Philadelphia, PA

P-Fr-114
Genetic Switching of Vascular Smooth Muscle Cells
A. Kay[1], C. L. Simpson[1], and J. Grant[1]
[1]Mississippi State University, Mississippi State, MS

P-Fr-115
Single-cell Characterization of Endothelial Glycocalyx Mediated Nitric Oxide Production
M. Dragovich[1], D. Chester[2], and X. F. Zhang[2]
[1]Lehigh Unversity, Bethlehem, PA, [2]Lehigh University, Bethlehem, PA

P-Fr-116
Multi-Objective Optimization of a Fully Conjugate Cooling Preservation System for Human Hearts Destined for Transplantation
A. Abdoli[1], G. Dulikravich[2], C. Bajaj[3], and D. F. Stowe[4]
[1]University of Miami, Miami, FL, [2]Florida International University, Miami, FL, [3]University of Texas at Austin, Austin, TX, [4]University of Wisconsin, Milwaukee, WI

P-Fr-117
Ex-Vivo Slaughterhouse Porcine Crystalloid-Perfused Beating Heart Organ via Langendorff Method
R. Talukder[1], B. Stewart[1], A. Clinkenbeard[1], A. Beheshtian[2], P. Azadani[3], and A. Azadani[1]
[1]University of Denver, Denver, CO, [2]Albert Einstein College of Medicine, Bronx, NY,[3]University of Utah School of Medicine, Salt Lake City, UT

P-Fr-119
Engineered Cardiac Patches for Full-thickness RVOT Repair
S. Pok[1]
[1]Rice University, Houston, TX

P-Fr-120
A Novel Optimized Learning Approach to Predict Periventricular Leukomalacia Occurrence in Neonates
D. Bender[1]
[1]Villanova University, Villanova, PA

P-Fr-121
Time-Frequency Analysis of Vibrocardiographic Signals
A. Taebi[1] and H. Mansy[1]
[1]University of Central Florida, Orlando, FL

P-Fr-122
Interpretation of Dispersion in Blood-like and Related Suspension Flows
E. Eckstein[1], J. Lavine[1], M. Leggas[1], B. Ma[1], V. Bhal[1], and J. Goldstein[1]
[1]University of Memphis, Memphis, TN

Track: Cardiovascular Engineering
Cardiopulmonary Bioengineering:
Heart Valve Repair and Surgery Poster

P-Fr-123
Mitral Valve Repair for Posterior Chordal Rupture: Neochordoplasty vs. Quadrangular Resection
A. Choi[1], D. McPherson[1], and H. Kim[1]
[1]University of Texas Health Science Center at Houston, Houston, TX

P-Fr-124
Platforms for the *In Vitro* Detection of the Acute Off-Target Effects of Drugs on the Cardiac Valves
A. Capulli[1] and K. K. Parker[1]
[1]Harvard University, Cambridge, MA

P-Fr-125
The Design of Culture and Computational Models for the Study of Hypoxia in Aortic Valve Disease
M. Sapp[1], V. Krishnamurthy[1], G. Fatora[1], and K. J. Grande-Allen[1]
[1]Rice University, Houston, TX

P-Fr-126
Mitral Valve Repair for Anterior Chordal Rupture: Strut Chordae Transposition vs. Neochordoplasty
A. Choi[1], D. McPherson[1], and H. Kim[1]
[1]The University of Texas Health Science Center at Houston, Houston, TX

P-Fr-127
Smooth Muscle Cell Proliferation Inhibition Using Drug-Loaded Polymeric Micelles
J. Betala[1], S. Bae[1], J. Lee[1], E. Langan[2], and M. LaBerge[1]
[1]Clemson University, Clemson, SC, [2]Greenville Health System, Greenville, SC

P-Fr-128
Physiological Remodeling of Mitral Valve Chordae Tendinae During Pregnancy
B. Scott[1] and S. Wells[1]
[1]Dalhousie University, Halifax, NS, Canada

P-Fr-129
A Prototype Of An Aortic Valve Leaflet
S. Jana[1], M. Young[1], and A. Lerman[1]
[1]Mayo Clinic, Rochester, MN

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Biomechanics, Cardiovascular Engineering
Cardiopulmonary Biomechanics:
Biofluid Mechanics Posters

P-Fr-130
Estimation of Coupled Ventriculo-Arterial Function using 1D and 3D Fluid-Structure Interaction Models
K. D. Lau[1], J. Alastruey[2], and C. A. Figueroa[1]
[1]*University of Michigan, Ann Arbor, MI,* [2]*King's College London, London, United Kingdom*

P-Fr-131
Reabsorption Emerging from Complex Interaction of Proximal Tubule-Capillary Mechanical Properties
T. Stiles[1], M. Johnson[1], L. Friesenhahn[1], D. Chen[1], G. Lessen[1], and C. Quick[1]
[1]*Texas A&M University, Bryan, TX*

P-Fr-132
Development of Three-dimensional Streamline Image Velocimetry using Superimposed Delaunay Triangulation and Geometrical Fitting
E. Ezra[1], E. Keinan[1], and Y. Nahmias[1]
[1]*The Hebrew University of Jerusalem, Jerusalem, Israel*

P-Fr-133
In Vitro Model of Paravascular Transport in the Brain
H. Boyco[1] and F. de Asis[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-134
Computational Model of Blood Flow in Embryo-Specific Geometry of the Zebrafish Heart
P. Kozlovsky[1], M. Rosenfeld[1], R. Bryson-Richardson[2], and D. Elad[1]
[1]*Tel Aviv University, Tel Aviv, Israel,* [2]*Monash University, Clayton, Australia*

P-Fr-135
Hemolysis Index Calculations for Different Configurations of Blood Flow Through a Cannula
C. Basciano[1], S. Balasubramanian[1], P. Downie[1], and A. Bestelmeyer[1]
[1]*BD, Research Triangle Park, NC*

P-Fr-136
Sinonasal Airflow Characteristics in Pre- and Post-operative Nasal Passages
H. Kumar[1], R. Jain[1], R. Douglas[1], and M. Tawhai[1]
[1]*The University of Auckland, Auckland, New Zealand*

Track: Biomechanics, Cardiovascular Engineering
Cardiopulmonary Biomechanics:
Cardiovascular Biomechanics Posters

P-Fr-137
Patient Specific Finite Element Modeling of the Failing Heart. How Computational Mathematical Modeling Can Direct Optimal Surgical Procedures in Children
N. cambronero[1], M. Ratcliffe[2], and L. Ge[2]
[1]*UCSF, San Francisco, CA,* [2]*san francisco VA Medical Center, San Francisco, CA*

P-Fr-138
Regenerating Zebrafish Myocardium Softens Following Cryoinfarction
J. Yu[1,2], P. Sarathchandra[2], A. Chester[2], M. Yacoub[2], T. Brand[2], and J. Butcher[3]
[1]*Johns Hopkins School of Medicine, Baltimore, MD,* [2]*Imperial College London, Harefield, United Kingdom,* [3]*Cornell University, Ithaca, NY*

P-Fr-139
Biomechanical Investigation of the Two-Layered Carotid Artery Media
C. Davis[1,2], A. Pandya[2], and S. Greenwald[2]
[1]*Texas A&M University, College Station, TX,* [2]*Barts and the London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom*

P-Fr-140
Pulmonary Mechanics In Hypoxic Pulmonary Hypertension: Decreased Arterial Wall Stress Is Maintained In Recovery From Hypoxia
M. Dufva[1], S. Burgett[1], B. Dodson[1], J. Walker[1], and K. Hunter[1]
[1]*University of Colorado Denver, Denver, CO*

P-Fr-141
Variable Strain Patterns Mimicking Blood Pressure Fluctuations Maintain Contractility in Rat Aorta
J. Imsirovic[1], E. Bartolak-Suki[1], and B. Suki[1]
[1]*Boston University, Boston, MA*

P-Fr-142
The Role of the Nucleus in Endothelial Cell Responses to Fluid Shear Stress
N. Noll[1], P. Arsenovic[1], I. Ramachandran[1], and D. Conway[1]
[1]*Virginia Commonwealth Univeristy, Richmond, VA*

P-Fr-143
Force Alterations In The Aortic Root After Reconstructive Surgery: An *In Vitro* Experiment
T. Bechsgaard[1,2], T. S. Lading [1], T. Lindskow[1], H. Nygaard[1], S. Lyager Nielsen[1], and P. Johansen[1,2]
[1]*Aarhus University Hospital, Aarhus N, Denmark,* [2]*Aarhus University, Aarhus N, Denmark*

P-Fr-144
Hypertension-Linked Stiffening of Gastrointestinal Tissue in Rat Model
A. Rubiano[1], D. Stewart[1], M. Santisteban[1], V. Shenoy[1], C. Pepine[1], M. Raizada[1], and C. Simmons[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-145
Extracellular Matrix Regulation Of The Structure And Contractility Of Engineered Cardiac Tissues
N. Ariyasinghe[1], A. Petersen[1], C. Reck[1], J. Hsu[1], D. Lyra-Leite[1], and M. McCain[1]
[1]*University of Southern California, Los Angeles, CA*

P-Fr-146
Characterization of the Mechanical Behavior and Microstructural Properties of Partially Ligated Common Carotid Arteries from Wild Type Mice
A. Pokutta-Paskaleva[1], D. Liu[1], T. Chadid[2], R. Gleason[1], and L. Brewster[2]
[1]*Georgia Tech, Atlanta, GA,* [2]*Emory University, Atlanta, GA*

P-Fr-147
Regulation Of Cardiac Fibroblast Proliferation By Extracellular Matrix Elasticity
N. Cho[1], J. Hsu[1], D. Lyra-Leite[1], and M. McCain[1]
[1]*University of Southern California, Los Angeles, CA*

P-Fr-148
Growth and Remodeling of Artery under Twisting
Q. Liu[1], S. Baek[2], and H-C. Han[1]
[1]*Unviersity of Texas, San Antonio, TX,* [2]*Michigan State University, East Lansing, MI*

P-Fr-149
Mechanical Properties of Normotensive and Hypertensive Rat Right and Left Ventricular Myocardium
A. Rubiano[1], C. Simmons[1], Y. Qi[1], C. Pepine[1], and M. Raizada[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-150
A Patient-Specific Numerical Approach To Investigate Clinical Complications During Transcatheter Aortic Valve Replacement
M. Bianchi[1], R. Ghosh[1], G. Marom[1], M. Poon[2], H. Fernandez[2], J. Taylor[2], and D. Bluestein[1]
[1]*Stony Brook University, Stony Brook, NY,* [2]*Stony Brook University Hospital, Stony Brook, NY*

P-Fr-151
Mechanical Determinants of Blood Loss during Hypotensive Treatment of Hemorrhagic Shock
T. Stiles[1], Y. Tong[1], R. Rebbapragada[1], M. Zhang[1], S. Mash[1], M. Bartock[1], and C. Quick[1]
[1]*Texas A&M University, Bryan, TX*

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-152
A Novel Constitutive Model for Blood Vessels including Smooth Muscle Cell Contraction
H. Chen[1]
[1]The California Medical Innovations Institute, Inc., San Diego, CA

P-Fr-153
Changes in Heart Valve Collagen Fiber Modulus and Recruitment in Pregnancy
B. Rego[1], S. Wells[2], and M. Sacks[1]
[1]The University of Texas at Austin, AUSTIN, TX, [2]Dalhousie University, Halifax, NS, Canada

Track: Cardiovascular Engineering, Biomechanics
Cardiopulmonary Biomechanics:
Heart Valve Mechanics Posters

P-Fr-154
Assessment of Viscous Damping Coefficient of Bioprosthetic Valves under Physiological Loading
M. Abbasi[1], M. Barakat[1], S. Javani[1], and A. Azadani[1]
[1]University of Denver, Denver, CO

P-Fr-155
Interplay of Fluid Mechanical and Solid Mechanical Considerations in Stent Strut Design
F. Cornat[1], F. Bozsak[1], and A. I. Barakat[1]
[1]LadHyX - Ecole Polytechnique, Palaiseau cedex, France

P-Fr-156
Fluid Oscillations: A Key Component to Valvulogenic Gene Expression
S. Rath[1], M. Salinas[1], A. Villegas[1], and S. Ramaswamy[1]
[1]Florida International University, Miami, FL

P-Fr-157
Comparative Numerical Analysis of Transcatheter Aortic Valve Mechanics Via Finite Element Method and Fluid-Structure Interaction
R. Ghosh[1], G. Marom[1], S. Prabhakar[2], M. Horner[3], M. Slepian[4], and D. Bluestein[1]
[1]Stony Brook University, Stony Brook, NY, [2]Ansys Fluent India Pvt. Ltd, Pune, India, [3]Ansys, Inc, Evanston, IL, [4]Sarver Heart Center, University Of Arizona, Tucson, AZ

P-Fr-158
Optimization of Mechanical Heart Valve Cavitation Detection
P. Weng[1] and P. Johansen[1]
[1]Aarhus University dept. of eng., Aarhus, Denmark

P-Fr-159
Time-Resolved Particle Image Velocimetry Measurements of a Leakage Flow Near-Hinge in a Clinical St. Jude Medical Bileaflet Mechanical Heart Valve Model
E. Klusak[1], I. Okafor[2], V. Raghav[2], A. P. Yoganathan[2], and N. J. Quinlan[1]
[1]National University of Ireland Galway, Galway, Ireland, [2]Georgia Institute of Technology, Atlanta, GA

P-Fr-160
Stress Analysis of Transcatheter Aortic Valves under Dynamic Loading: Impact of Tissue Thickness
M. Abbasi[1], M. Barakat[1], S. Javani[1], and A. Azadani[1]
[1]University of Denver, Denver, CO

P-Fr-161
Microstructural Changes In The Tricuspid Valve Anterior Leaflet In Response To Biaxial Mechanical Loading
V. Thomas[1], A. Pant[1], K. Amini Khoiy[1], K. Asgarian[2], and R. Amini[1]
[1]The University of Akron, Akron, OH, [2]St. Joseph's Regional Center, Patterson, NJ

P-Fr-162
The Effect of MitraClip on Mitral Leaflet Stress Using Two Finite Element Methods.
W. Macmillan[1], S. Gulati [2], J. Guccione[3], L. Ge[4], and M. Ratcliffe[4]
[1]UCSF, SF VA Medical Center, San Francisco, CA, [2]SF VA Medical Center, San Francisco, CA,[3]UCSF School of Medicine, UC Berkeley Department of Bioengineering, SF VA Medical Center, San Francisco, CA, [4]UCSF, SF VA Hospital, San Francisco, CA

Track: Cardiovascular Engineering, Biomechanics
Cardiopulmonary Biomechanics:
Heart Valves Posters

P-Fr-163
Effect Of Endothelial Cells And Matrix Stiffness On Phenotype Change Of Valvular Interstitial Cells
M. Ali[1], X. Wang[1], and C. Lacerda[1]
[1]Texas Tech University, Lubbock, TX

P-Fr-164
Role Of MiRNA-483-3p In Valvular Endothelial Dysfunction
J. Fernandez Esmerats[1], J. Heath[2], S. Kumar[2], and H. Jo[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA

P-Fr-165
Endothelial to Mesenchymal Transformation is Induced by Altered Extracellular Matrix Composition in Aortic Valve Endothelial Cells
S. Dahal[1] and G. Mahler[1]
[1]Binghamton University, Binghamton, NY

P-Fr-166
Stochastic Modeling of Endothelial to Mesenchymal Transformation in the Aortic Heart Valve
J. Bramsen[1], G. Mahler[2], P-Y. (. Huang[2], and B. Murray[2]
[1]Binghamton University, Binghamton, NY, [2]Binghamton University, Vestal, NY

P-Fr-167
Magnesium Presence Prevents Removal of Nuclear-Associated Protein Antigens from Bovine Pericardium for Heart Valve Engineering
A. Dalgliesh[1]
[1]University of California: Davis, Davis, CA

Track: Cardiovascular Engineering
Cardiopulmonary Biomechanics:
Hemodynamics and Vascular Mechanics Posters

P-Fr-169
Disturbed Flow Induces Autophagy but Impairs Autophagic Flux with relevance to Mitochondrial Homeostasis
N. Jen[1], R. Li[1], J. Lee[1], and T. Hsiai[1]
[1]UCLA, Los Angeles, CA

P-Fr-170
Von Willebrand Factor's Shear-and-Time Dependent Degradation under Pulsatile Shear through a Capillary Shear System
S. Yang[1], V. Turitto[1], J. Sheriff[2], and D. Bluestein[2]
[1]Illinois Institute of Technology, Chicago, IL, [2]Stony Brook University, Stony Brook, NY

P-Fr-171
Age Associated Reductions in the &[beta]-adrenergic Response of Cardiomyocytes
A. Cunha[1], A. Kwawazala[2], and S. Campbell[2]
[1]Worcester Polytechnic Institute, Worcester, MA, [2]Yale University, New Haven, CT

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-172
Flow-Induced Mechanics And Gene Expression Patterns In Microvascular Great Artery Morphogenesis
S. Goktas[1], C. Karakaya[1], S. Karahuseyinoglu[1], and K. Pekkan[1,2]
[1]Koc University, Istanbul, Turkey, [2]Carnegie Mellon University, Pittsburgh, PA

P-Fr-173
Oscillatory Shear Stress Impairs O-GlcNAc Modification in the Aortic Valve Endothelium
J. Heath[1], J. Fernandez[1], R. Simmons[1], S. Kumar[1], and H. Jo[1]
[1]Emory University, Atlanta, GA

P-Fr-174
Characterization of a Bioprosthetic Bicuspid Venous Valve Hemodynamics: Implications for Mechanism of Valve Dynamics
H. Chen[1], W-H. Tien[2], S. Chambers[3], and G. Kassab[1]
[1]California Medical Innovations Institute, San Diego, CA, [2]University of Washington, Seattle, WA, [3]COOK® Medical, Bloomington, IN

P-Fr-175
RV-PA Coupling Efficiency As A Predictor of Exercise Capacity In Patients With Pulmonary Arterial Hypertension
E. Dinges[1], A. Bellofiore[2], S. Shah[3], M. Cuttica[3], R. Sweis[3], H. Mkrdichian[3], J. Runo[1], J. Keevil[1], C. Francois[1], and N. Chesler[1]
[1]University of Wisconsin-Madison, Madison, WI, [2]San Jose State University, San Jose, CA,[3]Northwestern University, Chicago, IL

P-Fr-176
Measurement of Carotid-Femoral and Regional Pulse Wave Velocities Using Accelerometers
R. Wang[1], N. Kurgan[1], and C. Robinson[1]
[1]Clarkson University, Potsdam, NY

P-Fr-177
High Resolution Analyses of Destabilizing Microcalcifications in Thinning Atherosclerotic Caps
J. Hutcheson[1], C. Goettsch[1], J. Ruiz[1], M. Aikawa[1], and E. Aikawa[1]
[1]Brigham and Women's Hospital / Harvard Medical School, Boston, MA

P-Fr-178
Light-Sheet Microscopy to Elucidate Hemodynamic Forces and Modulation of Cardiac Trabeculation: Implications for Embryonic Contractile Function
J. Lee[1], P. Fei[1], H. Xu[2], C. C. J. Kuo[2], D. Yelon[3], C-M. Ho[1], and T. Hsiai[1]
[1]University of California, Los Angeles, Los Angeles, CA, [2]University of Southern California, Los Angeles, CA, [3]University of California, San Diego, La Jolla, CA

P-Fr-179
Optical Probing of Muscle Damage in Peripheral Artery Disease Hind Limb Ischemia Murine Model
K. Howard[1], L. Carson[1], R. Becker[1], H. Mehraein[1], and K. Cluff[1]
[1]Wichita State University, Wichita, KS

P-Fr-180
MRI Assessment Of Main Pulmonary Artery Stiffness During Exercise Stress
O. Forouzan[1], J. Warczytowa[1], O. Wieben[1], C. François[1], and N. Chesler[1]
[1]University of Wisconsin, Madison, WI

P-Fr-181
Model-based Assessment of Hemodynamic and Metabolic Risks Factors in Hypertension
P. Mohan[1], T. Phan[1], and J. Li[1]
[1]Rutgers University, New Brunswick, NJ

P-Fr-182
Analysis Of Automatically Sampled Aorta Geometry In Turner Syndrome Patients
W. Stoddard[1], G. Mylavarapu[1], E. Gutmark[1], C. Gravholt[2], C. Trolle[2], S. Ringgaard[2], P. Backeljauw[3], and I. Gutmark-Little[3]
[1]University of Cincinnati, Cincinnati, OH, [2]Aarhus University Hospital, Aarhus, Denmark,[3]Cincinnati Children's Hospital, Cincinnati, OH

Track: Cardiovascular Engineering
Cardiopulmonary Biomechanics:
Cardiac Electrophysiology Posters

P-Fr-183
Reduced-Order Finite Element Modeling of Cardiac Propagation
D. Vu[1] and K. Ng[1]
[1]New Mexico State University, Las Cruces, NM

P-Fr-184
Studying Sinoatrial Node Function in Aging: Prediction of Sinoatrial Node Conduction Velocity Using a Fuzzy Neural Network
M. Moghtadaei[1], S. Rafferty[1], S. Howlett[1], and R. Rose[1]
[1]Dalhousie University, Halifax, NS, Canada

P-Fr-185
Defining Phase Cohesion and Synchrony in the Sinoatrial Node
B. Onal[1], Z. Coulibaly[2], A. Gelastopoulos[3], T. Hund[1], and X. Zhao[4]
[1]The Ohio State University, Columbus, OH, [2]University of Maryland Baltimore County, Baltimore, MD, [3]Boston University, Boston, MA, [4]University of Tennessee-Knoxville, Knoxville, TN

P-Fr-186
Focal Adhesion Size Correlates With Membrane Ion Channel Distribution and Expression
S. Sengupta[1], B. Hoffman[1], and N. Bursac[1]
[1]Duke University, Durham, NC

P-Fr-187
Establishment of a Reentry Model on a Multielectrode Array
Z. Wang[1], S. Ma[1], and B. Gao[1]
[1]Clemson University, Clemson, SC

P-Fr-188
Implicit Implementation of Volume Boundaries for Element Free Bioelectric Field Simulation
I. Sturdevant[1] and K. Ng[1]
[1]New Mexico State University, Las Cruces, NM

P-Fr-189
Obstructive Fibrosis Related To Conduction Slowing In Chronic Atrial Fibrillation
N. Angel[1], L. Li[1], R. MacLeod[1], N. marrouche[1], R. Ranjan[1], and D. Dosdall[1]
[1]University of Utah, Salt Lake City, UT

P-Fr-190
Optical Mapping of Cardiac Electromechanics
H. Zhang[1], K. Iijima[1], G. Walcott[1], and J. Rogers[1]
[1]University of Alabama at Birmingham, Birmingham, AL

P-Fr-191
Sleep to Waking versus Waking to Exercise: Resting State Impact on Risk of Sudden Cardiac Death
A. Greer-Short[1] and S. Poelzing[1]
[1]Virginia Tech Carilion Research Institute, Roanoke, VA

Track: Cardiovascular Engineering
Cardiopulmonary Biomechanics:
Cardiac Mechanics Posters

P-Fr-192
Effects of Engineered Cardiac Tissue Architecture on Mitochondria Organization and Tissue Function
M. Knight[1], N. Johnsen[2], N. Drew[1], and A. Grosberg[1]
[1]University of California, Irvine, Irvine, CA, [2]University of California, Irvine, Huntington Beach, CA

POSTER SESSION **Fri**

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P-Fr-193
Substrate Stiffness Regulates Phenotype of Cardiac Fibroblasts in Volume Overload Heart Failure
R. Childers[1,2], P. Lucchesi[1,2], and K. Gooch[1]
[1]The Ohio State University, Columbus, OH, [2]The Research Institute at Nationwide Children's Hospital, Columbus, OH

P-Fr-194
Passive Biaxial Mechanical Properties of Different Anatomical Regions of Normal Ovine Heart
S. Javani[1], M. Abbasi[1], M. Gordon[1], and A. Azadani[1]
[1]University of Denver, Denver, CO

P-Fr-195
As the Beating Heart Stiffens in Development, So Does the Nuclear Lamina
S. Majkut[1], S. Cho[1], M. Tewari[1], J. Irianto[1], T. Idema[1], A. Liu[1], S. Safran[2], and D. E. Discher[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]Weizmann Institute of Science, Rehovot, Israel

P-Fr-196
A Cardiothoracic Phantom for the Study of Heart Murmurs
H. Bakhshaee[1], J-H. Seo[1], T. Kilmar[1], G. Tognetti[1], G. Garreau[1], W. Thompson[1], A. Andreou[1], and R. Mittal[1]
[1]Johns Hopkins University, Baltimore, MD

P-Fr-197
Novel Programmable Isolated Perfused Heart Apparatus to Study Heart-Vasculature Interaction *In Vitro*
M. McDowall[1], C. Nipper[1], A. Urquia[1], N. Stowe[1], C. Quick[1], and R. Dongaonkar[1]
[1]Texas A&M University, College Station, TX

P-Fr-198
Residual Stress Impairs Pump Function After the Dor Procedure: A Finite Element Analysis
J. Pantoja[1], Z. Zhang[2], J. Guccione[1,2], W. Macmillan[2], M. Tartibi[2], L. Ge[1,2], and M. Ratcliffe[1,2]
[1]University of California San Francisco, San Francisco, CA, [2]San Francisco Veterans Affairs Medical Center, San Francisco, CA

P-Fr-199
The Involvement Of Serotonin Receptor And Fibroblast Growth Factor-Mediated Signaling In Single Valve Cell Response To Pathological Stress
N. Lam[1] and K. Balachandran[1]
[1]University of Arkansas, Fayetteville, AR

P-Fr-200
Effects of Mechanical Perturbations Approach on the Spiral Wave Dynamics
Y. Belhamadia[1], S. Dubljevic[2], and A. Hazim[1]
[1]University of Alberta, Edmonton, AB, Canada

Track: Respiratory Bioengineering, Biomechanics

Cardiopulmonary Biomechanics:

Integrated Respiratory Structure and Function Posters

P-Fr-201
A Computational Model of Lung Fibroblast Migration with In Vitro Validation
J. Ratti[1], A. Reynolds[2], and R. Heise[1]
[1]Virginia Commonwealth University, Richmond, VA, [2]Virginia Commonwealth Universi, Richmond, VA

P-Fr-202
Simulation of Airflow Characteristics in the Realistic and Simplified Alveolar Sacs
J. Kim[1], R. Heise[2], A. Reynolds[2], and R. Pidaparti[1]
[1]University of Georgia, Athens, GA, [2]Virginia Commonwealth University, Richmond, VA

P-Fr-203
Thermodynamically-Constrained Computational Model of Lung Mitochondrial Bioenergetics
X. Zhang[1], R. Dash[2], V. Pannala[2], A. Clough[1], E. Jacobs[2], and S. Audi[1]
[1]Marquette University, Milwaukee, WI, [2]Medical College of Wisconsin, Milwaukee, WI

P-Fr-204
Finite Deformation Elasticity to Predict Ttissue Density Distribution in the Supine Lung
H. Kumar[1], E. Hoffman[2], and M. Tawhai[1]
[1]The University of Auckland, Auckland, New Zealand, [2]The University of Iowa, Iowa city, IA

P-Fr-205
Biological Impacts of a Flexible Airway *In vitro* Model of Pulmonary Recruitment Events
T. Itin[1], M. Harrison[1], and D. Gaver[1]
[1]Tulane University, New Orleans, LA

P-Fr-206
Influence of Regional Interstitial Disease and Anemia on DLCO from a Time-dependent Novel Approach
B. Sapoval[1] and M-Y. Kang[1]
[1]Ecole Polytechnique, Palaiseau, France

P-Fr-207
Endotracheal Tube Compensation for Respiratory Impedance Measurements Using Time-Domain and Frequency-Domain Approaches
A. Fonseca da Cruz[1], J. Herrmann[2], and D. Kaczka[3]
[1]Hospital das Clinicas da FMUSP, Sao Paulo, Brazil, [2]University of Iowa, Iowa CIty, IA,[3]University of Iowa, Iowa City, IA

P-Fr-208
Probing the Angles and Diameters of Pig Airway Branching Using Computed Tomography
H. Mansy[1] and M. K. Azad[1]
[1]Univ of Central Florida, Orlando, FL

P-Fr-209
Anatomical Re-endothelialization and Cell Adhesion Molecule Expression within Decellularized Rodent Lungs
C. Stabler[1], L. Caires[2], M. Mondrinos[3], C. Marcinkiewicz[1], P. Lazarovici[4], and P. Lelkes[1]
[1]Temple University, Philadelphia, PA, [2]Sao Paolo University, Sao Paolo, Brazil, [3]University of Pennsylania, Philadelphia, PA, [4]Hebrew University of Jerusalem, Jerusalem, Israel

Track: Respiratory Bioengineering, Biomechanics

Cardiopulmonary Biomechanics:

Surface Tension and Lung Injury Posters

P-Fr-210
Modeling Strain-Induced Leak in an Inhomogeneous Alveolar Epithelial Monolayer
K. Hamlington[1], B. Smith[1], and J. Bates[1]
[1]University of Vermont, Burlington, VT

P-Fr-211 DREAM TEAM & CENTER
Aging and Mechanical Stretch Increase Inflammatory Gene Expression and ER Stress in In Vitro and *In Vivo* Models of Lung Injury
J. Herbert[1], M. Valentine[1], P. Patel[1], J. Nkwocha[1], A. Fowler[1], R. Pidaparti[2], A. Reynolds[1], and R. Heise[1]
[1]Virginia Commonwealth University, Richmond, VA, [2]University of Georgia, Athens, GA

P-Fr-212
Quantification of Airspace Enlargement due to Ventilator Induced Lung Injury in an Aging Lung Model
M. Schneck[1], M. Valentine[1], J. Herbert[1], R. Pidaparti[2], A. Reynolds[1], and R. Heise[3]
[1]Virginia Commonwealth University, Richmond, VA, [2]University of Georgia, Athens, GA,[3]Virginia Commonwealth Universi, Richmond, VA

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-213
The Synergy Between Volutrauma and Atelectrauma in Blood-air Barrier Disruption
B. Smith[1], G. Roy[1], K. Hamlington[1], and J. Bates[1]
[1]*The University of Vermont, Burlington, VT*

P-Fr-214
Effects of Negative and Positive Pressure Ventilation on Lung Mechanics and Inflammation During ex-vivo Lung Perfusion (EVLP)
K. Nelson[1], S. Ghadiali[1,2], and B. Whitson[1,3]
[1]*Ohio State University, Columbus, OH,* [2]*Department of Pulmonary, Allergy, Critical Care, and Sleep, Columbus, OH,* [3]*Department of Surgery and Division of Cardiac Surgery, Columbus, OH*

P-Fr-215
Multi-scale Model of Liquid Obstruction Formation and Clearance in the Lung
J. Ryans[1], D. Halpern[2], H. Fujioka[1], and D. Gaver III[1]
[1]*Tulane University, New Orleans, LA,* [2]*University of Alabama, Tuscaloosa, AL*

P-Fr-216
Computational Model for Capturing Topological Changes During the Splitting of a Liquid Plug by an Airway Bifurcation
B. Vaughan[1] and J. Grotberg[2]
[1]*University of Cincinnati, Cincinnati, OH,* [2]*University of Michigan, Ann Arbor, MI*

Track: Respiratory Bioengineering, Biomechanics
Cardiopulmonary Biomechanics:
Upper Airway Mechanics and Mechanobiology Posters

P-Fr-217
Influence of Mechanical Forces and Oxygen Tension on Inflammation and Mucin Secretion in Respiratory Epithelial Cells
N. Higuita-Castro[1], J. D. Swarts[2], and S. N. Ghadiali[1]
[1]*The Ohio State University, Columbus, OH,* [2]*University of Pittsburgh, Pittsburgh, PA*

P-Fr-218
Computational Modelling of Cough Function in Patients with Upper Airway & Neurological Disease
N. Kuruppumullage[1], O. Ilegbusi[1], B. Hoffman-Ruddy[1], and E. Pearson Sivermann[2]
[1]*University of Central Florida, Orlando, FL,* [2]*University of Florida, Gainesville, FL*

P-Fr-219
Assessing The Effectiveness Of Upper Airway Surgery Using Computational Modeling Of Airway Collapse
D. R. Subramaniam[1], G. Mylavarapu[1], and E. Gutmark[1]
[1]*University of Cincinnati, Cincinnati, OH*

P-Fr-220
Computational Modeling of Surfactant Transport in the Nasopharyngeal Cavity for Treatment of Eustachian Tube Dysfunction
J. Malik[1] and S. Ghadiali[1]
[1]*The Ohio State University, Columbus, OH*

P-Fr-221
Computational Modeling of Sound Transmission in an Upper Respiratory Airway to Evaluate Eustachian Tube Function
J. Torres-Rodriguez[1] and S. Ghadiali[1]
[1]*The Ohio State University, Columbus, OH*

P-Fr-222
Merging, Displaying, Recording and Synchronizing Anatomical, Physiological and Audio Data during Continuous Laryngoscopy Exercise Test
E. Dijemeni[1], J. Hull[2], and R. Dickinson[1]
[1]*Imperial College London, London, United Kingdom,* [2]*Royal Brompton & Harefield NHS Foundation Trust, London, United Kingdom*

P-Fr-223
Predictions from Numerical Models Compared to Physical Model Measurements of Upper Airway Pressures
Y. Huang[1], J. Wang[1], Y. An[1], and H. Wang[1]
[1]*Capital Medical University, Beijing, China, People's Republic of*

Track: Drug Delivery, Tissue Engineering
Drug Delivery:
Drug Delivery in Tissue Engineering Posters

P-Fr-225
Delivery of β-Catenin Agonists via Targeted Poly(Styrene-alt-Maleic Anhydride)-b-Poly(Styrene) (PSMA-b-PS) Micelles to Enhance Fracture Healing
Y. Wang[1], M. Baranello[1], and D. Benoit[1]
[1]*University of Rochester, Rochester, NY*

P-Fr-226
An Injectable ELP Depot Contributes to Sustained Presence of Curcumin in the Knee Joint Space
R. Bell[1], R. Bowles[2], T. Mwangi[3], E. Leimer[3], S. Adams[3], and L. Setton[3]
[1]*University of Rochester, Rochester, NY,* [2]*University of Utah, Salt Lake City, UT,* [3]*Duke University, Durham, NC*

P-Fr-227
Elastin Based Nanoparticles for Targeted Gene Therapy
D. Monfort[1] and P. Koria[1]
[1]*University of South Florida, Tampa, FL*

P-Fr-228
Cell-Mediated Degradation of Genipin-Crosslinked Gelatin Microspheres for Growth Factor Delivery
P. Turner[1], R. Tiruvannamalai-Annamalai[1], A. Rioja[1], and J. Stegemann[1]
[1]*University of Michigan, Ann Arbor, MI*

P-Fr-229
PLGA-porous Silicon Composite Microspheres as Doubled Controlled Release Platform of TGF-β1 for Regenerative Medicine Applications.
L. Pandolfi[1,2], S. Minardi[1], F. Taraballi[1], L. Xeuwu[1], M. Ferrari[1], and E. Tasciotti[1]
[1]*Houston Methodist Research Institute, houston, TX,* [2]*Chinese Academy of Science, Beijing, China, People's Republic of*

P-Fr-230
Enhanced Wound Healing By Nanoparticle Incorporated Skin Grafts
J. Devalliere[1], K. Dooley[1], B. Uygun[1], and M. Yarmush[1]
[1]*Massachusetts General Hospital, Shriners Hospitals for Children, Boston, MA*

P-Fr-231
BMP-2-ELP Induces Differentiation Of Mesenchymal Stem Cells To Osteoblast Lineage
B. McCarthy[1] and P. Koria[1]
[1]*University of South Florida, Tampa, FL*

P-Fr-232
A 'Self-navigating' Drug Delivery System for Ischemic Disease Treatment
J. P. J. Wu[1], B. Cheng[1], P. Chen[2], S. R. Roffler[1], and P. C. Hsieh[1]
[1]*Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan,* [2]*Institute of Research Center of Applied Science, Academia Sinica, Taipei, Taiwan*

P-Fr-233
Designer Collagen-Fibril Biograft Materials With Tunable Molecular Delivery
R. Joshi[1], L. Watkins[1], and S. Voytik-Harbin[1]
[1]*Purdue University, West Lafayette, IN*

P-Fr-235
Sustained Release System of Ranibizumab for Transscleral Administration
T. Abe[1], S. Yamada[1], H. Kaji[2], A. Katsuyama[1], M. Nishizawa[2], and N. Nagai[1]
[1]*Tohoku University, Sendai, Japan,* [2]*Department of Bioengineering and Robotics, Graduate School of Engineering, Sendai, Japan*

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P-Fr-236
Effects of Electrospun PLLA Fiber Crystallinity on Drug Release for Glial Cell Applications
A. D'Amato[1], J. Cardenas[1], N. Schaub[1], E. Franz[1], A. Fiumara[1], P. Troiano[1], and R. Gilbert[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

P-Fr-237
Photopolymerized PEG-Heparin-Based Hydrogels for Endothelial Cell Maintenance Culture
J. Miller[1], S. Rabbany[1], and R. de Guzman[1]
[1]Hofstra University, Hempstead, NY

Track: Drug Delivery, Nano and Micro Technologies

Drug Delivery:

Nano to Micro Devices in Drug Delivery Posters

P-Fr-238
Nanostructured Mucoadhesive Microparticles for Improved Bioavailability of Oral Drug
C. G. Park[1], B. K. Huh[1], M. Park[1], S. H. Lee[1], S. N. Kim[1], H. R. Hong[1], K. R. Kim[1], H. Won[1], and Y. B. Choy[1]
[1]Seoul National University, Seoul, Korea, Republic of

P-Fr-239
Silicone Hydrogel Contact Lenses Engineered for the Controlled Release of Multiple Therapeutics
M. Byrne[1], L. Wuchte[1], and C. White[2]
[1]Rowan University, Glassboro, NJ, [2]Auburn University, Auburn, AL

P-Fr-240
Fibrin Glue Embedded with Biodegradable Microparticles for Sustained Delivery of Bupivacaine
S. N. Kim[1], B. H. Choi[2], B. K. Huh[1], C. G. Park[1], H. K. Kim[2], and Y. B. Choy[1]
[1]Seoul National University, Seoul, Korea, Republic of, [2]Korea National University, Seoul, Korea, Republic of

P-Fr-241
Sustained Delivery of Nerve Growth Factor by Polyanhydrides Nano/microparticles for Enhancing Peripheral Nerve Regeneration
A. Sharma[1], M. Uz[1], D. Sakaguchi[1], and S. Mallapragada[1]
[1]Iowa State University, Ames, IA

P-Fr-242
Advanced Reconstitution of µHDL using a Series of Microvortices
Y. Sei[1] and Y. Kim[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Fr-243
Dissecting the Role of Magnetic Field on Cellular Uptake of Magnetic Nanoparticles
S. Tong[1], Y. Qiu[1], L. Zhang[1], W. Lam[1], and G. Bao[2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Rice University, Houston, TX

P-Fr-244
Synthesis of Dual-Layered Particles for Tunable, Delayed Protein Release
D. Dutta[1], C. Fauer[1], M. Salifu[1], and S. Stabenfeldt[1]
[1]Arizona State University, Tempe, AZ

P-Fr-245
Adhesion Profile of Dual-Agent Functionalized Nanoparticles in a Synthetic Microvascular Network
Y. Tang[1], F. Soroush[1], B. Wang[1,2], B. Prabhakarpandian[3], and M. Kiani[1]
[1]Temple University, Philadelphia, PA, [2]Widener University, Chester, PA, [3]CFD Research Corporation, Huntsville, AL

Track: Drug Delivery

Drug Delivery:

Nucleic Acid Delivery Posters

P-Fr-247
Targeted Expression of Tumor Suppressive miRNA-34a in the Brain Achieved by Delivering Tissue-Penetrating Non-Viral Gene Vectors Across the BBB with Focused Ultrasound
C. Curley[1], Y. Zhang[1], P. Mastorakos[2], G. W. Miller[1], A. Klibonov[1], R. Abounader[1], J. Hanes[2], and R. Price[1]
[1]University of Virginia, Charlottesville, VA, [2]Johns Hopkins University, Baltimore, MD

P-Fr-248
Engineering Stable and Efficient Poly(ethylene glycol)-co-Poly β-amino ester Polyplexes Towards Cancer Gene Therapy
J. Kim[1], Y. Kang[1], and J. Green[1]
[1]Johns Hopkins University, Baltimore, MD

P-Fr-249
MicroRNA Delivery by Multifunctional Lipoplexes in Lung Cancer Therapy and Imaging
C. Liu[1], Q. Wang[1], J. Spernyak[2], and Y. Wu[1]
[1]State University of New York at Buffalo, Buffalo, NY, [2]Roswell Park Cancer Institute, Buffalo, NY

P-Fr-250
The Role of Endosomal Buffering in Poly β-Amino Ester Nanoparticle Mediated Transfection
D. Wilson[1] and J. Green[1]
[1]Johns Hopkins University, Baltimore, MD

P-Fr-251
Engineering Hydrogel Lenses with Regulated Release of Nucleic Acid Therapeutics
R. Whitener[1], K. Windham[1], J. Wower[1], and M. Byrne[2]
[1]Auburn University, Auburn, AL, [2]Rowan University, Glassboro, NJ

P-Fr-252
Design of Polymeric Nanoparticles for the Delivery of siRNA
J. Cui[1]
[1]Yale University, New Haven, CT

P-Fr-253
Gold Nanoparticle Mediated Multifunctional Nanoparticles for Gene Therapy with High Selectivity
B. Shrestha[1,2] and L. Tang[1,2]
[1]University of Texas at San Antonio, San Antonio, TX, [2]University of Texas Health Science Centre, San Antonio, TX

P-Fr-254
Oral Delivery of siRNA Using Dual Stimuli-Responsive Microparticles
L. Strong[1], J. Knipe[1], and N. Peppas[1]
[1]The University of Texas at Austin, Austin, TX

P-Fr-255
Preparation and Characterization of Magnetic Gene Transfection Agents Consisting of Polyethylenimine and Chitosan Coated Iron Oxide Nanoparticles
M. Cruz-Acuna[1], L. Maldonado-Camargo[1], J. Dobson[1], and C. Rinaldi[1]
[1]University of Florida, Gainesville, FL

P-Fr-256
Design of DNA Assembled Nanoparticle Superstructures for Cancer Nanomedicine
L. Chou[1,2,3,4], K. Zagorovsky[3,4], V. Raeesi[5], and W. Chan[3,4,5,6]
[1]Wyss Institute, Harvard Medical School, Boston, MA, [2]Dana Farber Cancer Institute, Harvard Medical School, Boston, MA, [3]Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto, ON, Canada, [4]Donnelly Centre for Cellular and Biomolecular Research, University of Toronto, Toronto, ON, Canada, [5]Materials Science and Engineering, University of Toronto, Toronto, ON, Canada, [6]Department of Chemistry, University of Toronto, Toronto, ON, Canada

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Drug Delivery
Drug Delivery:
Other Drug Delivery Posters

P-Fr-257
Controlled Drug Release Device Fabricated with PDMS Mold-Based UV Curing of Polyethyleneglycol Dimethacrylates
S. Yamada[1], N. Nagai[1], H. Kaji[2], A. Katsuyama[1], M. Nishizawa[2], and T. Abe[1]
[1]*Graduate School of Medicine, Tohoku University, Sendai, Japan,* [2]*Graduate School of Engineering, Tohoku University, Sendai, Japan*

P-Fr-258 **DREAM TEAM & CENTER**
Transport, Resealing, and Re-poration Dynamics of Two-Pulse Electroporation-Mediated Delivery
Y. Demiryurek[1], M. Yu[1], M. Zheng[1], J. D. Zahn[1], D. I. Shreiber[1], H. Lin[1], and J. W. Shan[1]
[1]*Rutgers University, Piscataway, NJ*

P-Fr-259
Battery-less Implantable Drug Infusion Device for On-demand Release of Insulin
Y. B. Lee[1], S. H. Lee[1], and Y. B. Choy[1]
[1]*Seoul National University, Seoul, Korea, Republic of*

P-Fr-260
Nanoemulsified Volatile Anesthetics: Large Animal Trials
F. Garcia-Pereira[1], B. Ashrafi[2], Z. Peng[2], A. Pileggi[3], E. Pretto[2], and C. Fraker[3]
[1]*University of Florida College of Veterinary Medicine, Gainesville, FL,* [2]*University of Miami School of Medicine, Miami, FL,* [3]*University of Miami Diabetes Research Institute, Miami, FL*

P-Fr-261
Fluid Flow Magnitude Impacts Nanoparticle Interactions with Endothelial Cells in Angiogenic Vessels
C. Sarsons[1], S. Jiang[1], J. Gomez[1], H. Labouta[1], B. Vafadar[2], D. Cramb[1], S. Childs[1], and K. Rinker[1]
[1]*University of Calgary, Calgary, AB, Canada,* [2]*Zymetrix, Calgary, AB, Canada*

P-Fr-263
Fast Diffusion of Targeted Carbon Nanotubes in Cellular Spheroids
Y. Wang[1], J. H. Bahng[1], Q. Che[1], J. Han[1], and N. Kotov[1]
[1]*University of Michigan, ann arbor, MI*

P-Fr-264
Integrating Exercise and Meal Type into a Novel Glucoregulation Model: Diabetic Implications
S. Schunk[1] and J. Winters[1]
[1]*Marquette University, Milwaukee, WI*

P-Fr-265
Collagen Hydrogel Implant Coating for Drug Delivery Applications
B. Lane[1], K. Harmon[2], H. Friedman[2], M. Uline[1], R. Goodwin[3], and J. Eberth[1,2]
[1]*University of South Carolina, Columbia, SC,* [2]*University of South Carolina School of Medicine, Columbia, SC,* [3]*University of South Carolina School of Medicine - Greenville, Greenville, SC*

P-Fr-266
Sustained Hydrophobic Drug Delivery Platform For Scar Treatment By The Microfluidic Assembly Of Multistage Composites
M. N. Hsu[1,2], Y. Zhang[1,2,3], and C-H. Chen[2,4]
[1]*NUS Graduate School for Integrative Sciences and Engineering, Singapore, Singapore,*[2]*National University of Singapore, Singapore, Singapore,* [3]*Nanoscience and Nanotechnology Initiative, Singapore, Singapore,* [4]*Singapore Institute for Neurotechnology, Singapore, Singapore*

P-Fr-267 **DREAM TEAM & CENTER**
Dexamethasone Drug Delivery System for the Sustained Treatment of Choroidal Neovascularization
A. Hirani[1,2], R. Tzekov[2,3], Y. Lee[1], V. Sutariya[2], and Y. Pathak[2]
[1]*Virginia Tech, Blacksburg, VA,* [2]*University of South Florida, Tampa, FL,* [3]*The Roskamp Institute, Sarasota, FL*

P-Fr-268
Fabrication and Characterization of Hydrogel-Filled Nanoliposomes for Intracellular Delivery
E. VanArsdale [1] and S. Majd[1]
[1]*Pennsylvania State University, University Park, PA*

Track: Drug Delivery
Drug Delivery:
Responsive Delivery Systems Posters

P-Fr-269
Sonosensitive Theranostic Emulsions for Targeted Treatment of Crohn's Disease
A. Steinhoff[1], L. Johnson[1], L. Mohr[1], O. Kripfgans[1], P. Higgins[1], J. Rubin[1], J. Dillman[1], and M. Fabiilli[1]
[1]*University of Michigan, Ann Arbor, MI*

P-Fr-270
Moved to Oral - OP-Thurs-1-16

P-Fr-271
Nanoparticles with Reducible Crosslinks for Anti-Inflammatory Drug Delivery in Osteoarthritis
J. Lin[1], S. Poh[1], and A. Panitch[1]
[1]*Purdue University, West Lafayette, IN*

P-Fr-273
Liposome-Mediated Delivery of Highly Tumor-Penetrating Chelates of Alpha-Particle Generator Actinium-225 Against Vascularized, Metastatic Breast Cancer
C. Zhu[1], T. Holleran[1], F. Bruchertseifer[2], A. Morgenstern[2], and S. Sofou[1]
[1]*Rutgers University, Piscataway, NJ,* [2]*Institute for Transuranium Elements, Karlsruhe, Germany*

P-Fri-274
Encapsulation of Polyanhydride Nanoadjuvants in Biodegradable Microgels for Oral Delivery
Lindsey Sharpe[1], Olivia Mutaz-Haddadin[2], Jeyvikram Thirumavalavan[1], Yasmine Khairandish[1] and Nicholas A. Peppas[1,2,3]
[1]*Department of Biomedical Engineering,* [2]*Department of Chemical Engineering, and* [3]*Division of Pharmaceutics, University of Texas at Austin, Austin, TX*

Track: Drug Delivery
Drug Delivery:
Targeted Delivery Posters

P-Fr-276
Osteotropic Nanoscale Drug Delivery System via a Single Aspartic Acid as the Bone-targeting Moiety
E. Carbone[1], T. Jiang[1], H. M. Kan[1], X. Yu[1], and W. H. Lo[1]
[1]*UConn Health Center, Farmington, CT*

P-Fr-277
Controlled Delivery of an Antibiotic Using a Localized Affinity Change in Bacterial pH
E. Cyphert[1] and H. von Recum[1]
[1]*Case Western Reserve University, Cleveland, OH*

P-Fr-278
Platelets as "Micromachines" for Sensing and Actuation of Targeted Drug Delivery of Hemostatic Agents
C. Hansen[1,2], Y. Sakurai[1,2], L. A. Lyon[3], and W. Lam[1,2]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Emory University School of Medicine, Atlanta, GA,* [3]*Chapman University, Orange, CA*

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-279
A pH-responsive Drug Delivery Platform Based on Glycol Chitosan-coated Liposomes
L. Yan[1], S. Crayton[1], A. Tsourkas[1], and Z. Cheng[1]
[1]University of Pennsylvania, Philadelphia, PA

P-Fr-280
Sticky Liposomes for Selective and Effective Targeting of Otherwise Untargetable Cancers
M. Sempkowski[1] and S. Sofou[1]
[1]Rutgers University, Piscataway, NJ

P-Fr-281
The Role of Cell Mechanics and Morphology in Nanoparticle Uptake
P. Fattahi[1], S. Zhang[1], J. Brown[1], and P. Butler[1]
[1]The Pennsylvania State University, University Park, PA

P-Fr-282
An IPTG-Inducible FtsZ Operon for the Production of Minicells
G. Brown[1], B. Bruno[1], C. Cai[1], J. Bethke[1], J. Yoo[1], E. Kelly[1], M. Tucker[1], C. Langguth[1], J. Leehan[1], E. McMillen[1], R. Lee[1], S. Gupta[1], and S. Moshasha[1]
[1]University of Virginia, Charlottesville, VA

P-Fr-283
Targeted Delivery of Pentagalloyl Glucose using Anti-elastin Decorated Nanoparticles Prevents Abdominal Aortic Aneurysm Formation in Rats
N. Nosoudi[1], A. Chowdhury[1], S. Siclari[1], and N. Vyavahare[1]
[1]Clemson University, Clemson, SC

P-Fr-284
Bacterial Sepsis Therapeutic Design Guided by a Nanoparticle-Based Model
S. Miller[1], C. Bell[1], R. Meijas[1], and T. Giorgio[1]
[1]Vanderbilt University, Nashville, TN

P-Fr-285
The Effects of Bioconjugation of Calcium Phosphosilicate Nanoparticles on the Delivery to Circulating Breast Cancer Cells
V. Gonzalez[1], K. Hughes[1], L. Harter[1], O. Pinto[1], X. Tang[1], C. Dong[1], and J. Adair[1]
[1]The Pennsylvania State University, University Park, PA

P-Fr-286
Computational Modeling Of Drug Delivery Across The Blood-Brain Barrier (BBB) For The Treatment Of Autism Spectrum Disorder (ASD)
J. Simmons[1], L. Achenie[1], and Y. W. Lee[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

P-Fr-287
Multi-Functionalization of Doxorubicin-Loaded Polymeric Nanoparticles for Expanded Targeting
C. Munoz[1] and T. Betancourt[1]
[1]Texas State University, San Marcos, TX

P-Fr-288
Author Cancellation

P-Fr-289
Selective Enhancement of Macropinocytosis for the Delivery of a Glycolytic Inhibitory Peptide to Lung Cancer Cells
R. Iglesias[1] and P. Koria[1]
[1]University of South Florida, Tampa, FL

P-Fr-290
Multifunctional Silver Nanoparticles for Targeted Cancer Therapy
S. Srinivasan[1], V. Bhardwaj[1], and A. McGoron[1]
[1]Florida International University, Miami, FL

P-Fr-291
Use of Biocompatible Hydrogel Beads for the Recovery and Delivery of Antibiotics
K. Ko[1]
[1]Cushing Academy, Ashburnham, MA

P-Fr-292
Nanoparticle Targeting to Cartilage: Effects of Surface Charge on Nanoparticle Interactions with Joint Tissues
S. Brown[1] and B. Sharma[1]
[1]University of Florida, Gainesville, FL

P-Fr-293
Magnetic Nanoparticles in the Prevention of Neointimal Hyperplasia
E. Mappus[1], B. Fellows[1], O. T. Mefford[1], and D. Dean[1]
[1]Clemson University, Clemson, SC

P-Fr-294 DREAM TEAM & CENTER
Development of "Smart" Bone Targeted Micelles for the Treatment of Metastatic Prostate Cancer Lesion in Bone
O. Aydin[1], I. A. Youssef[1], H. Ramaraju[1], G. Tiruchinapally[1], Y. Yuksel Durmaz[2], K. Kozloff[1], D. Kohn[1], and M. ElSayed[1]
[1]University of Michigan, Ann Arbor, MI, [2]Medipol University, Istanbul, Turkey

P-Fr-295 DREAM TEAM & CENTER
Efficient Identification Of Peptide Targeting Ligands By Phage Display And Next-Generation Sequencing
G. Liu[1], B. Livesay[1], N. Kacherovsky[1], M. Cieslewicz[1], E. Lutz[1], A. Waalkes[1], M. Jensen[1,2], S. Salipante[1], and S. Pun[1]
[1]University of Washington, Seattle, WA, [2]Seattle Children's Research Institute, Seattle, WA

Track: Tissue Engineering, Drug Delivery

Drug Delivery:

Tissue Engineered Models for Study of Disease and Drug Discovery Posters

P-Fr-297
3D Tissue Engineered Blood Vessels To Model Progeria
L. Atchison[1], H. Zhang[2], K. Cao[2], and G. Truskey[1]
[1]Duke University, Durham, NC, [2]University of Maryland, College Park, MD

P-Fr-298
Engineering Modular 3D Microtissues for Liver-on-a-Chip Applications
A. Schepers[1]
[1]MIT, Cambridge, MA

P-Fr-299
A 3D Perfusable Liver Co-Culture Platform to Assess Chronic Inflammation and Metabolism
T. Long[1,2], R. Dunn[3], H. Hamadeh[3], C. Afshari[3], H. McBride[3], and L. Griffith[1]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Amgen, Inc., Cambridge, MA,[3]Amgen, Inc., Thousand Oaks, CA

P-Fr-300
Ex Vivo Study of Mouse Intestines using a Novel Organotypic Slice Model
L. Schwerdtfeger[1] and S. Tobet[1]
[1]Colorado State University, Fort Collins, CO

P-Fr-301
A Vascularized Heart-on-a-chip For Studying Drug Delivery Across The Blood-heart Barrier
J. Nawroth[1], A. Shrivats[1], V. Kujala[1], J. Goss[1], and K. K. Parker[1]
[1]Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA

P-Fr-302
RGD Concentration Alters Vocal Fold Fibroblast Gene Expression in 2D and 3D Systems.
T. Walimbe[1], A. Kosinski[1], A. Panitch[1], and P. Sivasankar[1]
[1]Purdue University, West Lafayette, IN

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-303

Development Of A Novel *In Vitro* 3D Model To Investigate Osteocyte Differentiation And Biology

B. Golz[1], M. Gallant[1], H. Yang[1], J. Delgado-Calle[2], T. Bellido[2], S. Voytik-Harbin[1], and R. Main[1]

[1]Purdue University, West Lafayette, IN, [2]Indiana University School of Medicine, Indianapolis, IN

P-Fr-304

A Tissue-Engineered Microphysiological Platform for the Study of Human Organ Fibrosis

M. Mondrinos[1] and D. Huh[1]

[1]University of Pennsylvania, Philadelphia, PA

P-Fr-305

Cellular Interactions of Pancreatic Cancer Cells to Peripheral Nerves as a Model of Perineural Invasion

A. Hendricks[1], L. Bui[1], R. Leviner[1], and Y-T. Kim[1]

[1]University of Texas at Arlington, Arlington, TX

P-Fr-306

Tissue Engineered Myocardium to Study the Role of Endothelial Cells and HIF-1A in Reperfusion Injury

A. Acun[1] and P. Zorlutuna[1]

[1]University of Notre Dame, South Bend, IN

P-Fr-307

Study of The Stability and Anti-Protease Effect of Elastin Based Material In a Novel Chronic Wound Model *In Vitro*

Y. Yuan[1] and P. Koria[1]

[1]University of South Florida, Tampa, FL

P-Fr-308

Elucidating Tumor-Vasculature Interactions By Co-culturing Brain Tumor Cells With Endothelial Cells Patterned In 3D Hydrogels

C. Wang[1], X. Jiang[1], C. Wilson[1], G. Grant[1], and F. Yang[1]

[1]Stanford University, Stanford, CA

P-Fr-309

Microbial-Derived Lithocholic Acid and Vitamin K2 Drive the Metabolic Maturation of Pluripotent Stem Cells-Derived and Fetal Hepatocytes

Y. Avior[1], G. Levy[1], M. Zimerman[1], D. Kitsberg[1], R. Schwartz[2], R. Sadeh[1], A. Moussaieff[1], M. Cohen[1], J. Itskovitz-Eldor[3], and Y. Nahmias[1]

[1]The Hebrew University of Jerusalem, Jerusalem, Israel, [2]Weill Cornell Medical College, New York, NY, [3]Technion, Haifa, Israel

P-Fr-310

Long-lived Phenotypic Differences Persist in Cancer Cells Isolated Based on Invasion Dynamics.

L. Hapach[1], S. Carey[1], Z. Goldblatt[1], and C. Reinhart-King[1]

[1]Cornell University, Ithaca, NY

P-Fr-311

A Scratch Wound Model For Evaluation Of Treatments For Traumatic Brain Injuries

A. Marino[1], A. Dea[1], R. Egerter[1], and E. Orwin[1]

[1]Harvey Mudd College, Claremont, CA

P-Fr-312

Micro-Tissue Arrays Made from Minimal Numbers of Human iPS Cell-Derived Cardiomyocytes

N. Huebsch[1], P. Loskill[2], L. Judge[1], M. Mandegar[1], N. Deveshwar[2], C. Fox[3], T. Mohammed[1], Z. Ma[2], A. Mathur[2], P-L. So[1], T. Desai[3], K. Healy[2], and B. Conklin[1]

[1]Gladstone Institute of Cardiovascular Disease, San Francisco, CA, [2]University of California, Berkeley, Berkeley, CA, [3]University of California, San Francisco, San Francisco, CA

Track: Biomaterials

Engineering Materials:

Bioinspired and Self Assembling Biomaterials Posters

P-Fr-316

Peptide Amphiphile Micelle-Mediated Molecular Imaging of Cardiovascular Disease

E. J. Chung[1], M. Tirrell[1], and S. P. Yoo[1]

[1]University of Chicago, Chicago, IL

P-Fr-317

Supramolecular Nanoconstructs for Tumor Targeting and Bioimaging

A. Brown[1], Y. Miranda-Alarcon[1], and I. Banerjee[1]

[1]Fordham University, Bronx, NY

P-Fr-318

Understanding the Formation of Novel Biocompatible Lipid-Polymeric Patchy Particles

N. Rasheed[1], A. Khorasani[1], J. Cebral[1], F. Mut[1], R. Lohner[1], and C. Salvador Morales[1]

[1]George Mason University, Fairfax, VA

P-Fr-319

Development of Transferrin-Conjugated Block Copolypeptide Vesicles Encapsulating Doxorubicin

B. Lee[1], A. Yip[1], A. Thach[1], A. Rodriguez[1], T. Deming[1], and D. Kamei[1]

[1]University of California, Los Angeles, Los Angeles, CA

P-Fr-320

Biomimetic Adhesive Hydrogel for Minimally Invasive Cell Transplantation

J. S. Lee[1], J. Shin[1], J-H. Cho[1], and S-W. Cho[1]

[1]Yonsei University, Seoul, Korea, Republic of

P-Fr-321

Self-Assembling Biomaterials For Nanoengineering Conformal Coatings of Pancreatic Islets

D. Velluto[1], A. Tomei[1,2], and V. Manzoli[1,3]

[1]University of Miami - Miller School of Medicine, Miami, FL, [2]University of Miami, Miami, FL,[3]Politecnico of Milan, Milano, Italy

P-Fr-322

Nanoparticle Enhanced Adhesion Of Mussel Inspired Hydrogels For Tissue Interfacing

N. Pandey[1], P. Hariharan[1], Z. Huang[1], P. Zimmern[2], K. T. Nguyen[1], and Y. Hong[1]

[1]University of Texas at Arlington, Arlington, TX, [2]University of Texas Southwestern Medical center, Dallas, TX

P-Fr-323

Understanding the Integrin-binding and Cell Response to Backbone-modified RGD Peptides

K. Eckes[1], K. Baek[1], and L. Suggs[1]

[1]University of Texas at Austin, Austin, TX

P-Fr-324

Peptide Amphiphiles as an Anti-aging and Anti-wrinkle Agent

G. Mi[1] and T. Webster[1,2]

[1]Northeastern University, Boston, MA, [2]King Abdulaziz University, Jeddah, Saudi Arabia

P-Fr-325

Glycosylated Self-Assembled Nanofibers Bind Selectively to Lectins

A. Restuccia[1] and G. Hudalla[1]

[1]The University of Florida, Gainesville, FL

P-Fr-326

Effect of Mechanical Flows on Actin Bundle Organization

S. Jo[1], K. Lee[1], F. Nakamura[2], and H. Lee[1]

[1]Yonsei University, Seoul, Korea, Republic of, [2]Harvard Medical School, Boston, MA

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-327
β-sheet Fibrillized Peptide Microparticles as Protein Delivery Vehicles
M. M. Fettis[1], Y. Wei[1], A. Restuccia[1], and G. Hudalla[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-328
Mixed Mode Interactions In Nuclear Pore Based Hydrogels Tune Hydrophobic Crosslinking And Selective Transport
W. Chen[1], S. Grindy[1], N. Holten-Andersen[1], and K. Ribbeck[1]
[1]*Massachusetts Institute of Technology, Cambridge, MA*

P-Fr-329
Electrospinning a Smart Material Polymer for the Development of a Thermo-Responsive Vascular Graft
J. Brennan[1] and L. Zhang[1]
[1]*The George Washington University, Washington, DC*

P-Fr-330
Effect of Denaturants and Salts on the Thermal Behavior of Elastin-Like Peptides
T. Johnson[1] and P. Koria[1]
[1]*University of South Florida, Tampa, FL*

Track: Biomaterials
Engineering Materials:
Biomaterials Design Posters

P-Fr-331
Homogenization Theory For The Prediction Of Solute Diffusion In Macromolecular Solutions
Y. Chehreghanianzabi[1], P. Donovan[2], M. Rathinam[3], and S. Zustiak[4]
[1]*Saint Louis University, Saint Louis, MO,* [2]*University of Maryland Baltimore County, Baltimore, MD,* [3]*University of Maryland Baltimore County, Baltimore, MD,* [4]*Saint Louis University, Saint Louis, MO*

P-Fr-332
Engineering of Integrin Recognition Sites in Recombinant Human Collagen III to Control Cellular Response
R. Que[1], S. W. P. Chan[1], A. Jabaiah[1], R. Lathrop[1], N. Da Silva[1], and S-W. Wang[1]
[1]*University of California, Irvine, Irvine, CA*

P-Fr-333
Optimizing Methods of Nanoparticle Coating to Minimize Non-specific Uptake
A. Chiu Lam[1], L. Maldonado-Camargo[1], H. Sun[1], D. Dobbins[1], B. Sumerlin[1], and C. Rinaldi[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-334
A Novel Method of Transferring Aligned Single-Walled Carbon Nanotubes on a Hydrogel for Nerve Regeneration Applications
M. Imani Nezhad[1], S. Zustiak[1], and I. Kuljanishvili[1]
[1]*Saint Louis University, St Louis, MO*

P-Fr-335
A Glass Polyalkenoate Cement Carrier For Bone Morphogenetic Proteins
A. Alhalawani[1], O. Rodriguez[1], D. Curran[1], R. Co[1], S. Kieran[1], S. Arshad[1], T. Keenan[2], A. Wren[2], G. Crasto[3], S. Peel[3], and M. Towler[1,4]
[1]*Ryerson University, Toronto, ON, Canada,* [2]*Alfred University, Alfred, NY,* [3]*University of Toronto, Toronto, ON, Canada,* [4]*Universaity of Malaya, Kuala Lampur, Malaysia*

P-Fr-336
Fabrication of Gradient Hydrogel Using the Mechanical Flow
B. Kang[1], S. Jang[1], S. Jo[1], Y. Jeon[1], and H. Lee[1]
[1]*Yonsei University, Seoul, Korea, Republic of*

P-Fr-337
Method for Measuring Anticandidal Drug Release from a Rechargeable Denture Material in Human Saliva
A. Malakhov[1], J. Wen[2], B-X. Zhang[1], A. Lin[1], H. Wang[1], Y. Sun[2], and C-K. Yeh[1]
[1]*UTHSCSA, San Antonio, TX,* [2]*University of Massachusetts, Lowell, MA*

P-Fr-338
Hydrogel Properties Affect the Rolling and Adhesion of *E. coli* and *S. aureus*
K. Kolewe[1], S. Kalasin[1], N. Mako[1], M. Santore[1], and J. Schiffman[1]
[1]*UMass Amherst, Amherst, MA*

P-Fr-339
Design Of PEC Films To Control Degradation
K. Desai[1], S. Mistry[1], J. Tutnauer[1], R. Schloss[1], and N. Langrana[1]
[1]*Rutgers, The State University of New Jersey, Piscataway, NJ*

P-Fr-340
Hydrogels from Poly(ethylene glycol) Reinforced with Aluminum Oxide Nanoparticles
J. M. Griffin[1], C. W. Peak[1], A. Thakur[1], L. Cross[1], and A. K. Gaharwar[1]
[1]*Texas A&M University, College Station, TX*

P-Fr-341
author cancellation

P-Fr-342
Qualitative and Quantitative Analysis of Cell Proliferation Restriction Due to Metal Trace Elements Released from Oxidized Ti Alloys
M. Soto[1], S. Ramos[1], P. Sundaram[1], and N. Diffoot[1]
[1]*University of Puerto Rico Mayaguez Campus, Mayaguez, PR*

P-Fr-343
A Composite Hydrogel-Microparticle Platform for Controlled Delivery of BDNF after Spinal Cord Injury
N. Agrawal[1], J. Park[1], S. Xin[1], K. Lee[2], J. Grau[2], C. Schmidt[1], Z. Khaing[3], and A. Niemerski[2]
[1]*University of Florida, Gainesville, FL,* [2]*Texas A&M University, College Station, TX,* [3]*University of Washington, Seattle, WA*

P-Fr-344
Isotropic Swelling of Alginate Microcapsules in Aqueous Sodium Chloride is Neutralized at High pH
R. Krishnan[1], H-W. Tang[1], K-H. Chan[1], M. Alexander[1], E. Botvinick[2], and J. Lakey[1,2]
[1]*University of Calfornia Irvine, Orange, CA,* [2]*University of Calfornia Irvine, Irvine, CA*

P-Fr-345
Analysis of Solvent Retention in Electrospun PLLA Fibers and Potential Methods of Solvent Removal
A. D'Amato[1], N. Schaub[1], E. Franz[1], J. Cardenas[1], and R. Gilbert[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Fr-346
Optimising Thermal Decomposition Synthesis to Enhance Energy Dissipation in Magnetic Nanoparticles
M. Unni[1] and C. Rinaldi[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-347
Degradation of Polypropylene Hernia Repair Meshes
D. Gil[1] and A. Vertegel[1]
[1]*Clemson University, Clemson, SC*

P-Fr-348
Nanoengineered Composite Hydrogels as Hemostatic Agents
G. Lokhande[1], J. R. Xavier[1], and A. K. Gaharwar[1]
[1]*Texas A&M University, College Station, TX*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-349
A Highly Elastic and Rapidly Photocrosslinkable Hydrogel
Y. Zhang[1,2], R. K. Avery[1], Q. Vallmajó Martín[1], A. Assmann[1,2,3,4], A. Vegh[1,2], A. Memic[5], B. D. Olsen[6], N. Annabi[1,2,3,7], and A. Khademhosseini [1,2,3]
[1]Brigham and Women's Hospital, Harvard Medical School, Cambridge, MA, [2]Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, [3]Wyss Institute for Biologically Inspired Engineering, Boston, MA, [4]Department of Cardiovascular Surgery and Research Group for Experimental Surgery, Heinrich Heine University, Duesseldorf, Germany,[5]Department of Physics, King Abdulaziz University, Jeddah, Saudi Arabia, [6]Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, [7]Northeastern University, Boston, MA

P-Fr-350
Highly Elastic Biocompatible Hydrogels Based On Nanocomposite And IPN Structured Alginate and Gelatin
O. Jeon[1], R. Marks[1], D. Wolfson[1], and E. Alsberg[1]
[1]Case Western Reserve University, Cleveland, OH

P-Fr-351
Fabrication of Biodegradable Hybrid pH Meter from Red Cabbage Extract
S. Lubna[1], A. Aphale[1], and P. Patra[1]
[1]University of Bridgeport, Bridgeport, CT

P-Fr-352 DREAM TEAM & CENTER
Evaluation of Alginate Structure for Superior Encapsulation of Pancreatic Islets
A. Najdahmadi[1], R. Krishnan[1], C. Kummerfeld[1], J. R. T. Lakey[1], and E. Botvinick[1]
[1]University of California, Irvine, Irvine, CA

Track: Biomaterials

Engineering Materials:

Biomaterials for Controlling Cell Environment Posters

P-Fr-353
Influence of Elastic Moduli of Sparse Aligned Fibers on Bone Marrow Stromal Cells for Ligament Tissue Engineering Applications
P. Thayer[1], S. Verbridge[1], L. Dahlgren[1], S. Guelcher[2], and A. Goldstein[1]
[1]Virginia Tech, Blacksburg, VA, [2]Vanderbilt University, Nashville, TN

P-Fr-354
Hydrogel-based Multicellular Cancer Spheroid Models for Drug Screening Applications
A. Ashraf[1], S. Zustiak[1], S. Tilson[2], A. Branyi[2], and Y. Kim[2]
[1]Saint Louis University, Saint Louis, MO, [2]University of Alabama, Tuscaloosa, AL

P-Fr-355
Simultaneous Control of Cellular Gene Activation and Its PEG-based Hydrogel microenvironment via Conventionla LED Light
E. A. Lee[1], J. Heo[1], and N. S. Hwang[1]
[1]Seoul National University, Seoul, Korea, Republic of

P-Fr-356
Differential Regulation Of Skin Fibroblasts For Their TGF-beta 1-dependent Wound Healing By Biomimetic Nanofibers
M. Xu[1]
[1]Stevens Institute of Technology, Hoboken, NJ

P-Fr-357
Effect of Different Surface Modified Gelatin/Fibrinogen Electrospun Scaffolds on Endothelial Cells Growth
D. Ardila[1], A. Acuna[2], E. Tamimi[2], T. Doetschman[2], and J. Vande Geest[2]
[1]University of Arizona, Tucson, AZ, [2]The University of Arizona, Tucson, AZ

P-Fr-358
Bioengineering Brain Matrix Composition to Establish *in vitro* 3D Physiological Brain Cultures
D. Sood[1], M. Tang-Schomer[2], K. Chwalek[1], L. Black[1], and D. Kaplan[1]
[1]Tufts University, Medford, MA, [2]Connecticut Children's Medical Center, Farmington, CT

P-Fr-359
Magnetic Particles for Controlling Transforming Growth Factor Beta
A. Monsalve[1], A. Bohorquez[1], C. Rinaldi[1], and J. Dobson[1]
[1]University of Florida, Gainesville, FL

P-Fr-360
The Role of Physical Stabilization in Whole Blood Preservation
K. Wong[1], R. Sandlin[1], T. Carey[1], A. Shank[1], K. Miller[1], R. Oklu[1], D. Haber[1], S. Maheswaran[1], D. Irimia[1], S. Stott[1], and M. Toner[1]
[1]Massachusetts General Hospital, Harvard Medical School, Charlestown, MA

P-Fr-361
Exploiting Shape Memory to Study the Effect of Change in Fiber Alignment on Cancer Cell Motility
J. Wang[1,2] and J. Henderson[1,2]
[1]Syracuse University, Syracuse, NY, [2]Syracuse Biomaterials Institute, Syracuse, NY

P-Fr-362
Model Protein Adsorption on Poly-N-isopropylacrylamide Hydrogels
M. Cross[1], O. Park[1], O. Akintewe[1], R. Toomey[1], G. Matthews[1], and N. Gallant[1]
[1]University of South Florida, Tampa, FL

P-Fr-363
Controlling Soluble Factor Gradients in a 3D Porous Biomaterial System
K. Stojkova[1], B. Akar[1,2], S. Somo[1,2], and E. Brey[1,2]
[1]Illinois Institute of Technology, Chicago, IL, [2]Edward Hines, Jr. V.A. Hospital, Hines, IL

P-Fr-364
Conditioning MDA-MB-231 Cells to Microenvironmental Cues
S. Syed[1], R. Bera[1], S. Zustiak[1], and N. Case[1]
[1]Saint Louis University, Saint Louis, MO

P-Fr-365
Cell Adhesion Strength Modulated by Tuning Matrix Stiffness
A. Sharfeddin[1], M. Cross[1], A. Volinsky[1], and N. Gallant[1]
[1]University of South Florida, Tampa, FL

P-Fr-366
Cell Alignment Behavior in Response to Dynamic Topographies via Multiphoton 3D-Imprinting
M. Ali[1] and J. Shear[1]
[1]The University of Texas at Austin, Austin, TX

P-Fr-367
Suspended and Aligned Fiber Networks for Studying Collective Migration and Gap Closure Dynamics
P. Sharma[1], B. Behkam[1], and A. Nain[1]
[1]Virginia Tech, Blacksburg, VA

P-Fr-368
Effect of Synthetic Vitreous Substitute on Epithelial Tight-Junctions
J. Davis[1,2], N. Zapata[1,2], and N. Ravi[1,2]
[1]Washington University in St Louis, St Louis, MO, [2]VA Healthcare Systems, St Louis, MO

P-Fr-369
Leaching of Dopant from Doped Poly(dimethylsiloxane) into Liquid Media
S. Stone[1] and B. Hollins[1]
[1]Louisiana Tech University, Ruston, LA

P-Fr-370
Multifunctional Dynamic Surfaces for Engineering Cell Microenvironments
B. Xu[1] and W. Shen[1]
[1]University of Minnesota, Minneapolis, MN

P-Fr-371
The Development of a Facile Polymer Microbead-based Approach to Promoting Angiogenesis in Dense Epithelial Tissue
M. Sofman[1], P. Hammond[1], and L. Griffith[1]
[1]MIT, Cambridge, MA

See page 152 for Poster floor plan

Track: Biomaterials
Engineering Materials:
Biomaterials for Immunoengineering Posters

P-Fr-372
Educating Dendritic Cell Phenotype To Direct Immune Tolerance Towards Multiple Sclerosis-Specific Antigen
S. Srinivasan[1] and J. Babensee[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Fr-373
Characterization of Indocyanine Green-Loaded Nanocarriers for the Targeting of Atherosclerotic Plaque-Resident Dendritic Cell Subsets
S. Allen[1] and E. Scott[1]
[1]Northwestern University, Chicago, IL

P-Fr-374
Barium-gelled Alginate Microcapsules Do Not Exhibit Sodium-induced Isotropic Swelling Noted with Calcium-gelled Microcapsules
R. Krishnan[1], A. Dalisay[1], A. Flores[1], K-H. Chan[2], M. Alexander[1], C. Foster III[1], E. Botvinick[3], and J. Lakey[1,3]
[1]University of Calfornia Irvine, Orange, CA, [2]University of California Irvine, Orange, CA,[3]University of Calfornia Irvine, Irvine, CA

P-Fr-375
Evaluation of Alginate Biocompatibility by Analyzing Macrophage Activation during *In-vitro* Co-culture
G. Fiore[1], R. Krishnan[1], G. Kummerfeld[1], T. Luu[2], N. Neel[1], M. Alexander[1], C. Foster III[1], W. Liu[2], and J. Lakey[1,2]
[1]University of Calfornia Irvine, Orange, CA, [2]University of Calfornia Irvine, Irvine, CA

P-Fr-376
Evaluating Alginate Hydrogels and Transplant Sites for Encapsulated Islet Transplantation
K. Laugenour[1], G. Kummerfeld[1], R. Krishnan[1], K-H. Chan[1], M. Alexander[1], C. Foster III[1], and J. Lakey[1,2]
[1]University of Calfornia Irvine, Orange, CA, [2]University of California Irvine, Irvine, CA

P-Fr-377
Keratin Biomaterials Modulate Primary Macrophage Polarization In-Vitro
M. Waters[1], P. VandeVord[1], and M. Van Dyke[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

P-Fr-378
Effect of Micro and Nano-patterned Topographical Cues on Macrophage Adhesion and Polarization
T. Luu[1], S. Gott[2], M. Rao[2], and W. Liu[1]
[1]University of California, Irvine, Irvine, CA, [2]University of California, Riverside, Riverside, CA

P-Fr-379
Lipid Coated Silica Nanoparticles As CpG Adjuvant Carriers For Lymph Node Targeting
M-G. An[1] and H. Liu[1]
[1]Wayne State University, Detroit, MI

P-Fr-380
Amphiphilic Copolymers Mimic Molecular Chaperone Activity in Cell Injury Repair
R. Lee[1]
[1]University of Chicago, Chicago, IL

Track: Biomaterials
Engineering Materials:
Biomaterials Scaffolds Posters

P-Fr-381
Carbonized Electrospun Fiber in a Three-Dimensional Coordination for Bone Tissue Regeneration
S. Ryu[1], C. Lee[1], J. Park[1], J. S. Lee[1], S. Kang[1], Y. D. Seo[1], J. Jang[1], and B-S. Kim[1]
[1]Seoul National University, Seoul, Korea, Republic of

P-Fr-382
Biphasic Janus-Type Nanofibers for Tissue Engineering Scaffolds
A. Khang[1], A. Woods[1], S. Spears[1], P. B. Devisetty Ravishankar[1], and K. Balachandran[1]
[1]University of Arkansas, Fayetteville, AR

P-Fr-383
Drug Testing on Dielectrophoresis Induced Cell Assembly in Hydrogel Medium
M. Goel[1], S. Singh[1], and S. Gupta[1]
[1]Indian Institute of Technology, New Delhi, India

P-Fr-384
Stem Cell Delivery from Poly(ethylene glycol) Dimethacrylate Hydrogels - A Band-Aid Approach
R. Asawa[1], J. McGee[1], D. Schmitt[1], H. Baca[1], M. Watry[1], and D. Doroski[1]
[1]Franciscan University of Steubenville, Steubenville, OH

P-Fr-385
Fabrication Of Biomimetic Vascular Scaffolds For 3D Tissue Constructs Using Vascular Corrosion Casts As A Template
J. Huling[1], I. K. Ko[1], A. Atala[1], and J. Yoo[1]
[1]Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC

P-Fr-386
Biodegradable And Biocompatible Pegylated Poly(Ester Amide) Elastomers With Increased Processability
Y. Xue[1], T. Yatsenko[1], A. Patel[1], V. Sant[1], and S. Sant[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Fr-387 **DREAM TEAM & CENTER**
Investigating Epithelial-Mesenchymal Transition Using Bioactive, Microfibrous Scaffolds
A. Ravikrishnan[1], T. Ozdemir[1], Y. Hao[1], X. Jia[1], S. Pradhan-Bhatt[1,2], D. A. Harrington[3], R. L. Witt[4], and M. C. Farach-Carson[1,3]
[1]University of Delaware, Newark, DE, [2]Center for Translational Cancer Research, Helen F. Graham Cancer Center & Research Institute, Newark, DE, [3]Rice University, Houston, TX,[4]Thomas Jefferson University, Philadelphia, PA

P-Fr-388
Calcium-accumulated Methacrylate-chondroitin Sulfate-based Hydrogels for Bone Scaffold
H. Kim[1] and N. Hwang[1]
[1]Seoul National University, Seoul, Korea, Republic of

P-Fr-389
Transient Mesenchymal Stem Cell Adhesion To Poly(ethylene glycol) Dimethacrylate Hydrogels
J. McGee[1], R. Asawa[1], H. Baca[1], D. Schmitt[1], M. Watry[1], and D. Doroski[1]
[1]Franciscan University of Steubenville, Steubenville, OH

P-Fr-390
Development of PLLA Perforated Hollow Fiber Scaffold for Cartilage Regeneration by Electrospinning
Y. Morita[1], R. Narisada[1], K. Tanaka[1], T. Katayama[1], and E. Nakamachi[1]
[1]Doshisha University, Kyotanabe, Japan

P-Fr-391
Fabrication And Characterization Of An Electrospun PCL And Soy Lecithin Composite Material
J. Gootee[1], L. Parr[1], D. Grant[1], and S. Grant[1]
[1]University of Missouri, Columbia, MO

POSTER SESSION **Fri**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM , 4:00PM - 5:00PM

P-Fr-392
Mechanical Characterization of 3D Twist-Braid Scaffolds for Ligament Replacement
S. Madhavarapu[1], R. Rao[1], E. Fleisher[1], Y. Yankannah[1], and J. Freeman[1]
[1]Rutgers University, Piscataway, NJ

P-Fr-393
Fabrication of Bioactive Poly(propylene carbonate)-Starch Blend for Biomedical Applications
I. Manavitehrani[1], A. Fathi[1], and F. Dehghani[1]
[1]The University of Sydney, Sydney, Australia

P-Fr-394
Relationships between Porosity and Mass Transport and Mechanical Properties of Porous Polyurethane Scaffolds
Y-F. Wang[1], C. M. Barrera[1], E. A. Dauer[1], W. Gu[2], and C-Y. C. Huang[1]
[1]Department of Biomedical Engineering, University of Miami, Coral Gables, FL, [2]Department of Mechanical and Aerospace Engineering, University of Miami, Coral Gables, FL

P-Fr-395
Engineering Microribbon-like Hydrogels with Diverse Biological Cues to Form 3D Scaffolds as Stem Cell Niche
X. Tong[1], C. Gegg[1], and F. Yang[1]
[1]Stanford University, Stanford, CA

P-Fr-396
Development of Elastin-like Polyeptide Based Hydrogel Using Photoreactive Amino Acid Analogs
A. Leonard[1] and P. Koria[1]
[1]University of South Florida, Tampa, FL

P-Fr-397
μ-Particle Scaffolds Support Osteogenic Differentiation
R. Clohessy[1], T. Arapovic[1], B. D. Boyan[1,2], and Z. Schwartz[1,3]
[1]Virginia Commonwealth University, Richmond, VA, [2]Georgia Institute of Technology, Atlanta, GA, [3]University of Texas Health Sciences Center San Antonio, San Antonio, TX

P-Fr-398
Fabrication of Silk Fibroin Cryogel Scaffolds with Osteoconductive Additives for Bone Tissue Regeneration
P. Kadakia[1], E. Jain[1], K. Hixon[1], and S. Sell[1]
[1]Saint Louis University, St Louis, MO

P-Fr-399
Modular Assembly Approach to Engineer Prevascularized Large 3D Tissue Constructs
J. Riesberg[1] and W. Shen[1]
[1]University of Minnesota, Minneapolis, MN

P-Fr-400
Concentrically and Axially Graded Hybrid Polymeric Scaffold
A. Najarzadeh[1] and D. Puleo[1]
[1]University of Kentucky, Lexington, KY

P-Fr-401
Biocompatibility Investigation of Near infrared Light and Gold Nanorods-assisted Photothermal Hydrogel Synthesis for Cell Encapsulation
H. Lee[1], S. Chung[1], S. Kim[1], and J. Lee[1]
[1]GIST, Gwangju, Korea, Republic of

P-Fr-402
Biodegradable DNA-Enabled Poly(ethylene glycol) Hydrogels Prepared by Copper-Free Click Chemistry
K. Barker[1], S. K. Rastogi[1], W. Brittain[1], and T. Betancourt[1]
[1]Texas State University, San Marcos, TX

P-Fr-403
Cancer Hyperthermia Studies: On the Aqueous Structure and Radiofrequency-induced Heating Properties of a Water-soluble [60]fullerene
Y. Mackeyev[1], A. Muto[2], M. Cheney[1,3], R. Serda[3], S. Curley[1,3], and L. Wilson[1]
[1]Rice University, Houston, TX, [2]Hitachi High Technologies America, Clarksburg, MD, [3]Baylor College of Medicine, Houston, TX

P-Fr-404
Electrospun Loose-fiber Polyurethane Scaffolds for Tissue Engineering Applications
J. Wu[1], B. Brazile[2], J. Liao[2], and Y. Hong[1]
[1]University of Texas at Arlington, Arlington, TX, [2]Mississippi State University, Starkville, MS

P-Fr-405
Muscle Regenerative Performance of Extracellular Matrix Scaffolds
J. Kim[1], B. Kasukonis[1], and J. Wolchok[1]
[1]University of Arkansas, Fayetteville, AR

P-Fr-406
Osteogenic Differentiation of MC3T3s on Carbon Fiber- and Barium Sulfate-Modified PEEK
S. Thevuthasan[1], B. Torstrick[1], N. Evans[1], H. Stevens[1], K. Gall[1], and R. Guldberg[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Fr-407
PEGylated Fibrinogen Electrospun Scaffolds for Cardiomyocyte Culture
A. Allen[1], A. Dugger[1], L. Sugges[1], and J. Zoldan[1]
[1]University of Texas at Austin, Austin, TX

P-Fr-408
Fabrication of Growth Factors Immobilized Electrospun Gelatin Nanofibers for Tissue Engineering
H. R. Lee[1], S-H. Lee[2], W. J. Kim[3], I-K. Park[4], and H. Park[1]
[1]Chung-Ang University, Seoul, Korea, Republic of, [2]CHA University, Gyeonggi-do, Korea, Republic of, [3]POSTECH, Pohang, Korea, Republic of, [4]Chon-nam National University Medical School, Gwangju, Korea, Republic of

P-Fr-409
Differentiation Capacity of Human Mesenchymal Stem Cell into Discogenic Phenotype using Alginates and PCL Fibers
Y-M. Kang[1], J-H. Kim[2], Y-M. Kook[2], S-H. Moon[1,2], and W-G. Goh[2]
[1]Yonsie university, Seoul, Korea, Republic of, [2]Yonsei University, Seoul, Korea, Republic of

P-Fr-410
Mechanical Characterization of Riboflavin Crosslinked Collagen Hydrogels
B. Borde[1] and L. Bonassar[1]
[1]Cornell University, Ithaca, NY

P-Fr-411
Facile Method for Fabricating a Uniformly Patterned and Porous Nanofibrous Scaffold for Guided Bone Regeneration
M. Sim[1], D-J. Lim[2], and H. Park[1]
[1]Chung-Ang University, Seoul, Korea, Republic of, [2]U of Alabama at Birmingham, Birmingham, AL

P-Fr-412
Synthesizing A Collagen And Chitosan Nanoparticle "Brain Patch" For Traumatic Brain Injury
F. Lemire-Baeten[1], C. Angpraseuth[1], A. S. Blee-Goldman[1], M. Spangler[1], T. Donnelly[1], and E. Orwin[1]
[1]Harvey Mudd College, Claremont, CA

P-Fr-413
Directing Osteoblast Differentiation and Mineralization Using PEG-conjugated Proteins Derived from Seashell and Bone
K. White[1] and R. Olabisi[1]
[1]Rutgers University, Piscataway, NJ

P-Fr-414
Injectable Bbiomimetic Polymer for Optic Nerve Regeneration
M. Laughter[1], D. Ammar[1], and D. Park[1]
[1]University of Colorado Denver, Aurora, CO

P-Fr-415
The Use of a Hierarchically Layered Biodegradable Tissue Scaffold For Wound Healing
S. Kalaba[1], Z. Xie[1], and J. Yang[1]
[1]The Pennsylvania State University, State College, PA

See page 152 for Poster floor plan

P-Fr-416
Harnessing Apoptosis for Enhanced Tissue Preservation during Decellularization
C. Cornelison[1,2], J. Park[2], R. Wachs[2], S. Wellman[2], and C. Schmidt[2]
[1]University of Texas at Austin, Austin, TX, [2]University of Florida, Gainesville, FL

P-Fr-417
Injectable Microporous Scaffold Diminishes Immune Response and Scar Formation
D. Griffin[1], W. Weaver[1], P. Scumpia[1], D. DiCarlo[1], and T. Segura[1]
[1]UC Los Angeles, Los Angeles, CA

P-Fr-418
Synthesis of a Biomimetic Reverse Thermal Gel for Neural Tissue Engineering
J. Bardill[1]
[1]University of Colorado Denver Anschutz Medical, Aurora, CO

Track: Biomechanics, Biomaterials
Engineering Materials:
Biomechanics of Biomaterials Posters

P-Fr-419
Long-range Communication between Cells in Fibrous Matrices Enabled by Tension-driven Alignment of Fibers
V. Shenoy[1], H. Wang[1], N. Abhilash[1], B. Baker[2], B. Trappmann[2], C. Chen[2], and R. Wells[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]Boston University, Boston, MA

P-Fr-420
Osteogenesis Imperfecta Causes Reduced Intrafibrillar Mineralization and Disengagement of Mineral Phase in Load Bearing in Bone
J. Samuel[1], N. Fan[1], and X. Wang[1]
[1]University of Texas at San Antonio, San Antonio, TX

P-Fr-421
Screw Pull Out Under Cyclic Fatigue Loading in Synthetic and Cadaveric Bone
M. Baumann[1] and A. Litsky[1]
[1]Ohio State University, Columbus, OH

P-Fr-422
Analyzing the Link Between F-Actin Arrangement and Stiffness on a Sub-cellular Level in Undifferentiated Mesenchymal Stem Cells
J. Kazlow[1,2], T. Bongiorno[1], and T. Sulchek[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA

P-Fr-423
Creep Properties of Swine Uterosacral and Cardinal Ligaments
T. Tan[1], N. Cholewa[1], S. Case[1], and R. De Vita[1]
[1]Virginia Tech, Blacksburg, VA

P-Fr-424
Theoretical Effect of Intracortical Porosity on Long Bone Bending Stiffness, Strength, and Toughness
J. Cotton[1]
[1]Ohio University, Athens, OH

P-Fr-425
The Impact of Gold Nanoparticles on the Biomechanical Properties and Function of Endothelial Cells
Y. Liu[1,2]
[1]Binghamton University, Binghamton, NY, [2]Binghamton Univerisity, Binghamton, NY

P-Fr-426
Measuring Hand Forces During Bone Milling to Improve Haptic Feedback of an Otologic Surgical Simulator
B. A. Nguyen[1] and A. Litsky[1]
[1]Ohio State University, Columbus, OH

P-Fr-427
A Computational Study of Cutting Procedure for Liver Tissue
Y. Shi[1], H. Tang[2], L. Su[2], and Y. Feng[2]
[1]Dassault Systemes Simulia Corp, Johnston, RI, [2]Soochow University, Suzhou, China, People's Republic of

Track: Biomechanics, Biomedical Imaging and Optics
Imaging:
Application of Imaging Methods to Biomechanics Posters

P-Fr-428
Non-invasive Biomechanical Property Characterization of Hydrogels using Ultrasound Techniques
X. Hong[1], Y-S. Hsiao[1], J. P. Stegemann[1], and C. X. Deng[1]
[1]University of Michigan, Ann Arbor, MI

P-Fr-429
Mechanically-Induced Fiber Remodeling In the Vitreous Body
N. Shah[1]
[1]Washington University in St Louis, St Louis, MO

P-Fr-430
Cells Have Feelings too: Microrheology in 3D Hydrogels Reveals Dynamics that Determine Cell Fate
B. H. Blehm[1], A. Devine[1], J. R. Staunton[1], and K. Tanner[1]
[1]NIH, Bethesda, MD

P-Fr-431
Author Cancellation

P-Fr-432
Mathematical Modeling of Sperm Swimming Patterns in the Mosquito Culex pipiens
C. De Los Santos[1], R. Cardullo[1], and C. Thaler[1]
[1]University of California, Riverside, Riverside, CA

Track: Cardiovascular Engineering, Biomedical Imaging and Optics
Imaging:
Cardiovascular Imaging Posters

P-Fr-433
Myoarchitectural Basis of Hypertrophic Cardiomyopathy
E. Taylor[1], M. Hoffman[1], D. Barefield[2], G. Aninwene[1], A. Abrishamchi[1], T. Lynch[2], S. Govindan[2], S. Sadayappan[2], and R. Gilbert[1]
[1]Northeastern University, Boston, MA, [2]Loyola University of Chicago, Maywood, IL

P-Fr-434
Kinematic Decomposition Of Right Ventricular Motion
D. Sahu[1], C. Maroules[2], R. Peshock[2], and M. Sacks[1]
[1]The University of Texas at Austin, Austin, TX, [2]The University of Texas Southwestern Medical Center at Dallas, Dallas, TX

P-Fr-435
Optical Mapping as a Tool for the Closed-Loop Control of Cardiac Electrical Restitution
K. Kulkarni[1] and E. Tolkacheva[1]
[1]University of Minnesota, Minneapolis, MN

P-Fr-436
Atria Models Enabled By OCT Tissue Characterization
T. Lye[1] and C. Hendon[1]
[1]Columbia University, New York, NY

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-437
Elastin Fiber Network in Porcine Epicardium: 3D Visualization and Quantification
X. Shi[1], D. Lee[1], B. Brazile[1], S. Patnaik[1], J. Cooley[1], R. Prabhu[1], H. Rhee[1], L. Williams[1], S. Zhang[1], and J. Liao[1]
[1]*Mississippi State University, Mississippi State, MS*

P-Fr-438
Prospective Image Gating Acquisition for Non-Invasive Live Imaging of Mid-Late Stage Avian Cardiogensis
C. Gregg[1], J. Palacios[1], W. Zipfel[1], and J. Butcher[1]
[1]*Cornell University, Ithaca, NY*

Track: Cancer Technologies, Biomedical Imaging and Optics
Imaging:
Imaging Strategies in Cancer Posters

P-Fr-439
Contrast-Enhanced X-ray Detection of Microcalcifications in Radiographically Dense Mammary Tissues using Targeted Gold Nanoparticles
L. Cole[1], T. Vargo-Gogola[2], and R. Roeder[1]
[1]*University of Notre Dame, Notre Dame, IN,* [2]*Indiana University School of Medicine - South Bend, South Bend, IN*

P-Fr-440
Developing T Cell Targeted Peptides for Monitoring Immune Response in Melanoma Immunotherapy
D. Bauknight[1], A. Buckner[1], L. Brinton[1], T. Bullock[1], and K. Kelly[1]
[1]*University of Virginia, Charlottesville, VA*

Track: Translational Biomedical Engineering, Biomedical Imaging and Optics
Imaging:
Imaging Technologies in Clinical Translation Posters

P-Fr-441
Diffusion Changes in Cerebellar White Matter Microstructure Related to Head Impact Exposure in a Season of High School Varsity Football
D. Sharma[1], N. Bahrami[1], J. Stitzel[2], J. Urban[2], A. Powers[1], C. Whitlow[1], and J. Maldjian[1]
[1]*Wake Forest University School of Medicine, Winston-salem, NC,* [2]*Wake Forest University School of Biomedical Engineering, Winston-salem, NC*

P-Fr-442
Ultrasound Elastography Probe Design for Rotator Cuff Diagnosis
W. Harley[1], E. Kowal[1], K. Showers[1], C. Corbett[1], H. Scruggs[1], G. Hefter[1], M. Marlowe[1], N. Matel[1], D. Dean[1], and D. Kwartowitz[1]
[1]*Clemson University, Clemson, SC*

Track: Biomedical Imaging and Optics
Imaging:
MRI Posters

P-Fr-443
Optimization of Magnetic Resonance Angiography for Applications in Studying Peripheral Artery Disease
A. Cao[1] and J. Greve[1]
[1]*University of Michigan, Ann Arbor, MI*

P-Fr-444
Effects of Co-Planar Shielding of Array Elements for High Field MRI
M. Wilcox[1], J. Rispoli[1], and M. McDougall[1]
[1]*Texas A&M University, College Station, TX*

P-Fr-445
Quantification of White Matter Hyperintensity and Cerebral Blood Flow in Older Adults with Low or High Risk for Cerebrovascular Disease using MRI
A. Bahrani[1,2], C. Smith[1], D. Powell[1], W. Kong[1], E. Johnson[1], Y. Shang[1], C. Huang[1], A. Rayapati[1], Y. Jiang[1], R. Kryscio[1], P. Nelson[1], F. Schmitt[1], G. Jicha[1], and G. Yu[1]
[1]*University of Kentucky, Lexington, KY,* [2]*University of Baghdad, Baghdad, Iraq*

P-Fr-446
Effect of Blood-Brain Barrier Leakiness on 9L Pontine Glioma Drug Delivery
K. N. Magdoom[1], F. Delgado[1], A. C. Bohorquez[1], P. R. Carney[1], C. Rinaldi[1], T. H. Mareci[1], and M. Sarntinoranont[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-447
Measuring Magnetic Field Changes Induced In A Hydrogel Using Low Injection Currents With Magnetic Resonance Electrical Impedance Tomography.
A. K. Kasinadhuni[1], R. Sadleir[2], C. Anderson[1], P. Carney[1], and T. Mareci[1]
[1]*University of Florida, Gainesville, FL,* [2]*Arizona State University, Tempe, AZ*

P-Fr-448
Anatomical Substrate of Fatigue in Parkinson's Disease
Q. Zhao[1], H. Huang[1], J. Tanner[1], C. Price[1], M. Ding[1], and B. Kluger[2]
[1]*University of Florida, GAINESVILLE, FL,* [2]*University of Colorado, Aurora, CO*

P-Fr-449
Monte Carlo Simulation of Changes in Diffusion Related to Different Pathologies at Cellular Level after Traumatic Brain Injury
J. Zhong[1,2], M. Lin[1], and H. He[1]
[1]*Zhejiang University, Hangzhou, China, People's Republic of,* [2]*University of Rochester, Rochester, NY*

P-Fr-450
Fibrin Glue Does Not Increase Drug Retention in the Spine: A Drug Delivery Study Using MRI
M. Giers[1], K. Cronk[2], Q. Lui[1], M. Preul[1], and N. Theodore[1]
[1]*St. Joseph's Hospital and Medical Center, Phoenix, AZ,* [2]*New England Neurological Associates, P.C, Lawrence, MA*

P-Fr-451
Ex-vivo Quantitative Evaluation of Catheter Related Thrombophlebitis in a Rabbit Model Using MRI
D. Weiss[1], O. Rotman[1], and S. Einav[2]
[1]*Tel Aviv University, Tel Aviv, Israel,* [2]*Stony Brook University, Stony Brook, NY*

Track: Biomedical Imaging and Optics
Imaging:
Optical Posters

P-Fr-452
Automated Three Dimensional Segmentation Of Atrial Optical Coherence Tomography Images
Y. Gan[1], D. Tsay[2], C. Fung[1], C. C. Marboe[3], and C. P. Hendon[1]
[1]*Columbia University, NEW YORK, NY,* [2]*Columbia NY Presbyterian Hospital, NEW YORK, NY,*[3]*Columbia University Medical Center, NEW YORK, NY*

P-Fr-453
Inverse Spectroscopic Optical Coherence Tomography Study of ECM Interactions in Cancer
G. Spicer[1], J. Yi[1], S. Azarin[2], S. Young[1], J. Winkelmann[1], A. Eid[1], R. Liu[1], L. Shea[3], and V. Backman[1]
[1]*Northwestern University, Evanston, IL,* [2]*University of Minnesota, Minneapolis, MN,*[3]*University of Michigan, Ann Arbor, MI*

P-Fr-454
Detectable Nanoscale Alterations for Prediction of Future Risk of Hepatocellular Carcinoma
A. Stawarz[1], R. Kalman[2], H. Subramanian[1], D. Zhang[1], H. Roy[2], and V. Backman[1]
[1]*Northwestern University, Evanston, IL,* [2]*Boston Medical Center, Boston, MA*

POSTER SESSION **Fri**

See page 152 for Poster floor plan

POSTER SESSION Fri 9:30AM – 5:00PM

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM, 4:00PM - 5:00PM

P-Fr-455
Speckle Contrast Diffuse Correlation Tomography for Flow Contrast Imaging of Turbid Media
D. Irwin[1], C. Huang[1], Y. Lin[1], Y. Shang[1], L. He[1], W. Kong[1], J. Luo[1], and G. Yu[1]
[1]University of Kentucky, Lexington, KY

P-Fr-456
Optimizing Gold-Silica Nanostars for Multiplexed Surface Enhanced Resonance Raman Spectroscopy Mapping
M. Fenn[1], N. Roki[1], and J. Gomez-Feria Ferreiro[1]
[1]Florida Institute of Technology, Melbourne, FL

P-Fr-457
Photodynamic Therapy in Cutaneous Squamous Cell Carcinoma
J. Miller[1,2], R. Gilson[1,2], R. Tang[1], and S. Achilefu[1,2]
[1]Washington University School of Medicine, St. Louis, MO, [2]Washington University in St. Louis, St. Louis, MO

P-Fr-458
Non-invasive Quantification of Changes in Cerebral Hemoglobin and Cytochrome Oxidase Induced by Low-level Laser Therapy for Psychiatric Disorders
F. Badami[1], T. Fenghua[1], S. Hase[1], and H. Liu[1]
[1]University of Texas at Arlington, Arlington, TX

P-Fr-459
Bio-inspired Fluorescent Dipeptide Nanoparticles for Label-free Imaging of Tumor Cells and Real-time Monitoring of Drug Release
Z. Fan[1], L. Sun[1], Y. Huang[1], Y. Wang[1], and M. Zhang[1]
[1]Ohio State University, Columbus, OH

P-Fr-460
μTsunamis: An Optical Platform For High-Throughput Screening Of Cellular Mechanotransduction
J. Luo[1], J. Compton[1], H. Ma[1], E. Botvinick[1], and V. Venugopalan[1]
[1]University of California, Irvine, Irvine, CA

P-Fr-461
Hyperspectral Microscopy of Near-Infrared Fluorescence Enables 17-Color Carbon Nanotube Imaging
D. Roxbury[1], P. Jena[1], R. Williams[1], B. Enyedi[1], P. Niethammer[1,2], S. Marcet[3], M. Verhaegen[3], S. Blais-Ouellette[3], and D. Heller[1,2]
[1]Memorial Sloan Kettering Cancer Center, New York, NY, [2]Weill Cornell Medical College, New York, NY, [3]Photon Etc., Montreal, QC, Canada

P-Fr-462
Potential of Optical Coherence Tomography for Early Detection of Meniscal Pathology Relevant to Osteoarthritis
C. Duan[1], A. Dunlap[1], L. Goossen[1], M. Wilson[1], M. Winter[1], H. Xie[1], and A. Pozzi[1]
[1]University of Florida, Gainesville, FL

P-Fr-463
Label Free Detection of Oxidative Stress by Fluorescence Lifetime Imaging Microscopy
R. Datta[1] and E. Gratton[1]
[1]University of California, irvine, Irvine, CA

P-Fr-464
In Vivo Integrated Imaging Support System
V. Voziyanov[1] and T. Murray[1]
[1]Louisiana Tech University, Ruston, LA

P-Fr-465
Optimization Framework for Time-Gate Selection in FLIM-FRET Imaging
T. Omer[1], X. Intes[1], and J. Hahn[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

P-Fr-466
Label-free Quantification Of Neuronal Structural Changes By Optical Scatter Image Analysis
K. Pierre[1], I. Ahmed[1], and N. Boustany[1]
[1]Rutgers University, Piscataway, NJ

P-Fr-467 **DREAM TEAM & CENTER**
Two-Photon Excited Fluorescence Imaging of Heart Valves Non-Invasively Identifies Calcific Nodules
L. Baugh[1], K. Quinn[1], G. Huggins[2], P. Hinds[2], I. Georgakoudi[1], and L. Black[1]
[1]Tufts University, Medford, MA, [2]Tufts Medical Center, Boston, MA

P-Fr-468
Combining Bayesian and Single-Emitter Localization (BaSEL) to Reveal T-cell Membrane Domains
Y. Hu[1], Z. Katz[1], B. Lillemeier[1], and H. Cang[1]
[1]Salk Institute, La Jolla, CA

P-Fr-469
Comparing Fluorescein Angiography and OCT Angiography
W. Liu[1], H. Li[1], R. Shah[2], R. Linsenmeier[1], A. Fawzi[2], and H. Zhang[1]
[1]Northwestern University, Evanston, IL, [2]Northwestern University, Chicago, IL

P-Fr-470
Alzheimer 's Disease Diagnosis with Resonance Raman Spectroscopy
L. Shi[1], C-H. Liu[1], S. Boydston-White[2], A. Rodriguez-Contreras[1], and R. Alfano[1]
[1]Institute for Ultrafast Spectroscopy and Lasers in CCNY, New York, NY, [2]Borough of Manhattan Community College, New York, NY

P-Fr-471
Spatial Frequency Domain Imaging for Noninvasive Assessment of Tissue Hemodynamic Properties
C. Sahyoun[1] and M. Pierce[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Fr-472
Localization Accuracy in Fluorescence Microscopy based on Experimentally Acquired Image Sets
A. Tahmasbi[1,2], E. S. Ward[2], and R. J. Ober[1,2]
[1]Texas A&M University, College Station, TX, [2]Texas A&M Health Science Center, College Station, TX

P-Fr-473
A Cost-Effective Fluorescence Mini-Microscope for Biomedical Applications
Y. S. Zhang[1], J. Ribas[1], A. Nadhman[1], J. Aleman[1], S. Selimovic[1], T. Wang[1], V. Manoharan[1], S-R. Shin[1], A. Damilano[1], M. R. Dokmeci[1], and A. Khademhosseini[1]
[1]Harvard Medical School, Cambridge, MA

P-Fr-474
Development of an Optical System for Rapid Ureter Detection During Surgical Procedures
S. Shukair[1], A. Chaturvedi[1], K. Miller[2], H. Subramanian[1], and J. Gunn[1]
[1]Briteseed, LLC, Chicago, IL, [2]Northwestern University Feinberg School of Medicine, Chicago, IL

P-Fr-475
Dispersive Raman Spectroscopy to Assess Protein Incorporation and Cellular Remodeling of Tissue Engineered Vascular Grafts
K. Kerney[1], A. Theus[1], M. Fenn[1], and C. Bashur[1]
[1]Florida Institue of Technology, Melbourne, FL

P-Fr-476
Spatiotemporal Monitoring of Fibrosis Using Spatial Frequency Domain Imaging
J. Y. Hsieh[1,2], R. Wilson[1,3], G. Kennedy[1,3], B. Tromberg[1,3], and W. Liu[1,2]
[1]University of California, Irvine, Irvine, CA, [2]The Edwards Lifesciences Center for Advanced Cardiovascular Technology, Irvine, CA, [3]Beckman Laser Institute, Irvine, CA

P-Fr-477
3D Printed Miniaturized System for Multispectral Tissue Fluorescence Lifetime Measurements
L. Zou[1], M. Mahmoud[1], M. Fahs[1], F. Choughari[1], K. Duan[1], and J. Lo[1]
[1]University of Michigan-Dearborn, dearborn, MI

P-Fr-478
Efficiency Test Shows Successful Transduction Of Murine MSC With Lentiviral Vector, Making A Viable Fluorescent Tracking Method
W. Hackett[1], M. Lopez[2], V. Patel[2], C. Rubin[2], and M. E. Chan[2]
[1]Stony Brook University, Greenlawn, NY, [2]Stony Brook University, Stony Brook, NY

POSTER SESSION **Fri**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-479

Ultrahigh Resolution Optical Coherence Microscopy: Principle and Application

S. MA[1], R. MARKWALD[2], T. BORG[2], R. RUNYAN[3], AND B. GAO[1]

[1]Clemson University, Clemson, SC, [2]Medical university of south carolina, Charleston, SC,[3]University of Arizona, Tucson, AZ

P-Fr-480

Simulating Measurement Error in Ratiometric Spectral-FRET Imaging

P. ARSENOVIC[1] AND D. CONWAY[2]

[1]Virginia Commonwealth University, richmond, VA, [2]Virginia Commonwealth University, Richmond, VA

P-Fr-481

Texture Based Similarity Measure for Multi-modal Co-registration

L. LI[1], M. RUSU[1], AND A. MADAHBSHI[1]

[1]Case Western Reserve University, Cleveland, OH

P-Fr-482

Nono-Scale Three Dimensional Mass Density Autocorrelation Function Reconstruction by Correlative Scanning Transmission Electron Microscopy and Atomic Force Microscopy

Y. LI[1], D. ZHANG[1], D. DAMANIA[1], K. HUJSAK[1], I. CAPOGLU[2], E. ROTH[1], R. BLEHER[1], J. WU[1], V. DRAVID[1], AND V. BACKMAN[1]

[1]Northwestern University, Evanston, IL, [2]Hallibrton Co., Houston, TX

P-Fr-483

Polymeric Nanoparticles as Dual-Imaging Probes for Cancer Management

J. MENON[1,2], P. JADEJA[1,2], P. TAMBE[1,2], D. THAKORE[1,2], D. NGUYEN[1,2], S. ZHANG[2], M. TAKAHASHI[2], J. YANG[3], AND K. NGUYEN[1,2]

[1]University of Texas at Arlington, Arlington, TX, [2]UT Southwestern Medical Center, Dallas, TX,[3]Pennsylvania State University, University Park, PA

P-Fr-484

Nonlinear Hyperspectral Mid-infared Spectroscopy and Imaging

A. MERTIRI[1], A. TOTACHAWATTANA[1], M. SANDER[1], M. HONG[1], AND S. ERRAMILLI[1]

[1]Boston University, Boston, MA

Track: Biomedical Imaging and Optics

Imaging:

PET/SPECT/CT Posters

P-Fr-485

CUDA Based Spectral CT Simulation

R. LIU[1] AND H. YU[2]

[1]VT-WFU School of Biomedical Engineering and Sciences, Wake Forest University Health Sciences, Lowell, MA, [2]Department of Electrical and Computer Engineering, University of Massachusetts Lowell, Lowell, MA

P-Fr-486

Investigating Non-Invasive Methods for the Full Quantification of [11C] ABP-688 PET Data

S. ROSSANO[1], F. ZANDERIGO[2], AND C. DELORENZO[1]

[1]Stony Brook University, Stony Brook, NY, [2]Columbia University, New York, NY

P-Fr-487

Rat Brain Tumor Imaged by Phase-Contrast X-Ray CT

T-T. LWIN[1,2], A. YONEYAMA[3], K. TERAZAKI[2], M. OHBU[1,2], H. MARUYAMA[1,2], K. HYODO[4], AND T. TAKEDA[1,2]

[1]Kitasato University, Sagamihara, Japan, [2]Graduate School of Medical Sciences, Kitasato University, Sagamihara, Japan, [3]Central Research Laboratory, Hitachi Ltd, Hatoyama, Japan,[4]High Energy Accelerator Research Organization, Tsukuba, Japan

Track: Biomedical Imaging and Optics

Imaging:

Ultrasound Posters

P-Fr-488

AngII Infusion Does Not Create Aneurysms in ApoE-Deficient Rats

A. N. BLAIZE[1], A. YRINEO[1], S. BOPPANA[1], S-C. CHANG[1], S. GORMAN[1], A. SACOPULOS[1], AND C. GOERGEN[1]

[1]Purdue University, West Lafayette, IN

P-Fr-489

High-Resolution Harmonic Motion Imaging (HR-HMI) For Tissue Biomechanical Property Characterization

X. QIAN[1], T. MA[1], C. T. CHIU[1], M. YU[1], H. JUNG[1], Y. TUNG[1], K. SHUNG[1], AND Q. ZHOU[1]

[1]University of Southern California, Los Angeles, CA

P-Fr-490

Limitations of Speed of Sound Reconstruction in Ultrasound Limited Angle Transmission Tomography

R. JINTAMETHASAWAT[1], W-M. LEE[1], O. KRIPFGANS[1], M. GOODSITT[1], AND P. CARSON[1]

[1]University of Michigan, Ann Arbor, Ann Arbor, MI

P-Fr-491

Improved Method to Quantify Perfusion and Assess Therapy in Peripheral Arterial Disease Mouse Models

A. BECKER[1] AND B. FRENCH[1]

[1]University of Virginia, Charlottesville, VA

P-Fr-492

Enhancement of Bone Surfaces in Ultrasound Images for Femoroacetabular Impingement (FAI) Surgery

M. NASER[1], C. GATT [2], AND I. HACIHALILOGLU[1]

[1]Rutgers University, Piscataway, NJ, [2]Robert Wood Johnson Medical School, Rutgers University, New Brunswick, NJ

P-Fr-493

Elastography Reconstruction from Ultrasound Brightness Mode Imaging Using Hierarchy Recursive Tracking

M. TAREK[1] AND A. MAHMOUD[1]

[1]Cairo University, Giza, Egypt

Track: Biomedical Imaging and Optics

Imaging:

Image Processing and Analysis Posters

P-Fr-494

Sensitivity of Semi-Automated Segmentation Algorithms for Upper Airway 3D Modeling

E. SU[1], D. PROTSENKO[1], T. NGUYEN[1], AND B. WONG[1]

[1]University of California, Irvine, Irvine, CA

P-Fr-495

Decrease in Functional Brain Connectivity Following Orthopedic Surgery

H. HUANG[1], P. NGUYEN[2], J. TANNER[2], N. SCHWAB[2], H. PARVATANENI[3], M. RICE[4], I. SCHMALFUSS[5], A. HORGAS[6], T. MARECI[7], C. PRICE[2], AND M. DING[1]

[1]Department of Biomedical Engineering, University of Florida, Gainesville, FL, [2]Department of Clinical & Health Psychology, University of Florida, Gainesville, FL, [3]Department of Orthopaedics and Rehabilitation, University of Florida, Gainesville, FL, [4]Department of Anesthesiology, University of Florida, Gainesville, FL, [5]Department of Radiology, University of Florida, Gainesville, FL, [6]College of Nursing, University of Florida, Gainesville, FL, [7]Department of Biochemistry and Molecular Biology, University of Florida, Gainesville, FL

P-Fr-496

Classification of Resting State fMRI Network Pre- and Post-Season Connectivity in Youth Football

F. MOKHTARI[1], C. LACK[2], C. WITHLOW[2], J. STITZEL[3], AND J. MALDJIAN[2]

[1]Wake Forest University, Winston Salem, NC, [2]Wake Forest School of Medicine, Wiston Salem, NC, [3]Wake Forest University, Wiston Salem, NC

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-497
Estimating Resolution Subject to Prior Knowledge in Tomographic Reconstruction
K. Dillon[1] and Y-P. Wang[1]
[1]Tulane University, New Orleans, LA

P-Fr-498
Application of Scale Invariant Feature Transform in Classification of Lung Images
M. Alemzadeh[1], C. Boylan[1], C. Boylan[1], M. V. Kamath[1], and M. V. Kamath[1]
[1]McMaster University, Hamilton, ON, Canada

P-Fr-499
Robust Automated Touching Nucleus Segmentation in Brain Tumor Images
F. Xing[1] and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-500
Selection of Salient Features for Autoimmune Myopathy Classification
M. McGough[1], H. Su[1], J. Cai[1], S. Cocco[1], and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-501
A Distributed Deep Learning Framework for High Throughput Muscle Image Segmentation
F. Liu[1], F. Xing[1], M. Sapkota[1], and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-502
Structured Learning for Automatic Segmentation of Digitized Muscle Specimens
Z. Zhang[1], Y. Xie[1], F. Liu[1], and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-503
Automatic Segmentation of Muscle Fibers in H&E Stained Pathology Specimens
J. Cai[1], S. Hai[1], M. McGough[1], S. Cocco[1], and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-504
Robust Nuclei Detection Via Adaptive Dictionary Learning And Sparse Coding
H. Su[1], F. Xing[1], Y. Xie[1], and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-505
Microscopic Muscle Image Enhancement
X. Kong[1] and L. Yang[1]
[1]University of Florida, Gainesville, FL

P-Fr-506
Automatic Tracking and Classification of Time-resolved Facial Expressions from Images
P. G. Menon[1] and Y. Ma[2]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Sun Yat-sen University - Carnegie Mellon University Joint Institute of Engineering, Pittsburgh, PA

P-Fr-507
Neural Network Approach for Lung Nodule Segmentation
P. G. Menon[1] and Y. Hu[2]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Sun Yat-sen University - Carnegie Mellon University Joint Institute of Engineering, Pittsburgh, PA

P-Fr-508
Predicting Classifier Performance with Limited Training Data: Validation on the ADNI Dataset
N. Agrawal[1], A. Basavanhally[1], S. Viswanath[1], and A. Madabhushi[1]
[1]Case Western Reserve University, Cleveland, OH

P-Fr-509
Analyzing Quality Of Compression Schemes Used In Wirelessly Transmitted Ultrasound Video
P. Ruiz[1], V. Hazelwood[1], and M. Gray[1]
[1]Stevens Institute of Technology, Hoboken, NJ

P-Fr-510
Tracking Whisker Movements in Free-moving Rodents from High-speed Video Recordings
H. J. Kim[1], T. Shi[1], P. Vora[1], S. Akdagli[2], S. Most[2], and Y. Yan[1]
[1]Santa Clara University, Santa Clara, CA, [2]Stanford, Stanford, CA

P-Fr-511 **DREAM TEAM & CENTER**
Automatic Tracking and Segmentation of Pelvic Floor Organs on Dynamic Magnetic Resonance Imaging
I. Nekooeimehr[1], S. Lai-Yuen[1], P. Bao[1], A. Weitzenfeld[1], and S. Hart[1]
[1]University of South Florida, Tampa, FL

Track: Biomedical Imaging and Optics

Imaging:

Other Imaging Posters

P-Fr-512
Electroencephalographic Source Imaging in Rats: Methodological Aspects and Validation
J. Bae[1], P. Valdes-Hernandez[2], Y. Song[1], and J. Riera[1]
[1]Florida International University, Miami, FL, [2]Cuban Neuroscience Center, Havana, Cuba

P-Fr-513
Design and Validation of Magnetic Particle Spectrometer for Nanoparticle Characterization
N. Garraud[1], R. Dhavalikar[1], L. Maldonado-Camargo[1], D. P. Arnold[1], and C. Rinaldi[1]
[1]University of Florida, Gainesville, FL

P-Fr-514
Quantitative Evaluation Of Optogenetically-Induced Calcium Signaling In Astrocytes
L. Balachandar[1], A. Raymond[1], M. Nair[1], J. Santana[1], and J. Riera[1]
[1]Florida International University, Miami, FL

P-Fr-515
Kinect Accuracy in Abdominal Surface Reconstruction for Robotic Surgery
M. Maddah[1], C. G. Cao[2], J. Wang[2], N. Kashou[2], M. Galloway[2], K. Lin[2], and K. Watson[2]
[1]Wright State University, Fairborn, OH, [2]Wright State University, Dayton, OH

P-Fr-516
Noncontact Diffuse Optical Assessment of Blood Flow Changes in Head and Neck Free Tissue Transfer Flaps
C. Huang[1], J. Radabaugh[1], R. Aouad[1], Y. Lin[1], T. Gal[1], A. Patel[1], J. Valentino[1], Y. Shang[1], and G. Yu[1]
[1]University of Kentucky, Lexington, KY

P-Fr-517
A Computer Assisted Tool for Abdominal Insufflation Measurements
Z. Tavakkoli[1]
[1]Wright State University, Fairborn, OH

P-Fr-518
Development of Intra Oral Camera System For Sleep Apnoea Monitoring
E. Dijemeni[1], S. Singh[2], J. Collier[2], and R. Dickinson[1]
[1]Imperial College London, London, United Kingdom, [2]Chelsea and Westminster Hospital, London, United Kingdom

P-Fr-519
Individual Differences in Alpha Power Modulation by Verbal Working Memory Load
Z. Hu[1], I. Samuel[1], and M. Ding[1]
[1]University of Florida, Gainesville, FL

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-520
Focal Adhesion Formation and Reorganization on Nanopatterned Surfaces
E. Mah[1], E. Liang[1], A. Yee[1], and M. Digman[1]
[1]*University of California, Irvine, Irvine, CA*

P-Fr-521
Ferrohydrodynamic Modeling of Magnetic Relaxation in Magnetic Particle Imaging
R. Dhavalikar[1], D. Hensley[2], L. Maldonado-Camargo[1], S. Ceron[1], N. Garraud[1], L. Croft[2], P. Goodwill[2], S. Conolly[2], and C. Rinaldi[1]
[1]*University of Florida, Gainesville, FL,* [2]*University of California, Berkeley, CA*

P-Fri-522
Gp2 Scaffold Engineered As A Molecular Probe For Tumor Targeting
V. Duong[1], M. Kruziki[1], and B. Hackel[1]
[1]*University of Minnesota - Twin Cities, Minneapolis, MN*

Track: Cellular and Molecular Bioengineering
Molecular and Cellular Topics:
Cell and Molecular Immunoengineering Posters

P-Fr-529
Tuning T Cell Activation with Protein-Particle Conjugates
E. Campbell[1], S. Thomas[1], J. McDonald[1], and T. Sulchek[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

P-Fr-530
Complex Cytokine Stimulation Induces Simultaneous M1 and M2 Activation In Macrophages
T. Smith[1], M. Tse[1], L. McCarthy[1], E. Read[1], and W. Liu[1]
[1]*UC Irvine, Irvine, CA*

P-Fr-531
Inflammatory Stress in Pancreatic Beta Cells Induces Enhanced Immunogencity of the Diabetes Autoantigen GAD65 through Disruption of the Palmitoylation Cycle
E. Phelps[1], C. Cianciaruso[1], M. Pasquier[1], J. Hubbell[1,2], and S. Baekkeskov[1]
[1]*Swiss Federal Institute of Technology, Lausanne (EPFL), Lausanne, Switzerland,* [2]*University of Chicago, Chicago, IL*

P-Fr-532
CCL21 Beta Cell Expression Alters the Phenotype of Islet Infiltrates and Prevents Type 1 Diabetes
M. Abreu[1], M. Najjar[1], V. Manzoli[1], R. Molano[1], A. Pugliese[1], and A. Tomei[1]
[1]*University of Miami, Miami, FL*

P-Fr-533
Effect of Microscale Geometry of Costimulatory Anti-CD28 Relative to Anti-CD3 in Induction of Regulatory T cells from Conventional T Cells
J-H. Lee[1], J. Postigo[1], W. Jin[1], H. Chen[1], S. Dastagir[1], R. Creusot[1], and L. Kam[1]
[1]*Columbia University in the city of New York, New York, NY*

P-Fr-534
Modulating Macrophage Phenotype via Biophysical Stimuli: Reduced iNOS for LPS Activated M1 Cells
K. Kearns[1], N. Schaub[1], R. Gilbert[1], and D. Thompson[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Fr-535
Electric Field Ablation Influences Anti-tumor Response in Triple Negative Breast Cancer Cells
I. Goswami[1], A. Rolong[1], R. G. Morrison[1], S. Coutermarsh-Ott[1], I. C. Allen[1], R. V. Davalos[1], and L. R. Bickford[1]
[1]*Virginia Polytechnic Institute and State University, Blacksburg, VA*

P-Fr-536
Engineering T-Cell Receptors (TCRs) with Variable Binding Affinity Using Yeast Display for Development as a Multiple Sclerosis (MS) Therapeutic
E. Leonard[1] and J. Maynard[1]
[1]*University of Texas at Austin, Austin, TX*

P-Fr-537
Biomaterials-based Immunoengineered Lymphoid Tissues for B cell Activation
A. Purwada[1], M. Jaiswal[2], H. Ahn[3], A. Gaharwar[2], L. Cerchietti[3], and A. Singh[1]
[1]*Cornell University, Ithaca, NY,* [2]*Texas A&M University, College Station, TX,* [3]*Weill Cornell Medical College, New York, NY*

P-Fr-538
Efficient *Ex Vivo* Generation of Functional Neutrophils from TLR-2 Stimulated Hematopoietic Stem Cells to Combat Staphaureus Infection
L. Anderson[1], P. Falahee[1], and S. Simon[1]
[1]*UC Davis, Davis, CA*

Track: Biomechanics, Cellular and Molecular Bioengineering
Molecular and Cellular Topics:
Cell and Tissue Mechanics Posters

P-Fr-539
Inhibition of Platelet Integrin α IIb β 3 Attenuates Blood Clot Stiffness and Platelet Compaction
N. Brackett[1], C. Whitaker Wang[1], and M. Lawrence[1]
[1]*University of Virginia, Charlottesville, VA*

P-Fr-540
Computational Analysis of Amoeboid Migration during Cancer Metastasis: Relative Importance of Nuclear Mechanics
R. Zielinski[1] and S. Ghadiali[1]
[1]*The Ohio State Univeristy, Columbus, OH*

P-Fr-541
Keratinocyte Sensitivity to EGF is Regulated by Substrate Mechanics: Potential Implications for Wound Healing
L. Wickert[1], S. Pomerenke[1], K. Masters[1], and P. Kreeger[1]
[1]*University of Wisconsin Madison, Madison, WI*

P-Fr-542
Interaction of Lysosomes and Stretch: Implication for Mechanotransduction Regulated Degradation
E. Bartolak-Suki[1] and B. Suki[1]
[1]*Boston University, Boston, MA*

P-Fr-543
Single Molecule AFM Reveals the Presence of SK Channels on Neuronal Axons
K. Abiraman[1], A. Tzingounis[1], and G. Lykotrafitis[1]
[1]*University of Connecticut, Storrs, CT*

P-Fr-544
An Active Contraction Model of the Valvular Interstitial Cell
Y. Sakamoto[1] and M. Sacks[1]
[1]*The University of Texas at Austin, Austin, TX*

P-Fr-545
Differences in Creep Response of GBM Cells in Confinement: Actively Migrating vs. Stationary
I. Khan[1], L. Bui[1], Y-T. Kim[1], and C-J. Chuong[1]
[1]*University of Texas at Arlington, Arlington, TX*

P-Fr-546
Inhibition of TLR4 Protects the Nucleus Pulposus Against Inflammatory Induced Mechanobiological Alterations
T. Jacobsen[1] and N. Chahine[1]
[1]*Feinstein Institute for Medical Research, Manhasset, NY*

P-Fr-547
Characterization Of Osteoblasts And The Effect Of Osteocytic Soluble Factors On Bone Formation
E. George[1], S. York[1], J. McPherson[1], A. Gore[1], M. Costa[1], E. Grutkowski[1], and M. Saunders[1]
[1]*The University of Akron, Akron, OH*

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-548
Mapping Biomechanical Properties of Living Biological Tissues Using Atomic Force Microscopy and Immunofluorescence Microscopy
X. Xu[1], Z. Li[1], S. Calve[1], and C. Neu[1]
[1]Purdue University, West Lafayette, IN

P-Fr-549
Nanomechanical Clues of Breast Cancer Cell Invasiveness
D. Chery[1], B. Han[1], A. Shah[1], A. Shieh[1], and L. Han[1]
[1]Drexel University, Philadelphia, PA

P-Fr-550
Nonlinear Viscoelasticity Of Ligaments Of The Pelvic Floor
A. Baah-Dwomoh[1], T. Tan[1], and R. De Vita[1]
[1]Virginia Tech, Blacksburg, VA

P-Fr-551
Extracellular Microvesicles (eMVs) as Biomarkers of BBB Remodeling Following TBI
A. Andrews[1], E. Lutton[1], S. Merkel[1], R. Razmpour[1], and S. Ramirez[1,2]
[1]Temple University, Philadelphia, PA, [2]Shriner's Children's Hospital, Philadelphia, PA

P-Fr-552
Mechanically Unloaded Osteocytes Increase Osteoclastogenesis
L. vonDeak[1], O. Petrey[1], T. Pero[1], F. Moussa[2], F. Safadi[2], and M. Saunders[1]
[1]The University of Akron, Akron, OH, [2]Northeast Ohio Medical University, Rootstown, OH

P-Fr-553
Cellular Young's Modulus as a Novel Stemness Marker in the Corneal Limbus
T. Bongiorno[1], J. Chojnowski[2], J. D. Lauderdale[2], and T. Sulchek[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]University of Georgia, Athens, GA

P-Fr-554
Characterizing Axial and Longitudinal Mechanics of Individual Cardiomyocytes
A. Desai[1], R. Peyronnet[2], P. Kohl[2], and D. Dean[3]
[1]Clemson University, Clemson, SC, [2]Imperial College, London, United Kingdom, [3]Clemson University, Central, SC

P-Fr-555
Reduced Skeletal Muscle Function is Associated with Decreased Fiber Area and Increased Connective Tissue in a Rat Model of Progressive Kidney Disease
W. Elkhatib[1], J. Organ[1], A. Srisuwananukorn[1], P. Price[1], J. Joll[1], K. Biro[1], J. Rupert[1], N. Chen[1], K. Avin[2], S. Moe[2], and M. Allen[2]
[1]Indiana University School of Medicine, Indianapolis, IN, [2]Indiana University School of Health and Rehabilitation Science, Indianapolis, IN

P-Fr-556
The Acute Effects of Statins on Aortic Valve Interstitial Cell Physical State *In Situ*
R. M. Buchanan[1], S. D. Labianca[1], and M. S. Sacks[1]
[1]The University of Texas at Austin, Austin, TX

P-Fr-557
Actomyosin Contractility Governs Cellular Mechanosensing Behaviors
T. Kim[1]
[1]Purdue University, West Lafayette, IN

P-Fr-558
Biomechanical Comparison Of Induced Apoptotic And Necrotic Cell Death In Leukemia Cells
R. Byler[1,2], K. Patel[2], M. Khosravanipour[2], F. Damen[2,3], T. Sulchek[2], and E. Behravesh[2]
[1]Yale University, New Haven, CT, [2]Georgia Institute of Technology, Atlanta, GA, [3]Purdue University, West Lafayette, IN

P-Fr-559
Altered Mechanical Properties of Rat Proximal Pulmonary Artery with Pre-conditioning.
S. Burgett[1], M. Dufva[1], R. B. Dodson[1], J. S. Walker[1], and K. Hunter[1]
[1]University of Colorado Denver, aurora, CO

P-Fr-560
Application Of Traction Force Microscopy To Patient-Specific Studies Using Induced Pluripotent Stem Cells
S. Carrasquilla[1], B. DiVita[1], N. Biel[1], N. Terada[1], and C. Simmons[1]
[1]University of Florida, Gainesville, FL

P-Fr-561
Probing the Viscoelasticity of the *C. elegans* Body
F. Loizeau[1], S. Fechner[1], E. Mazzochette[1], A. Nekimken[1], A. Sanzeni[2,3], M. Vergassola[2], M. Goodman[1], and B. Pruitt[1]
[1]Stanford University, Stanford, CA, [2]University of California San Diego, San Diego, CA,[3]University of Milano, Milano, Italy

P-Fr-562
Mathematical Model For Bone Turnover
E. George[1], S. York[1], R. Miller[1], D. Ott[1], M. Saunders[1], and A. Prieto-Langarica[2]
[1]The University of Akron, Akron, OH, [2]Youngstown State University, Youngstown, OH

P-Fr-563
Mechanical Heterogeneity: A New Concept for Cell Adhesion
M. Roein-Peikar[1], F. Chowdhury[2], Q. Xu[3], and T. Ha[1,2,3]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Carl Woese Institute for Genomic Biology, Urbana, IL, [3]Howard Hughes Medical Institute, Urbana, IL

P-Fr-564
Substrate Stiffness Regulates Focal Adhesion Kinase In Direct Conversion Of Fibroblasts Into Neurons
J. Soto[1], S. Wong[1], J. Chu[1], and S. Li[1]
[1]University of California, Berkeley, Berkeley, CA

P-Fr-565
A Novel Experimental Approach for the Observation of Osteocyte Ca2+ Signaling *in vivo*
K. J. Lewis[1], D. Frickha-Benayed[1], D. C. Spray[2], M. M. Thi[2], R. J. Majeska[1], S. Weinbaum[1], and M. B. Schaffler[1]
[1]CUNY - City College, New York, NY, [2]Albert Einstein College of Medicine, Bronx, NY

P-Fr-566
Measuring Nonlinear Anisotropic Mechanical Properties of Vascular Smooth Muscle Cells
Z. Win[1] and P. Alford[1]
[1]University of Minnesota, Minneapolis, MN

P-Fr-567
Mechanics of Intact Bone Marrow
L. Jansen[1], N. Birch[1], J. Schiffman[1], A. Crosby[1], and S. Peyton[1]
[1]University of Massachusetts Amherst, Amherst, MA

Track: Cellular and Molecular Bioengineering

Molecular and Cellular Topics:

Molecular Bioengineering Posters

P-Fr-569
Inhibition of Aβ Aggregate Elongation by Piceatannol: A Quartz Crystal Microbalance Analysis
Y. Wang[1] and M. Moss[1]
[1]University of South Carolina, Columbia, SC

P-Fr-570
Novel Variable Modifications to Polyketide Synthase Pathway and Screen Process
M. Simon[1], L. Fang[1], and B. Pfeifer[1]
[1]University at Buffalo, SUNY, Buffalo, NY

P-Fr-571
A Raman Microspectroscopic Investigation of Biopreservation Potential of Trehalose and Glycerol
M. Wang[1] and N. Chakraborty[1]
[1]University of Michigan Dearborn, Dearborn, MI

POSTER SESSION Fri

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-572
A Universal Quantitative FRET Methodology for Biochemical Parameter Determinations
J. Liao[1], Y. Song[1,2], Y. Liu[1,3], L. Jiang[1,4], H. Malik-Chaudhrya [1,5], R. Kung[1], Z. Xiong[1], and G. Way[1]
[1]University of California at Riverside, Riverside, CA, [2]University of Pennsylvania, Philadelphia, PA, [3]California Institute of Biomedical Research, La Jolla, CA, [4]Heilongjiang University of Chinese Medicine, Harbin, China, People's Republic of, [5]Pfenex Inc, San Diego, CA

P-Fr-573
Spin Selective Production of Reactive Oxygen Species in Endothelial Cells by Weak Magnetic Fields
C. Chavarriaga[1], I. McClure[1], K. Juriga[1], and C. Martino[1]
[1]Florida Institute of Technology, Melbourne, FL

P-Fr-574
Microdroplet Fusion Mass Spectrometry for Fast Protein Kinetics
J. K. Lee[1,2], H. G. Nam[2,3], and R. Zare[1]
[1]Stanford University, Stanford, CA, [2]Institute for Basic Science, Daegu, Korea, Republic of,[3]DGIST, Daegu, Korea, Republic of

P-Fr-575
Engineering Light Inducible Proteins To Control Biomolecule Activity And Behavior In Live Cells
Z. Huang[1] and Y. Wang[1]
[1]University of California, San Diego, La Jolla, CA

P-Fr-576
Truncation of O-glycan Biosynthesis by GalNTGc: An Analog of Naturally Occurring N-acetylgalactosamine
S-S. Wang[1], G. Stolfa[1], K. Agarwal[2], S. Ahmed[2], G. Sampathkumar[2], and S. Neelamegham[1,3]
[1]University at Buffalo SUNY, Buffalo, NY, [2]National Institute of Immunology, New Delhi, India,[3]NY State Center for Excellence in Bioinformatics and Life Sciences, Buffalo, NY

P-Fr-577
author cancellation

P-Fr-578
Designation of HMGB1-regulatory Protein for Successful Pancreatic Islet Xenotransplantation
W. R. Bae[1], Y. H. Hwang[1], and D. Y. Lee[1]
[1]Hanyang University, Seoul, Korea, Republic of

P-Fr-579
Antimicrobial Efficacy of Non-thermal Dielectric Barrier Discharge Plasma on *Pseudomonas Aeruginosa* Biofilm
T. Thapa[1] and H. Ayan[1]
[1]University of Toledo, Toledo, OH

P-Fr-580
Functional Evaluation of Periodic Peptide That Induces Formation of Cell Aggregation
Y. Hirano[1], Y. Futaki[1], and S. Kakinoki[1]
[1]Kansai Univ., Osaka, Japan

P-Fr-581
Different Heat-stress Between 2D- and 3D- Cell-culture Environments
S. Kwak[1], C. Mun[1], S. Chun[1], and T. Kim[1]
[1]Inje university, Gimhae, Korea, Republic of

P-Fr-582
Rapid Affinity Resin Production and Protein Purification with Azide-tagged Calmodulin
J. Fraseur[1], T. Kinzer-Ursem [1], and C. Kulkarni[2]
[1]Purdue University, West Lafayette, IN, [2]California Institute of Technology, Pasadena, CA

P-Fr-583
Comparison of Target Specificity of Orthogonal CRISPR/Cas9 Systems
C. Lee[1,2], H. Deshmukh[1,2], T. Cradick[1,3], and G. Bao[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Rice University, Houston, TX, [3]CRISPR Therapeutics, Cambridge, MA

P-Fr-584
Regulation of Endogenous Transmembrane Receptors Through Optogenetic Cry2 Clustering
D. Spelke[1,2], L. Bugaj[1,2], D. Blondel[3], E. Connelly[1], C. Mesuda[1], M. Varedi[1], R. Kane[4], and D. Schaffer[1]
[1]University of California, Berkeley, Berkeley, CA, [2]University of California, San Francisco, San Francisco, CA, [3]École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland,[4]Rensselaer Polytechnic Institute, Troy, NY

P-Fr-585
Loss of Giant Obscurins Enhance Migration and Cell Dynamics in Pancreatic Ductal Epithelial Cells
D. Shea[1], K. Konstantopoulos[1], and A. Kontrogianni-Konstantopoulos[2]
[1]Johns Hopkins University, Baltimore, MD, [2]University of Maryland School of Medicine, Baltimore, MD

P-Fr-586
DNA Aptamer Assembly As A Vascular Endothelial Growth Factor Receptor Agonist
V. Ramaswamy[1], A. Monsalve[1], L. Sautina[1], M. Segal[1], J. Dobson[1], and J. Allen[1]
[1]University of Florida, Gainesville, FL

P-Fr-587
Amplifying Riboswitch Biosenors
A. Bennett[1] and M. Goodson[2]
[1]University of Dayton, Springfield, OH, [2]Wright Patterson Air Force base, Dayton, OH

P-Fr-588
Transition State Model of Kinetochore/Microtubule Attachments in Budding Yeast
E. Tubman[1], S. Biggins[2], and D. J. Odde[1]
[1]University of Minnesota, Minneapolis, MN, [2]Fred Hutchinson Cancer Research Center, Seattle, WA

Track: Neural Engineering

Neural Engineering:

Closed-loop Control of Neural Interfaces Posters

P-Fr-589
Detection of Tourette Syndrome Tics via Centromedian Thalamus LFP and Acute Trial of Closed Loop Stimulation
J. Shute[1], E. Opri[1], R. Molina[1], J. Rossi[1], M. Okun[1], K. Foote[1], and A. Gunduz[1]
[1]University of Florida, Gainesville, FL

P-Fr-590
Closed-Loop Paradigms for Hybrid Neural Systems using a Bidirectional Neural Interface
Z. Chou[1], J. Lim[1], S. Brown[1], J. Bugbee[1], M. Keller[1], F. Broccard[1], M. Khraiche[1,2], G. Silva[1,2], and G. Cauwenberghs[1,2]
[1]University of California, San Diego, La Jolla, CA, [2]Institute of Engineering in Medicine, La Jolla, CA

P-Fr-591
Towards Closed-Loop Deep Brain Stimulation for the Treatment of Essential Tremor
E. Opri[1], J. Shute[1], R. Molina[1], K. Foote[1], M. Okun[1], and A. Gunduz[1]
[1]University of Florida, Gainesville, FL

P-Fr-592
Investigation of the Effect of Visual LED Stimuli as BCI Alert System on Subject's (drivers) Brain Signals Detection in Emergency Situations
P Riyahi[1] and A. Eskandarian[1]
[1]The George Washington University, Washington, DC

See page 152 for Poster floor plan

Track: Neural Engineering

Neural Engineering:

CNS Disease: Addressing Degeneration/Glial Engineering Posters

P-Fr-593

Olive Oil Phenylethanoids Modulate Aβ Aggregation Though Targeting of Oligomeric Species

S. Z. Vance[1], C. Moore[1], and M. Moss[1]
[1]University of South Carolina, Columbia, SC

P-Fr-594

Dispersion of Amyloid Beta Peptide Fiber via Cactus Mucilage as a Potential Disruptor in the Kinetic Formation of Alzheimer's Disease Plaques

T. Peng[1]
[1]University of South Florida, Odessa, FL

P-Fr-595

The Ames Window Illusion in Schizophrenia

M. E. Karakatsani[1], T. V. Papathomas[2], B. P. Keane[2], Y. Wang[2], M. de Heer[3], and S. M. Silverstein[2]
[1]Columbia University, New York, NY, [2]Rutgers University, Piscataway, NJ, [3]Non Affiliated, Amsterdam, Netherlands

P-Fr-596

High Throughput Evaluation of 3D Composite Materials for Optimization of Glial and Neuronal Behavior

C. Bertucci[1], S. Ramamoorthy[1], P. Karande[1], and D. Thompson[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

P-Fr-597

Astrocytic Response To Nanoporous Anodized Alumina Surfaces

D. Ganguly[1], C. Johnson[1], R. Gilbert[1], and D. Borca-Tasciuc[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

P-Fr-598

Electrospun Fiber Nanotopography Alters Oligodendrocyte Expression of Myelin Basic Protein and PDGF-α R

A. D'Amato[1], J. Cardenas[1], and R. Gilbert[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

P-Fr-599

Oligodendrocyte Survival, Proliferation, and Maturation is Dependent on 3D Hydrogel Mechanics

L. Russell[1] and K. Lampe[1]
[1]University of Virginia, Charlottesville, VA

Track: Neural Engineering

Neural Engineering:

CNS Injury: SCI, Stroke, TBI and Concussions Posters

P-Fr-600

Acute Plasmalemmal Disruptions in Perivascular Domains is Exacerbated After Repetitive TBI in Swine

K. Browne[1,2], E. Kuo[1,2], C. Mietus[1], J. Harris[1,2], J. Wolf[1,2], D. Smith[2], J. Duda[1], and D. K. Cullen[1,2]
[1]Philadelphia Veterans Affairs Medical Center, Philadelphia, PA, [2]University of Pennsylvania, Philadelphia, PA

P-Fr-601

ABR Gap Responses Show Hormonal Influences and Sexual Dimorphism in CBA/CaJ Mice

T. Williamson[1], X. Zhu[1], J. Walton[1], and R. Frisina[1]
[1]University of South Florida, Tampa, FL

P-Fr-602

Development of Non-invasive Method for Cerebrovascular Regulation Assessment

S. Miller[1], I. Richmond[2], J. Borgos[2], and K. Mitra[1]
[1]Florida Institute of Technology, Melbourne, FL, [2]Brain Check Medical LLC, Shoreview, MN

P-Fr-603

Aligned Paclitaxel-Eluting Microfibers Promote Axonal Extension Over an Inhibitory Substrate from a Spinal Cord Injury

J. Roman[1] and H-Q. Mao[1]
[1]Johns Hopkins University, Baltimore, MD

P-Fr-604

Estimating Axonal Strain Following Tissue-level Stretch From Displacement Of Axon Proteins As Fiduciary Markers

S. Singh[1], A. Pelegri[1], and D. Shreiber[1]
[1]Rutgers University, Piscataway, NJ

P-Fr-605

Disrupted Executive Control Network of Female Soccer Players Found Using Dual-Regression ICA

T. Shenk[1], T. Balke[1], K. Abbas[1], and T. Talavage[1]
[1]Purdue University, West Lafayette, IN

P-Fr-606

Alginate Microencapsulation of Mesenchymal Stromal Cells Activates Neuroinflammatory Mediation

E. Stucky[1], R. Schloss[1], M. Yarmush[1], and D. Shreiber[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Fr-607

Exploring the Mechanobiology of Astrocytes Under Traumatic Brain Injury Conditions

A. Walker[1], J. Wyatt[1], and J. Wolchok[1]
[1]University of Arkansas, Fayetteville, AR

P-Fr-608

Traumatic Brain Injury Resulted in Increased Aquaporin-4 Expression - Relevance to Post Injury Edema

N. Sturdivant[1], J. Wolchok[1], and K. Balachandran[1]
[1]University of Arkansas, Fayetteville, AR

P-Fr-609

History of Concussion Reduces Brain Resting State Network Efficiency

K. Abbas[1], J. Goni[2], and T. Talavage[1]
[1]Purdue University, West Lafayette, IN, [2]Indiana University, Indianapolis, IN

P-Fr-610

Sagittal Brain Rotations Enhance the Axonal Injury Risk in the Infant Brain

L. Atlan[1] and S. Margulies[1]
[1]University of Pennsylvania, Philadelphia, PA

P-Fr-611

Correlating Sub-concussive Brain Injuries with Decreased Grey Matter Volume

M. U. Sadiq[1], K. Abbas[1], and T. Talavage[2]
[1]School of Electrical and Compter Engineering, Purdue University, West Lafayette, IN., West Lafayette, IN, [2]Weldone School of Biomedical Engineering, Purdue University, West Lafayette, IN

P-Fr-612

Cerebrovascular Reactivity Changes in Asymptomatic Football Athletes

C. Joshi[1], D. Svaldi[1], E. Nauman[1], and T. Talavage[1]
[1]Purdue University, West Lafayette, IN

P-Fr-613

Directional Sensitivity of Corpus Callosum Fiber Strain to Head Rotational Impulse Based on a Pre-computed Atlas

W. Zhao[1] and S. Ji[1]
[1]Dartmouth College, Hanover, NH

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-614
Stretch Induced Hyperexcitability of Mice Callosal Pathway
A. Fan[1], K. Stebbings[1], D. Llano[1], and T. Saif[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

Track: Neural Engineering
Neural Engineering:
Neural Coding and Modeling Posters

P-Fr-615
Dexterous Neural Prosthetics: Peripheral and Cortical Decoding of Finger Movement
Z. Irwin[1], P. Vu[1], A. Bullard[1], I. Sando[1], N. Bentley[1], M. Urbanchek[1], P. Patil[1], P. Cederna[1], and C. Chestek[1]
[1]*University of Michigan, Ann Arbor, MI*

P-Fr-616
Experimental Characterization of the Rat Electroretinogram
S. Davis[1], X. Tang[1], R. Tzekov[1,2], and C. Passaglia[1]
[1]*University of South Florida, Tampa, FL,* [2]*The Roskamp Institute, Sarasota, FL*

P-Fr-617
A Sleep and Wake State Dependent On/Off Switch for Electrocorticographic Brain Computer Interface Applications
M. Pahwa[1], M. Kusner[1], C. Hacker[1], D. Bundy[1], K. Weinberger[1], and E. Leuthardt[1]
[1]*Washington University, Saint Louis, MO*

P-Fr-618
Functional Role of Neuron Adaptation in Encoding Context Information
C. Liu[1], G. Foffani[1,2], A. Scaglione[1,3], and K. Moxon[1]
[1]*School of Biomedical Engineering, Science and Health system, Drexel University, Philadelphia, PA,* [2]*Neurosignals Group, Hospital Nacional de Parapléjicos, Toledo, Spain,*[3]*National Institute on Aging, National Institutes of Health, Baltimore, MD*

P-Fr-619
Driving Neural Networks: The Benefit of Controllability
L. Wiles[1], D. Bassett[1], and D. Meaney[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Fr-620
Spatial Motifs in a Living Engineered Hippocampal Circuit
A. Bhattacharya[1], B. Wheeler[2], T. DeMarse[2], and G. Brewer[1]
[1]*University of California, Irvine, Irvine, CA,* [2]*University of Florida, Gainesville, FL*

P-Fr-621
Transmission of Information Among Cell-Assemblies Within Engineered Hippocampal Networks
T. DeMarse[1], A. Bhattacharya[2], G. Brewer[2], and B. Wheeler[1]
[1]*University of Florida, Gainesville, FL,* [2]*University of California Irvine, Irvine, CA*

P-Fr-622
Analysis of Dorsal Root Ganglia Cell Density Towards Electrode Array Development
A. Ostrowski[1], Z. Sperry[1], and T. Bruns[1]
[1]*University of Michigan, Ann Arbor, MI*

P-Fr-623
Functional Network Dynamics of the Language System
L. Chai[1], M. Mattar[1], I. Blank[2], E. Fedorenko[2,3], and D. Bassett[1]
[1]*University of Pennsylvania, Philadelphia, PA,* [2]*Massachusetts Institute of Technology, Cambridge, MA,* [3]*Massachusetts General Hospital, Boston, MA*

P-Fr-624
Finite Element Modeling of a Custom Rodent-Sized Transcranial Magnetic Stimulation Coil
A. Lowe[1], J. Rodger[2], A. Tang[2], and J. Walton[1]
[1]*University of South Florida, Tampa, FL,* [2]*The University of Western Australia, Crawley, Australia*

P-Fr-625
Dynamic Role Of Individual Neurons In Representing Vocalizations In Background Noise
R. Ni[1], D. Bender[1], J. Gamble[1], and D. Barbour[1]
[1]*Washington University in St. Louis, St. Louis, MO*

P-Fr-626
Virtual Cortical Resection of the Epileptic Network Reveals Controllers of Seizure Dynamics
A. Khambhati[1], B. Litt[1,2], and D. Bassett[1]
[1]*University of Pennsylvania, Philadelphia, PA,* [2]*Perelman School of Medicine, Philadelphia, PA*

P-Fr-627
Suppression of Action Potentials by External Current in a Bidomain Model of Neural Tissue
S. F. Keim[1], F. Fu[1], and R. J. Sadleir[1]
[1]*Arizona State University, Tempe, AZ*

Track: Neural Engineering
Neural Engineering:
Neural Progenitor Cell and Tissue Engineering Posters

P-Fr-628
Novel *In Vitro* Characterization Of Embryonic Stem Cell-Derived Neural Circuit Connectivity
J. Gamble[1], N. Iyer[1], S. Sakiyama-Elbert[1], and D. Barbour[1]
[1]*Washington University in St Louis, St. Louis, MO*

P-Fr-629
Two-Photon Imaging of Remyelination by Transplanted Neural Precursor Cells in a Viral Model of Multiple Sclerosis
M. Greenberg[1], J. Weinger[1], S. Yandamuri[2], M. Matheu[1], K. Carbajal[1], I. Parker[1], W. Macklin[3], and T. Lane[2]
[1]*University of California, Irvine, Irvine, CA,* [2]*University of Utah, Salt Lake City, UT,* [3]*University of Colorado, Aurora, CO*

P-Fr-630
Systematic Design for Prediction of Shielding Distance of Astrocytes Impacted from Localized Collapse of Microbubbles
B. Chen[1], S. Sun[1], J. Kanagaraj[1], and M. Cho[1]
[1]*University of Illinois at Chicago, Chicago, IL*

P-Fr-631
Biomimetic Injectable 3D Hydrogels with Aligned Topography for Neural Tissue Engineering
L. Kobelt[1], L. Cates[1], C. Hofstetter[1], and Z. Khaing[1]
[1]*The University of Washington, Seattle, WA*

P-Fr-632
Development Of An *In Vitro* Model Of Brain Reward Pathway For Drug Addiction Research
J. Fantuzzo[1], L. DeFilippis[2], R. Hart[1], J. Zahn[1], and Z. Pang[2]
[1]*Rutgers University, Piscataway, NJ,* [2]*Robert Wood Johnson Medical School, New Brunswick, NJ*

P-Fr-633
A Defined and Scalable System for Differentiation of Oligodendocyte Precussors from hESCs
G. Rodrigues[1,2], T. Gaj[1], M. Diogo[2], J. Sampaio Cabral[2], and D. V. Schaffer[1]
[1]*University of California Berkeley, Berkeley, CA,* [2]*Technical University of Lisbon, Lisbon, Portugal*

P-Fr-634
Development of Native Retinal ECM Hydrogels for Increased Cell Viability During Transplantation
J. Scaralia[1], R. Carrier[1], J. Kundu[1], and A. Koppes[1]
[1]*Northeastern University, Boston, MA*

POSTER SESSION **Fri**

See page 152 for Poster floor plan

P-Fr-635
Hyaluronic Acid Hydrogels for Spinal Cord Regeneration
C. Walthers[1], J. Liang[1], A. Ehsanipour[1], and S. Seidlits[1]
[1]UCLA, Los Angeles, CA

P-Fr-636
In Vitro Neuronal Logic Circuits as a Tool for Neuronal Network Functionality Assessment
B. Maoz[1], S-J. Park[1], B. Dabiri[1], M. Hemphill [1], S. Dauth [1], A. Capulli[1], A. Greer [1], and K. Parker[1]
[1]Harvard University, Cambridge, MA

Track: Neural Engineering
Neural Engineering:
Neural Engineering Other Posters

P-Fr-637
Preventive Effects of Poloxamer P188 in Astrocytes Exposed to Controlled Microcavitation
J. Kanagaraj[1], B. Chen[1], A. Paul[1], S. Xiao[2], and M. Cho[1]
[1]University of Illinois at Chicago, Chicago, IL, [2]Old Dominion University, Norfolk, VA

P-Fr-638
Sleep Apnea and Cognitive Dysfunction: Effects of Hypoxia and Apnea Duration
N. Mousavi[1], R. Alex[1], K. Machiraju[2], S. Manchikatla[1], V. Kanal[1], E. Altuwaijri[1], D. Watenpaugh[3], and K. Behbehani[1,4]
[1]The University of Texas at Arlington, Arlington, TX, [2]The University of Texas at Arlington, Arlngtoh, TX, [3]Sleep Consultants Inc., Arlington, TX, [4]UT Arlington, Arlington, TX

P-Fr-639
Changes in Delta Oscillations during a Prolonged Cognitive Task
J. Cagle[1], I. Babu Henry Samuel[1], C. Wang[1], and M. Ding[1]
[1]University of Florida, Gainesville, FL

P-Fr-640
Neural Substrate of Omitted Stimulus Response: A Simultaneous EEG-fMRI Study
I. Babu Henry Samuel[1], H. Huang[1], A. Rajan[1], and M. Ding[1]
[1]University of Florida, Gainesville, Virgin Islands (U.S.)

P-Fr-641
A Wireless Intraocular Pressure Sensor For Rats
S. Bello[1] and C. Passaglia[2]
[1]University of South Florida, Tampa, FL, [2]University of South Florida, tampa, FL

P-Fr-642
Effects of Transcranial Direct Current Stimulation on Somatosensory Evoked Potentials in Uninjured Rats
R. Deng[1,2], Y. Ma[3], L. Young[1,2], and X. Jia[2]
[1]Johns Hopkins University, Baltimore, MD, [2]University of Maryland School of Medicine, Baltimore, MD, [3]Columbia University, New York, NY

P-Fr-643
Assessing Performance of EEG Systems for Event-Related Potentials in Seated and Walking Conditions
A. Oliveira[1], B. Schlink[1], W. Hairston[2], P. König[3], and D. Ferris[1]
[1]University of Michigan, Ann Arbor, MI, [2]U.S. Army Research Laboratory, Aberdeen, MD, USA, Aberdeen, MD, [3]University of Osnabrück, Osnabrück, Germany

P-Fr-644
Delays in Visually Evoked Positive Deflections in EEG Depends on the Ways Errors and Unexpected Outcomes in Mental Arithmetic are Represented
A. Chiu[1], M. Thakker[1], M. Frondorf[1], and W-W. Jeong[1]
[1]Rose-Hulman Institute of Technology, Terre Haute, IN

P-Fr-645
Aqueous Humor Dynamics in the Brown Norway Rat via a Novel Perfusion Technique
K. Ficarrotta[1], S. Bello[1], and C. Passaglia[1]
[1]University of South Florida, Tampa, FL

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-646
Decoding ECoG Signal Using Non-convex Regularization And Pathwise Coordinate Optimization
Z. Xie[1], J. Sanchez[1], and A. Prasad[1]
[1]University of Miami, Coral Gables, FL

P-Fr-647
Dynamic Balance of Excitation and Inhibition Allows for Rapid Modulation of Spiking Properties
S. Wahlstrom-Helgren[1] and V. Klyachko[1]
[1]Washington University in St. Louis, Saint Louis, MO

P-Fr-648
A Finite Difference Beamformer Software for EEG Source Imaging
I. Sturdevant[1] and K. Ng[1]
[1]New Mexico State University, Las Cruces, NM

P-Fr-649
Unique Distribution Of ECM Proteins In The Rodent CNS And Their Influence On Neurite Outgrowth
S. Dauth[1], T. Grevesse[1], H. Pantazopoulus[2], P. Campbell[1], B. M. Maoz[1], S. Berretta[2], and K. K. Parker[1]
[1]Harvard University, Cambridge, MA, [2]Harvard Medical School, Belmont, MA

P-Fr-650
Three Dimensional Analysis of Potential Field Through Bidomain Tissue in a Conducting Medium
B. Schwartz[1] and R. Sadleir[1]
[1]Arizona State University, Tempe, AZ

P-Fr-651
Towards *In Situ* Measurements Of Platinum Dissolution Using Methallothionein-Based Biosensor
S. Cernera[1] and H. Lee[1]
[1]Purdue University, West Lafayette, IN

Track: Stem Cell Engineering
Stem Cell Engineering & Applications:
Directing Stem Cell Differentiation Posters

P-Fr-652
Nanofiber Electrospinning Device for Use in Stem Cell Studies
Z. Zaheer[1], B. Jones[1], A. Pacheco-Figueroa[1], Z. Husayni[1], and D. Hatch[1]
[1]George Mason University, Fairfax, VA

P-Fr-653
Acceleration of Human Neural Stem Cell Differentiation using Graphene Oxide Nanoparticles
J. Kim[1], K. Yang[1], J. S. Lee[1], Y. H. Hwang[2], D. Y. Lee[2], and S-W. Cho[1]
[1]Yonsei university, Seoul, Korea, Republic of, [2]Hanyang University, Seoul, Korea, Republic of

P-Fr-654
Adipose Stem Cell Proliferation After Gamma Irradiation
M. Rusin[1], E. Takacs[1], and D. Dean[2]
[1]Clemson University, Clemson, SC, [2]Clemson University, Central, SC

P-Fr-656
Fractal Analyses of Mitochondrial Networks Endothelial Differentiation-induced hMSCs
J. W. Shin[1], Y. G. Kang[1], S. H. Park[1], Y. R. Wu[2], S. R. Gu[2], H. Y. Ban[1], Y. M. Kim[1], H. L. Kim[1], J. H. Park[2], and J-W. Shin[1,2,3]
[1]Department of Biomedical Engineering, Inje University, Gimhae, Korea, Republic of,[2]Department of Health Science and Technology, Inje University, Gimhae, Korea, Republic of,[3]Cardiovascular and Metabolic Disease Center/ Institute of Aged Life Redesign/UHARC, Inje University, Gimhea, Korea, Republic of

P-Fr-657
Chondrogenesis of MSCs Co-cultured with Chondrocytes under the Synergistic Impacts of Oscillating Hydrostatic Pressure and TGF-β3 in a Novel Centrifugal Bioreactor
A. NAZEMPOUR[1], C. R. Quisenberry[1], N. Abu-Lail[1], and B. Van Wie[1]
[1]Washington State University, Pullman, WA

POSTER SESSION Fri

P-Fr-658
Understanding Substrate Mediated Signaling Mechanisms to Augment Tendon Regeneration
B. Banik[1] and J. Brown[1]
[1]*The Pennsylvania State University, University Park, PA*

P-Fr-659
Investigation of the Cardiomyocyte Differentiation from Dedifferentiated Fat (DFAT) Cells by using Electrical Stimulation
M. Chan[1], C. Chang[1], and W. Liu[1]
[1]*University of California, Los Angeles, Los Angeles, CA*

P-Fr-660
In Vitro Differentiation Of Adipose Derived Stem Cells Into Smooth Muscle And Urothelial Lineages
C. Ambrose[1], J. Turner[1], R. Visconti[2], and J. Nagatomi[1]
[1]*Clemson University, Clemson, SC,* [2]*Medical University of South Carolina, Charleston, SC*

P-Fr-661
Static Stretching Increases Adipogenesis of Mesenchymal Stem Cells
J. S. Lee[1], L. Ha[1], and J. Y. Lim[1]
[1]*University of Nebraska-Lincoln, Lincoln, NE*

P-Fr-662
Human Embryonic Stem Cell-Derived Insulin-Producing Cells Maintain Viability and Function after Alginate Encapsulation
S. Padayao[1], R. Krishnan[1], M. Alexander[1], N. Neel[1], C. Foster III[1], and J. Lakey[1,2]
[1]*University of Calfornia Irvine, Orange, CA,* [2]*University of Calfornia Irvine, Irvine, CA*

P-Fr-663
Controllable Nanotopographical Cues from Electrospun PCL/PEO Polymer Blends Facilitate Endothelial Cell Sub-type Differentiation of Human Pluripotent Stem Cells
J. Kim[1], N. Mezak[2], and N. Huang[1]
[1]*Stanford University, Palo Alto, CA,* [2]*Veterans Affairs Palo Alto Health Care System, Palo Alto, CA*

P-Fr-664
Effect of Sodium Tungstate on Mesenchymal Stem Cells Chondrogenesis
A. Khader[1] and T. Arinzeh[1]
[1]*New Jersey Institute of technology, Newark, NJ*

P-Fr-665
Umbilical Cord Tissue-derived Mesenchymal Stem Cells Differentiation Towards Endothelial Cells: Effect of Physiologically-modeled Shear Stress
M. Gurel[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-666
The Effects of Substrate Pattern and Cyclic Stretch on Cardiomyogenic Differentiation of hMSCs
S. R. Gu[1], Y. G. Kang[2], J. W. Shin[2], S. H. Park[2], Y. M. Kim[2], H. L. Kim[2], Y. R. Wu[1], H. Y. Ban[2], J. H. Park[1], and J-W. Shin[1,2,3]
[1]*Department of Health Science and Technology, Inje University, Gimhae-si, Korea, Republic of,* [2]*Department of Biomedical Engineering, Inje University, Gimhae-si, Korea, Republic of,*[3]*Cardiovascular and Metabolic Disease Center/Institute of Aged Life Redesign/UHARC, Gimhae-si, Korea, Republic of, Gimhae-si, Korea, Republic of*

P-Fr-667
Geometry Guides Histone State at the Perimeter of Model 2D Tissues
Y. Li[1], C. Tang[1], and K. Kilian[1]
[1]*University of Illinois at Urbana Champaign, Urbana, IL*

P-Fr-668
Directed Differentiation of Human Pluripotent Stem Cells into Functional Kidney Cells that Form Nephron Structures in Kidney Scaffolds
D. Maxim[1], A. Lam[1], R. Morizane[1], and J. Bonventre[1]
[1]*Brigham and Women's Hospital, Harvard Medical School, Boston, MA*

P-Fr-669
Adult Human Neural Stem Cell Differentiation in Photocrosslinked Hyaluronic Acid Hydrogels
W. Ma[1], G-W. Jin[1], and W. Suh[1]
[1]*Temple University, Philadelphia, PA*

P-Fr-670
The Effect of Cellular Background Noise on Cell Fate Decisions
A. Lam[1], R. Goldstein[1], and T. Deans[1]
[1]*University of Utah, Salt Lake City, UT*

P-Fr-671
3D Collagenous Matrix and 5-Azacytidine Regulate the Evolution of Cardiomyogenesis from Human Bone Marrow-derived Mesenchymal Stem Cells
J. Joshi[1] and C. Kothapalli[1]
[1]*Cleveland State University, Cleveland, OH*

P-Fr-672
Changes in Mitochondrial Characteristics during Stem Cell Differentiation induced by Mechanical Stretching
H. L. Kim[1], J. W. Shin[1], Y. G. Kang[1], S. H. Park[1], Y. M. Kim[1], S. R. Gu[2], H. Ban[1], Y. R. Wu[2], M. J. Kim[2], and J-W. Shin[1,2,3]
[1]*Department of Biomedical Engineering, Inje University, Gimhae-si, Korea, Republic of,*[2]*Department of Health Science and Technology, Inje University, Gimhae-si, Korea, Republic of,* [3]*CMDC/Institute of Aged Life Redesign/UHRC, Inje University, Gimhae-si, Korea, Republic of*

P-Fr-673
Multifunctional Nanoparticles For Improved Stem Cell Function And Photoacoustic Tracking
I. Adjei[1], H. Yang[1], L. Maldonado-Camargo[1], J. Dobson[1], C. Rinaldi[1], H. Jiang[1], and B. Sharma[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-674
Decellularized ECM Niches Enhance Human Pluripotent Stem Cell Pancreatic Differentiation
H. Bi[1], K. Ye[1], And S. Jin[1]
[1]*Binghamton University, SUNY, Binghamton, NY*

Track: Cardiovascular Engineering, Stem Cell Engineering

Stem Cell Engineering & Applications:

Cardiac Regeneration and Stem Cells Posters

POSTER SESSION **Fri**

P-Fr-675
Cardiac Patches for Heart Attack Treatment: Are Stem Cells Really Needed?
M. Lam[1], E. Meier[1], and B. Wu[1]
[1]*Wayne State University, Detroit, MI*

P-Fr-676 **DREAM TEAM & CENTER**
Engineered Cardiac Tissue Using Graphene Composite Nanostructured Scaffolds
P. Hitscherich[1], A. Aphale[2], R. Gordan[3], R. Narula[1], L-H. Xie[3], P. Patra[2], and E. J. Lee[1]
[1]*New Jersey Institute of Technology, Newark, NJ,* [2]*University of Bridgeport, Bridgeport, CT,*[3]*Rutgers New Jersey Medical School, Newark, NJ*

P-Fr-677
Enhanced Myocardial Tissue Formation in Cardiac Fibers Generated from Human Heart Matrix Reseeded with Human iPS-derived Cardiomyocytes
J. Guyette[1,2], J. Charest[2], and H. Ott[1,2]
[1]*Harvard Medical School, Boston, MA,* [2]*Massachusetts General Hospital, Boston, MA*

P-Fr-678
Assembly of Induced Pluripotent-derived Cardiomyocytes into Functional Muscle Strips
R. Hatano[1], V. Chan[2], H. Asada[2], and K. McCloskey[1]
[1]*UC Merced, Merced, CA,* [2]*Massachusetts Institute of Technology, Cambridge, MA*

P-Fr-679
Functional Studies of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes on Engineered Heart Slices
A. Blazeski[1], R. Zhu[1], K. Boheler[1,2], G. Tomaselli[1], and L. Tung[1]
[1]*Johns Hopkins University, Baltimore, MD,* [2]*Hong Kong University, Hong Kong, China, People's Republic of*

See page 152 for Poster floor plan

P-Fr-680
Primary and Stem Cell Derived Cardiomyocyte Coupling in a Cell Therapy On-a-Chip Model
F. Pasqualini[1], Y. Aratyn-Shaus[2], H. Yuan[2], M. McCain[2], G. Ye[2], S. Sheehy[2], P. Campbell[2], and K. K. Parker[2]
[1]Harvard University, Boston, MA, [2]Harvard University, Cambridge, MA

P-Fr-681
Effects of Macrophage-derived BMP Proteins on Cardiac Repair Cells in 3D *in vitro* Models
I. Pallotta[1], B. Sun[1], and D. Freytes[1]
[1]The New York Stem Cell Foundation Research Institute, New York, NY

P-Fr-682
Construction of CABG Graft Using Decellularization and Recellularization Techniques
N. Allen[1], E. Chau[1], L. Sampaio[1], A. S. Gobin[1], and D. A. Taylor[1]
[1]Texas Heart Institute, Houston, TX

P-Fr-683
Optimization of Re-Endothelialization of Acellular Rabbit Whole-Heart Scaffold
E. Chau[1], P-F. Lee[1], A. M. Chandler[1], L. Sampaio[1], A. S. Gobin[1], and D. A. Taylor[1]
[1]Texas Heart Institute, Houston, TX

P-Fr-684
Integrated Analysis of the Contractile Kinetics, Force Generation, and Electrical Activity in Single Human Pluripotent Stem Cell Derived Cardiomyocytes
J. D. Kijlstra[1,2,3], D. Hu[1,3,4], N. Mittal[5], P. van der Meer[2], A. Garakani[6], and I. Domian[1,3,7]
[1]Massachusetts General Hospital, BOSTON, MA, [2]University of Groningen, Groningen, Netherlands, [3]Harvard Medical School, Boston, MA, [4]Boston University, BOSTON, MA,[5]Institute of Bioengineering and Nanotechnology, singapore, Singapore, [6]Reify Corporation, Saratoga, CA, [7]Harvard Stem Cell Institute, Cambridge, MA

P-Fr-685
Single-Cell Clonal Analysis of Vascular Stem Cells & Smooth Muscle Cells via Optoelectronic Tweezers
T. Dai[1], S. N. Pei[1], M. Wu[1], and S. Li[1]
[1]UC Berkeley, Berkeley, CA

POSTER SESSION **Fri**

P-Fr-686
Smart Nanoscaffolds or *In Situ* Endothelial Regeneration After PCI
A. Kuriakose[1,2], P. Rajnikant[1,2], Z. Xie[2,3], J. Yang[2,3], S. Banerjee[2,4], and K. Nguyen[1,2]
[1]University of Texas at Arlington, Arlington, TX, [2]The University of Texas Southwestern Center at Dallas, Dallas, TX, [3]The University of Pennsylvania, Philadelphia, PA, [4]VA North Texas Health Care System, Dallas, TX

Track: Stem Cell Engineering

Stem Cell Engineering & Applications:

Engineering Stem Cell Environments Posters

P-Fr-687
Impact Of Obesity On Hematopoietic Stem Cell Engraftment
S. Arjun[1], D. Krishnamoorthy[1], E. Chan[1], and C. Rubin[1]
[1]Stony Brook University, Stony Brook, NY

P-Fr-688
Development of an Algorithm-Guided Search Strategy for the Identification of Defined Conditions for Stem Cell Expansion
M. Kim[1] and J. Audet[1]
[1]University of Toronto, Toronto, ON, Canada

P-Fr-689
Micro-Engineered 3D ECM Array for Investigating Cell-ECM Interaction During Stem Cell Differentiation
S-K. Goh[1], S. Bertera[2], V. Vaidya[1], T. Richardson[1], L. Yang[1], and I. Banerjee[1]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Allegheny Health Network, Pittsburgh, PA

P-Fr-690
High Fat Diet Compromises Bone Phenotype And Increases Mesenchymal Stem Cell Migration To Abdominal Fat Region, While Low-Level Mechanical Signals Disrupt Diet Induced Cell Migration
L. Vasadi[1]
[1]Stony Brook University, Stony Brook, NY

P-Fr-691
Engineering the Mechanical Niche of Induced Pluripotent Stem Cells to Enhance Lineage-Specific Differentiation
M. Maldonado[1], K. Low[1], G. Ico[1], M. Ramos[2], and J. Nam[1]
[1]University of California-Riverside, Riverside, CA, [2]California State University, San Bernardino, CA

P-Fr-692
Alginate Capsule Composition Influences the Pancreatic Differentiation of Human Embryonic Stem Cells
T. Richardson[1], S. Barner[1], J. Candiello[1], P. N. Kumta[1], and I. Banerjee[1]
[1]University of Pittsburgh, Pittburgh, PA

P-Fr-693
Developing a Co-Culture System Mimicking Niche Compartments for Effective *Ex Vivo* Expansion of HSPCs
Y. G. Kang[1], J. W. Shin[1], S. R. Gu[2], S. H. Park[1], Y. M. Kim[1], H. L. Kim[1], Y. R. Wu[2], H. Y. Ban[1], M. J. Kim[2], and J-W. Shin[1,2,3]
[1]Department of Biomedical Engineering, Inje University, Gimhae-si, Korea, Republic of,[2]Department of Health Science and Technology, Inje University, Gimhae-si, Korea, Republic of, [3]CMDC/Institute of Aged Life Redesign/UHARC, Inje University, Gimhae-si, Korea, Republic of

P-Fr-694
The Effect of Simulated Microgravity on the Function of Porcine Blood Derived Vascular Stem Cells
V. Ramaswamy[1] and J. Allen[1]
[1]University of Florida, Gainesville, FL

P-Fr-695
A 3D *in vitro* Assay to Evaluate Neural Stem Cell Sensitivity to Environmental Heavy Metals
K. Farrell[1], S. Tasneem[1], M-Y. Lee[1], and C. Kothapalli[1]
[1]Cleveland State University, Cleveland, OH

P-Fr-696
Higher Efficiency in Reprogramming Somatic Cells into iPS can be Obtained when Mechanically Strained
Y. M. Kim[1], S. H. Park[1], Y. G. Kang[1], J. W. Shin[1], H. L. Kim[1], S. R. Gu[2], Y. R. Wu[2], H. Y. Ban[1], M. W. Lee[1], and J-W. Shin[1,2,3]
[1]Department of Biomedical Engineering, Inje University, Gimhae-si, Korea, Republic of,[2]Department of Health Science and Technology, Inje University, Gimhae-si, Korea, Republic of, [3]Cardiovascular and Metabolic Disease Center /Institute of Aged Life Redesign/ UHARC, Inje University, Gimhae-si, Korea, Republic of

P-Fr-697
Colony Size of Embryonic Stem Cells Regulates Neural Differentiation in a Heterocellular Niche
R. Joshi[1] and H. Tavana[1]
[1]The University of Akron, Akron, OH

P-Fr-698
Identification of IL-1 β and LPS as Optimal Activators of Monolayer and Alginate-Encapsulated Mesenchymal Stromal Cell Immunomodulation Using Design of Experiments and Statistical Methods
A. Gray[1], T. Maguire[1], R. Schloss[1], and M. Yarmush[1]
[1]Rutgers University, Piscatway, NJ

P-Fr-699
Mesenchymal Stem Cell Spheroids for Treatment of Glioblastomas
S. Suryaprakash[1], H. F. Chan[2], S. Hingtgen[3], and K. Leong[1]
[1]Columbia University, New York, NY, [2]Duke University, New York, NY, [3]University of North Carolina, Chapel Hill, NC

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Fr-700
Silicon Nanowires-induced Maturation of Cardiomyocytes Derived from Human Induced Pluripotent Stem Cells
Y. TAN[1], D. RICHARDS[1], D. MENICK[2], B. TIAN[3], AND Y. MEI[1,2]
[1]Clemson University, Clemson, SC, [2]Medical University of South Carolina, Charleston, SC,[3]University of Chicago, Chicago, IL

Track: Stem Cell Engineering
Stem Cell Engineering & Applications:
Scaling Up Stem Cell Production / Stem Cell Derived Progenitors Posters

P-Fr-701
Computational Fluid Dynamic Modeling of Scaled-down Stirred Suspension Bioreactor for Pluripotent Stem Cell Bioprocessing
A. LE[1,2], D. RANCOURT[1,3], I. GATES[1,4], AND M. KALLOS[1,4]
[1]University of Calgary, Calgary, AB, Canada, [2]Pharmaceutical Production Research Facility (PPRF), Schulich School of Engineering, University of Calgary, Calgary, AB, Canada,[3]Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Calgary, Calgary, AB, Canada, [4]Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB, Canada

P-Fr-702
The Effects Of ROCK Inhibitors On The In Vitro Expansion Of Glioblastoma Stem Cells
S. TILSON[1], E. HALEY[1], C. LANGFORD[2], G. Y. GILLESPIE[2], AND Y. (. KIM[1]
[1]University of Alabama, Tuscaloosa, AL, [2]University of Alabama at Birmigham, Birmingham, AL

P-Fr-703
Structural Phenotyping for Stem Cell Derived Cardiomyocyte Quality Assessment
F. PASQUALINI[1], S. SHEEHY[2], A. AGARWAL[1], Y. ARATYN-SHAUS[2], AND K. K. PARKER[2]
[1]Harvard University, Boston, MA, [2]Harvard University, Cambridge, MA

P-Fr-704
Cell Mechanics-based Microfluidic Enrichment of Pluripotent Embryonic Stem Cells
T. BONGIORNO[1], J. GURA[1], G. WANG[1], T. C. MCDEVITT[2], AND T. SULCHEK[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Gladstone Institutes, San Francisco, CA

P-Fr-705
Assessing the Reprogramming of Gata-1 in ES Cells to Derive Red Blood Cells
A. SHIMPI[1], M. FITZGERALD[1], AND T. DEANS[1]
[1]University of Utah, Salt Lake City, UT

Track: Cellular and Molecular Bioengineering, Stem Cell Engineering
Stem Cell Engineering & Applications:
Stem Cell Bioengineering Posters

P-Fr-706
The Effect of a Simulated Diabetic Wound Environment on Keratinocyte Migration
W. KOSOL[1], R. FAULKNOR[1], AND F. BERTHIAUME[1]
[1]Rutgers University, Piscataway, NJ

P-Fr-707
Preservation of Osteogenic Capacity Following Shape Memory Triggering of Foam and E-spun Scaffolds
J. WANG[1,2], L.F. TSENG[1,2], R. BAKER[1,2], AND J. HENDERSON[1,2]
[1]Syracuse University, Syracuse, NY, [2]Syracuse Biomaterials Institute, Syracuse, NY

P-Fr-708
Live Tissue Imaging Reveals Dynamic Interplay of Spectrosome and Centrosome during Asymmetric Stem Cell Divisions
J. CHENG[1] AND C. BANG[1]
[1]University of Illinois at Chicago, Chicago, IL

P-Fr-709
Scar Eraser: Mechano-Responsive Cell System to Study, Detect and Treat Tissue Fibrosis
S. ZHANG[1], L. LIU[1], AND W. ZHAO[1]
[1]University of California - Irvine, Irvine, CA

Track: Stem Cell Engineering
Stem Cell Engineering & Applications:
Stem Cells in Pre-clinical and Clinical Models Posters

P-Fr-710
Effect of Pericytes on Skin Wound Healing in Diabetic (db/db) Mice
M. MARJANOVIC[1], J. LI[1], A. BOWER[1], Y. PINCU[1], E. CHANEY[1], M. BOPPART[1], AND S. BOPPART[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

P-Fr-711
ARCAS: A Tool to Identify Enriched Spatial Colocalization in Biomedical Images
B. CORLISS[1], H. RAY[1], S. CRONK[1], P YATES[1], AND S. PEIRCE[1]
[1]University of Virginia, Charlottesville, VA

P-Fr-712
Kindling Increases Type-1 Progenitor Cell Division In The Dentate Gyrus Of Adult Rats
J. LEIBOWITZ[1], G. NATARANJAN[1], A. ASOKAN[2], M. KING[1], P. CARNEY[1], AND B. ORMEROD[1]
[1]University of Florida, Gainesville, FL, [2]Stanford University, Stanford, CA

P-Fr-713
Introduction of Extracellular Matrix for Improved Hepatic Differentiation of Human Induced Pluripotent Stem Cells
M. JARAMILLO[1], M. YARMUSH[1], AND B. UYGUN[1]
[1]Massachusetts General Hospital, Boston, MA

Track: Tissue Engineering, Stem Cell Engineering
Stem Cell Engineering & Applications:
Stem Cells in Tissue Engineering Posters

P-Fr-714
Three-dimensional Neural Differentiation from Human Induced Pluripotent Stem Cells
Y. YAN[1], J. BEJOY[1], Y. ZHOU[1], AND Y. LI[1]
[1]Florida State University, Tallahassee, FL

P-Fr-715
Effects of Physiological Oxygen on Vascular Network Formation on Human Mesenchymal Stem Cell Sheets
M. TAHTINEN[1], L. ZHANG[1,2], Q. XING[1], Z. QIAN[1], S. QI[2], AND F. ZHAO[1]
[1]Michigan Technological University, Houghton, MI, [2]First Affiliated Hospital of Sun Yat-sen University, Guangzhou, China, People's Republic of

P-Fr-716
Structural Changes in Bone Marrow Stem Cells to Oscillatory Flow: Relevance to Valve Development
G. CASTELLANOS[1], L. NASSAR[1], S. RATH[1], AND S. RAMASWAMY[1]
[1]Florida International University, Miami, FL

See page 152 for Poster floor plan

P-Fr-717
Assessing an Engineered Periosteum in Reconstructing a Critical-Sized Femur Defect in Mice
R. Romero[1], L. Chubb[1], J. Travers[1], E. Asbury[1], A. Pennybaker[1], R. Rose[1], N. Ehrhart[1], and M. Kipper[1]
[1]*Colorado State University, Fort Collins, CO*

P-Fr-718
Cartilage Microenvironments Influence Mesenchymal Stem Cell Phenotype
A. Matuska[1] and P. McFetridge[1]
[1]*University of Florida, Gainesville, FL*

P-Fr-719
Transdifferentiation of Human Endothelial Progenitors into Functional Smooth Muscle Cells
H. Ji[1], L. Atchison[2], N. Christoforou[3], Z. Chen[1], Y. Jung[4], and K. Leong[1]
[1]*Columbia University, New York, NY,* [2]*Duke University, Durham, NC,* [3]*Khalifa University of Science, Technology & Research, Abu Dhabi, United Arab Emirates,* [4]*Korea Institute of Science and Technology, Seoul, Korea, Republic of*

P-Fr-720
Spatially-Patterning Human Induced Pluripotent Stem Cell-Derived Endothelial Cells and Cardiomyocytes in a Co-Cultured, Microvascular Tube
V. Chan[1], R. Hatano[2], L. Wong[2], K. McCloskey[2], and H. Asada[3]
[1]*Massachusetts Institute of Technology, Cambridge, MA,* [2]*University of California, Merced, Merced, CA,* [3]*Massachusetts Institute of Technology, Massachusetts Institute of Technology, MA*

P-Fr-721
Effect Of Alginate Microcapsule Stiffness On Encapsulated Ovarian Cell Viability
K. Enck[1], J. McQuilling[1], S. Sivanandane[1], and E. Opara[1]
[1]*Wake Forest University, Winston-Salem, NC*

P-Fr-722
Tissue Engineered Blood Vessels Using Human iPS Cells: Effect Of Pulsatile Stretch On iPS-derived Smooth Muscle Cells
S. Sundaram[1] and L. Niklason[1]
[1]*Yale University, New Haven, CT*

P-Fr-723
Differentiation of Human Embryonic Stem Cells into Pancreatic Lineage in Whole Organ Pancreatic Scaffold
S-K. Goh[1], S. Bertera[2], and I. Banerjee[1]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*Allegheny Health Network, Pittsburgh, PA*

P-Fr-724
Mesenchymal Stromal Cells In Alginate Dressings To Enhance Chronic Wound Healing
R. Faulknor[1], M. Olekson[1], E. Ekwueme[1], and F. Berthiaume[1]
[1]*Rutgers University, Piscataway, NJ*

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2015 Awards

Porous implants modulate healing and induce shifts in local macrophage polarization in the foreign body reaction

Eric M. Sussman, Michelle C. Halpin, Jeanot Muster, Randall T. Moon, Buddy D. Ratner
July 2014, Volume 42, Issue 7, pp 1508-1516.

Smartphones for cell and biomolecular detection

Xiyuan Liu, Tung-Yi Lin, Peter B. Lillehoj
November 2014, Volume 42, Issue 11, pp 2205-2217.

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

TODAY'S HIGHLIGHT

PLATFORM SESSION Sat 1 8:00am - 9:30am
See pages 188-194, Convention Center

EXHIBIT HALL OPEN 9:30am - 1:30pm
Convention Center, Exhibit Hall

POSTER SESSION SAT 9:30pm -1:00pm
See pages 208-226, TCC, Exhibit Hall

Poster Viewing with Authors & Refreshment Break 9:30am - 10:30am

PLENARY SESSION
10:30am - 12:30pm
Convention Center Ballroom BC

Rita Schaffer Memorial Young Invesigator Lecture
ENGINEERING SELF-ASSEMBLED PORPHYRIN NANOPARTICLES FOR BIOMEDICAL APPLICATIONS IN IMAGING AND DRUG DELIVERY
Jonathan F. Lovell, PhD

Diversity Lecture
The City University of New York

PLATFORM SESSION Sat 2 1:30pm - 3:00pm
See pages 195-201, Convention Center

PLATFORM SESSION Sat 3 3:15pm - 4:15pm
See pages 202-207, Convention Center

SPECIAL SESSION
8:00 AM - 9:30 PM - Ballroom A
BMES Industry Update

An update from the Industry Committee Chair on industry trends, current BMES Industry offerings, and the Industry Committee's future plans for expansion of BMES industry programs and services. All BMES members are welcome to attend..

SATURDAY, October 10, 2015
8:00 AM - 9:30 AM
PLATFORM SESSIONS – SAT - 1

Track: Drug Delivery
OP-Sat-1-1 - Room 18
Delivery Systems for Immune Modulation

Chairs: Christopher Jewell, Kim Woodrow

8:00AM
S-Nitrosated Poly(Propylene Sulfide) Nanoparticles Exhibit Thiol-Dependent Transnitrosation and Toxicity Against Adult Female B. malayi Filarial Worms
A. Schudel[1], T. Kassis[1], J. Dixon[1], and S. Thomas[1]
[1]Georgia Institute of Technology, Atlanta, GA

8:15AM
Immunogenicity of Rapidly Degrading Polymers Evolves During Degradation
J. I. Andorko[1] and C. M. Jewell[1,2,3]
[1]University of Maryland - College Park, College Park, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

8:30AM
Modulation of Macrophage Polarization at the Tissue-Implant Interface by Local Release of IL-4 from a Nanometer Thickness Coating on Polypropylene Meshes
D. Hachim[1], S. LoPresti[1], D. Mani[1], and B. Brown[1,2]
[1]McGowan Institute/University of Pittsburgh, Pittsburgh, PA, [2]Department of Obstetrics, Gynecology, and Reproductive Sciences, Pittsburgh, PA

8:45AM
Synthetic Glycopolymer-Antigen Conjugates Induce Antigen-Specific Tcell Deletion
D. Wilson[1], M. Damo[1], S. Kontos[2], G. Diaceri[1], and J. Hubbell[2,3]
[1]EPFL, Lausanne, Switzerland, [2]Anokion, Lausanne, Switzerland,[3]The University of Chicago, Chicago, IL

9:00AM
Dlivery of Mycobacterium Tuberculosis Lipid Antigens for CD1-restricted T Cell Vaccination
D. Kats[1], D. Velluto[1], S. Shang[2], C-R. Wang[2], and E. Scott[1]
[1]Northwestern University, Evanston, IL, [2]Northwestern University, Chicago, IL

9:15AM
Delivery Of Engineered LPS-Free Recombinant Outer Membrane Vesicle Vaccine Protects Mice Against Lethal Influenza Challenge
H. Watkins[1], C. Rappazzo[1], C. Guarino [1], G. Whittaker[1], M. DeLisa[1], and D. Putnam[1]
[1]Cornell University, Ithaca, NY

Track: Cancer Technologies, Drug Delivers
OP-Sat-1-2 - Room 19
Cancer Drug Delivery

Chairs: Michael King,Vivek Gupta

8:00AM
Erlotinib-cyclodextrin Complex loaded PLGA Nanoparticles for Enhanced Anti-proliferative Efficacy against Lung Cancer Cell Lines
B. Vaidya[1] and V. Gupta[1]
[1]Keck Graduate Institute, Claremont, CA

8:15AM
Targeted Delivery of MicroRNA by Engineered Lipid Nanoparticles for the Treatment of Metastatic Breast Cancer
S. Hayward[1], D. Francis[1], and S. Kidambi[1]
[1]University of Nebraska-Lincoln, Lincoln, NE

8:30AM
Super Natural Killer Cells That Target Metastases in the Tumor Draining Lymph Nodes
S. Chandrasekaran[1], M. Chan[1], J. Li[1], and M. King[1]
[1]Cornell University, Ithaca, NY

8:45AM
Integrating Cold Atmospheric Plasma and Core-shell Nanoparticle Drug Delivery System for Breast Cancer Treatment
W. Zhu[1], S-J. Lee[1], M. Keidar[1], and L. G. Zhang[1]
[1]The George Washington University, Washington, DC

9:00AM
Tunneling Nanotubes as a Conduit for Drug Resistance Transfer
M. Ware[1], V. Keshishian[1], S. Corr[1,2], B. Godin[3], and S. Curley[1]
[1]Baylor College of Medicine, Houston, TX, [2]Rice University, Houston, TX, [3]Methodist Research Institute, Houston, TX

9:15AM
Determining The Influence Of Dynamic Paracrine Signaling On Tumor Progression In An Evolving Microenvironment
M. Gadde[1] and M. Rylander[1]
[1]University of Texas at Austin, Austin, TX

Track: Cancer Technologies, Nano and Micro Technologies
OP-Sat-1-3 - Room 20
Micro and Nanotechnologies for Cancer I

Chairs: Marissa Rylander, Rong Fan

8:00AM
M. Nichole Rylander
University of Texas at Austin

8:15AM
Tumor Engineering to Elucidate The Effect of Mild Hyperthermia on Transport of Carbon Nanohorns
M. DeWitt[1], D. Marrinan[2], A. Pekkanen [1], R. Davalos[1], and M. N. Rylander[2]
[1]Virginia Tech-Wake Forest, Blacksburg, VA, [2]University of Texas at Austin, Austin, TX

8:30AM
Abnormal Cytokine Functions in “Normal” Hematopoietic Cells Contribute to MPN Pathogenesis Revealed by Single-Cell, High-Plex Cytokine Analysis
R. Fan[1]
[1]Yale University, New Haven, CT

8:45AM
Programmable Bacteria for Diagnosis and Treatment of Cancer
C. Buss[1], T. Danino[1], M. O. Din[2], A. Prindle[2], J. Hasty[2], and S. Bhatia[1,3]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]University of California, San Diego, La Jolla, CA, [3]Howard Hughes Medical Institute, Cambridge, MA

9:00AM
Monitoring Protein Synthesis in Single Live Cancer Cells
C. Tu[1], J. Zoldan[1], Z. Smilansky[2], and N. Raje[3]
[1]University of Texas at Austin, Austin, TX, [2]Anima Cell Metrology, Inc, Kfar Sava, Israel,[3]Massachusetts General Hospital, Boston, MA

9:15AM
Inhalable Protease Nanosensors For Urinary Monitoring Of Lung Cancer
A. Warren[1], T. Tammela[1], T. Jacks[1], and S. Bhatia[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

Track: Biomaterials
OP-Sat-1-4 - Room 21
Biomaterials Design

Chairs: Nasim Annabi, Chandra Kothapalli

8:00AM
Writing in the Granular Gel Medium
T. Bhattacharjee[1], K. Rowe[1], T. Angelini[1], and W. G. Sawyer[1]
[1]University of Florida, Gainesville, FL

8:15AM
Engineering Sliding Hydrogels with Molecular Mobility as 3D Stem Cell Niche
X. Tong[1] and F. Yang[1]
[1]Stanford University, Stanford, CA

8:30AM
The Toughening Mechanism of the Aquatic Caddisworm Silk
N. Ashton[1] and R. Stewart[2]
[1]university of utah, SLC, UT, [2]university of utah, Salt Lake City, UT

8:45AM
Novel Swelling Technique to Create Nitric Oxide (NO) Releasing Surfaces for Improved Hemocompatibility
E. Brisbois[1], T. Major[1], H. Handa[2], and R. Bartlett[1]
[1]University of Michigan, Ann Arbor, MI, [2]University of Georgia, Athens, GA

9:00AM DREAM TEAM & CENTER
Effect of Hydroxyapatite Materials Properties on Fibronectin Adsorption and Breast Cancer Metastasis
F. Wu[1], K. Wang[1], J. H. Chang[1], C. Fischbach[1,2], L. Estroff[1,2], and D. Gourdon[1]
[1]Cornell University, Ithaca, NY, [2]Kavli Institute at Cornell for Nanoscale Science, Ithaca, NY

9:15AM
FEM based Multiphysics Modeling of Oxygen Release and Transport from OxySite for Pancreatic Islet Implants
M. Coronel[1] and C. Stabler[1]
[1]University of Florida, Gainesville, FL

Track: Device Technologies and Biomedical Robotics
OP-Sat-1-5 - Room 22
Biosensors

Chairs: Saion Sinha, Daniel Ratner

8:00AM
Sub-Wavelength Gratings For Label-Free Biological Sensing
S. Schmidt[1], J. Flueckiger[2], V. Donzella[2], L. Chrostowski[2], and D. Ratner[1]
[1]University of Washington, Seattle, WA, [2]University of British Columbia, Vancouver, BC, Canada

8:15AM
Random And Aligned Buckypaper As Bionanosensor For DNA Detection
S. Sinha[1], S. Kaewyoo[1], And Y. You[1]
[1]University Of New Haven, West Haven, CT

PLATFORM SESSIONS Sat-1

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

8:30AM
Cell-Based, Label-Free Screening With Self-Assembled Monolayers and MALDI-Mass Spectrometry
E. Berns[1], M. Cabezas[1], A. Eisenberg[1], and M. Mrksich[1]
[1]*Northwestern University, Evanston, IL*

8:45AM
RT-LAMP On a Chip for Bloodborne Viral Load Diagnostics
G. Damhorst[1], W. Chen[1], C. Duarte-Guevara[1], B. Cunningham[1], and R. Bashir[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

9:00AM
Effects of Different Modes of Vibratory Feedback on Muscle Use During a Redundant, One-Dimensional Myocontrol Task
S. Liyanagamage[1], M. Bertucco[1], N. Bhanpuri[2], and T. Sanger[1,3]
[1]*University of Southern California, Los Angeles, CA,* [2]*NorthShore University HealthSystem, Chicago, IL,* [3]*Children's Hospital Los Angeles, Los Angeles, CA*

9:15AM
Smartphone-Based Absorption Spectroscopy: Moving Toward a Truly Handheld Device
K. Long[1,2]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL,* [2]*University of Illinois College of Medicine, Urbana, IL*

Track: Biomaterials
OP-Sat-1-6 - Room 23
Biomaterials for Controlling Cell Environment II

Chairs: John Slater, Amrinder Nain

8:00AM
Poly(ethylene glycol) Hydrogels To Promote *In Vitro* Salivary Gland Morphogenesis From Primary Submandibular Gland Cells
A. Shubin[1], T. Felong[1], C. Ovitt[1], and D. Benoit[1]
[1]*University of Rochester, Rochester, NY*

8:15AM
Gold Nanorod Incorporated Gelatin-based Hybrid Hydrogels for Myocardial Tissue Engineering
A. Navaei [1], R. Sullivan [1], and M. Nikkhah[1]
[1]*Arizona State University, Tempe, AZ*

8:30AM
Injectable Hydrogels with Double Network Formation To Promote Angiogenesis
L. Cai[1] and S. Heilshorn[1]
[1]*Stanford University, Stanford, CA*

8:45AM
Modulating Kinetics of Vasculogenesis Through Control of MMP2 Activity
J. Hammer[1], R. Schweller[1], and J. West[1]
[1]*Duke University, Durham, NC*

9:00AM
Macroporous Microribbon-Based Hydrogels Accelerate Neocartilage Formation By Mesenchymal Stem Cells *In Vitroo*
B. Conrad[1], L-H. Han[2], and F. Yang[1]
[1]*Stanford University, Stanford, CA,* [2]*Drexel University, Philadelphia, PA*

9:15AM
A 3D-printed Polymeric System for Cell Encapsulation and Controlled Drug Release
M. Farina[1], C. Filgueira[1], U. Thekkedath[1], D. Fraga[1], O. Sabek[1], and A. Grattoni[1]
[1]*Houston Methodist Research Institute, Houston, TX*

Track: Tissue Engineering
OP-Sat-1-7 - Room 13
Printing and Patterning in Tissue Engineering

Chairs: Adam Feinberg, Jordan Miller

8:00AM DREAM TEAM & CENTER
DNA Programmed Assembling of Multiscale and Multicomponent 3D Tissues
M. Todhunter[1], N. Jee[1], A. Hughes[1], M. Coyle[1], A. Cerchiari[1], J. Garbe[1,2], T. Desai[1], M. Labarge[2], and Z. Gartner[1]
[1]*University of California, San Francisco, San Francisco, CA,* [2]*Lawrence Berkeley National Lab, Berkeley, CA*

8:15AM DREAM TEAM & CENTER
Engineered Ectopic Human Livers Organize And Proliferate In Vivo In Response To Regenerative Cues
V. Ramanan[1], K. Stevens[1], M. Scull[2], R. Chaturvedi[3], C. Fortin[1], Y. de Jong[2], C. Chen[3], C. Rice[2], and S. Bhatia[1,4]
[1]*Massachusetts Institute of Technology, Cambridge, MA,* [2]*The Rockefeller University, New York, NY,* [3]*Boston University, Boston, MA,* [4]*Howard Hughes Medical Institute, Cambridge, MA*

8:30AM DREAM TEAM & CENTER
High-Resolution 3D Bio-Printing Apparatus for Applications in Patterning of Microvasculature
R. Raman[1], B. Bhaduri[1], M. K. Lee[1], A. Shkumatov[1], G. Popescu[1], H. J. Kong[1], and R. Bashir[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

8:45AM
Engineering Aligned Muscle Tissues in 3D using Microribbon-based Hydrogels
S. Lee[1], X. Tong[1], L-H. Han[1], and F. Yang[1]
[1]*Stanford University, Stanford, CA*

9:00AM
Complex Cellular Manifolds in a Granular Gel
T. Bhattacharjee[1], K. Rowe[1], W. G. Sawyer[1], and T. Angelini[1]
[1]*University of Florida, gainesville, FL*

9:15AM
Vascularized Skin Tissue with Dynamic Perfusion Created through 3D Bioprinting
V. Lee[1], P. Karande[1], S-S. Yoo[2], and G. Dai[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY,* [2]*Harvard Medical School / Brigham and Women's Hospital, Boston, MA*

Track: Tissue Engineering, Drug Delivery
OP-Sat-1-8 - Room 14
Tissue Engineered Models for Study of Disease and Drug Discovery II

Chairs: Claudia Fischbach, David Wood

8:00AM
Physiologically Relevant Drug Testing *In Vitro* - An Integrated Multiple Organoid-on-a-chip Approach
A. Skardal[1], A. Kleensang[2], M. Devarasetty[1], H-W. Kang[1], I. Mead[1], C. Bishop[1], T. Shupe[1], S-J. Lee[1], J. Jackson[1], J. Yoo[1], T. Hartung[2], S. Soker[1], and A. Atala[1]
[1]*Wake Forest School of Medicine, Winston-Salem, NC,* [2]*Johns Hopkins University, Baltimore, MD*

8:15AM
Engineering an *In Vitro* 3D Brain Inflammation Model
Y. Lee[1] and H. Cho[1]
[1]*Virginia Tech, Blacksburg, VA*

8:30AM
Characterization of Magnetic Nanoparticle Permeability by a Triple Co-cultured *In Vitro* Blood-Brain Barrier Model
D. Shi[1], G. Mi[1], S. Bhattacharya[2], N. Suprabha[2], and T. Webster[1]
[1]*Northeastern University, Boston, MA,* [2]*Materials Science and Technology Division, Jamshedpur, India*

8:45AM
Synergistic Regulation of Breast Cancer Paclitaxel Resistance by 3D Culture, Hypoxia, and Bacterial Quorum-Sensing Signals
B. Balhouse[1] and S. Verbridge[1]
[1]*Virginia Tech, Blacksburg, VA*

9:00AM
Microengineered Co-cultures of Human Liver Cells for Studying Drug-Inflammation Interactions
C. Lin[1] and S. Khetani[1]
[1]*Colorado State University, Fort Collins, CO*

9:15AM
Human Mature White Adipose Tissue Model for Studying Lipolytic Responses
R. Abbott[1], R. Wang[1], M. Reagan[2], F. Borowsky[1], I. Ghobrial[2], and D. Kaplan[1]
[1]*Tufts University, Medford, MA,* [2]*Harvard Institute, Boston, MA*

Track: Neural Engineering
OP-Sat-1-9 - Room 15
Neural Coding and Modeling

Chairs: Ayesgul Gunduz, Samhita Rhodes, Cynthia Chestek

8:00AM
Computational Modeling of Neural Excitability at Colorectal Afferent Endings and Somata
B. Feng[1]
[1]*University of Connecticut, Storrs, CT*

8:15AM
Prediction of the Outcome of Subthalamic Nucleus Deep Brain Stimulation in Patients with Parkinson's Disease
K. Kostoglou[1] and G. Mitsis[1]
[1]*Mcgill University, Montreal, QC, Canada*

8:30AM
Characterization of Quantitative Electroencephalography and Heart Rate Variability during Simulated Drowsy Driving
C. Chen[1], C. Zhang[2], W. Wang[2], C. Zeng[3], X. Meng[2], B. Cheng[2], and J. Cavanaugh[1]
[1]*Wayne State University, Detroit, MI,* [2]*Tsinghua University, Beijing, China, People's Republic of,* [3]*Shihezi University, Shihezi, China, People's Republic of*

8:45AM
Near Field Axonal Communication Networks And Their Role In Neurodegenerative Diseases
S. Morgera[1]
[1]*University of South Florida, Tampa, FL*

9:00AM
Automated Classification of ECoG Signals using Component Analysis and Support Vector Machines
P. Balasubramanian[1], P. Fishback[2], R. Bossemeyer[1], K. Elisevich[3], and S. Rhodes[1]
[1]*Grand Valley State University, Grand Rapids, MI,* [2]*Grand Valley State University, Allendale, MI,* [3]*Spectrum Health Medical Group, Grand Rapids, MI*

9:15AM
Technologies for Engineering Neuronal Architectures to Study Information Processing in Living Networks
B. Wheeler[1], T. DeMarse[1], A. Bhattacharya[2], and G. Brewer[2]
[1]*University of Florida, Gainesville, FL,* [2]*University of California, Irvine, Irvine, CA*

Track: Device Technologies and Biomedical Robotics
OP-Sat-1-10 - Room 16
Wearable Sensors and Devices

Chairs: Helen Huang, Smitha Rao

8:00AM
Noninvasive, Long-term Wearable, Multiparametric Epidermal Sensor Systems (ESS)
N. Lu[1], S. Yang[1], Y-C. Chen[1], and L. Nicolini[1]
[1]*University of Texas at Austin, Austin, TX*

8:15AM
Combined Shear/Pressure Sensor for Monitoring of Prosthetic Socket Interface Stresses
F. Ahmed[1], S. Eilbeigi[1], and H. Huang[1]
[1]*University of Texas Arlington, Arlington, TX*

8:30AM
Iontronic Film: Flexible Transparent Ionic Gel for Interfacial Capacitive Pressure Sensing
B. Nie[1], J. Cao[1], R. Li[1], J. Brandt[2], and T. Pan[1]
[1]*University of California, Davis, Davis, CA,* [2]*University of California, Davis, Sacramento, CA*

8:45AM
Advancing the State of the Heart - ;the Integrated Vectorcardiogram (iVCG)
C. Perumalla[1], T. Ketterl[1], R. Gitlin[1], P. Fabri[1], and G. Arrobo[1]
[1]*University of South Florida, Tampa, FL*

9:00AM
Non-destructive and Rapid Plant Chlorophyll Quantification Using Google Glass
B. Cortazar[1], H. Ceylan Koydemir[1], D. Tseng[1], S. Feng[1], and A. Ozcan[1]
[1]*UCLA, Los Angeles, CA*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

9:15AM
Telemedical Wearable Sensing Platform for Management of Chronic Venous Disorder
R. Li[1], B. Nie[1], C. Zhai[1], J. Cao[1], J. Pan[1,2], J. Li[1], Y.W. Chi[3], and T. Pan[1]
[1]University of California, Davis, Davis, CA, [2]Zhejiang University of Technology, Hangzhou, China, People's Republic of, [3]UC Davis Medical Group, Sacramento, CA

Track: Nano to Micro Technologies, Device Technologies and Biomedical Robotics
OP-Sat-1-11 - Room 3-4
Cardiac Regeneration and Stem Cells

Chairs: Renita Horton, Lauren Black

8:00AM
3D Tissue-engineered Microenvironment Enhances Efficiency of Direct Cardiac Reprogramming
Y. Li[1], S. Dal-Pra[1], T. Jayawardena[1], C. Hodgkinson[1], M. Mirotsou[1], V. Dzau[1], and N. Bursac[1]
[1]Duke University, Durham, NC

8:15AM
Development of Human Cardiac Tissues through Direct Hydrogel Encapsulation of Pluripotent Stem Cells
P. Kerscher[1], I. Turnbull[2], A. Hodge[1], J. Kim[1], D. Seliktar[3], C. Easley[1], K. Costa[2], and E. Lipke[1]
[1]Auburn University, Auburn, AL, [2]Icahn School of Medicine at Mount Sinai, New York, NY,[3]Technion-Israel Institute of Technology, Haifa, Israel

8:30AM
A Computational Model of Neuregulin-Induced Proliferation Signaling Predicts Novel Drug Target Combinations for Cardiac Myocyte Regeneration.
L. Woo[1]
[1]University of Virginia, Charlottesville, VA

8:45AM DREAM TEAM & CENTER
Modeling Familial Dilated Cardiomyopathy Using Human Pluripotent Stem Cells
C. Weaver[1,2], H. Taylor-Weiner[1,2], D. Deacon[3], P. Mali[1], E. Adler[3], N. Chi[3], and A. Engler[1,2]
[1]UC San Diego, San Diego, CA, [2]Sanford Consortium for Regenerative Medicine, San Diego, CA, [3]UC San Diego School of Medicine, San Diego, CA

9:00AM
Design and Validation of a Biomimetic Human Whole-Heart Bioreactor
J. Charest[1], J. Guyette[1,2], and H. Ott[1,2]
[1]Massachusetts General Hospital, Boston, MA, [2]Harvard Medical School, Boston, MA

9:15AM
Microenvironmental Control of Cardiac Reprogramming
Y. Kong[1], A. Rioja[1], Y. Sun[1], J. Fu[1], and A. Putnam[1]
[1]University of Michigan, Ann Arbor, MI

Track: Biomedical Imaging and Opticsg
OP-Sat-1-12 - Room 5-6
Molecular Imaging

Chairs: Terry Matsunaga, Sourabh Shukla

8:00AM
Label-Free Molecular Imaging by Nanotip Ambient Ionization Mass Spectrometry
J. K. Lee[1,2], Z. Zhou[1], H. G. Nam[2,3], and R. Zare[1]
[1]Stanford University, Stanford, CA, [2]Institute for Basic Science, Daegu, Korea, Republic of,[3]DGIST, Daegu, Korea, Republic of

8:15AM
High Resolution Imaging of Biofunctionalized Rare-Earth Nanocomposites for Tumor Detection
L. Higgins[1], M. Zevon[1], V. Ganapathy[1], R. Riman[1], C. Roth[1], P. Moghe[1], and M. Pierce[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

8:30AM
Design of Switchable Interpolymer Complex - Superparamagnetic Iron Oxide Nanoparticles (IPC-SPIOs) Based on Environmental Conditions with Potential for MR contrast Agents
E. Yoo[1]
[1]Binghamton University (SUNY), Binghamton, NY

8:45AM
Evidence for Intracellular Delivery and Ultrasound-Mediated Activation of Folate Receptor-Targeted Phase-Change Contrast Agents in Breast Tumor Cells *In Vitro*.
J. Marshalek[1], D. Robles[1], P. Ingram[1], J. Netherton[2], R. Witte[1], P. Dayton[3], P. Sheeran[4], and T. Matsunaga[1]
[1]University of Arizona, Tucson, AZ, [2]University of ARizona, Tucson, AZ, [3]University of North Carolina Chapel Hill, Chapel Hill, NC, [4]University of Toronto, Toronto, Canada

9:00AM
Characterization of the Structural Morphology of PEG on Filamentous Viral Nanoparticles
N. Gulati[1], K. Lee[1], N. Steinmetz[1], and P. Stewart[1]
[1]Case Western Reserve University, Cleveland, OH

9:15AM
Photoacoustic Microscopy of Gold Nanoparticles: Uptake Dynamics
E. Yang[1], H. Zhang[1], and B. Dong[1]
[1]Northwestern University, Evanston, IL

Track: Biomedical Imaging and Optics
OP-Sat-1-13 - Room 11
Optical Imaging I

Chairs: Jonathan Gunn, Javier A. Jo

8:00AM
Time-Reversed Ultrasonically Encoded (TRUE) Optical Focusing Deep Inside Dynamic Scattering Media
Y. Liu[1], P. Lai[1], C. Ma[1], X. Xu[1], A. Grabar[2], and L. Wang[1]
[1]Washington University in St. Louis, Saint Louis, MO, [2]Uzhgorod National University, Uzhgorod, Ukraine

8:15AM
Quantitative Fluorescence Molecular Tomography for *In Vitro* Measurement of Targeted and Activatable Near Infrared Fluorescent Molecular Probes.
D. Maji[1], M. Zhou[1], P. Sarder[1], M. Shokeen[1], J. P. Culver[1], and S. Achilefu[1]
[1]Washington University in St. Louis, St. Louis, MO

8:30AM
Fast Optimization Algorithm for High Resolution Diffuse Optical Tomography
T. Bhowmik[1], Z. Ye[1], H. Liu[1], and S. Oraintara[1]
[1]University of Texas at Arlington, Arlington, TX

8:45AM
Optical Super Resolution Imaging in Deep Tissue
B. Urban[1], Y. Kozorovitskiy[1], S. DeVries[2], and H. Zhang[1]
[1]Northwestern University, Evanston, IL, [2]Northwestern University, Chicago, IL

9:00AM
Real-Time Optical Characterization of Vasculature for Surgical Applications
J. Gunn[1]
[1]Briteseed, LLC, Chicago, IL

9:15AM
Longitudinal Two-Photon Imaging of Cortical Microvessels And Neural Activation in Awake Marmoset Monkeys
T. Santisakultarm[1], C. Kersbergen[1], D. Bandy[1], D. Ide[1], S-H. Choi[1], and A. Silva[2]
[1]National Institutes of Health, Bethesda, MD, [2]National Institute of Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Bethesda, MD

Track: Neural Engineering
OP-Sat-1-14 - Room 12
CNS Injury: SCI, Stroke, TBI and Concussions I

Chairs: Stephanie Seidlits, Kyle Lampe

8:00AM
Correlation of Impact Acceleration and Neuropsychological Performance in Unconcussed High School and Collegiate Football Players
M. LaPlaca[1], T. Espinoza[2], N. Ciaravella[2], K. Hendershot[2], B. Liu[3], S. Smith[3], A. Kobic[2], C. Crooks[3], R. Gore[3], A. Knezevic[2], S. Phelps[3], and D. Wright[2]
[1]Georgia Tech /Emory, Atlanta, GA, [2]Emory University, Atlanta, GA, [3]Georgia Tech Research Institute, Atlanta, GA

8:15AM
In Vitro Injury Characterization of Brain Cells to Overpressure Insult
N. Hlavac[1], S. Miller[1], and P. VandeVord[1,2]
[1]Virginia Tech, Blacksburg, VA, [2]Salem Veteran Affairs Medical Center, Salem, VA

8:30AM
Magnitude Susceptibility-weighted Imaging Analysis on Neurophysiological Changes of High School Female Soccer Athletes
X. Mao[1], J. Murray[2], and T. Talavage[1]
[1]Purdue University, West Lafayette, IN, [2]General Electric Healthcare, Waukesha, WI

8:45AM
Long-Interval Inhibition, Not Cortical Silent Period, Reveals Sub-Populations Among Stroke Survivors
E. Walker[1,2], V. Little[2], and C. Patten[1,2]
[1]University of Florida, Gainesville, FL, [2]Malcom Randall VAMC, Gainesville, FL

9:00AM
Quantitative Electroencephalography Analysis of Blast Induced Brain Injury in A Swine Model
C. Chen[1], C. Zhou[1], J. Cavanaugh[1], S. Kallakuri[1], A. Desai[1], L. Zhang[1], and A. King[1]
[1]Wayne State University, Detroit, MI

9:15AM
Trans-system Neuroprotective Mechanisms Against Ischemic Injury
S. Liu[1], B. Zhang[1], and Y. Wu[1]
[1]Northwestern University, Evanston, IL

Track: Biomechanics, Cellular and Molecular Bioengineering
OP-Sat-1-15 - Room 17
Cell and Tissue Biomechanics II

Chairs: Taher Saif, Robert Steward

8:00AM
Single Molecular Forces Activate Notch Signaling
F. Chowdhury[1], I. T. S. Li[1], T. Ngo[1], B. J. Leslie[1], X. Wang[1], Y. R. Chemla[1], T. M. Lohman[2], and T. Ha[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Washington University in Saint Louis, St. Louis, MO

8:15AM
Dynein-Generated Forces Bend and Reorient Microtubules by Acting upon Stationary Points
I. Kent[1], P. Rane[1], R. Dickinson[1], A. Ladd[1], and T. Lele[1]
[1]University of Florida, Gainesville, FL

8:30AM
Tissue Stiffness Regulates Tumor Cell Metabolism Through Cell Adhesion Signaling
L. Cassereau[1], M. Barnes[1], J. Mouw[1], J. Lakins[1], and V. Weaver[1]
[1]UCSF/UC Berkeley, San Francisco, CA

8:45AM
Tissue Transglutaminase 2 Regulation of Tumor Cell Tensional Homeostasis
F. Bordeleau[1], M. Antonyak[1], A. Simmons[1], M. Lampi[1], R. Cerione[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

9:00AM
Cell-generated Forces and Fibronectin Remodeling Drive Wound Closure in Engineered Microtissues
J. Eyckmans[1,2], M. Sakar[3], R. Pieters[3], D. Eberli[3], B. Nelson[3], and C. Chen[1,2]
[1]Boston University, Boston, MA, [2]Harvard University, Boston, MA, [3]ETH Zurich, Zurich, Switzerland

9:15AM
The Effects of Stretch on N-cadherin in Stem Cell-derived Cardiomyocytes
R. Wilson[1], A. Ribeiro[1], and B. Pruitt[1]
[1]Stanford University, Stanford, CA

Track: Drug Delivery
OP-Sat-1-16 - Room 10
Nucleic Acid Delivery

Chairs: James Moon, Kim Woodrow

8:00AM DREAM TEAM & CENTER
Zein-Chitosan Micro/Nanoparticles for Oral Gene Delivery and DNA Vaccination
E. Farris[1], A. Ramer-Tait[1], D. Brown[1], and A. Pannier[1]
[1]University of Nebraska-Lincoln, Lincoln, NE

8:15AM
Targeted RNA Interference for Traumatic Brain Injury
E. J. Kwon[1], M. Skalak[1], R. Lo Bu[1], and S. N. Bhatia[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

8:30AM
Nanoparticles for miRNA Delivery as a Potent and Combinatorial Treatment for Glioblastoma
K. Kozielski[1], H. Lopez-Bertoni[1], B. Lal[1], H. Vaughan [1], J. Laterra[1], and J. Green[1]
[1]Johns Hopkins University, Baltimore, MD

8:45AM
DNA Nanotechnology for Molecularly Self-assembled Nanoparticles and Theirs Drug Delivery Applications
B. Jang[1], C. A. Hong[1], and H. Lee[1]
[1]Ewha Womans University, Seoul, Korea, Republic of

9:00AM
Microbubbles and Ultrasound for Improved Gene Transfer to the Brain
J-K. Y. Tan[1], B. Pham[1], D. L. Sellers[1], D. O. Maris[1], N. Coulson[1], P. D. Mourad[1], P. J. Horner[1], and S. H. Pun[1]
[1]University of Washington, Seattle, WA

9:15AM
Local Delivery of siRNA from ROS-Degradable Scaffolds to Promote Angiogenesis in Diabetic Wounds
J. Martin[1], C. Nelson[1], M. Gupta[1], F. Yu[2], J. Davidson[2,3], S. Guelcher[1], and C. Duvall[1]
[1]Vanderbilt University, Nashville, TN, [2]Vanderbilt University Medical Center, Nashville, TN,[3]Veterans Affairs Tennessee Valley Healthcare System, Nashville, TN

Track: Nano and Micro Technologies
OP-Sat-1-17 - Room 7-8
Cell/Material Interfaces

Chairs: Jia Yao, Chong Xie

8:00AM
Microfluidic Tools to Probe the Interdependence of Phagocytosis and Chemotaxis in Human Neutrophils
D. Irimia[1,2,3]
[1]Massachusetts General Hospital, Charlestown, MA, [2]Shriners Burns Hospital, Boston, MA,[3]Harvard Medical School, Boston, MA

8:15AM
Development of the Highly Flexible Au Electrode on the Medical Band-aid as a Disposable Skin Sensor
B. J. Kim[1] and S. Yang[1]
[1]Gwangju Institute of Science and Technology, Gwangju, Korea, Republic of

8:30AM
Single-Cell Interfaces for Intracellular Measurements
K. Garde[1], J. Yan[1], P. Chinnappan[1], and S. Aravamudhan[1]
[1]North Carolina A&T State University, Greensboro, NC

8:45AM
Probing Single Macrophage Secretion In Controlled Adhesive Microenvironment
F. McWhorter[1], T. Smith[1], L. McCarthy[1], and W. Liu[1]
[1]University of California, Irvine, Irvine, CA

9:00AM
Drug Delivery In Nanochannels: Exploring Novel Phenomena In Nanoscale Fluidics Through Scaling Degrees Of Spatial And Electrostatic Confinement
G. Bruno[1,2], R. Hood[1], and A. Grattoni[1]
[1]Houston Methodist Research Institute, Houston, TX, [2]Politecnico di Torino, Turin, Italy

9:15AM
The Significance of the Protein Corona for Plant Virus-Based Nanoparticles' Bio-Nano Interactions.
A. Pitek[1], A. Wen[1], and N. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

Track: Cardiovascular Engineering
OP-Sat-1-18 - Room 1
Cardiovascular Flow Modeling in Health and Disease

Chairs: Cynthia Reinhart-King, Lashan Simpson

8:00AM
Matrix Stiffening Inhibits Endothelial Cell Nitric Oxide Production and Decreases Barrier Integrity in Response to Fluid Shear Stress
J. Kohn[1], D. Zhou[1], F. Bordeleau[1], A. Zhou[1], B. Mason[1], M. Mitchell[1], M. King[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

8:15AM
Simulation of the Microscale Process of Stent Thrombosis with Stent Malapposition
J. Chesnutt[1] and H-C. Han[1,2]
[1]The University of Texas at San Antonio, San Antonio, TX, [2]UTSA-UTHSCSA, San Antonio, TX

8:30AM
Effect of Different Diode Type Mitral Valve Models on Left Ventricular Flow Pattern
A. Slotosch[1], J. Kriegseis[1], and B. Frohnapfel[1]
[1]Karlsruhe Institute of Technology, Karlsruhe, Germany

8:45AM
Wavelength of Light Stimulus Determines Effectiveness of Optogenetics-Based Ventricular Defibrillation in a Computational Model of the Human Heart
T. Karathanos[1], P. Boyle[1], J. Bayer[2], D. Wang[1], and N. Trayanova[1]
[1]Johns Hopkins University, Baltimore, MD, [2]University of Bordeaux, Pessac, France

9:00AM
Analytical Modeling of The Feto-Placental Vasculature
P. Mirbod[1], Z. Wu[1], and M. Jirkovska[2]
[1]Clarkson University, Potsdam, NY, [2]Institute of Histology and Embryology, Charles University, Prague, Czech Republic

9:15AM
Modeling Changes in Flow Conditions throughout Simulated Aneurysm Expansions
D. Peterson[1], S. Nidadavolu[2], and S. Kudernatsch[1]
[1]Texas A&M University - Texarkana, Texarkana, TX, [2]CD-adapco, Melville, NY

Track: Undergraduate Research, Design and Leadership
Special Session - Room 9
Undergraduate Research, Design and Leadership I

Chairs: Hans van Oostrom, Walter O'Dell

8:00AM
Lipid Bilayer Formation In PDMS Microfluidics Towards Highly Stable Artificial Cell Membrane
A. Laprade[1], X. Lou[1]
[1]The Catholic University of America, Washington, DC

8:09AM
Image Viewer for a Genome-Wide shRNA Cardiomyocyte Proliferation Screen
J. Hulse[1], P. Tan[2], J. Saucerman[3], and J. van Berlo[4]
[1]University of Virginia, Charlottesville, VA, [2]University of Virginia, 22904, VA, [3]University of Virginia, Chalrottesville, VA, [4]University of Minnesota, Minneapolis, MN

8:18AM
Infant Pelvis and Femur Models Representing All Severities of DDH from Ortolani's Collection
B. Jones[1], G. Rodriguez[1], and S. Serra[1]
[1]University of Central Florida, Orlando, FL

8:27AM
Contralateral Limb Differences In Knee Kinetics After Anterior Cruciate Ligament Reconstruction
A. Sivaprakasam[1], J. Irrgang[1], F. Fu[1], and S. Tashman[1]
[1]University of Pittsburgh, Pittsburgh, PA

8:36AM
Mechanical Characterization of Aligned Fibrin Gels by Dynamic Mechanical Shear, Indentation, and Magnetic Resonance Elastography
A. Benegal[1], J. Schmidt[1], C. Walker[1], R. Okamoto[1], and P. Bayly[1]
[1]Washington University in St. Louis, St. Louis, MO

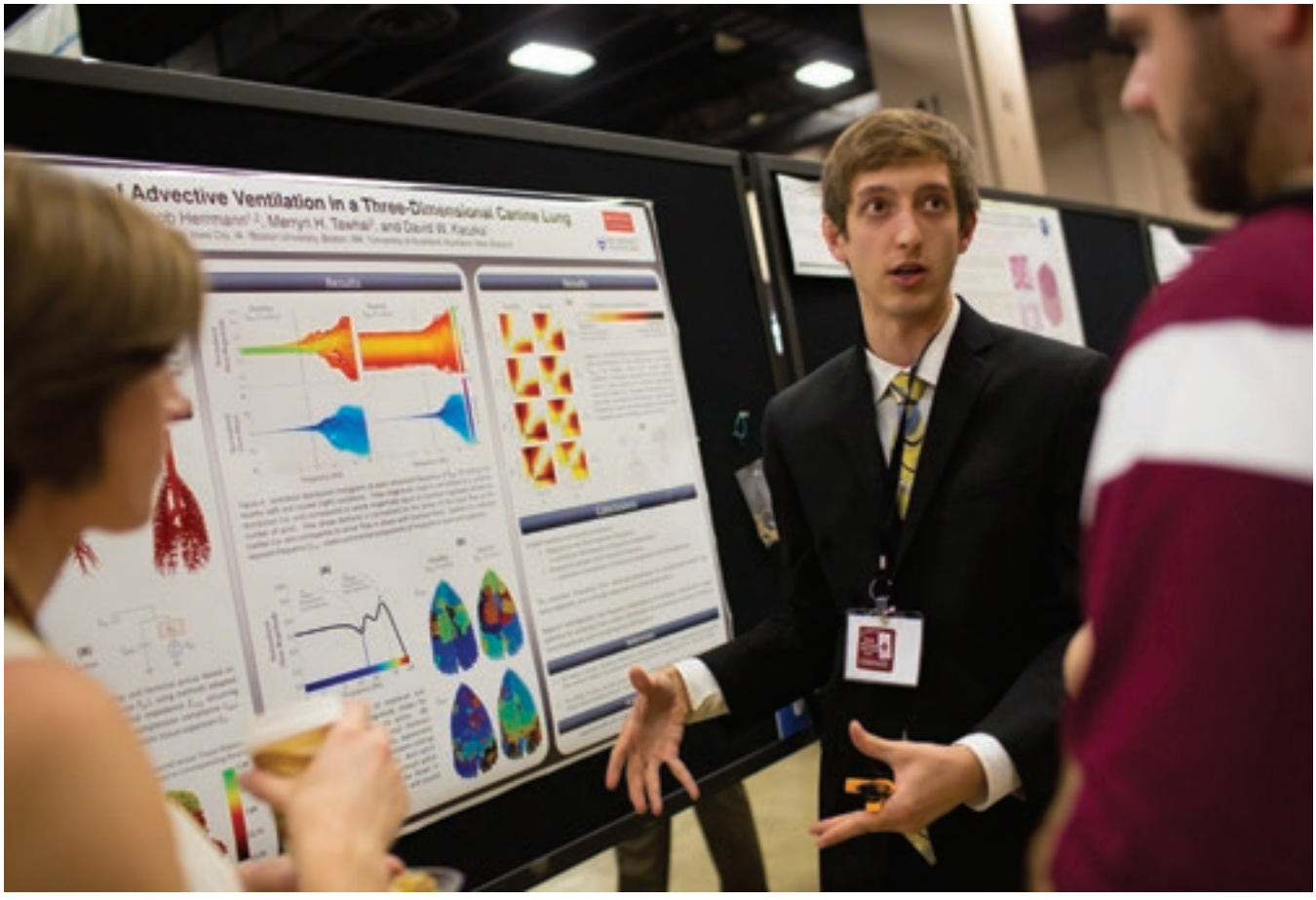
8:45AM
Regional Variations of Residual Strain Within the Murine Female Reproductive System
D. Bivona[1] and K. Miller[1]
[1]Tulane University, New Orleans, LA

8:54AM
Custom MATLAB Doppler Processing Provides a Valuable Tool in Hemodynamic Analysis
A. Medina[1], R. Vanderpool[1], R. Tarantelli[1], K. Norris[1], and M. Simon[1]
[1]University of Pittsburgh, Pittsburgh, PA

9:03AM
The Effect Of Mitral Valve Prosthesis Design On Intraventricular Fluid Dynamics: An *In Vitro* Study
J. Campos[1]
[1]San Diego State University, San Diego, CA

9:12AM
Engineering Artificial Mechanosensitive Cells by Combining Cell Free Expression and Ultrathin Double Emulsion Template
D. Gebrezgiabhier[1], D. Gebrezgiabhier[1], and A. Liu[2]
[1]Grand Rapids Community College, Grand Rapids, MI, [2]University of Michigan, Ann Arbor, MI

9:21AM
Three-dimensionally Printed Antibiotic-Eluting Prosthesis for the Treatment of Superior Canal Dehiscence Syndrome
M. Cotler[1,2], N. Black[1,2], E. Kozin[3,4], D. Lee[3,4], A. Remenschneider[3,4], and J. Lewis[1,2]
[1]Harvard University, Cambridge, MA, [2]Wyss Institute For Biologically Inspired Engineering, Boston, MA, [3]Massachusetts Eye and Ear Institute, Boston, MA, [4]Harvard Medical School, Boston, MA



P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

SATURDAY, October 10, 2015

1:30 PM - 3:00 PM

PLATFORM SESSIONS – SAT - 2

Track: Drug Delivery, Cancer Technologies
OP-Sat-2-1 - Room 18
Cancer Drug Delivery I

Chairs: Susan Thomas, Steve Jay

1:30PM

DNA Nanostructures as Targeted and Modular Delivery Vehicles for Cancer

P. Charoenphol[1] and H. Bermudez[1]

[1]*University of Massachusetts, Amherst, MA*

1:45PM

Novel Polypeptide-Based Gold Nanoshells For Photothermal Therapy

K. Chen[1], K. Mayle[1], K. Dern[2], V. Wong[1], S. Sung[1], K. Ding[1], A. Rodriguez[1], H. Zhou[1], Z. Taylor[2], W. Grundfest[2], T. Deming[2], and D. Kamei[2]

[1]*University of California Los Angeles, Los Angeles, CA,* [2]*University of California at Los Angeles, Los Angeles, CA*

2:00PM

Development Of A Filamentous Carrier For Chemotherapeutic Delivery

K. Lee[1], S. Shukla[1], K. Weber Bonk[1], R. Keri[1], and N. Steinmetz[1]

[1]*Case Western Reserve University, Cleveland, OH*

2:15PM

Photodynamic Therapy of Skin Tumors using 5-Aminolevulinic Acid Coated Microneedles

A. Jain[1], C. H. Lee[1], and H. Gill[1]

[1]*Texas Tech University, Lubbock, TX*

2:30PM

Cellular Protease-Mediated Programmed Delivery of Anticancer Cytokine and Small-Molecule Drug

Q. Hu[1,2], H. Bomba[1], W. Sun[1,2], T. Jiang[1,2], R. Mo[1,2], and Z. Gu[1,2,3]

[1]*University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC,* [2]*University of North Carolina at Chapel Hill, Chapel Hill, NC,* [3]*University of North Carolina School of Medicine, Chapel Hill, NC*

2:45PM

Polymeric Nanoparticle-engineered Human Adipose-derived Stem Cells for Eradicating Brain Tumor in an Intracranial Xenograft Model of Glioblastoma

X. Jiang[1], C. Wang[1], S. Fitch[2], and F. Yang[1]

[1]*Stanford University, Stanford, CA,* [2]*Humboldt State University, Arcta, CA*

Track: Cellular and Molecular Bioengineering
OP-Sat-2-2 - Room 19
Molecular Bioengineering

Chairs: Mike Gower, Shiva Kotha

1:30PM

Increased Specificity Of microRNA Detection Using A Double Molecular Beacon Approach: Distinguishing Between Mature And Precursor miRNAs *in vitro*

A. M. James [1,2], M. Baker[1], G. Bao[2], and C. Searles[1]

[1]*Emory University School of Medicine, Decatur, GA,* [2]*Georgia Institute of Technology, Atlanta, GA*

1:45PM

Transport of Amyloid- β Across the Blood Brain Barrier by P-glycoprotein

H. Holt[1], E. Moore[1], M. Faucett[1], F. Gonzalez[1], and M. Moss[1]

[1]*University of South Carolina, Columbia, SC*

2:00PM

Direct Measurement of Kinesin-1 Mechanochemistry Using High Resolution Single-Molecule Microscopy

K. Mickolajczyk[1], J. Andrecka[2], J. Ortega-Arroyo[2], P. Kukura[2], and W. Hancock[1]

[1]*Penn State University, University Park, PA,* [2]*Oxford, Oxford, United Kingdom*

2:15PM

Comparison of Human and Mouse E-Selectin Binding to Sialyl-Lewisx: Theory and Experiment

A. Rocheleau[1], T. Cao[1], T. Takatani[1], and M. King[1]

[1]*Cornell University, Ithaca, NY*

2:30PM

Requirements for Dynamic Instability and the Mechanisms of Microtubule-targeting Agents

B. Castle[1], S. McCubbin[2], L. Prahl[1], J. Bernens[1], D. Sept[2], and D. Odde[1]

[1]*University of Minnesota Twin Cities, Minneapolis, MN,* [2]*University of Michigan, Ann Arbor, MI*

2:45PM

Homogenous Amplified Digital Immunoassay

D. Kim[1], A. Ozcan[1], O. Garner[1], and D. Di Carlo[1]

[1]*University of California, Los Angeles, Los Angeles, CA*

Track: Cancer Technologies, Nano and Micro Technologies
OP-Sat-2-3 - Room 20
Micro and Nanotechnologies for Cancer II

Chairs: Marissa Rylander, Rong Fan

1:30PM

Cell Mechanics-based Microfluidic Fractionation of Leukemia Cell Lines

T. Sulchek[1], G. Wang[1], C. Turbyfield[1], K. Crawford[1], and A. Alexeev[1]

[1]*Georgia Tech, Atlanta, GA*

1:45PM

A Three Dimensional Micropatterned Tumor Model to Study Breast Cancer Cell Invasion

F. S. Sam [1], N. Peela[1], W. Christenson[1], D. Truong [1], A. Watson[2], G. Mouneimne [2], R. Ros[1], and M. Nikkhah[1]

[1]*Arizona State University, Tempe, AZ,* [2]*University of Arizona, Tucson, AZ*

2:00PM

Synthetic Tumor Networks For Evaluating Tumor Metastasis

A. Smith[1], C. Garson[1], S. Pradhan[2], E. Lipke[2], R. Arnold[2], B. Prabhakarpandian[1], and K. Pant[1]

[1]*CFD Research Corporation, Huntsville, AL,* [2]*Auburn University, Auburn, AL*

2:15PM

Multi Parametric Isolation Of Circulating Tumor Cells

A. Meunier[1], K. Turner[1], J. A. Hernandez Castro[1,2], T. Veres[1,2], and D. Juncker[1]

[1]*McGill University, Montreal, QC, Canada,* [2]*National Research Council of Canada, Boucherville, QC, Canada*

2:30PM
Transferrin-modified Single Walled Carbon Nanohorns for Cellular Uptake
A. Pekkanen[1], M. DeWitt[1], T. Long[1], and M. N. Rylander[2]
[1]Virginia Tech, Blacksburg, VA, [2]University of Texas at Austin, Austin, TX

2:45PM
Microfluidic Device for Mechanical Dissociation of Tumor Tissues into Single Cells
X. Qiu[1], T. Westerhof[1], M. Pennell[1], E. Nelson[1], and J. Haun[1]
[1]University of California, Irvine, Irvine, CA

Track: Cancer Technologies
OP-Sat-2-4 - Room 21
Computation Modeling Strategies and Other Topics in Cancer

Chairs: Jennifer Munson

1:30PM
Treatment Planning Algorithms for Irreversible Electroporation of Advanced Pancreatic Malignancies in Human Patients
E. Latouche[1], A. Rolong[1], M. Sano[2], R. Martin[3], and R. Davalos[1]
[1]Virginia Tech, Blacksburg, VA, [2]Stanford University, Palo Alto, CA, [3]University of Louisville, Louisville, KY

1:45PM
Reconstruction of a Cellular Signaling Network in Embryonic Fibroblasts from Time-course Gene Expression Profiles Reveals the Mechanism of the SPRY2 Tumor-suppressor
J.D. Finkle[1], M. Ciaccio[1] and N. Bagheri[1]
[1]Northwestern University, Evanston, IL

2:00PM
Lymphatic Induced Stromal Activation Identified in a 3D *in vitro* Co-culture Breast Cancer Model Translates to Similar Findings *in vivo* Using Mouse Models
J. Munson[1], M. Broggi[2], I. Van Mier[2], and M. Swartz[3]
[1]University of Virginia, Charlottesville, VA, [2]EPFL, Lausanne, Switzerland, [3]University of Chicago, Chicago, IL

2:15PM
Characterization of *ex vivo* Health of MB231 and MCF7 Human Breast Cancer Xenograft Tumors in Mice
S. Willett[1], D. Smith[1], C. Eitel[1], L. Schwerdtfeger[1], S. Tobet[1], R. Bartels[1], and D. Gustafson[1]
[1]Colorado State University, Fort Collins, CO

2:30PM
The NCI's Provocative Questions Initiative: Program Outcomes and Current Opportunities
M. A. Berny-Lang[1], J. S. H. Lee[1], and E. J. Greenspan[1]
[1]Center for Strategic Scientific Initiatives, Office of the Director, National Cancer Institute, National Institutes of Health, Bethesda, MD

2:45PM
Innovative Technologies for Cancer Research – NCI Strategy for Supporting Next Generation of Tools Needed Against Cancer
A. Dickherber[1]
[1]National Institutes of Health, Marietta, GA

Track: Device Technologies and Biomedical Robotics
OP-Sat-2-5 - Room 22
Medical Device Development and Computational Models I

Chairs: Vittoria Flamini, Stephanie Fraley

1:30PM
Increasing Patient Compliance of an Incentive Spirometer through Gamification
C. Dean[1], K. Weaver[1], P. Veliyara[1], J. Farris[1], and B. Nowak[1]
[1]Grand Valley State University, Grand Rapids, MI

1:45PM
Design and Testing of Specialized Bottles for Children Born with Cleft Lip and Palate
T. Tran[1], K. Shah[1], A. Lu[1], M. Huizenga[1], C. Pelland[1], K. Knaus[1], K. Borowitz[1], and S. Blemker[1]
[1]University of Virginia, Charlottesville, VA

2:00PM
Acoustic Tweezing Thromboelastometry
D. Luo[1], R. G. Holt[2], and D. Khismatullin[1]
[1]Tulane University, New Orleans, LA, [2]Boston University, Boston, MA

2:15PM
Rapid Hemolysis Detection for Diagnosis of Pregnancy Complications
E. Archibong[1], K. Konnaiyan[1], and A. Pyayt[1]
[1]USF, Tampa, FL

2:30PM
Smart Automated Platform for Precise Manipulation of Population Dynamics
E. Fong[1,2], J. Pena[1], C. Huang[1], S-Y. Jung[3], L. Weinberger[3,4], and M. Shusteff[1]
[1]Lawrence Livermore National Laboratory, Livermore, CA, [2]Boston University, Boston, MA,[3]The Gladstone Institutes, San Francisco, CA, [4]University of California, San Francisco, San Francisco, CA

2:45PM DREAM TEAM & CENTER
Digital High Resolution Melt and Machine Learning Enable Broad-Based Molecular Profiling
S. Fraley[1], P. Athamanolap[2], B. Masek[2], J. Hardick[2], K. Carroll[2], Y-H. Hsieh[2], R. Rothman[2], C. Gaydos[2], T-H. Wang[2], and S. Yang[3]
[1]University of California, San Diego, La Jolla, CA, [2]Johns Hopkins University, Baltimore, MD,[3]Stanford University, Stanford, CA

Track: Biomaterials
OP-Sat-2-6 - Room 23
Biomaterials for Controlling Cell Environment III

Chairs: Kyle Allen, Jennifer Patterson

1:30PM
Sequential Interpenetrating Networks for Examination of the Dependence of MSC Differentiation on Cell Shape
D. Munoz Pinto[1], A. Jimenez Vergara[1], and M. Hahn[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

1:45PM
Nanoscale Topographies Of Protein Distributions In 3D Using Magnetic Field-induced Self-assembly To Mimic *in vitro* Tissue Microenvironment
J. Kim[1] and K. Tanner[1]
[1]National Institute of Health, North Bethesda, MD

PLATFORM SESSIONS Sat-2

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

2:00PM
Mechanically Dynamic,Viscoelastic Hydrogels for Investigating Cellular Mechanotransduction
S. R. Caliari[1], C. B. Rodell[1], M. Perepelyuk[1], R. G. Wells[1], and J. A. Burdick[1]
[1]*University of Pennsylvania, Philadelphia, PA*

2:15PM
Micropatterned Multiwell Plates for High-Content Imaging and Mechanobiology of Human Cells
T. Harkness[1], J. D. McNulty[1], R. Prestil[1], S. K. Seymour[1], T. Klann[1], M. Murrell[1], R. S. Ashton[1], and K. Saha[1]
[1]*University of Wisconsin-Madison, Madison, WI*

2:30PM
Directed Migration of Schwann Cells on Durotactically Designed Biomaterials
E. Evans[1], S. Brady[1], and D. Hoffman-Kim[1]
[1]*Brown University, Providence, RI*

2:45PM
Regulating Stem Cell Fate Using Hydrogels with Tunable Stress Relaxation
L. Gu[1], O. Chaudhuri[2], M. Darnell[1], S. Young[1], D. Klumpers[1], J. Weaver[1], S. Bencherif[1], N. Huebsch[3], and D. Mooney[1]
[1]*Harvard University, Cambridge, MA, [2]Stanford University, Stanford, CA, [3]Gladstone Institute of Cardiovascular Disease, San Francisco, San Francisco, CA*

Track: Tissue Engineering, Stem Cell Engineering
OP-Sat-2-7 - Room 13
Stem Cells in Tissue Engineering

Chairs: Randolph Ashton, Sharon Gerecht

1:30PM
Influence of N-Cadherin Peptide Dose and Timing on MSC Chondrogenesis in 3D HA Hydrogels
M. Kwon[1], S. Vega[1], R. Mauck[1], and J. Burdick[1]
[1]*University of Pennsylvania, Philadelphia, PA*

1:45PM
Molecular Mechanism for Endothelial Differentiation of Mesenchymal Stem Cells Driven By *In Situ* Crosslinkable Gelatin Hydrogels
S. H. Lee[1], Y. Lee[2], K. Park[2], and H-J. Sung[1]
[1]*Vanderbilt University, Nashville, TN, [2]Ajou University, Suwon, Korea, Republic of*

2:00PM
Nanog Restores the Effects of Senescence on Extracellular Matrix Molecule Expression
N. Rong[1], P. Mistriotis[1], X. Wang[1], G. Tseropoulos[1], and S. T. Andreadis[1]
[1]*University at Buffalo (SUNY-Buffalo), Buffalo, NY*

2:15PM
Construction of Islet-like Organoids and Maturation of hESCs-Derived Pancreatic Cells within 3D Biomimetic Scaffolds
K. Ye[1], S. Jin[1], and W. Wang[2]
[1]*Binghamton University, SUNY, Binghamton, NY, [2]University of Arkansas, Fayetteville, AR*

2:30PM
Tissue Engineering of 3D Vascularized Tissues Using iPS-derived Cells
Y. Kurokawa[1], C. Tu[2], L. Lock[2], C. Hughes[2], B. Conklin[3], and S. George[1]
[1]*Washington University in St. Louis, St. Louis, MO, [2]University of California, Irvine, Irvine, CA,[3]Glastone Institute of Cardiovascular Disease, San Francisco, CA*

2:45PM
Promoting Vascularized Bone Tissue Regeneration on Composite Scaffolds Using Spatial and Temporal Control
R. Rodriguez[1], L. Gaviria[1], J. Ong[1], and T. Guda[1]
[1]*The University of Texas at San Antonio, San Antonio, TX*

Track: Tissue Engineering
OP-Sat-2-8 - Room 14
Tissue Engineered Models for Study of Disease and Drug Discovery III

Chairs: Scott Verbridge, Jamal Lewis

1:30PM
Pentosidine Crosslinks in Biomimetic Matrices Impair Osteogenic Potential of Mesenchymal Stem Cells
D. Mitra[1], H. Fatakdawala[1], L. Marcu[1], and J. K. Leach[1]
[1]*University of California, Davis, CA*

1:45PM
Suppression of Osteogenic Differentiation of hMSCs by Osteolytic Tumor Cells
R. Reese[1], A. Tondon[1], C. Gregory[2], and R. Kaunas[1]
[1]*Texas A&M University, College Station, TX, [2]Texas A&M Health Science Center, Temple, TX*

2:00PM
Biomaterial-guided Patient-specific Cardiac Disease Modeling and Drug Toxicity Screening
Z. Ma[1], S. Koo[1], P. Loskill[1], N. Huebsch[2], A. Mathur[1], C. Grigoropoulos[1], B. Conklin[2], and K. Healy[1]
[1]*University of California, Berkeley, Berkeley, CA, [2]Gladstone Institute, San Francisco, CA*

2:15PM
Creating Tissue Engineered Blood Vessels as Disease Models and Drug Screening Platforms
Z. Chen[1], W. Leong[1], O. Adebowale[1], H. Ji[1], Y. Jung[2], and K. Leong[1]
[1]*Columbia University, New York, NY, [2]Korea Institute of Science and Technology, Seoul, Korea, Republic of*

2:30PM
Engineered Neuromuscular Junction Co-cultures Using Mechanically Patterned Substrates
C. Weaver[1,2] and A. Engler[1,2]
[1]*University of California San Diego, San Diego, CA, [2]Sanford Consortium for Regenerative Medicine, San Diego, CA*

2:45PM
The Third Dimension: Using the Right Mechanical Model for Mammary Morphogenesis
A. Kurup[1], T. Tran[1], M. Keating[1], P. Gascard[2], L. Valdevit[3], T. Tisty[2], and E. Botvinick[1]
[1]*University of California, Irvine, Irvine, CA, [2]University of California, San Francisco, San Francisco, CA, [3]Univeristy of California, Irvine, Irvine, CA*

Track: Biomechanics, Cardiovascular Engineering
OP-Sat-2-9 - Room 15
Cardiovascular Biomechanics I

Chairs: Adam Feinberg, Pat Alford

1:30PM
Early Fatigue Damage of Valve Tissue at Different Peak Strains
C. Martin[1], B. Gonzalez[1], F. Sulejmani[1], and W. Sun[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

1:45PM
Characterization of Gel-Spun Silk Vascular Grafts
M. Rodriguez[1], J. Kluge[2], D. Smoot[2], P. Kim[3], C. Paetsch[2], and D. Kaplan[2]
[1]*Tufts University, Somerville, MA, [2]Tufts University, Medford, MA, [3]New England Baptist Hospital, Boston, MA*

2:00PM
A Structural Model for Ascending Thoracic Aortic Wall Suggests Heterogeneous Stress State in Collagen Fibers
J. Thunes[1], S. Pal[2], J. E. Pichamuthu[3], J. A. Phillippi[3], T. G. Gleason[3], D. A. Vorp[3], and S. Maiti[3]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Indian Institute of Technology, Roorkee, India,[3]University of Pittsburgh, Pittsbrugh, PA

2:15PM
Losartan Treatment Preserves Aorta and Lung Tissue Micromechanics in a Mouse Model of Severe Marfan Syndrome
J-J. Lee[1,2], S. Rao[1], J. Galatioto[1], F. Ramirez[1], and K. Costa[1]
[1]Icahn School of Medicine at Mount Sinai, New York, NY, [2]The City College of New York, New York, NY

2:30PM
Estimation of the Mitral Valve *In Vivo* Stresses in the Normal and Surgically Modified States
C-H. Lee[1], K. Feaver[1], W. Zhang[1], R. Gorman[2], J. Gorman[2], and M. Sacks[1]
[1]The University of Texas at Austin, Austin, TX, [2]University of Pennsylvania, Philadelphia, PA

2:45PM DREAM TEAM & CENTER
Diameter Variation of Aortic Aneurysms Over the Cardiac Cycle
K. Shapero[1], N. Reddy[1], K. Yucel[2], M. Iafrati[2], L. Dorfmann[3], and R. Peattie[2]
[1]Tufts University, Boston, MA, [2]Tufts Medical Center, Boston, MA, [3]Tufts University, Medford, MAI

Track: Biomechanics, Orthopedic and Rehabilitation Engineering
OP-Sat-2-10 - Room 16
Orthopedic I: Implants, Prosthetics, and Bone

Chairs: Ferris Pfeiffer, Andrew Kemper

1:30PM
Phantom-less Bone Mineral Density Measures and Correlation with Age and Fracture Incidence
A. Weaver[1], R. C. Hightower[1], A. Miller[2], K. Beavers[3], and J. Stitzel[1]
[1]Wake Forest University Center for Injury Biomechanics, Winston-Salem, NC, [2]Wake Forest University School of Medicine, Winston-Salem, NC, [3]Wake Forest University, Winston-Salem, NC

1:45PM
Low Intensity Vibrations Improve the Mechanical Strength of Cortical Bone Compromised in Diet-Induced Obese Mice: Evaluation of Regional Differences in Material Properties Using Nanoindentation
C. H. Cheung[1]
[1]State University of New York at Stony Brook, Stony Brook, NY

2:00PM
Skull Cortical Thickness Morphing For An Age And Sex Specific FE Model Of The Skull
D. Jones[1,2], J. Urban[1,2], E. Lillie[1,2], and J. Stitzel[1,2]
[1]Wake Forest University School of Medicine, Winston-Salem, NC, [2]Virginia Tech - Wake Forest University Center for Injury Biomechanics, Winston-Salem, NC

2:15PM
Low Intensity Vibration Improves Endoprosthesis Osseointegration in an Ovine Model
G. Noble[1], K. Bodnyk[1], A. Litsky[1], J. Fine[1], G. Pagnotti[2], C. Rubin[2], N. Fitzpatrick[3], M. Allen[4], and R. Hart[1]
[1]The Ohio State University, Columbus, OH, [2]Stony Brook University, Stony Brook, NY,[3]Fitzpatrick Referrals, Godalming, United Kingdom, [4]University of Cambridge, Cambridge, United Kingdom

2:30PM
Mechanical Origins of Fracture Nonunion: Implant Tests and Finite Element Models of Callus Strains
H. Dailey[1,2], C. Daly[2], and A. Glass-Hardenbergh[1]
[1]Lehigh University, Bethlehem, PA, [2]Cork Institute of Technology, Cork, Ireland

2:45PM
The Effect Of Oblique Screw Placement At Plate Ends for Internal Fixation of Long Bones - A Biomechanical Study Of Cadaveric Bone
B. Nguyen[1], H. Vo[1], E. O'Brien[1], and L. Webb[2]
[1]Mercer University, Macon, GA, [2]Medical Center Navicent Health, Macon, GA

Track: Cardiovascular Engineering
OP-Sat-2-11 - Room 3-4
Angiogenesis I

Chairs: Princess Imoukhuede, Damir Khismatullin

1:30PM
Venous Marker COUP-TFII Regulates the Distinct Pathologic Potentials of Arteries and Veins
G. Dai[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

1:45PM
Angiogenic Secretion Profile of Valvular Interstitial Cells is Dependent upon Cellular Sex
C. McCoy[1], K. Schmidt[1], T. Weis[1], and K. Masters[1]
[1]University of Wisconsin-Madison, Madison, WI

2:00PM
Prevascularization of Injectable Fibrin Microbeads for Ischemic Conditions
A. Rioja[1], E. Daley[1], S. Paris[1], J. Stegemann[1], and A. Putnam[1]
[1]University of Michigan, Ann Arbor, MI

2:15PM
Exploring Hydrostatic Pressure as a Mechanobiological Stimulus of Endothelial Sprouting
M. Song[1], J. Wallin[2], and H. Shin[1]
[1]University of Kentucky, Lexington, KY, [2]Lafayette High School, Lexington, KY

2:30PM
The Dynamics of Protein Kinase C&Σ-Induced Autophagy for Mitochondrial Homeostasis and Vascular Regeneration
T. Beebe[1], H. Yen[1], A. Kaboodrangi[1], R. Li[1], N. Jen[1], J. Lee[1], P. Fei[1], and T. Hsiai[1]
[1]University of California, Los Angeles, Los Angeles, CA

2:45PM DREAM TEAM & CENTER
Extracellular Matrix Stiffness Regulates Tumor Vasculature Phenotype
F. Bordeleau[1], B. Masson[1], M. Mazzola[1], S. Somasegar[1], J. Califano[1], C. Mortague[1], D. LaValley[1], J. Huynh[1], Y. Negrón Abril[1], R. Weiss[1], L. Bonassar[1], J. Butcher[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

PLATFORM SESSIONS Sat-2

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Track: Nano and Micro Technologies
OP-Sat-2-12 - Room 5-6

Cells, Tissues and Organs on a Chip I

Chairs: Dan Huh, Mohammad Kiani

1:30PM
Angiotensin II Induced Cardiac Dysfunction on a Chip
R. Horton[1,2,3], M. Yadid[2,3], M. McCain[4], S. Sheehy[2,3], F. Pasqualini[2,3], S-J. Park[2,3], A. Cho[2,3], P. Campbell[2,3], and K. Parker[2,3]
[1]Mississippi State University, Starkville, MS, [2]Wyss Institute for Biologically Inspired Engineering, Boston, MA, [3]Harvard University, Cambridge, MA, [4]University of Southern California, Los Angeles, CA

1:45PM
Chemo-Predictive Cell-Based Microarrays Targeting Patient-Derived Colon Cancer Stem Cells
M. Carstens[1], A. Acharya[2], E. Huang[3], and B. Keselowsky[1]
[1]University of Florida, Gainesville, FL, [2]University of Pittsburgh, Pittsburgh, PA, [3]Cleveland Clinic, Cleveland, OH

2:00PM
Low Cost Cell Culture Platforms for Body-on-a-Chip Applications
M. Esch[1], D. Applegate[2], and M. Shuler[3]
[1]Syracuse University, Syracuse, NY, [2]RegeMed Inc., San Diego, CA, [3]Cornell University, Ithaca, NY

2:15PM
Organotypic Hippocampal Epilepsy-on-a-chip Model for Drug Discovery
Y. Berdichevsky[1] and J. Liu[1]
[1]Lehigh University, Bethlehem, PA

2:30PM
Microfluidic Platform for 3D Human Primary Liver Cell Culture with Inflammation Capability
M. B. Esch[1], J-M. Prot[2], Y. Wang[2], P. Miller[2], D. Applegate[3], and M. Shuler[2]
[1]Syracuse University, Syracuse, NY, [2]Cornell University, Ithaca, NY, [3]RegeneMed Inc., San Diego, CA

2:45PM
Microtissue Array to Screen the Impact of Carbon Nanotube on Lung Cellular and Tissue Biomechanics
Z. Chen[1], Q. Wang[1], M. Asmani[1], Y. Li[1], Y. Wu[1], and R. Zhao[1]
[1]SUNY at Buffalo, Buffalo, NY

Track: Biomedical Imaging and Optics, Cancer Technologies
OP-Sat-2-13 - Room 11

Optical Imaging II: Oncology Applications

Chairs: Mark Pierce, Javier A. Jo

1:30PM
Mapping Tetramerization of p53 and Changes of Metabolism Upon DNA Damage with the Number and Molecular Brightnesss and Phasor FLIM Methods
M. Digman[1], S. Bagilthaya[1], L. Bardwell[1], and J. Bardwell[1]
[1]University of California Irvine, Irvine, CA

1:45PM
Noncontact Diffuse Correlation Tomography of Human Breast Tumor
L. He[1], Y. Lin[1], C. Huang[1], D. Irwin[1], M. Szabunio[1], and G. Yu[1]
[1]University of Kentucky, Lexington, KY

2:00PM
Rare-Earth Albumin Nanocomposites For Improved Deep Tissue *In Vivo* Optical Imaging And Micrometastatic Lesion Detection
M. Zevon[1], V. Ganapathy[1], H. Kantamneni[1], L. Higgins[1], X. Zhao[2], S. Yang[2], M. C. Tan[2], M. Pierce[1], R. Riman[1], C. Roth[1], and P. Moghe[1]
[1]Rutgers University, Piscataway, NJ, [2]Singapore University of Technology and Design, Singapore, Singapore

2:15PM
High-Resolution Volumetric Imaging of Lumpectomy Tissue for Radiation Treatment Planning
M. Pierce[1], L. Kim[2], and A. Khan[2]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ, [2]Rutgers Cancer Institute of New Jersey, New Brunswick, NJ

2:30PM
Multimodality Imaging Of Colon Cancer Using Fluorescent Fiberscope And Dual-Axis Confocal Microscope (DAC)
S. Rogalla[1], C. Zavaleta[1], N. Loewke[1], M. Mandella[1], K. Oresic-Bender[1], M. Bogyo[1], and C. Contag[1]
[1]Stanford University, Stanford, CA

2:45PM
Computer Extracted Nuclear Features from Feulgen and H&E Images Predict Prostate Cancer Outcomes
A. Gawlik[1], G. Lee[1], J. Whitney[1], J. Epstein[2], R. Veltri[2], and A. Madabhushi[1]
[1]Case Western Reserve University, Cleveland, OH, [2]The Johns Hopkins University School of Medicine, Baltimore, MD

Track: Neural Engineering
OP-Sat-2-14 - Room 12

CNS Injury: SCI, Stroke, TBI and Concussions II

Chairs: Michelle LaPlaca, Bryan Pfister

1:30PM
Development of an *in vitro* Model of the Human Reflex Arc for Understanding Disease and Injury in the Spinal Cord
J. Hickman[1], X. Guo[1], A. Smith[1], C. Long[1], and A. Colon[1]
[1]University of Central Florida, Orlando, FL

1:45PM
Combination Therapy Of Stem Cell Derived Neural Progenitors And Drug Delivery Of Anti-Inhibitory Molecules For Spinal Cord Injury
T. Wilems[1], J. Pardieck[1], and S. Sakiyama-Elbert[1]
[1]Washington University in St. Louis, Saint Louis, MO

2:00PM
Chondroitin Sulfate Glycosaminoglycan Hydrogel-Based Neural Stem Cell Carriers for Traumatic Brain Injury
M. Betancur[1], M. Alvarado[2], R. Bellamkonda[2], L. Karumbaiah[1], and M. Logun[1]
[1]The University of Georgia, Athens, GA, [2]Georgia Institute of Technology, Atlanta, GA

2:15PM
In Vivo Assessment of Nanoparticle Extravasation After Brain Injury: Effect of Particle Size
V. N. Bharadwaj[1], J. Lifshitz[2], D. Adelson[3], V. D. Kodibagkar[1], and S. E. Stabenfeldt[1]
[1]Arizona State University, Tempe, AZ, [2]University of Arizona, Phoenix, AZ, [3]Barrow Neurological Institute at Phoenix Children's Hospital, Phoenix, AZ

2:30PM
Intrathecal Delivery Of Brain-Derived Neurotrophic Factor Via Implanted Mini-Pump Promotes Hindlimb Stepping
F. Marchionne[1]
[1]Temple University, Philadelphia, PA

2:45PM
Immuno-suppressive Hydrogels for Neural Stem Cell Delivery after Traumatic Brain Injury
M. Alvarado-Velez[1], J. Chu[2], M. LaPlaca[1], and R. Bellamkonda[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University School of Medicine, Atlanta, GA

Track: Biomechanics, Cellular and Molecular Bioengineering
OP-Sat-2-15 - Room 17
Cell and Tissue Biomechanics III

Chairs: Jiro Nagatomi, Allen Ehrlicher

1:30PM
Effect of Strain on Myelination
A. Jagielska[1] and K. J. Van Vliet[1]
[1]Massachusetts Institute of Technology, Cambridge, MA

1:45PM
Distributed Computation using Mechanically Tunable Fluidic Ecosystems
S-H. Paek[1] and W. C. Ruder[1]
[1]Virginia Tech, Blacksburg, VA

2:00PM
Predictions of Sprouting Angiogenesis within Heterogeneous Extracellular Environments
L. Edgar[1], J. Hoying[2], and J. Weiss[1]
[1]University of Utah, Salt Lake City, UT, [2]University of Louisville, Louisville, KY

2:15PM
Mucin Antibody Complexes Enhance Potency of Antibodies That Bind to the HIV Envelope
A. Rosemary Bastian[1], K. Fahbarch[1], M. Anderson[1], E. Mathias[1], S. Gunashekaran[1], T. Hope[1], P. Kiser[1], G. Picasso[2], and I. Szleifer[2]
[1]Northwestern University, Chicago, IL, [2]Northwestern University, Evanston, IL

2:30PM
Alpha Actinin Binding Kinetics Modulate Cellular Mechanics and Force Generation
A. Ehrlicher[1,2,3], R. Krishnan[2], M. Guo[3], C. Bidan[2], D. Weitz[3], and M. Pollak[2]
[1]McGill University, Montreal, QC, Canada, [2]Beth Israel Deaconess Medical Center, Boston, MA, [3]Harvard University, Cambridge, MA

2:45PM
Probing a Complex 3D Embryonic Tissue Through Novel Spatiotemporal Controlled Bio-Etching
M. Hazar[1], Y. Kim[2], L. Davidson[3], P. LeDuc[1], and W. Messner[4]
[1]Carnegie Mellon University, Pittsburgh, PA, [2]Georgia Institute of Technology, Atlanta, GA, [3]University of Pittsburgh, Pittsburgh, PA, [4]Tufts University, Medford, MA

Track: Drug Delivery
OP-Sat-2-16 - Room 10
Targeted Delivery I

Chairs: Ed Chow

1:30PM **DREAM TEAM & CENTER**
Platelet-like Proteoliposomes Enable Macrophage Targeting Therapy
B. Cheng[1], E. Toh[1], E. Chen[1], Y-C. Chang[1], L-Y. Chau[1], P. Chen[1], and P. Hsieh[1]
[1]Academia Sinica, Taipei, Taiwan

1:45PM
Retinylamine Modified Multifunctional Lipid DNA Delivery System for the Treatment of LCA2
D. Sun[1], B. Sahu[1], S-Q. Gao[1], A. Maeda[1], K. Palczewski[1], and Z-R. Lu[1]
[1]Case Western Reserve University, Cleveland, OH

2:00PM
Targeted Chelation Therapy with EDTA-loaded Albumin Nanoparticles to Reverse Arterial Calcification in a Chronic Kidney Disease Rat Model
S. Karamched[1], N. Nosoudi[1], and N. Vyavahare[1]
[1]Clemson University, Clemson, SC

2:15PM
Development of a Foam-Based Mucosal Pre-Exposure Prophylaxis (PrEP) Therapy for HIV Prevention
A. Nelson[1], D. Myers[1], D. Adler[1], Z. Szekely[1], X. Zhang[1], and P. Sinko[1]
[1]Rutgers University, Piscataway, NJ

2:30PM
A Versatile Platform for Pulmonary Drug Delivery Using Hydrogel Microparticles
E. Secret[1], S. Kelly[1], K. Crannell[1], and J. Andrew[1]
[1]University of Florida, Gainesville, FL

2:45PM
Simplified Lipid Coating on Mesoporous Silica Nanoparticles by Conjugation of Hydrophobic Aliphatic Monolayer
P. Durfee[1], S. Chou[2], A. Lokke[1], A. Muniz[1], Y-S. Lin[3], and C. Brinker[1,2]
[1]University of New Mexico, Albuquerque, NM, [2]Sandia National Laboratories, Albuquerque, NM, [3]Oncothyreon Inc., Seattle, WA

Track: Nano and Micro Technologies
OP-Sat-2-17 - Room 7-8
Microfluidics I

Chairs: Sergey Shevkoplyas, Kazunori Hoshino

1:30PM
Network-Level Protease Activity Analysis for System Biology By Using a Picoinjector Array
E. X. Ng[1], M. Miller[2], and C-H. Chen[1]
[1]National University of Singapore, Singapore, Singapore, [2]Massachusetts General Hospital, Boston, MA

1:45PM
A Versatile Microscale Molecular Delivery System Based on Electroporator Array
M. Ouyang[1], J. H. Lee[2], W. Hill[1], and S. C. Hur[1]
[1]Rowland Institute at Harvard University, Cambridge, MA, [2]Massachusetts General Hospital, Cambridge, MA

2:00PM
Rapid Formation of Size-controllable Cell Spheroids via Surface Acoustic Waves
K. Chen[1]
[1]Pennsylvania State College, State College, PA

2:15PM
Neutrophils are Primed by Chemoattractant Gradients for Blocking Growth of Aspergillus fumigatus
C. Jones[1,2], L. Dimisko[1], K. Forrest[3], K. Judice[3], M. Poznansky[1], J. Markmann[4], J. Vyas[4], and D. Irimia[1]
[1]Harvard Medical School, Charlestown, MA, [2]Virginia Polytechnic Institute and State University, Blacksburg, VA, [3]Cidara Therapeutics, San Diego, CA, [4]Harvard Medical School, Boston, MA

PLATFORM SESSIONS Sat-2

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

2:30PM
An Ultrahigh Throughput Cell Sorter Using Standing Surface Acoustic waves (SSAW)
L. Ren[1], Y. Chen[1], P. Li[1], Z. Mao[1], J. Rufo[1], P-H. Huang[1], F. Guo[1], and T. J. Huang[1]
[1]*Pennsylvania State University, State College, PA*

2:45PM
Tunable Chemical Stimulator for Studying Cellular Response to Stimuli via Oscillating Sharp-edges
P-H. Huang[1], C. Y. Chan[1], P. Li[1], and T. J. Huang[1]
[1]*The Pennsylvania State University, University Park, PA*

Track: Bioinformatics, Computational and Systems Biology
OP-Sat-2-18 - Room 1
Big Data, Single-Cell Measurements, and Clinical Applications

Chairs: Leonor Saiz, Olivier Elemento

1:30PM
Automated Diagnosis of Leukemia (invited)
J. Vilar[1]
[1]*University of the Basque Country, Bilbao, Spain*

2:00PM
Chemical-Genetic Inference of Antibiotic Interactions for Combination Therapies
S. Chandrasekaran[1,2], J. Collins[1,2,3], and M. Cokol[4]
[1]*Harvard University, Cambridge, MA, [2]Broad Institute of MIT and Harvard, Cambridge, MA,[3]Massachusetts Institute of Technology, Cambridge, MA, [4]Sabanci University, istanbul, Turkey*

2:15PM
Hypoxic Response in Age-Related Diseases: Uncovering Cellular Phenotypes Hypoxic Response in Age-Related Diseases: Uncovering Cellular Phenotypes
A. Qutub[1]
[1]*Rice, Houston, TX*

2:30PM
Tensor GSVD Predicting Ovarian Cancer Survival and Response to Platinum-Based Chemotherapy
T. Schomay[1,2], K. Aiello[1,2], and O. Alter[1,2]
[1]*University of Utah, Salt Lake City, UT, [2]Scientific Computing and Imaging (SCI) Institute, Salt Lake City, UT*

2:45PM
Adaptive Regulation of Cancer Cell Fate Following Targeted Inhibition of the Oncogenic Pathway
M. Fallahi-Sichani[1], V. Becker[1], S. Boswell[1], and P. Sorger[1]
[1]*Harvard Medical School, Boston, MA*

Track: Undergraduate Research, Design and Leadership
Special Session - Room 9
Undergraduate Research, Design and Leadership II

Chairs: Scott Verbridge, Pam VandeVord

1:30PM
Incorporation Of Poly(ethylene-glycol) Based Microparticles With Tunable Size And Degradation Into Chondrocytic Cell Aggregates
B. Philbrick[1], T. Rinker[1], and J. Temenoff[1]
[1]*Georgia Institute of Technology and Emory University, Atlanta, GA*

1:39PM
The Effects of Terminal Sterilization On the Mechanical and Biologic Properties of Extracellular Matrix Hydrogels
A. Smoulder[1], T. Keane[1], L. White[1], A. Castleton[1], L. Zhang[1], and S. Badylak[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

1:48PM
Incorporation of Nano-sized Bioactive Glass Enhances the Mechanical Properties of Electrochemically Aligned Collagen Fibers
M. Pastakia[1], T-U. Nguyen[1], and V. Kishore[1]
[1]*Florida Institute of Technology, Melbourne, FL*

1:57PM
Double Wall Microsphere Controlled Delivery System for Adipose Tissue Retention and Enhancement
C. McBride[1], A. Kelmendi-Doko[1], C. Davenport[1], and K. Marra[2]
[1]*University of Pittsburgh Adipose Stem Cell Center, Lumberton, NJ, [2]University of Pittsburgh, Pittsburgh, PA*

2:06PM
Crosslinked Core-Shell Nanogels as Vehicles for Drug Delivery
J. Towslee[1], J. Myerson[2], V. Muzykantov[2], D. Eckmann[2], and R. Composto[2]
[1]*Case Western Reserve University, Cleveland, OH, [2]University of Pennsylvania, Philadelphia, PA*

2:15PM
Raman Microspectroscopy Assesses Human Embryonic Stem Cell Cardiac Differentiation and Maturation
A. Lee[1,2], N. Shen[2,3], E. Brauchle[2,3], and K. Schenke-Layland[2,3,4]
[1]*Boston University, Boston, MA, [2]Fraunhofer Institute for Interfacial Engineering and Biotechnology (IGB), Stuttgart, Germany, [3]Research Institute of Women's Health, University Hospital of the Eberhard Karls University, Stuttgart, Germany, [4]Cardiovascular Research Laboratories, David Geffen School of Medicine at UCLA, Los Angeles, CA*

2:24PM
Effects of Kartogenin and Thalidomide on Chondrogenesis in Mesenchymal Stem Cells and Mesenchymal Stem Cells derived from Human Induced Pluripotent Stem Cells
M. Bloom[1], A. Keogh[2], M. Xu[2], M. Detamore[1], and F. Barry[2]
[1]*University of Kansas, Lawrence, KS, [2]National University of Ireland Galway, Galway, Ireland*

2:33PM
Self-Organizing Structure Formation in High Density Neuronal Human iPSC Culture
W. McAllister[1], J. Butts[2,3], and T. McDevitt[2,3]
[1]*Georgia Institute of Technology, Atlanta, GA, [2]The Gladstone Institutes, San Francisco, CA,[3]University of California – San Francisco, San Francisco, CA*

2:42PM
Encapsulation And Differentiation Of Human Induced Pluripotent Stem Cells To Form 3D Engineered Cardiac Tissue Using Methacrylated Gelatin
S. Head[1], J. Kaczmarek[1], P. Kerscher[1], and E. Lipke[1]
[1]*Auburn Univesity, Auburn, AL*

2:51PM
Coculture of hMSCs and HUVECs to aid in prevascularization of bone tissue
R. Moriarty[1], B. Nguyen[1], and J. Fisher[1]
[1]*University of Maryland- College Park, College Park, MD*

SATURDAY, October 10, 2015

3:15 PM - 4:45 PM

PLATFORM SESSIONS – SAT - 3

Track: Drug Delivery, Cancer Technologies

OP-Sat-3-1 - Room 18

Cancer Drug Delivery II

Chairs: Eilaf Ahmed, Christopher Jewell

3:15PM

Platelet Membrane-Functionalized Particles to Target Tumor Cell-Associated Microthrombi for the Prevention of Lung Metastasis

J. Li[1], B. Wun[1], S. Roy[1], Q. Wu[1], C. Sharkey[1], and M. King[1]

[1]Cornell University, Ithaca, NY

3:30PM

Non-Immunogenic Targeted Drug Delivery Agents for Advanced Pancreatic Cancer Treatment

L. Jablonowski[1] and M. Wheatley[1]

[1]Drexel University, Philadelphia, PA

3:45PM

Migration Inhibition of Triple Negative Breast Cancer by Liposomes Presenting a D- enantiomer, CXCR4 Binding Peptide

D. Liu[1] and D. Auguste[1]

[1]The City College of New York, New York, NY

4:00PM

Albumin Binding Micelles for Delivery of Cancer Chemotherapeutics

P. Yousefpour[1] and A. Chilkoti[1]

[1]Duke University, Durham, NC

4:15PM

Liposomal Cisplatin With Triggered Intratumoral Release For Selective And Effective Treatment Of Triple Negative Breast Cancer

S. Stras[1] and S. Sofou[1]

[1]Rutgers University, Piscataway, NJ

4:30PM

ICAM-1 Targeting, Multi siRNA Encapsulating Liposomes Inhibit Proliferation and Migration of TNBC Cells

B. Wang[1] and D. Auguste[1]

[1]The City College of New York, New York, NY

Track: Cellular and Molecular Bioengineering

OP- Sat - 3-2 - Room 19

Cell and Molecular Immunoengineering

Chairs: David Zaharoff

3:15PM

Inflammatory Activation Of Monocytes In Patients With Myocardial Infarction (MI) Is Associated With Decreased Cardiac Function And Increased Risk For Recurrent MI.

G. Foster[1], S. Soderberg[1], G. Singh[2], E. Armstrong[3], and S. Simon[1]

[1]University of California Davis, Davis, CA, [2]University of California Davis Medical Center, Davis, CA, [3]University of Colorado and Veterans Affairs Eastern Colorado Health Care System, Denver, CO

3:30PM

A Microfluidic Platform Reveals Differential Response of Regulatory T Cells to Micropatterned Costimulation Arrays

J-H. Lee[1], M. Dustin[2], and L. Kam[1]

[1]Columbia University in the city of New York, New York, NY, [2]The University of Oxford, Oxford, United Kingdom

3:45PM DREAM TEAM & CENTER

In Vitro Model of Macrophage Differentiation and Activation in the Context of Endometriosis

A. Hill[1,2], C. Cook[1,2], M. Guo[1], N. Ogutveren[1], S. Bening[3], K. Isaacson[2,4], L. Griffith[1,2], and D. Lauffenburger[1,2]

[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Center for Gynepathology Research, Cambridge, MA, [3]University of Minnesota, Minneapolis, MN, [4]Center for Minimally Invasive Gynecologic Surgery, Newton-Wellesley Hospital, Newton, MA

4:00PM

CCL21 Local Immunomodulation and Lymph Node Mimicry for Antigen-Specific Tolerance Induction

M. Abreu[1], M. Najjar[1], V. Manzoli[1], D. Molano[1], A. Pugliese[1], and A. Tomei[1,2]

[1]Diabetes Research Institute, Miami, FL, [2]University of Miami, Miami, FL

4:15PM

Sugar-based OA Drug Modulates ECM Deposition and Inflammatory Signaling in hOA Chondrocytes

L. Shores[1], C. Kim[1], Q. Guo[1], A. Aly[1], D. Kim[1], O. Jeon[1], K. Yarema [1], and J. Elisseeff[1]

[1]Johns Hopkins School of Medicine, Baltimore, MD

4:30PM

Modular Design of Polyelectrolyte Multilayer Vaccine Capsules Built from Polyionic Immune Signals

Y-C. Chiu[1], J. I. Andorko[1], L. H. Tostanoski[1], and C. M. Jewell[1,2,3]

[1]University of Maryland - College Park, College Park, MD, [2]Marlene and Stewart Greenebaum Cancer Center, College Park, MD, [3]University of Maryland Medical School, College Park, MD

Track: Cancer Technologies

OP-Sat-3-3 - Room 20

Cancer Mechanobiology

Chairs: Aleksander Skardal, Jan Lammerding

3:15PM

Cancer Cell Migration Through 3-D Environments Causes Nuclear Rupture and DNA Damage

C. Denais[1], R. Gilbert[1], P. Isermann[1], A. McGregor[1], P. Davidson[1], K. Wolf[2], M. te Lindert[2], and J. Lammerding[1]

[1]Cornell University, Ithaca, NY, [2]Radboud University Nijmegen Medical Center, Nijmegen, Nijmegen, Netherlands

3:30PM DREAM TEAM & CENTER

Force Engages Vinculin and Promotes Tumor Progression by Enhancing PI3K Activation of PIP3

M. Rubashkin[1], L. Cassereau[1], R. Bainer[1], C. Dufort[1], G. Ou[1], Y. Yui[1], M. Paszek[2], M. Davidson[3], Y-Y. Chen[1], and V. Weaver[1]

[1]University of California - San Francisco, San Francisco, CA, [2]Cornell University, Ithaca, NY,[3]Florida State University, Tallahasse, FL

3:45PM DREAM TEAM & CENTER

Tissue Stiffness Regulates SR Protein-Mediated Splicing of the EDB-Fibronectin Isoform in Tumors

F. Bordeleau[1], J. Califano[1], Y. Negrón Abril[1], B. Mason[1], D. LaValley[1], S. Shin[2], R. Weiss[1], and C. Reinhart-King[1]

[1]Cornell University, Ithaca, NY, [2]Weill Medical College of Cornell University, New York, NY

PLATFORM SESSIONS Sat-3

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

4:00PM
Integrin Alpha 6 and Calpain 2 are Mechanosensitive Proteins in Breast Cancer
A. Schwartz[1] and S. Peyton[1]
[1]University of Massachusetts Amherst, Amherst, MA

4:15PM
Activating Mutation of PDGFR&[alpha] in Stromal Fibroblasts Alters Extracellular Matrix Mechanics
V. Shukla[1], A. Mathur[1], G. Sizemore[1], M. Ostrowski[1], and S. Ghadiali[1,2]
[1]The Ohio State Univeristy, Columbus, OH, [2]The Ohio State Wexner Medical Center, Columbus, OH

4:30PM
Metabolic Response To Drugs Modeled in a Human 3D Tumor Microenvironment
A. Sobrino Gregorio[1], R. Datta[2], D. Phan[2], S. C. George[3], and C. C. Hughes[2]
[1]University California, irvine, Irvine, CA, [2]University of California, Irvine, Irvine, CA,[3]Washington University in St. Louis, St. Louis, MO

Track: Device Technologies and Biomedical Robotics
OP-Sat-3-4 - Room 22
Medical Device Development and Computational Models II

Chairs: Cheng Sun, Richard Gitlin

3:15PM
Subnormothermic Machine Perfusion Preconditions Discarded Human Livers for Reperfusion Injury
G. Sridharan[1], J. Avruch[1], B. Bruinsma[1], N. Karimian[1], H. Yeh[1], J. Markmann[1], M. Yarmush[1], and K. Uygun[1]
[1]Harvard Medical School - Massachusetts General Hospital, Boston, MA

3:30PM
Targeting Thalamic Circuits During Deep Brain Stimulation for Traumatic Brain Injury
A. Janson[1], N. Schiff[2], J. Baker[2], K. Purpura[2], J. Henderson[3], and C. Butson[1]
[1]Scientific Computing and Imaging Institute, Salt Lake City, UT, [2]Brain and Mind Research Institute, New York, NY, [3]Department of Neurosurgery, Stanford, CA

3:45PM
Simulation Based Design of Scalp Cooling Systems to Prevent Chemotherapy-Induced Alopecia
B. Pliskow[1], M. Kaya[1], and K. Mitra[1]
[1]Florida Institute of Technology, Melbourne, FL

4:00PM
Dual-layer Cerebral Stents: Mechanical Characterization via Computational Analyses
A. I. Alherz[1], Z. P. Lucienne[1], O. Tanweer[2], and V. Flamini[1]
[1]NYU, Brooklyn, NY, [2]NYU, Manhattan, NY

4:15PM
MARVEL- A Wireless Miniature Robot for Networked Expedited Laparoscopy
R. Gitlin[1,2], T. Ketterl[1], G. Arrobo[1], S. Ross[3], A. Rosemurgy[3], P. Savage[2], C. He[1], and Y. Liu[1]
[1]University of South Florida, Tampa, FL, [2]Innovatia Medical Systems, Tampa, FL, [3]Florida Hospital, Tampa, FL

4:30PM
Imaging-driven Fabrication of a Patient-Specific Contact Lens Utilizing 3D Printing
R. Talati[1], A. Childs[1], D. Lewittes[1], H. Li[1], H. Zhang[1], and C. Sun[1]
[1]Northwestern University, Evanston, IL

Track: Biomaterials
OP-Sat-3-5 - Room 23
Intelligent/Multifunctional Biomaterials

Chairs: Jay Henderson, Jennifer Patterson

3:15PM
Exploring Naturally Occurring Ivy Nanoparticles as Alternative Biomaterials
Y. Huang[1], L. Sun[1], and M. Zhang[1]
[1]The Ohio State University, Columbus, OH

3:30PM
Mechanically Stiff Hydrogels Using Nanoparticles as Crosslink Epicenter at Ultralow Content
M. Jaiswal[1], J. R. Xavier[1], P. Desai[1], J. Carrow[1], D. Alge[1], and A. K. Gaharwar[1]
[1]Texas A&M University, College Station, TX

3:45PM
Engineering a Highly Elastic Surgical Sealant
N. Annabi[1,2,3,4], Y. Zhang[2,3], A. Vegh[2,3], B. Dehghani[2,3], A. Assmann[2,3,4,5], A. Weiss[6], and A. Khademhosseini [2,3,4]
[1]Northeastern University, Boston, MA, [2]Brigham and Women's Hospital, Harvard Medical School, Cambridge, MA, [3]Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, [4]Wyss Institute for Biologically Inspired Engineering, Boston, MA,[5]Department of Cardiovascular Surgery and Research Group for Experimental Surgery, Heinrich Heine University, Duesseldorf, Germany, [6]The University of Sydney, Sydney, Australia

4:00PM
Photo-Carbon Monoxide Releasing Molecules within Electrospun Scaffolds for Modulating Vascular Cells
E. Michael[1], A. Patel[1], N. Abeyrathna[1], Y. Liao[1], and C. Bashur[1]
[1]Florida Institue of Technology, Melbourne, FL

4:15PM
Self-Healing and Thermo-Responsive Alginate Hydrogels for Biomedical Applications
T. Miao[1], S. Fenn[1], P. Charron[1], and R. Oldinski[1]
[1]University of Vermont, Burlington, VT

4:30PM
Synthesis and Characterization of Smart Molecularly Imprinted Polymers, Using Structural Analogue Templates, for the Capture and Detection of Biomolecules
J. Clegg[1], H. Culver[1], J. Zhong[1], A. Irani[1], and N. Peppas[1]
[1]University of Texas at Austin, Austin, TX

Track: Tissue Engineering
OP-Sat-3-6 - Room 13
Musculoskeletal Tissue Engineering

Chairs: Rhima Coleman, Daniel Alge

3:15PM
Improved Cellular Functions and Reduced Bacterial Infection on MgO Nanocomposites
D. Hickey[1] and T. Webster[1,2]
[1]Northeastern University, Boston, MA, [2]King Abdulaziz University, Jeddah, Saudi Arabia

3:30PM
Decellularized Muscle Grafts Promote New Muscle Growth in a Rat Gastrocnemius Defect Model
M. McClure[1], D. Cohen[1], Y. C. Huang[2], M. Sunwoo[2], J. Isaacs[1], S. Mallu[1], B. Boyan[1,3], and Z. Schwartz[1,4]
[1]Virginia Commonwealth University, Richmond, VA, [2]Musculoskeletal Transplant Foundation, Edison, NJ, [3]Georgia Institute of Technology, Atlanta, GA, [4]The University of Texas Health Science Center at San Antonio, San Antonio, TX

3:45PM
The Development and Characterization of a Pre-Vascularized Osteoinductive Scaffold for Bone Tissue Regeneration
B. Taylor[1] and J. Freeman[1]
[1]Rutgers, the State University of New Jersey, Piscataway, NJ

4:00PM
The Use Of Conductive Polypyrrole-Polycaprolactone Fibers For Skeletal Muscle Regeneration
D. Browe[1] and J. Freeman[1]
[1]Rutgers University, Piscataway, NJ

4:15PM
siRNA Delivery from in situ Forming Degradable Hydrogels for Repairing Rat Cranial Bone Defects
M. K. Nguyen[1], O. Jeon[1], P. Dang[1], A. McMillan[1], C. T. Huynh[1], D. Varghai[1], H. Riazi[1], and E. Alsberg [1]
[1]Case Western Reserve University, Cleveland, OH

4:30PM
Cell Seeded Collagen Gels for Annulus Fibrosus Repair
B. Borde[1], Y. Moriguchi[2], R. Hartt[2], and L. Bonassar[1]
[1]Cornell University, Ithaca, NY, [2]Weill Cornell Medical Center, New York, NY

Track: Tissue Engineering, Neural Engineering
OP-Sat-3-7 - Room 14
Neural Tissue Engineering

Chairs: Jennie Leach

3:15PM
Using Extracellular Matrix Technology to Regenerate Primary Central Nervous System Neurons
T. Ren[1,2], A. Naqvi[1,2], A. Faust[1,2], V. Reddy[1,2], A. Kandakatla[2], L. Huleihel[1,3], S. Badylak[1,4], and M. Steketee[1,2]
[1]McGowan institute of regenerative medicine, Pittsburgh, PA, [2]Department of Ophthalmology, University of Pittsburgh, Pittsburgh, PA, [3]Division of Pulmonary, Allergy, and Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA, [4]Department of surgery, University of Pittsburgh, Pittsburgh, PA

3:30PM
An Engineered Protein Hydrogel for Promoting Neurite Growth
C. Harris[1] and K. Lampe[1]
[1]University of Virginia, Charlottesville, VA

3:45PM
Tissue Engineered Constructs Sustain Pro-Regenerative Schwann Cells in Distal Nerve After Axotomy
D. K. Cullen[1,2], K. D. Browne[1,2], Z. S. Ali[1], J. C. Burrell[1,2], K. S. Katiyar[1,2], H. C. Ledebur[3], and D. H. Smith[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]Philadelphia Veterans Affairs Medical Center, Philadelphia, PA, [3]Axonia Medical, Kalamazoo, MI

4:00PM
BDNF Mimetic Peptides Immobilized to Collagen as a Therapeutic Hydrogel for TBI
C. Lowe[1] and D. Shreiber[1]
[1]Rutgers University, Piscataway, NJ
D. Lee[1] and D. Park[1]
[1]University of Colorado Denver | Anschutz Medical Campus, Aurora, CO

4:15PM
Tissue Engineered Nerve Grafts Facilitate Regeneration and Functional Recovery Following a 5 cm Peripheral Nerve Lesion in Swine
D. K. Cullen[1,2], K. D. Browne[1,2], J. C. Burrell[1,2], M. I. Ezra[1], L. S. Struzyna[1,2], K. S. Katiyar[1,2], H. C. Ledebur[3], and D. H. Smith[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]Philadelphia Veterans Affairs Medical Center, Philadelphia, PA, [3]Axonia Medical, Kalamazoo, MI

Track: Biomechanics, Cardiovascular Engineering
OP-Sat-3-8 - Room 15
Cardiovascular Biomechanics II

Chairs: Robert Mauck, Dhananjay T. Tambe

3:15PM
Elucidating the Mechanical Role of Cell-Matrix Adhesions in Age-related Cardiac Dysfunction
A. Sessions[1], G. Kaushik[1], A. Cammarato[2], and A. Engler[1]
[1]University of California, San Diego, La Jolla, CA, [2]Johns Hopkins University, Balitmore, MD

3:30PM
Estimation of Fully Three-Dimensional Properties of Passive Myocardium: A Coupled Inverse Model-Experimental Study.
R. Avazmohammadi[1], S. Raut[1], J. Lesicko[1], and M. Sacks[1]
[1]University of Texas at Austin, Austin, TX

3:45PM
Anatomically Informed Multiscale Model of Ascending Thoracic Aorta Applied to Shear Lap Testing
V. Barocas[1], C. Witzenburg[2], R. Dhume[1], S. Shah[1], and C. Korenczuk[1]
[1]University of Minnesota, Minneapolis, MN, [2]University of Virginia, Charlottesville, VA

4:00PM
Biomechanical Properties of Four Human Valves
T. Pham[1], E. Shin[1], F. Sulejmani[1], and W. Sun[1]
[1]Georgia Institute of Technology, Atlanta, GA

4:15PM
Instantaneous Surface Tension-Induced Displacement of a Small-Volume Liquid in a Capillary
J. Kim[1], J. O'Neill[1], and G. Vunjak-Novakovic[1]
[1]Columbia University, New York, NY

4:30PM
Macro- and Micro-scale Comparison of Aortic Stiffness Indicates that Micro-Heterogeneities Develop with Age and Decrease with Exercise
J. Kohn[1], A. Chen[1], S. Cheng[1], and C. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

Track: Biomechanics, Orthopedic and Rehabilitation Engineering
OP-Sat-3-9 - Room 16
Orthopedic II: Neuromuscular and Musculoskeletal

Chairs: Alicia Fernandez-Fernandez, Vinay Abhyankar

3:15PM
An Interim Analysis of Virtual Reality used to Enhance Prosthetic Training and Rehabilitation
A. Knight[1]
[1]University of South Florida, Tampa, FL

PLATFORM SESSIONS Sat-3

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

3:30PM
Electromyographic Characterization Reveals Sustained Muscle Contractions and Abnormal Co-contractions in a Mouse Model of Dystonia
A. Trongnetrpunya[1], M. P. DeAndrade[2], C. C. Cheetham[3], F. Yokoi[4], N. Peng[3], Y. Li[4], and M. Ding[1]
[1]*University of Florida, Gainesville, FL,* [2]*Brigham and Women's Hospital, Boston, MA,*[3]*University of Alabama at Birmingham, Birmingham, AL,* [4]*College of Medicine, University of Florida, Gainesville, FL*

3:45PM DREAM TEAM & CENTER
NemaFlex: A Microfluidic Tool for Phenotyping (Neuro)muscular Strength in *C. elegans* across Lifespan
M. Rahman[1], J. E. Hewitt[1], F. Van Bussel[1], J. Blawzdziewicz[1], N. Szewczyk[2], M. Driscoll[3], and S. A. Vanapalli[1]
[1]*Texas Tech University, Lubbock, TX,* [2]*University of Nottingham, Derby, United Kingdom,*[3]*Rutgers University, Piscataway, NJ*

4:00PM
Cyclic Mechanical Loading Enhances Transport of Antibodies Through Articular Cartilage
C. DiDomenico[1], Z. X. Wang[1], and L. Bonassar[1]
[1]*Cornell University, Ithaca, NY*

4:15PM
Medial Tibial Stress Syndrome FEA Model Development
R. Wesley[1] and M. McCullough[1]
[1]*North Carolina A&T State University, Greensboro, NC*

4:30PM DREAM TEAM & CENTER
Poroelastic Mechanical Changes in the Achilles Tendon due to Insertional Achilles Tendinopathy
I. Bah[1], S. Kwak[1], R. Chimenti[1], M. Richards[1], J. Ketz[1], A. Flemister[1], and M. Buckley[1]
[1]*University of Rochester, Rochester, NY*

Track: Cardiovascular Engineering
OP-Sat-3-10 - Room 3-4
Angiogenesis II

Chairs: Stacey Finley, Ngan Huang

3:15PM DREAM TEAM & CENTER
Stem Cell-Based Anisotropic Scaffolds Promote Arteriogenesis
K. Nakayama[1,2], G. Hong[1], J. Lee[1], J. Patel[1], B. Edwards[1], T. Zaitseva[3], M. Paukshto[3], H. Dai[1], J. Cooke[1,4], J. Woo[1], and N. Huang[1,2]
[1]*Stanford University, Stanford, CA,* [2]*Veterans Affairs Palo Alto Health Care System, Palo Alto, CA,* [3]*Fibralign Corporation, Union City, CA,* [4]*Houston Methodist Research Institute, Houston, TX*

3:30PM
Hypoxia Augments Outgrowth Endothelial Cell (OEC) Angiogenesis in Response to Sphingosine-1-phosphate (S1P)
P. A. Williams[1] and E. A. Silva[1]
[1]*University of California, Davis, Davis, CA*

3:45PM
Aged Bone Marrow-Derived Stem Cells Display Increased Pericyte Fate in a Microvascular Network Model *Ex Vivo*
M. Azimi[1], A. Strong[1], B. Bunnell[1], and W. Murfee[1]
[1]*Tulane University, New Orleans, LA*

4:00PM
Fixation Affects Angiogenic Receptor Levels on Endothelial Cells and Fibroblasts *in vitro*
S. Chen[1] and P. Imoukhuede[2]
[1]*University of Illinois at Urbana-Champaign, Champaign, IL,* [2]*University of Illinois at Urbana-Champaign, Urbana, IL*

4:15PM
Identification And Quantification Of Novel VEGF-PDGF Cross-family Binding
S. B. Mamer[1] and P. I. Imoukhuede[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

4:30PM
Effects of Disturbed Flow on Nanoparticle Localization in Angiogenic Vessels
J. Gomez[1], C. Sarsons[1], B. Vafadar[1], S. Jiang[1], D. Cramb[1], S. Childs[1], and K. Rinker[1]
[1]*University of Calgary, Calgary, AB, Canada*

Track: Nano and Micro Technologies
OP-Sat-3-11 - Room 5-6
Cells, Tissues and Organs on a Chip II

Chairs: Daniel Irimia, Ruogang Zhao

3:15PM
Elevated Microjet Gradient Device for Directing Spatiotemporal Differentiation of Embryonic Stem Cells
N. Bhattacharjee[1], N. Palpant[1], C. Murry[1], and A. Folch[1]
[1]*University of Washington, Seattle, WA*

3:30PM
Interstitial Fluid Pressure Dynamics in Microfluidic Devices
J. Tien[1], L. Li[1], O. Ozsun[1], and K. Ekinci[1]
[1]*Boston University, Boston, MA*

3:45PM
A Novel Dynamic Neonatal Blood Brain Barrier on a Chip
S. Deosarkar[1], B. Prabhakarpandian[2], B. Wang[3], J. Sheffield[1], B. Krynska[1], and M. Kiani[1]
[1]*Temple University (PA), Philadelphia, PA,* [2]*CFD Research Corporation, Huntsville, AL,*[3]*Widener University, Chester, PA*

4:00PM
Hepatocyte Metabolic Zonation *in vitro*
W. McCarty[1], O. B. Usta[1], and M. Yarmush[1]
[1]*Massachusetts General Hospital, Harvard Medical School, and Shriners Hospitals for Children-Boston, Boston, MA*

4:15PM
Magneto-Active Dynamic Screening For Drug Discovery
A. Lisella[1], A. El Haj[1], and J. Dobson[2]
[1]*Keele University, Stoke-on-Trent, United Kingdom,* [2]*University of Florida, Gainesville, FL*

4:30PM
TEER Measurement Predicts Small Molecule Transport In SynVivo-BBB
J. Rosano[1], A. Smith[1], C. Garson[1], K. Bhatt[1], M. Culbreth[2], M. Aschner[2], B. Prabhakarpandian[1], and K. Pant[1]
[1]*CFD Research Corporation, Huntsville, AL,* [2]*Albert Einstein College of Medicine, Brox, NY*

Track: Biomedical Imaging and Optics
OP-Sat-3-12 - Room 11
Optical Imaging III: Microscopy Advances

Chairs: Qingshan Wei, Tim Yeh

3:15PM
Improving Z-tracking Accuracy in TSUNAMI 3D Tracking Microscope
C. Liu[1], Y-L. Liu[1], E. Perillo[1], A. Dunn[1], and H-C. Yeh[1]
[1]*University of Texas at Austin, Austin, TX*

3:30PM

A Hybrid Imaging Approach for Label-Free, Optical Detection of Genetic Alterations

M. Naser[1], M. T. Graham[2], K. Pierre[1], O. Ipaye[1], and N. N. Boustany[1]

[1]Rutgers University, Piscataway, NJ, [2]Univeristy of Scranton, Scranton, PA

3:45PM DREAM TEAM & CENTER

Multiphoton Microscopy Reveals Altered Cell Metabolism During Skin Wound Healing

K. Quinn[1,2], E. Leal[3], A. Tellechea[3], A. Kafanas[3], J. DeFuria[4], M. Auster[3], J. Garlick[4], A. Veves[3], and I. Georgakoudi[1]

[1]Tufts University, Medford, MA, [2]University of Arkansas, Fayetteville, AR, [3]Beth Israel Deaconess Medical Center, Boston, MA, [4]Tufts University, Boston, MA

4:00PM

Computational Imaging of Pathology Slides Using Wide-Field On-Chip Microscopy

Y. Zhang[1], A. Greenbaum[2], A. Feizi[1], P-L. Chung[1], W. Luo[1], S. Kandukuri[1], and A. Ozcan[1]

[1]University of California, Los Angeles, Los Angeles, CA, [2]California Institute of Technology, Pasadena, CA

4:15PM

Dynamic 3D Structure of Beating Embryonic Zebrafish Heart Captured with Light Sheet Microscopy and Macroscopic Phase Stamping

S. Madaan[1], V. Trivedi[2], D. Holland[1], T. Truong[1], L. Trinh[1], and S. Fraser[1]

[1]University of Southern California, Los Angeles, CA, [2]California Institute of Technology, Pasadena, CA

4:30PM

Mobile-Phone Based Microscopy for Imaging and Sizing of Single DNA Molecules

Q. Wei[1], W. Luo[1], S. Chiang[1], T. Kappel[1], C. Mejia[1], D. Tseng[1], R. Y. L. Chan[1], E. Yan[1], H. Qi[1], F. Shabbir[1], H. Ozkan[1], S. Feng[1], and A. Ozcan[1]

[1]University of California, Los Angeles, Los Angeles, CA

Track: Neural Engineering
OP-Sat-3-13 - Room 12

Neural Interfaces: Compatibility, Recording, and Stimulation IV/CNS Injury: SCI, Stroke, TBI Belieand Concussion III

Chairs: Kevin Otto, D. Kacy Cullen

3:15PM

The Effect of Antioxidant-Releasing Mechanically-Adaptive Implants on Modulating the Neural Tissue Response

J. Nguyen[1,2], M. Jorfi[3], K. Buchanan[1,2], D. Park[1], E. J. Foster[3], C. Weder[3], and J. Capadona[1,2]

[1]Case Western Reserve University, Cleveland, OH, [2]Louis Stokes Cleveland VA Medical Center, Cleveland, OH, [3]University of Fribourg, Marly, Switzerland

3:30PM DREAM TEAM & CENTER

Evaluating Bioactive Intervention Strategies using *In vivo* Multiphoton Microscopy for Improved Neural Interface Device

T. Kozai[1], A. Jaquins-Gerstl[1], A. Vazquez[1], A. Michael[1], G. Brunette[1], J. Eles[1], N. Snyder[1], C. Lagenaur[1], and X. T. Cui[1]

[1]University of Pittsburgh, Pittsburgh, PA

3:45PM

Chronic *In Vivo* Stability Assessment of Carbon Fiber Microelectrode Arrays

P. Patel[1], H. Zhang[1], M. Robbins[1], J. Nofar[1], S. Marshall[1], M. Kobylarek[1], T. Kozai[2], N. Kotov[1], D. Kipke[3], and C. Chestek[1]

[1]University of Michigan, Ann Arbor, MI, [2]University of Pittsburgh, Pittsburgh, PA,[3]NeuroNexus Technologies, Ann Arbor, MI

4:00PM

Systemic Assessment of Markers of Inflammation to Intracortical Microelectrodes

J. Gaire[1] and K. Otto[1]

[1]University of Florida, Gainesville, FL

4:15PM

Ca2+ influx in Mild Stretch Neuronal Injury Causes Caspase-1 Dependent Neuroinflammation and Cell Death

P. M. Abdul-Muneer[1], M. Long[1], A. A. Conte[1], N. Chandra[1], and B. J. Pfister[1]

[1]New Jersey Institute of Technology, Newark, NJ

4:30PM

Cerium Oxide Nanoparticles Reduce Oxidative Stress and Preserve Cognitive Function Following Mild Traumatic Brain Injury

Z. Bailey[1], A. Oyalowo[1], P. VandeVord[1], K. Hockey[2], V. S. S. S. Sajja[1], C. Thorpe[2], A. Frey[2], J. Bates[2], C. Sholar[2], B. Lockler[2], B. Dunn[2], A. Hermundstad[1], and B. Rzigalinski[2]

[1]Virginia Tech, Blacksburg, VA, [2]Virginia College of Osteopathic Medicine, Blacksburg, VA

Track: Biomechanics, Cellular and Molecular Bioengineering
OP-Sat-3-14 - Room 17

Cell and Tissue Biomechanics IV

Chairs: Gang Bao, Amy Brock

3:15PM

Tissue Surface Tension Drive Mesenchymal-to-epithelial Transition in Embryonic Cell Aggregates

H. Y. Kim[1], T. Jackson[1], and L. Davidson[1]

[1]University of Pittsburgh, Pittsburgh, PA

3:30PM

Cytoskeletal Tension Induces Spatial Reorganization Of The Nuclear Architecture

D-H. Kim[1,2] and D. Wirtz[1]

[1]Johns Hopkins University, Baltimore, MD, [2]Harvard University, Cambridge, MA

Modeling Tensional Homeostasis In Cells

S. N. Tam[1], M. Smith[1], and D. Stamenovic[1]

[1]Boston University, Boston, MA

3:45PM

Dynamic Mechanical Measurement Of The Viscoelasticity Of Single Adherent Cells

O. Adeniba[1], E. Corbin[1], and R. Bashir[1]

[1]University of Illinois, Urbana Champaign, Urbana, IL

4:00PM

Engineered Cardiomyocytes Derived From Human IPSCs To Model Myocardial Contractility

A. Ribeiro[1], Y-S. Ang[2,3], R. Wilson[1], R. Rivas[2,3], D. Srivastava[2,3], and B. Pruitt[1]

[1]Stanford University, Stanford, CA, [2]Gladstone Institutes, San Francisco, CA, [3]University of California San Francisco, San Francisco, CA

4:15PM

Quantifying Drug-induced Nano-mechanics and Mechanical Effects to Single Cardiomyocytes for Clinical Applications

T. Yue[1], K. H. Park[2], H. Zhu[2], S. Lyon[1], J. Ma[2], P. Mohler[1], and M. Zhang[1]

[1]The Ohio State University, Columbus, OH, [2]The Ohio State University, columbus, OH

PLATFORM SESSIONS **Sat-3**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM

Track: Drug Delivery
OP-Sat-3-15 - Room 10
Targeted Delivery II

Chairs: Susan Thomas, James Lai

3:15PM DREAM TEAM & CENTER
Personalized Carbon Nanomedicine against Hepatocellular Carcinoma
E. Chow[1], X. Wang[1], W. Hou[1], and L. Nurrul Abdullah[1]
[1]National University of Singapore, Singapore, Singapore

3:30PM
Mechanism of Intracellular Delivery of Exogenous Molecules Using High Frequency Ultrasound
M. G. Kim[1], S. Yoon[1], and K. K. Shung[1]
[1]University of Southern California, Los Angeles, CA

3:45PM
Using Magnetic Forces to Enhance Targeted Delivery of SPIOs by Disrupting Endothelial Cell-Cell Interactions
Y. Qiu[1,2], S. Tong[2], Y. Sakurai[1,2], D. Myers[1,2], G. Bao[2], and W. Lam[1,2]
[1]Emory University, Atlanta, GA, [2]Georgia Institute of Technology, Atlanta, GA

4:00PM
Polymer-based Nanoparticle Mediated Delivery of Beta-Galactosidase in the Treatment of a Neurodegenerative Disorder, GM1 Gangliosidosis
J. Larsen[1], E. Pearce[1], D. Martin[1], and M. Byrne[1,2]
[1]Auburn University, Auburn, AL, [2]Rowan University, Glassboro, NJ

4:15PM
Nebulized and Aerosol Synthesis of Optimized Targeted Drug Delivery Composites
D. Denmark[1], M. Mamone[1], D. Mukherjee[1], K. Bisht[1], S. Witanachchi[1], and P. Mukherjee[1]
[1]University of South Florida, Tampa, FL

4:30PM
Immunoliposome-Based Delivery Of Inflammatory Serine Protease Inhibitor Offers Cardiac Protection After Myocardial Ischemia In Mice
B. Hooshdaran[1], M. Kolpakov[1], X. Guo[1], T. Wang[1], L. Vlasenko[1], Y. Tang[1], M. Kiani[1], and A. Sabri[1]
[1]Temple University, Philadelphia, PA

Track: Nano and Micro Technologies
OP-Sat-3-16 - Room 7-8
Microfluidics II

Chairs: Smitha Rao, Chia-Hung Chen

3:15PM
Automation of Serial Dilution by Microfluidic Digital Logic
M. Raje[1], S. Ahrar[1], and E. Hui[1]
[1]University of California Irvine, Irvine, CA

3:30PM
A High-Throughput Microfluidic Device for Removal of Activated Granulocytes from Recirculating Blood during Cardiopulmonary Bypass
B. Strachan[1], H. Xia[1], S. Gifford[1], and S. Shevkoplyas[1]
[1]University of Houston, Houston, TX

3:45PM
Static Gradients Generated with Biofabricated Semi-permeable Biopolymer Membranes in Microfluidics for Bacterial Chemotaxis Studies
X. Luo[1], C. Wolfram[2], H-C. Wu[2], W. Bentley[2], and G. Rubloff[2]
[1]Catholic University of America, Washington, DC, [2]University of Maryland, College Park, MD

Track: Undergraduate Research, Design and Leadership
Special Session - Room 9
Undergraduate Research, Design and Leadership III

Chairs: Michelle Grimm, Pam VandeVord

3:15PM
The Yin and Yang of Apathy: Using a Novel 3D Statistical Method to Map Motivation and Movement in the Subthalamic Nucleus
A. Gourisan kar[1]
[1]Washington University in St. Louis, St. Louis, MO

3:24PM
Subject-Specific Atlas of Human Brainstem Structures
K. Brintz[1], L. M. Zitella[1], K. Paone[1], an d M. D. Johnson[1]
[1]University of Minnesota, Minneapolis, MN

3:33PM
A Microfluidic Device For Concurrent Measurement Of Hemoglobin Concentration And HIV Antigens
R. Patna ik[1], T. Guo[1], K. Kuhlmann [1], A. Rai[2], an d S. Sia[1]
[1]Columbia University, New York, NY, [2]Columbia University Medical Center, New York, NY

3:42PM
Changes in Vessel Properties During Early Progression of Murine Abdominal Aortic Aneurysms from *In Vivo* Ultrasound
L. Avila[1,2], E. Phillips[1], M. Bersi[3], P. Di Achille[3], an d C. Goergen[1]
[1]Purdue University, West Lafayette, IN, [2]Florida International University, Miami, FL, [3]Yale University, New Haven, CT

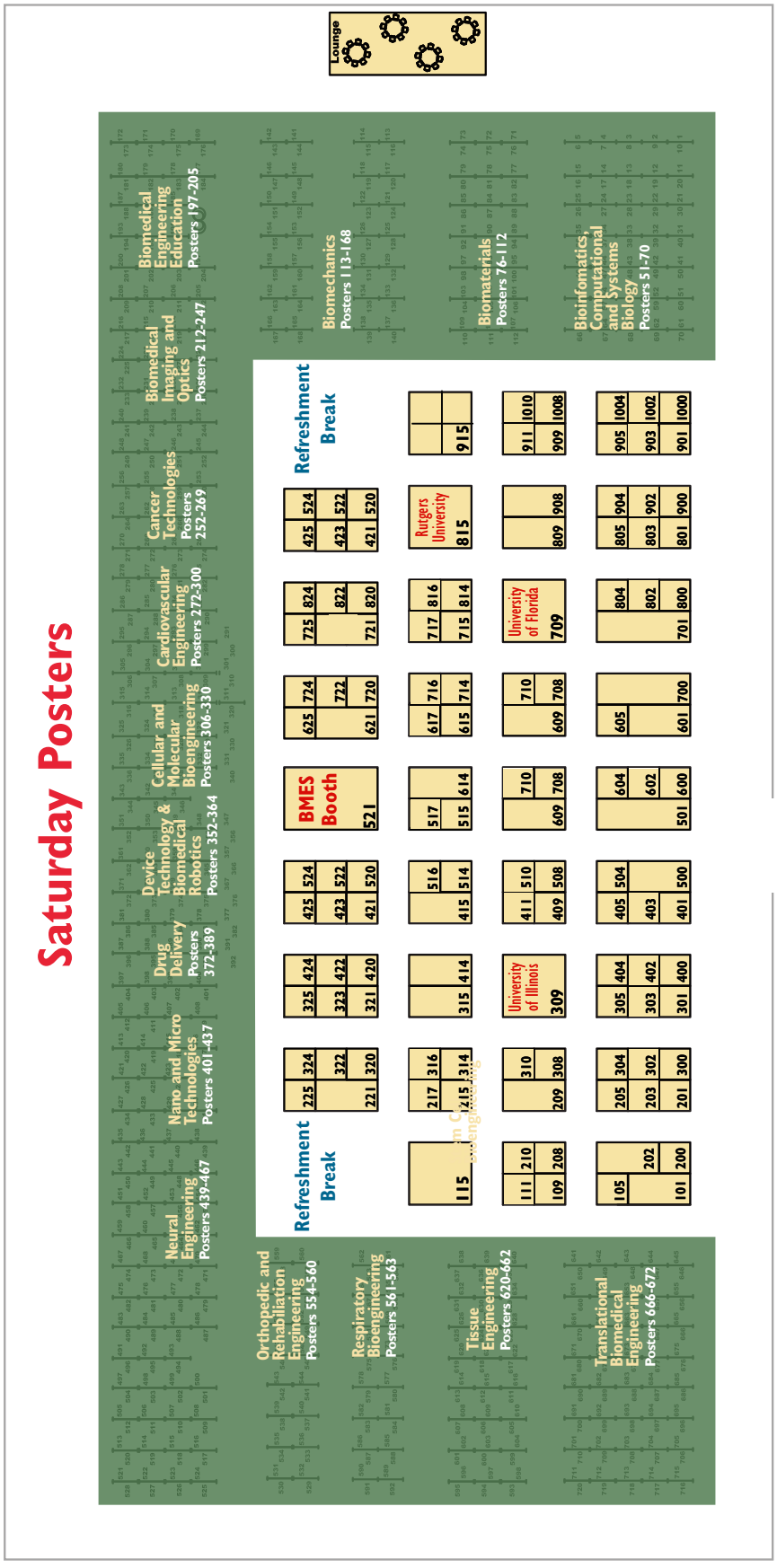
3:51PM
PET-Optical Imaging Of Receptor For Advanced Glycation End-Products (RAGE) In Androgen-Sensitive Prostate Cancer
C. Mizz oni[1,2], C. Konopka[2], L. Lahood[2], A. Patel[2], I. Lee[2], A. Ploska[2,3], J. Hedhli[2], I. T. Dobrucka[2], L. Kalinowski[3], an d L. W. Dobrucki[2]
[1]Wenworth Institute of Technology, Boston, MA, [2]University of Illinois, Urbana-Champaign, Urbana-Champaign, IL, [3]Department of Laboratory Diagnostics, Medical University of Gdansk, Poland, Gdansk, Poland

4:00PM
Optical imaging of Cancer Cell Metabolism in a Matched Model of Radiation Resistance
K. Alhallak[1], R. Ding s[2], an d N. Raja Ram [1]
[1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas for Medical Sciences, Little Rock, AR

4:09PM
Development Of Non-Occluding Cerebral Shunts For The Treatment Of Pediatric Hydrocephalus
R. Izzo[1], N. Griffin[1], R. Shaw[1], J. Leonardo[2], R. Reynolds[2], C. Ionita[1,3], and M. Springer[4]
[1]The State University of New York at Buffa lo, Buffa lo, NY, [2]University at Buffa lo Neurosurgery, Buffa lo, NY, [3]Toshiba Stroke an d Vascular Research Center, Buffa lo, NY, [4]The Jacobs Institute, Buffa lo, NYT

POSTER SESSION Sat 9:30AM – 1:00PM

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM



Saturday, October 10, 2015 - 9:30 AM - 1:00 PM

Track: Undergraduate Research, Design and Leadership

Bioinformatics, Computational and Systems Biology Posters

P-Sat-51
Agent-based Model of CD^{4}T Cell Depletion in Lymphoid Tissue During HIV Infection
N. Reddy[1] and S. Pillai[2]
[1]*University of California, Berkeley, Berkeley, CA,* [2]*University of California, San Francisco, San Francisco, CA*

P-Sat-52
Graphical User Interface That Analyzes RNA Sequencing Data In MATLAB
L. Singelmann[1], J. Hansen[1], and D. Ewert[1]
[1]*North Dakota State University, Fargo, ND*

P-Sat-53
The Role of the ErbB Signaling in Chronic Mild Stress Induced Behavioral Dysfunction in Mice
S. Moed[1,2], H. Tadmor[3,4], A. Weinstein[1,2], O. Aviel[5], I. Golani[2], I. Kremer[4,6], and A. Shamir[4,6]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*Ort Braude College of Engineering, Karmiel, Israel,*[3]*Bar-Ilan University, Tsfat, Israel,* [4]*Mazra Mental Health Center, Akko, Israel,* [5]*The Academic College, Tell Aviv Yaffo, Israel,* [6]*Technion- Israel Institute of Technology, Haifa, Israel*

P-Sat-54
Determining Transcriptional Regulators Of Peroxisome Biogenesis Via *In Silico* Analysis
C. Mah[1] and M. Ragsac[2]
[1]*UC San Diego, Saratoga, CA,* [2]*UC San Diego, San Mateo, CA*

P-Sat-55
Single-cell Cytokine and Transcriptome Profiling of Circulating Tfh Cells in Patients with Systemic Lupus Erythematosus
S. Kim[1], M. Kwak[1], J-Y. Choi[2], L. Han[1], I. Xhangolli[1], J. Craft[2], and R. Fan[1,2]
[1]*Yale University, New Haven, CT,* [2]*Yale School of Medicine, New Haven, CT*

P-Sat-56
Estimating Human Metabolism with Symbolic Regression Software
B. Shaner[1]
[1]*Vanderbilt University, Nashville, TN*

P-Sat-57
Detecting Gene-Deletion Events that Result in Beneficial Mutations in Next-generation Genomic Sequences
M. Salloum[1]
[1]*University of Washington, Seattle, WA*

P-Sat-58
Computational Analysis of Clipping Mitral Valve Leaflets with Increasing Papillary Muscle Displacement
S. Carroll[1], M. Toma[1], D. Einstein[2], A. Yoganathan[1], R. Cochran[3], and K. Kunzelman[3]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Pacific Northwest National Laboratory, Richland, WA,* [3]*University of Maine, Orno, ME*

P-Sat-59
Computational Model of VEGF-stimulated MAPK Signaling in Cancer Cells
S. Lai[1] and S. Finley[1]
[1]*University of Southern California, Los Angeles, CA*

P-Sat-60
High Content Analysis of Diverse Cardiomyocytes: Segmentation, Subtype Determination, and Sarcomere Organization Measurement
M. Sutcliffe[1], P. Tan[1], N. Munshi[2], Y-J. Nam[3], and J. Saucerman[1]
[1]*University of Virginia, Charlottesville, VA,* [2]*University of Texas Southwestern, Dallas, TX,*[3]*Vanderbilt University, Nashville, TN*

P-Sat-61
Determining the Accuracy of Density Functional Theory Calculations for c-x&π Interactions
C. Miller[1] and K. Riley[2]
[1]*Tulane University, New Orleans, LA,* [2]*Xavier University of Louisiana, New Orleans, LA*

P-Sat-62
Mechanistic Model of Thrombospondin-1 Intracellular Apoptosis Signaling
A. Ayiotis[1] and S. Finley[1]
[1]*University of Southern California, Los Angeles, CA*

P-Sat-63
A Statistical Computational Model To Investigate The Degradation Kinetics Of Composite Scaffold Systems For Bone Tissue Engineering
S. Tobias[1], C. Lu[1], B. Akar[1], E. Bayrak[1], and A. Cinar[1]
[1]*Illinois Institute of Technology, Chicago, IL*

P-Sat-64
Cardiac Inverse Problem Verification through Induced Arrhythmia with Body Surface Mapping
M. Wang[1], J. Tate[1], and R. Macleod[1]
[1]*University of Utah, Salt Lake City, UT*

P-Sat-65
CFD-based Characterization of Gravity-Dependent Renal Calculi Transport Dynamics
D. Sathyanarayan[1] and M. Kassemi[1]
[1]*NASA - Glenn Research Center, Cleveland, OH*

P-Sat-66
Docking Of Purine-scaffold Series Of Heat Shock Protein 90 Inhibitors
M. Nguyen[1,2]
[1]*The University of Texas at Austin, Austin, TX,* [2]*Rice University, Houston, TX*

P-Sat-67
author cancellation

P-Sat-68
A Computational Model for the Metabolism of Inositol Hexakisphosphate
J. Smith[1,2], C. Williams[2], G. Gillaspy[3], J. Ducoste[2], B. Phillippy[2], and I. Perera[2]
[1]*The University of North Carolina at Chapel Hill, Chapel Hill, NC,* [2]*North Carolina State University, Raleigh, NC,* [3]*Virginia Tech, Blacksburg, VA*

P-Sat-69
VEGF-A Splice Variants Bind VEGFR2 with Differential Affinities
A. Wittenkeller[1], S. Mamer[1], and P. Imoukhuede[1]
[1]*University of Illinois Urbana-Champaign, Urbana, IL*

P-Sat-70
Partial Least Squares Regression Analysis of VEGFR Adapter Model to Determine Therapeutic Potential of Adapter Protein Targeting
C. Blassick, J. Weddell, and P. Imoukhuede
University of Illinois at Urbana-Champaign, Champaign, IL

Track: Undergraduate Research, Design and Leadership

Biomaterials Posters

P-Sat-76
Porous Three-Dimensional Carbon Nanotube Scaffolds For Tissue Engineering
M. D'Agati[1], G. Lalwani[1], and B. Sitharaman[1]
[1]*Stony Brook University, Stony Brook, NY*

P-Sat-77
PEG-Reinforcement of Alginate Hydrogels Improves Capsule Stability for Pancreatic Islet Transplantation
C. Verheyen[1], A. Tomei[1,2], and V. Manzoli[2,3]
[1]*University of Miami, Coral Gables, FL,* [2]*Diabetes Research Institute, Miami, FL,* [3]*Politecnico di Milano, Milano, Italy*

See page 208 for Poster floor plan

P-Sat-78
Analysis of Alginate Gels as a Medium for Immunoassay Cancer Screening Systems
J. Quinlan[1], N. Neavling[1], and B. Kazaoka[1]
[1]*Drexel University, Philadelphia, PA*

P-Sat-79
Delivery of Anti-Invasive Drugs To Prevent Invasion of Cancer Cells
J. Nam[1], E. Rivera-Delgado[1], and H. A. von Recum[1]
[1]*Case Western Reserve University, Cleveland, OH*

P-Sat-80
PEGylated Fibrinogen Electrospun Scaffolds for Cancer Cell Culture
S. Maris[1], A. Allen[2], J. Zoldan[2], and L. Suggs[2]
[1]*Louisiana State University, Baton Rouge, LA,* [2]*The University of Texas at Austin, Austin, TX*

P-Sat-81
Fabrication and Characterization of Electrospun PLLA & PCL Braided Scaffolds
B. Lauro[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-82
Mechanical and Structural Properties Of Bilayer Hydrogels For Therapeutic Biomaterial Applications
M. Mahendraratnam[1], D. Malcolm[1], and D. Benoit[1,2]
[1]*University of Rochester, Rochester, NY,* [2]*Department of Chemical Engineering, Rochester, NY*

P-Sat-83
Profiling the Liposomal Release of Dyes via Surface Plasmon Resonance from Gold Nanorods
S. Libring[1,2], S. Allen[1], and L. Suggs[1]
[1]*The University of Texas at Austin, Austin, TX,* [2]*Rutgers, The State University of New Jersey, Piscataway, NJ*

P-Sat-84
Engineering Compartmentalized Microfluidic Biomaterials
H. McClintocck[1], T. Valentin[1], and I. Wong[1]
[1]*Brown University, Providence, RI*

P-Sat-85
Impact Of Matrix Stiffness On Pro-angiogenic Signaling From Fibroblasts
H. El-Mohri[1], Y. Wu[2], and G. Ghosh[2]
[1]*University of Michigan-Dearborn, Dearborn, MI,* [2]*University of Michigan, Dearborn, Dearborn, MI*

P-Sat-86
Analysis Of The Effect Of Saliva On The Degradation Of Absorbable Sutures
L. Riexinger[1], J. Briddell[2], and D. Ebenstein[1]
[1]*Bucknell University, Lewisburg, PA,* [2]*Geisinger Medical Center, Danville, PA*

P-Sat-87
Evaluation of the Host Response to Mesh Implantation in Mice
K. Brown[1], D. Mani[2], D. Hachim[1,2], S. LoPresti[1], and B. Brown[1,2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*McGowan Institute for Regenerative Medicine, Pittsburgh, PA*

P-Sat-88
Effect of Extracts from Mg Alloys on ACL Fibroblasts
J. Mahoney[1], K. Farraro[1], C. Zhang[1], and S. L-Y. Woo[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-89
Hemocompatibility Of Drug-Releasing Vascular Graft Materials
E. Mihalko[1], M. Lawton[2], E. Finkelstein[2], and P. Mather[2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*Syracuse Biomaterials Institute, Syracuse, NY*

P-Sat-90
Viability of Pancreatic Stellate Cells on Polyacrylamide Gels
F. Liang[1], A. de la Pena[1], and C. Simmons[1]
[1]*University of Florida, Gainesville, FL*

P-Sat-91
Self-Assembly of Cell-Encapsulated Alginate Microgels
Y. E. Hu[1], A. Mao[1], R. Desai[1], and D. Mooney[1]
[1]*Harvard University, Cambridge, MA*

P-Sat-92
Synthesis And Characterization Of Superporous Hydrogels
J. Coyne [1], X. Zhang[2], and Y. Wang[3]
[1]*Pennsylvania State University, Schuylkill Haven, PA,* [2]*Pennsylvania State University, State College, PA,* [3]*Pennsylvania State University, University Park, PA*

P-Sat-93
Improved Astrocyte Alignment in a Poly-L-lactic acid Fiber-Fibrin Hydrogel Construct
S. McCarthy[1], C. Johnson[1], and R. Gilbert[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Sat-94
Enhancing Hepatocyte Function Using Liver Extracellular Matrix Derived from Various Species
A. Loneker[1], D. Faulk[1], and S. Badylak[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-95
Release Of 17-β Estradiol From Electrospun PLLA Fibers For Increasing Axonal Extension
J. Cardenas[1], A. D'Amato[1], and R. Gilbert[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Sat-96
AFM Characterization of PEG Hydrogels
H. Cebull[1], J. Stukel[1], and R. Kuntz Willits[1]
[1]*The University of Akron, Akron, OH*

P-Sat-97
Breast Cancer Single-Cell Motility on STEP Suspended Fibers
G. Vaartstra[1], P. Sharma[2], and A. Nain[2]
[1]*Syracuse University, Syracuse, NY,* [2]*Virginia Tech, Blacksburg, VA*

P-Sat-98
Optimization of Intervertebral Disc Decellularization
A. Balubaid[1,2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*McGowan Institute for Regenerative Medicine, Pittsburgh, PA*

P-Sat-99
Chitosan-Magnesium Composite Scaffolds
R. VanSickle[1], U. Adhikari[2], S. Khanal[2], and N. Bhattarai[2]
[1]*Washington State University, Pulman, WA,* [2]*North Carolina A&T State University, Greensboro, NC*

P-Sat-100
Enhancing Nerve Regeneration and Functional Recovery with a Natural, Tissue-Derived Scaffold
M. Wyatt[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-101
Evaluation of Alginate Microbead Stability
A. Avila[1], S. Somo [1], and E. Brey [1]
[1]*Illinois Institute of Technology, Chicago, IL*

P-Sat-102
Characterization and Degradation of Magnesium and Biopolymer Composites for Bone Tissue Engineering
E. McBride[1], J. Ohodnicki[1], and P. Kumta[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-103
Characterization And Bonding Mechanism Analysis Of Laser Activated Solder For Tissue Adhesion
K. Alhaddad [1] and C. Wagner[1]
[1]*The College of New Jersey, Ewing, NJ*

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM

P-Sat-104
Utilizing Natural Crosslinking Molecules to Improve Stiffness of Lung-Derived Extracellular Matrix Hydrogels
N. Mikhaiel[1], R. Pouliot[1], P. Link[1], and R. Heise[1]
[1]Virginia Commonwealth University, Richmond, VA

P-Sat-105
Surface Morphology of Magnesium Based Alloys in a Simulated *in vivo* Environment Using Microfluidics
E. Benlisa[1] and Y. Yun[2]
[1]Western New England University, Springfield, MA, [2]North Carolina A&T State University, Greensboro, NC

P-Sat-106
Au-some Nanosheets: Interfacial Adsorption is Crucial for the Assembly of Gold Nanoparticle Embedded Peptoid Nanosheets
C. Kang[1], E. Robertson[2], M. Qian[2], and R. Zuckermann[2]
[1]Oregon State University, Corvallis, OR, [2]Molecular Foundry, LBNL, Berkeley, CA

P-Sat-107
Modulating the Mechanical Properties of Composite Fibrin Scaffolds
M. Vratsanos[1], M. O'Brien[2], G. Gaudette[2], and G. Pins[2]
[1]Case Western Reserve University, Cleveland, OH, [2]Worcester Polytechnic Institute, Worcester, MA

P-Sat-108
Characterization of Multi-Arm Poly(ethylene glycol) Hydrogels for a Three-Dimensional Lymphoid Stromal Network
J. Claflin[1], J. Kim[1], and A. Shikanov[1]
[1]University of Michigan, Ann Arbor, MI

P-Sat-109
Formation and Release of Polyplexes for Non-Viral Transfection of Fibroblasts
M. Chambers[1]
[1]Binghamton University, Binghamton, NY

P-Sat-110
Development of a Malaria Transmission Blocking Nanoparticle Vaccine
K. Smolyar[1], C. O'Neil[1], P. Ilyinskii[1], T. Kishimoto[1], D. Narum[2], P. Duffy[3], K. Miura[2], C. Long[2], and L. Johnston[1]
[1]Selecta Biosciences, Boston, MA, [2]Laboratory of Malaria and Vector Research, NIAID, National Institutes of Health, Rockville, MD, [3]Laboratory of Malaria Immunology and Vaccinology, NIAID, National Institutes of Health, Rockville, MD

P-Sat-111
ECM Nanoparticles Activate Adaptive Immune Responses
C. ANDERSON[1], M. Wolfe[1], J. Krill[1], T. Wang[1], L. Chung[1], and J. Elisseeff[1]
[1]Johns Hopkins University, Baltimore, MD

P-Sat-112
A Novel Bio-Inspired Functionally Graded Material For Impact Mitigation
A. Kovach[1], N. Lee[1], J. Young[1], B. Jemerson[1], K. Johnson[1], A. Rush[1], M. Horstemeyer[1], and R. Prabhu[1]
[1]Mississippi State University, Starkville, MS

Track: Undergraduate Research, Design and Leadership

Biomechanics Posters

P-Sat-113
Surface Reconstruction Of A Female Human Model In Four Military Relevant Postures
C. Moawad[1,2], N. Hristov[3], and S. Gayzik[1,4]
[1]Wake Forest University School of Medicine, Winston-Salem, NC, [2]The City College of New York, New York, NY, [3]University of North Carolina, Winston-Salem, NC, [4]Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences, Winston-Salem, NC

P-Sat-114
Oculomotor Analysis for mTBI in High School Football Players
K. Shah[1], J. Luck[1], C. Lambert[1], E. Ginalis[1], I. Lake[1], D. O'Connell[1], C. Eckersley[1], J. Kait[1], A. Mehlenbacher[1], and C. Bass[1]
[1]Duke University, Durham, NC

P-Sat-115
Spatial Variation in the Microstructure of Healthy and Dystrophic Diaphragm Muscle Changes Non-linearly over Time
C. Henry[1], K. Martin[1], S. Peirce[1], and S. Blemker[1]
[1]University of Virginia, Charlottesville, VA

P-Sat-116
Elasticity of Metastatic Breast Cancer Cells after Shear Adhesion Selection
Z. Zhu[1], A. Spencer[1], P. Voyvodic[1], and A. Baker[1]
[1]The University of Texas, Austin, TX

P-Sat-117
Material Identification Of Human Rib Cortical Bone Using Finite Element Optimization
K. Scheck[1,2] and C. Untaroiu[2]
[1]Michigan Technological University, Houghton, MI, [2]Virginia Tech, Blacksburg, VA

P-Sat-118
Examining Joint Control in Multi-joint Movements in Patients with Stroke
S. Raj[1], N. Dounskaia[2], and A. Sethi[1]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Arizona State University, Tempe, AZ

P-Sat-119
Computational Modeling Of Wall Stress In Ascending Thoracic Aortic Aneurysms With Different Valve Phenotypes
T. Kappil[1], J. Pichamuthu[1,2,3], J. Weinbaum[1,2], J. Phillippi[1,2,3], T. Gleason[1,2,3], and D. Vorp[1,2,3]
[1]University of Pittsburgh, Pittsburgh, PA, [2]McGowan Institute for Regenerative Medicine, Pittsburgh, PA, [3]Center for Vascular Remodeling and Regeneration, Pittsburgh, PA

P-Sat-120
Non-linear *In-Vivo* Deformations Of Optic Nerve Head Tissues With Changes In Intraocular Pressure
J. Teichmann[1], H. Tran[1,2], A. Voorhees[2], J. Wallace[3], J. Ten Eyck[4], D. Tsui[5], J. Drobitch[5], Y. Shi[6], W. Walters[3], B. Wang[1,2], M. A. Smith[1,2], E. Tyler-Kabara[7], J. S. Schuman[1,2], G. Wollstein[1,2], and I. A. Sigal[1,2]
[1]Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA, [2]UPMC Eye Center, Eye and Ear Institute, Ophthalmology and Visual Science Research Center, Department of Ophthalmology, University of Pittsburgh Medical Center, Pittsburgh, PA, [3]Department of Biology, University of Pittsburgh, Pittsburgh, PA, [4]Department of Microbiology, University of Pittsburgh, Pittsburgh, PA, [5]Department of Computer Science, University of Pittsburgh, Pittsburgh, PA, [6]Department of Health & Physical Activity, University of Pittsburgh, PA, Pittsburgh, PA, [7]Department of Neurological Surgery, University of Pittsburgh, Pittsburgh, PA

P-Sat-121
Individualized Visual Correction Based On Optical And Biomechanical Responses Of The Cornea
C. Quiter[1,2], M. Xu[2,3], G. Yoon[1,2], and A. Lerner[1,3]
[1]Department of Biomedical Engineering, University of Rochester, Rochester, NY, [2]Flaum Eye Institute, Rochester, NY, [3]Department of Mechanical Engineering, University of Rochester, Rochester, NY

P-Sat-122
Experimental Analysis of Supercoiling in Twisted Polymer Line
A. Stiller[1], M. Mahendraratnam[1], and S. Burns[1]
[1]University of Rochester, Rochester, NY

P-Sat-123
Mechanics of Anesthetic Needle Penetration into Human Sciatic Nerve
M. Gan[1], J. Pichamuthu[1,2,3], S. Orebaugh[1], and D. Vorp[1,2,3]
[1]University of Pittsburgh, Pittsburgh, PA, [2]McGowan Institute for Regenerative Medicine, Pittsburgh, PA, [3]Center for Vascular Remodeling and Regeneration, Pittsburgh, PA

P-Sat-124
An Atomic Force Microscopy Study of Ebola Virus-host Cell Interaction
D. Moyer [1], M. Dragovich[1], Y. Xu[1], K. Schutt[1], and X. F. Zhang[1]
[1]Lehigh University, Bethlehem, PA

See page 208 for Poster floor plan

P-Sat-125
Comparison of Human Articular Cartilage Properties in the Humeral Head of Normal and Osteoarthritic Samples
A. Polk[1], R. Newman[1], J. Cook[1], M. Smith[1], F. Pfeiffer[1], and A. Stoker[1]
[1]University of Missouri, Columbia, MO

P-Sat-126
A Spine Correcting Brace With Increased Mobility
M. Archambault[1]
[1]Bucknell University, Hopatcong, NJ

P-Sat-127
Assessment of Shrinkage of Packable Dental Composite Resin Fillings Using Photoelasticity
T. Stevens[1,2], T. Stevens[2], and S. Saha[3]
[1]SUNY Downstate Medical Center, Brooklyn, NY, [2]Central State University, Wilberforce, OH,[3]SUNY Downstate Medical Center, Brookyln, NY

P-Sat-128
Cortical Bone Loss In L5 Vertebrae Of Obese Rats Following Sleeve Gastrectomy
G. Singh[1], O. Qadir[2], G. Pagnotti[3], C. Rubin [3], and M. Chan [3]
[1]Stony Brook University, Maspeth, NY, [2]Stony Brook University, Mt. Sinai, NY, [3]Stony Brook University, Stony Brook, NY

P-Sat-129
Effect of Simulated Hamstring Strength Adaptations on Hamstring Muscle Function
V. Wahlquist[1] and A. Kulas[2]
[1]University of Wisconsin-River Falls, Baldwin, WI, [2]East Carolina University, Greenville, NC

P-Sat-130
Modeling the Effect of Strain-induced Collagen Damage on Tendon Scar Structure
B. Kegerreis[1], W. Richardson[1], and J. Holmes[1]
[1]University of Virginia, Charlottesville, VA

P-Sat-131
Effect of Body Weight Support on Single Leg Stance Times during Self-Paced Walking in Healthy Older Adults
R. Walker[1], G. Chaparro[1], K. Jean[1], L. Piton[1], V. Passarelli[1], and M. Hernandez[1]
[1]University of Illinois Urbana-Champaign, Urbana, IL

P-Sat-132
Optimizing Quadriceps Muscle Parameters for a Subject-Specific Model of Human Movement
H. DeSmitt[1] and Z. Domire[2]
[1]SUNY Geneseo, Geneseo, NY, [2]East Carolina University, Greenville, NC

P-Sat-133
Dietary And Handedness Effects On Bone Microstructure
J. Tevenan[1], T. Butler[1], J. Johnson[1], and K. Troy[1]
[1]Worcester Polytechnic Institute, Worcester, MA

P-Sat-134
Novel Fourier Transform Deflectometry For Characterizing Cell Migratory Patterns And Forces
J. Steckenrider[1,2], J. Steckenrider[1], and A. Nain[2]
[1]Taylor University, Upland, IN, [2]Virginia Tech, Blacksburg, VA

P-Sat-135
The Effect of Hardness and Contact Area on the Overall Hysteresis COF in a Multi-Scale Computational Model
A. Acharya[1]
[1]University of Pittsurgh, Pittsburgh, PA

P-Sat-136
Lower Extremity Injuries in Low-Speed Motor Vehicle Accidents
W. Bliss[1,2], O. Komari[2], N. Toosi[2], and K. Toosi[2]
[1]Robert Morris University, Moon Township, PA, [2]Pittsburgh Biomechanics, Pittsburgh, PA

P-Sat-137
High Frequency Ultrasound Evaluation Of Bone Motion In Prosthetic Sockets
A. Oberoi[1], L. Didier[1], S. Pathak[1], A. Hollister[2], P. O'Neal[1], and D. Molller[1]
[1]Louisiana Tech University, Ruston, LA, [2]Lousiana State University Health Science Center, Shreveport, LA

P-Sat-138
Examining the Effects of Boundary Stiffness on Valvular Interstitial Cells in 3D
M. Lasso[1], F. Benesch-Lee[1], and K. Billiar[1]
[1]Worcester Polytechnic Institute, Worcester, MA

P-Sat-139
Statistical Analysis Of Soft-Matter Tissue Characterization
E. Shepherd[1], C. Simmons[1], N. Ruzycki[1], and A. Rubiano[1]
[1]University of Florida, Gainesville, FL

P-Sat-140
Mechanical and Structural Characteristics of Demineralized and Deproteinized Porcine Bones with Age Effects
Y. Ling[1], C. Lindeman[1], and I. Jasiuk[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL

P-Sat-147
Exploring The Influence Of Surface Tension On Mesenchymal-to-Epithelial Transition (MET) In Mesenchymal Sheets
N. Cho[1], H. Y. Kim[1], and L. Davidson[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-148
Constitutive Modeling of Adipose Tissue for Varying Loading Conditions
C. Schiner[1], X. Jin[1], and K. Yang[1]
[1]Wayne State University, Detroit, MI

P-Sat-149
Accuracy of Single-Plane versus Biplane Fluoroscopy in Determining 3D Femorotibial Kinematics in Rats
A. Lipat[1], E. Lakes[1], S. Kim[1], S. Banks[1], and K. Allen[1]
[1]University of Florida, Gainesville, FL

P-Sat-150
Peak Stress Induced by Medications in Aortic Dissection Patients
Z. Lucienne[1], V. Flamini[1], A. DeAnda[2], B. E. Griffith[3], and P. Ursomanno[2]
[1]NYU School of Engineering, New York, NY, [2]New York University School of Medicine, New York, NY, [3]University of North Carolina at Chapel Hill, Chapel Hill, NC

P-Sat-151
Accessory Vein Characterization to Assess Influence on Native Arteriovenous Fistula Hemodynamics.
M. Bartlett[1], Y. He[2], D. Pike[3], Y-T. Shiu[3], P. Roy-Chaudhury[4], S. Berceli[2], A. Cheung[3], and C. Terry[3]
[1]Univeristy of Utah, Salt Lake City, UT, [2]University of Florida, Gainesville, FL, [3]University of Utah, Salt Lake City, UT, [4]University of Cincinnati, Cincinnati, OH

P-Sat-152
Computational Models of Muscle Length Changes during Tree Pose Compared to Current Yoga Models
K. Crump[1], K. Virgilio[1], T. Fischer-White[1], J. Miller[1], S. Russell[1], A. Taylor[1], and S. Blemker[1]
[1]University of Virginia, Charlottesville, VA

P-Sat-153
Effects Of Adaptation Speed And Age Of Patient On The Transfer Of Treadmill Learning To Over Ground Walking
M. Botyrius[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-154
The Effect Of Heat Application On The Viscosity Of Human Milk
D. Alatalo[1]
[1]The University of Texas at Dallas, Plano, TX

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Sat-155
Energy Absorption and Dissipation Differ by Anatomic Direction in Porcine Mandibular Cancellous Bone
A. Meister[1] and J. Cotton[1]
[1]*Ohio University, Athens, OH*

P-Sat-156
Tensile Forces Applied to Cells within Valvular Interstitial Cell Aggregates Reduces Apoptosis
V. Liang[1], H. Cirka[1], and K. Billiar[1]
[1]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-157
Biomechanical Characterizations of Leukemia and Healthy White Blood Cells to Develop a New Diagnostic Technique
K. Crawford[1] and C. Turbyfield[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

P-Sat-158
Effect of Aggregate Size and Substrate Stiffness on Apoptosis Rate in VICs Aggregates
J. Uribe[1], H. Cirka[2], and K. Billiar[2]
[1]*University of Massachusetts Dartmouth, New Bedford, MA,* [2]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-159
A Cone and Plate Apparatus to Study the Effects of Shear Stress on Endothelial Cell-Adipocyte 3D Co-Culture
N. Houriet[1]
[1]*Drexel University, Philadelphia, PA*

P-Sat-160
The Effect of Capsular Integrity On Glenohumeral And Subacromial Forces And Kinematics In A Cadaveric Model Of Abduction With Variable Loading
P. Williamson[1]
[1]*Beth Israel Deaconess Medical Center, Boston, MA*

P-Sat-161
Foul Tip Impact Attenuation of Baseball Catcher Masks Using Head Impact Metrics
C. Eckersley[1], T. White[1], H. Cutcliffe[1], J. Shridharani[1], and D. Bass[1]
[1]*Duke University, Durham, NC*

P-Sat-162
Heterogeneous Material Mapping of Magnesium Implants
N. Frantz[1], A. Jackson[2], and M. McCullough[2]
[1]*Illinois Institute of Technology, Chicago, IL,* [2]*North Carolina A&T State University, Greensboro, NC*

P-Sat-163
Role of Tendon Size in Viscoelastic Heating
A. Tian[1], A. Stiller[1], I. Bah[1], and M. Buckley[1]
[1]*University of Rochester, Rochester, NY*

P-Sat-164
Modified Wheelchair Gives Teen With Arthrogryposis Independent Mobility
M. Dimoff[1], C. Petlowany[1], C. Shaw[1], D. Smith[1], J. Elinger[1], R. Thornburg[1], A. Saterbak[1], G. Gogola[2], M. Wettergreen[1], and M. Oden[1]
[1]*Rice University, Houston, TX,* [2]*Shriners Hospital Houston, Houston, TX*

P-Sat-165
Sleeve Gastrectomy Leads to Trabecular Degradation in Vertebrae
O. Qadir[1], C. Rubin[2], G. Pagnotti [2], M. Chan[2], and G. Singh[3]
[1]*SUNY Stony Brook, Mt.Sinai, NY,* [2]*SUNY Stony Brook, Stony Brook, NY,* [3]*SUNY Stony Brook, Maspeth, NY*

P-Sat-166
Quantifying Muscle Spasticity in the Elbow Joint
C. Stump[1], W. Joiner[1], S. Sikdar[1], and M. Harris-Love[2]
[1]*George Mason University, Fairfax, VA,* [2]*MedStar National Rehabilitation Hospital, Washington, DC*

P-Sat-167
Addressing Challenges in Building Robust Transmural Data Sets of Soft Tissue Microstructure
S. LaBelle[1]
[1]*University of Texas at Austin, Austin, TX*

P-Sat-168
Image-Based Strain Quantification for Cell Stretching Experiments J. Wesley Garrett, Nicholas Calvo, Chelsey Simmons University of Florida
J. Garrett[1]
[1]*University of Florida, Titusville, FL*

Track: Undergraduate Research, Design and Leadership

Biomedical Engineering Education (BME) Posters

P-Sat-197
3D Ultrasound-based Analysis of the Location of Maximum Activation of Forearm Muscles
C. Truong[1], N. Akhlaghi[1], K. AlMuhanna[1], and S. Sikdar[1]
[1]*George Mason University, Fairfax, VA*

P-Sat-198
Predicting Lower Extremity Loads Through Biomechanical Modeling
A. McGirt[1,2,3], P. DeVita[1], E. Guadagno[1], K. Hooks[1], and J. McDonnell[1]
[1]*East Carolina University, Greenville, NC,* [2]*University of North Carolina at Charlotte, Charlotte, NC,* [3]*University of North Carolina at Pembroke, Pembroke, NC*

P-Sat-199
The Effect Of Left-Heart Valve Pathologies On ECHO-based Pressure Estimation
L. Fredericks[1], M. Plyler[2], and S. George[2]
[1]*North Carolina Central University, Durham, NC,* [2]*East Carolina University, Greenville, NC*

P-Sat-200
Defining Cancerous Margins On The Skin Using A PSFDI
P. Castillo[1,2], W. Goth[1], B. Yang[1], A. Moy[1], M. Fox[3], J. Reichenberg[4], and J. Tunnell[1]
[1]*The University of Texas at Austin, Austin, TX,* [2]*The University of Texas - Pan American, Edinburg, TX,* [3]*Austin Dermatologic Surgery Center, Austin, TX,* [4]*Seton Healthcare Family, Austin, TX*

P-Sat-201
Role of Host Cellular Response on Calcification of Heart Valve Biomaterials
J. Van Swol[1]
[1]*Clemson, Clemson, SC*

P-Sat-202
Effect of Key Polyphenol Functional Groups on Oligomer Formation in Alzheimer's Disease
R. Geiser[1], S. Chastain[1], M. Rogers[1], K. Pate[1], and M. Moss[1]
[1]*University of South Carolina, Columbia, SC*

P-Sat-203
Membrane-Free Biofuel Cell Fueled by Glucose-Gel Electrolyte Fabricated Into a "Patch"
A. Ueshiro[1], B. Leng[2], and Z. Iqbal[3]
[1]*New Jersey Institute of Technology, Farmingville, NY,* [2]*New Jersey Institute of Technology, Kearny, NJ,* [3]*New Jersey Institute of Technology, Morris Plains, NJ*

P-Sat-204
Elucidating the Cathepsin Proteolytic Networks with Informed Mutagenesis and Purified Strategies
M. Shuler[1], M. Ferrall[2], M. Affer[2], and M. Platt[2]
[1]*The Pennsylvania State University, Philadelphia, PA,* [2]*Georgia Institute of Technology, Atlanta, GA*

See page 208 for Poster floor plan

P-Sat-205
Preparation and Optimization of Brain Glioma Spheroid Models
D. Kim[1]
[1]*Pennsylvania State University, state college, PA*

Track: Undergraduate Research, Design and Leadership

Biomedical Imaging and Optics Posters

P-Sat-212
Phase-Sensitive Optical Imaging: Diffraction Phase Microscopy to Reduce Phase Noise
R. Chowdhary[1]
[1]*University of Illinois at Urbana-Champaign, Hoffman Estates, IL*

P-Sat-213
Attenuation Errors Due To Bone And Arm Truncation In Pelvic PET-MR
K. Ozgun[1], J. Fielding[2], and D. Lalush[1]
[1]*North Carolina State University, Raleigh, NC,* [2]*The University of North Carolina at Chapel Hill, Chapel Hill, NC*

P-Sat-214
Task and Resting-State Functional Magnetic Resonance Imaging
G. Arosemena Ott[1], T. Blazey[1], A. Mitra[1], B. Shannon[2], A. Snyder[2], and M. Raichle[2]
[1]*Washington University in St. Louis, St. Louis, MO,* [2]*Washington University School of Medicine, St. Louis, MO*

P-Sat-215
Filtering of Anti-Scatter Grid Line Artifacts from Digital X-ray Breast Tomosynthesis Images
H. Sporkin[1], T. Patel[1], H. Peppard[1], and M. Williams[1]
[1]*University of Virginia, Charlottesville, VA*

P-Sat-216
Mapping The Extracellular Matrix: An Automated Analysis Of The Striatal Distribution Of Thrombospondin
J. Liu[1] and M. Modo[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-217
Development of a Computer Model for an Innovative Magnetoencephalography (MEG) Brain Phantom
L. East[1,2], P. Brown[3], E. Davenport[1,3], J. Urban[3], J. Stitzel[3,4], C. Whitlow[1,5,6], and J. Maldjian[1,5]
[1]*Wake Forest School of Medicine Advanced Neuroscience Imaging Research (ANSIR) Laboratory, Winston-Salem, NC,* [2]*University of Virginia Biomedical Engineering Department, Charlottesville, VA,* [3]*Wake Forest School of Medicine Virginia Tech- Wake Forest School of Biomedical Engineering, Winston-Salem, NC,* [4]*Wake Forest School of Medicine Childress Institute for Pediatric Trauma, Winston-Salem, NC,* [5]*Wake Forest School of Medicine Department of Radiology-Neuroradiology, Winston-Salem, NC,* [6]*Wake Forest School of Medicine Translational Science Institute, Winston-Salem, NC*

P-Sat-218
Creating a Scalable Tibial Model from Magnetic Resonance Images to Predict Tibial Stresses
L. Goel[1], J. Willson[2], and S. Meardon[2]
[1]*East Carolina University, Raleigh, NC,* [2]*East Carolina University, Greenville, NC*

P-Sat-219
Characterization Of Structural Changes In Cortical GABAergic Markers In Epilepsy
E. Moore[1,2], F. Tessema[2,3], W. Janssen[2], J. Morrison[2], and P. Hof[2]
[1]*University of South Carolina, Columbia, SC,* [2]*Icahn School of Medicine at Mount Sinai, New York City, NY,* [3]*Yale University, New Haven, CT*

P-Sat-220
Synthesis of Fluorocarbon Droplets Cohabited With Mesoporous Silica Nanoparticles For Use In Diagnostic Ultrasound Imaging
E. Lu[1], A. Dixon[1], and J. Hossack[1]
[1]*University of Virginia, Charlottesville, VA*

P-Sat-221
Feasibility of Ultra-Cheap Imaging: Designing Ultrasound for the Developing World
E. Kwan[1,2,3,4] and C. Caskey[1,3,4]
[1]*Vanderbilt University Institute of Imaging Science, Nashville, TN,* [2]*University of Rochester, Rochester, NY,* [3]*Vanderbilt University Medical Center, Nashville, TN,* [4]*Vanderbilt University, Nashville, TN*

P-Sat-222
Real-Time Implementation of fMRI Based Eye Tracking
S. McGhee[1], J. Lisinski[1], C. Craddock[1], and S. LaConte[1,2]
[1]*Virginia Tech, Roanoke, VA,* [2]*Virginia Tech, Blacksburg, VA*

P-Sat-223
Rapid Characterization of Volumetric Focused Ultrasound Pressure Fields Using Background-Oriented Schlieren Tomography.
M. Kremer[1], C. Caskey[1], and W. Grissom[1]
[1]*Vanderbilt University, Nashville, TN*

P-Sat-224
moved to Friday

P-Sat-225
Low Cost Multiphoton Microscopy On Inverted Microscope
S. Satpathy[1], E. Perillo[2], and A. Dunn[2]
[1]*University of Illinois Urbana-Champaign, Urbana, IL,* [2]*The University of Texas at Austin, Austin, TX*

P-Sat-226
Measurements of microfluidic *M. smegmatis* Biofilm Growth Using Electrical Impedance Spectroscopy by Benjamin Hawkins and Hoang Nguyen
H. Nguyen[1] and B. Hawkins[2]
[1]*San Jose State University, san jose, CA,* [2]*San Jose State University, San Jose, CA*

P-Sat-227
Noninvasive Imaging To Model Progression Of Pressure Overload Left Ventricular Hypertrophy
N. Wakim[1], L. Herbert[1], Y. Li[1], N. Howell[1], R. Roy[1], N. Naresh[1], R. Carey[1], F. Epstein[1], H. Taegtmeyer[2], S. Keller[1], and B. Kundu[1]
[1]*University of Virginia, Charlottesville, VA,* [2]*University of Texas Houston, Houston, TX*

P-Sat-228
Comparison of Segmentation Software for 3D Heart Reconstruction
T. Chlebowski[1], C. Buffinton[1], and R. Mangano[2]
[1]*Bucknell University, Lewisburg, PA,* [2]*Geisinger Medical Center, Danville, PA*

P-Sat-229
Automated High-Content Imaging of Live Human Cells on Micropatterned Multiwell Plates
S. Seymour [1,2], T. Harkness [1,2], J. McNulty[1,2], R. Prestil[1,2], T. Klann[1,2], M. Murrell[1,3], R. Ashton[1,2], and K. Saha[1,2]
[1]*University of Wisconsin-Madison, Madison, WI,* [2]*Wisconsin Institute for Discovery, Madison, WI,* [3]*Yale University, New Haven, CT*

P-Sat-230
Validation of Hepato-Renal Index for Detection of Hepatic Fat by Ultrasound
O. Cossio[1] and A. Kumar[2]
[1]*Inova Fairfax Medical Campus, Falls Church, VA,* [2]*Inova Fairax Medical Campus, Falls Church, VA*

P-Sat-231
Looking for Gold in Metastasis Using a Gold Nanoparticle and Radionuclide Imaging
G. Doron[1], P. Peiris[1], and E. Karathanasis[1]
[1]*Case Western Reserve University, Cleveland, OH*

P-Sat-232
Measuring The Biomechanical Properties Of Tissue Phantoms Using Optical Coherence Tomography
M. Arones[1], M. Pierce[2], and F. Silver[2]
[1]*University of Florida, Gainesville, FL,* [2]*Rutgers, Piscataway, NJ*

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Sat-233
Improved Subset Selection For Texture Based Deformation Mapping Techniques
M. Champer[1], D. Mosher[1], and B. Bay[1]
[1]*Oregon State University, Corvallis, OR*

P-Sat-234
Multiple Scattering in Optical Coherence Tomography for Enhanced Tissue Discrimination
L. Funk[1,2], N. Uribe-Patarroyo[1,2], P-C. Hui[1,2], and B. Bouma[1,2]
[1]*Massachusetts General Hospital, Boston, MA,* [2]*Harvard Medical School, Boston, MA*

P-Sat-235
Can We Detect Chronic Inflammatory Lesions in Multiple Sclerosis Through Quantification of Perfusion and Permeability?
K. Selvaganesan[1,2], D. Reich[2], and G. Nair[2]
[1]*University of California, Berkeley, Berkeley, CA,* [2]*National Institutes of Health, Bethesda, MD*

P-Sat-236
A Novel Optical Transducer for Ultrasound Imaging Based On Photoacoustic Effect
R. Zaman[1]
[1]*George Mason University, Herndon, VA*

P-Sat-237
Mobile Automated Analysis of Sperm Quality
M. Messina[1], C. Yang[1], S. Singh[1], S. Knowlton[1], and S. Tasoglu[1]
[1]*University of Connecticut, Storrs, CT*

P-Sat-238
In Vivo Measurement of Extensor Carpi Ulnaris Fascicle Lengths using Extended Field-of-View Ultrasound
P. Franks[1,2], A. Adkins[1,2], and W. Murray[1,2]
[1]*Northwestern University, Evanston, IL,* [2]*Rehabilitation Institute of Chicago, Chicago, IL*

P-Sat-239
Viability Of Lung Cancer Cells and Human Mesenchymal Stem Cells with Nanodiamonds
A. Chen[1], L. Yang[1], H. Jayakumar[1], S. Wang[1], and C. Meriles[1]
[1]*City College of New York, New York, NY*

P-Sat-240
Optimization And Characterization Of IRPEG For Use In NIR Imaging Of The Lymphatic System
M. Ross[1]
[1]*Georgia Institute of Technology, Lawrenceville, GA*

P-Sat-241
Imaging Studies Of Lung Clearance In Pediatric Subjects With Cystic Fibrosis
R. Lacy[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-242
Using AFM to investigate assembly of Aβ in Alzheimer's disease
C. Stark[1,2]
[1]*Yale University, New Haven, CT,* [2]*National Institutes of Health, Bethesda, MD*

P-Sat-243
Phantom Development to Verify Ultrasound Scattering Simulation for High-Intensity Focused Ultrasound
M. Holbrook[1], D. Christensen[1], A. Payne[1], and C. Dillon[1]
[1]*University of Utah, Salt Lake City, UT*

P-Sat-244
Barcoding Cells for Quantitative Live Cell Imaging
R. Taitano[1], H. J. Choi[2], and K. Lee[2]
[1]*Virginia Polytechnic Institute and State University, Burke, VA,* [2]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-245
Customizing CLARITY For HIV Associated Neurocognitive Disorders
Y. Wu[1], N. Tong[1], S-M. Lu[1], and H. Gelbard[1]
[1]*University of Rochester, Rochester, NY*

P-Sat-246
Ultrasound Stimulation of Neurons
V. Mott[1], S. Jose[1], N. Peixoto[1], and P. Chitnis[1]
[1]*George Mason University, Fairfax, VA*

P-Sat-247
Using A Dual-Ligand Nanoparticle To Target The Dynamic Environment Of Micrometastasis
A. Goldberg[1], E. Doolittle[1], P. Peiris[1], and E. Karathanasis[1]
[1]*Case Western Reserve University, Cleveland, OH*

Track: Undergraduate Research, Design and Leadership
Cancer Technologies Posters

P-Sat-252
Targeted SiRNA Delivery To Bone Marrow Endothelial Cells Using Polymeric Nanoparticles For Bone Metastasis Inhibition
N. Lou Comandante[1], M. Mitchell[2], and R. Langer[2]
[1]*University of Washington, Seattle, WA,* [2]*Massachusetts Institute of Technology, Cambridge, MA*

P-Sat-253
Morphological Single-Cell Profiling of the Epithelial to Mesenchymal Transition
J. Rubins[1], S. Leggett[1], K. Williams[1], and I. Wong[1]
[1]*Brown University, Providence, RI*

P-Sat-254
Emergent Single Cell Dynamics in Heterotypic Epithelial-Mesenchymal Co-Cultures
M. Gamboa Castro[1], Y. Izrayelit[1], S. Leggett[1,2], and I. Wong[1,2]
[1]*Center for Biomedical Engineeing, Brown University, Providence, RI,* [2]*Pathobiology Graduate Program, Brown University, Providence, RI*

P-Sat-255
Targeting Morphological Changes In Glioblastoma With EphrinA1/EphA2 And The Effect On Electroporation Therapies
M. Richards[1], J. Ivey[2], E. Latouche[2], R. Davalos[2], and S. Verbridge[2]
[1]*Kansas State University, Manhattan, KS,* [2]*Virginia Tech- Wake Forest University, Blacksburg, VA*

P-Sat-256
Cell-Mediated Stiffening of Synthetic Biomaterials
T. McCarthy[1], L. Jansen[1], and S. Peyton[1]
[1]*University of Massachusetts Amherst, Amherst, MA*

P-Sat-257
author cancellation

P-Sat-258
Antifibrotic Effects Of Angiotensin-(1-7) Treatment On Irradiated Skeletal Muscle
H. Reavis[1], J. Moore[2], V. Payne[2], E. A. Tallant[2], P. Gallagher[2], M. Callahan[2], C. Emory[2], and J. Willey[2]
[1]*University of North Carolina at Chapel Hill, Chapel Hill, NC,* [2]*Wake Forest School of Medicine, Winston-Salem, NC*

P-Sat-259
Tumorigenic Expression and Morphology of Breast Cancer Cells in 3D PEG-fibrinogen Hydrogels
K. Henderson[1], S. Pradhan[1], and E. A. Lipke[1]
[1]*Auburn University, Auburn, AL*

See page 208 for Poster floor plan

P-Sat-260
Residence Time Distribution Analysis of Size-Dependent Molecular Transport Using Microfluidics for the Optimization of Sentinel Lymph Node-Targeted Drug Delivery
A. Anilkumar[1,2], N. Rohner[2,3], and S. Thomas[1,2,3,4]
[1]Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University, Atlanta, GA, [2]Parker H. Petit Institute for Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta, GA, [3]George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, [4]Winship Cancer Institute, Emory University School of Medicine, Atlanta, GA

P-Sat-261
The Effect of a Novel Sigma-2 Ligand on SK-N-SH Neuroblastoma Microtissue Aggregation and Death
V. Behnam[1] and W. Bowen[2]
[1]Brown University, Arlington, VA, [2]Brown University, Providence, RI

P-Sat-262
The Wound Healing Response Promotes Tumor Cell Invasion and Metastasis
M. Golla[1], M. Rafat[1], and E. Graves[1]
[1]Stanford School of Medicine, Stanford, CA

P-Sat-263
Determining The Effect Of Hydrostatic Pressure On HeLa Cell Spheroids
K. Etten[1], J. Nagatomi[1], and K. Champagne[1]
[1]Clemson University, Clemson, SC

P-Sat-264
Microbioreactors for Examining the 3D Tumor Microenvironment
M. Rogers[1], T. Sobolik[1], D. Schaffer[1], P. Samson[1], J. Wikswo[1], and A. Richmond[1,2]
[1]Vanderbilt University, Nashville, TN, [2]Tennessee Valley Healthcare System, Nashville, TN

P-Sat-265
Modifying Gold Nanoparticle Surfaces to Improve Biocompatibility and Enhance Localization to the Nucleus of MCF10a Cells
R. Raghavan[1], B. DeVetter[2], and R. Bhargava[2]
[1]MIT, Cambridge, MA, [2]University of Illinois-Urbana Champaign, Urbana, IL

P-Sat-266
Digital Morphometry Quantifies Phenotypic Heterogeneity in Three-dimensional Culture
M. Borten[1]
[1]University of Virginia, Charlottesville, VA

P-Sat-267
Influence of Substrate Stiffness on Myoferlin Induced Changes in the Migration of MDA-MB-231 Breast Cancer Cells
K. Watts[1], V. Shukla[1], D. Kniss[1], and S. Ghadiali[1]
[1]The Ohio State University, Columbus, OH

P-Sat-268
Characterizing Breast Cancer Progression Cell Lines through Immunofluorescence Microscopy and Infrared Spectroscopy
M. Dawson[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

P-Sat-269
The Effects of Hemodynamic Shear Stress on Stemness of Acute Myelogenous Leukemia
A. Raddatz[1], U. Triantafillu[1], and Y. Kim[1]
[1]The University of Alabama, Tuscaloosa, AL

POSTER SESSION **Sat**

Track: Undergraduate Research, Design and Leadership

Cardiovascular Engineering Posters

P-Sat-272
Changes in Myocardial Wall Stiffness in a Mouse Model of Persistent Truncus Arteriosus
K. R. Mercon[1], R. K. Blaho[1], A. N. Firment[2], E. M. Buffinton[3], A. M. Moon[2], and C. M. Buffinton[1]
[1]Bucknell University, Lewisburg, PA, [2]Geisinger Medical Center, Danville, PA, [3]Cornell University, Ithaca, NY

P-Sat-273
Inhibition of microRNA-199a to Enhance Perfusion Downstream of Arterial Occlusions
R. Leiphart[1], J. Heuslein[1], and R. Price[1]
[1]University of Virginia, Charlottesville, VA

P-Sat-274
Imaging and Reconstruction Methods for a Mouse Model of Persistent Truncus Arteriosus
A. Benjamin[1], A. Abay[1], A. Firment[2], A. Moon[2], and C. Buffinton[1]
[1]Bucknell University, Lewisburg, PA, [2]Geisinger Medical Center, Danville, PA

P-Sat-275
The Role Of Hypoxia In Aortic Valve Calcification
S. Bhatnagar[1], M. Sapp[1], V. Krishnamurthy[1], and J. Grande-Allen[1]
[1]Rice University, Houston, TX

P-Sat-276
Automated ECG Signal Analysis and Arrhythmia Classification
J. Ng[1]
[1]New Mexico State University, Las Cruces, NM

P-Sat-277
Age Associated Reductions in the &[beta]-adrenergic Response of Cardiomyocytes
A. Cunha[1], A. Kwawazala[2], and S. Campbell[2]
[1]Worcester Polytechnic Institute, Worcester, MA, [2]Yale University, New Haven, CT

P-Sat-278
Platelet Lysis, Hemolysis, and Thrombin Generation under Pathological Shear Stress
M. Ige[1], W. Gao[1], J. Sheriff[1], and D. Bluestein[1]
[1]Stony Brook University, Stony Brook, NY

P-Sat-279
Ambient Ultrafine Particles Impair Vascular Repair via Notch Signaling
A. Kaboodrangidaem[1], T. Beebe[1], K. Baek[1], R. Li[2], and T. K. Hsiai[1,2]
[1]Department of Bioengineering, University of California, Los Angeles, Los Angeles, CA,[2]Division of Cardiology, Department of Medicine, School of Medicine, University of California, Los Angeles, Los Angeles, CA

P-Sat-280
Investigation of Spherical and Cylindrical Geometries of Monocyte Chemoattractant Protein Micelles For Monocyte-Targeting
S. P. Yoo[1], E. J. Chung[1], and M. Tirrell[1]
[1]University of Chicago, Chicago, IL

P-Sat-281
Pericyte Recruitment in a Diabetic Mouse Model of Corneal Neovascularization
D. Tavakol[1], M. Kelly-Goss[1], P. Yates[1], and S. Peirce-Cottler[1]
[1]University of Virginia, Charlottesville, VA

P-Sat-282
Implementation Of Butterworth Filtering To Improve Beat Selection For Hemodynamic Analysis
M. Jacus[1], T. Bachman[1], R. Vanderpool[1], and M. Simon[1]
[1]University of Pittsburgh, Pittsburgh, PA

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Sat-283
Syndesomes Enhance pdfg-ββWound Healing Activity In Obese And Diabetic Mice
M. Majid[1], S. Das[1], and A. Baker[1]
[1]*University of Texas at Austin, Canton, TX*

P-Sat-284
Inhibition of Local MMP Activity Using Targeted Delivery of Batimastat Loaded Nanoparticles
A. Chowdhury[1], N. Nosoudi[1], P. Nahar-Gohad[1], and N. Vyavhare[1]
[1]*Clemson University, Clemson, SC*

P-Sat-285
Using Phase-Contrast MRI to Calculate Wall Shear Stress in Pulmonary Hypertension
C. Hornbeck[1], J. Cahill[2], and S. George[2]
[1]*Illinois Institute of Technology, Chicago, IL,* [2]*East Carolina Unversity, Greenville, NC*

P-Sat-286
A Method To Electrically Stimulate Human Induced Pluripotent Stem Cell Derived Cardiomyocytes Seeded Fibrin Microthreads
V. Tran[1], K. Hansen[2], and G. Gaudette[2]
[1]*University of Rhode Island, Kingston, RI,* [2]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-287
Characterizing The Seeding Distribution Of Microspheres In Tissue Engineered Vascular Grafts
A. Josowitz[1], J. Krawiec[1], M. Fedorchak[1], A. D'Amore[1,2], J. Weinbaum[1], J. P. Rubin[1,2], W. Wagner[1,2], S. Little[1], and D. Vorp[1,2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*University of Pittsburgh Medical Center, Pittsburgh, PA*

P-Sat-288
Seeding Of Microspheres Into A Porous Tubular Scaffold As A Tissue Engineered Vascular Graft
D. Pezzone[1,2], J. Krawiec[1,2], A. Josowitz[1], M. Fedorchak[1], A. D'Amore[1,2], J. Weinbaum[1,2], W. Wagner[1,2], S. Little[1,2], and D. Vorp[1,2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*McGowan Institute for Regenerative Medicine, Pittsburgh, PA*

P-Sat-289
Using Cardiac Progenitor Cell Derived Exosomes to Improve Cardiac Function Post-Myocardial Infarction
A. George[1], U. Agarwal[2], S. Ghosh-Choudhary [1], M. Brown[1], Y. Mehta[1], and M. Davis[1,2,3]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Emory University, Atlanta, GA,* [3]*Children's Healthcare of Atlanta, Atlanta, GA*

P-Sat-290
Prediction of Acute Hypotensive Episodes in the Intensive Care Unit to Improve Patient Outcomes
J. Dieck[1], S. Hassan[1], and G. Mirsky[1]
[1]*Benedictine University, Lisle, IL*

P-Sat-291
Modulation Of The Canonical Wnt Pathway Affects The Morphology Of hiPSC 3D Aggregates
N. Votaw[1,2], T. Hookway[2], and T. McDevitt[2]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Gladstone Institutes, San Francisco, CA*

P-Sat-292
Effects of Strain Gradient on Mesenchymal Stem Cell Alignment and Migration
G. Molica[1] and J. Gershlak[1]
[1]*Worchester Polytechnic Institute, Worcester, MA*

P-Sat-293
Electromagnetic Driven Accelerated Wear Testing of Tissue-based Materials
D. Infante[1]
[1]*Clemson University, Clemson, SC*

P-Sat-294
Development of a Novel Apparatus to Study Heart-Vascular Interaction In Vitro
C. Nipper[1], M. McDowall[1], S. Helmcamp[1], K. Mitchell[1], S. Shannon[1], J. Simpson[1], C. Quick[1], and R. Dongaonkar[1]
[1]*Michael E. DeBakey Institute, Texas A&M University, College Station, TX*

P-Sat-295
High Throughput Investigation of Stem Cell Differentiation by Shear Stress and Growth Factors
C. Deb[1,2], J. Lee[2], A. Spencer[2], L. Samarneh[2], and A. Baker[2]
[1]*Massachusetts Institute of Technology, Cambridge, MA,* [2]*The University of Texas at Austin, Austin, TX*

P-Sat-296
Computational Examination of the Hemodynamics in a Patient-Specific Growing Cerebral Aneurysm
C. Hyslop[1], P. Nair[1], J. Ryan[1], D. Frakes[1,2], B. Chong[1,3], J. Placencia[1], and E. Kostelich[4]
[1]*SBHSE, Arizona State University, Tempe, AZ,* [2]*ECEE, Arizona State University, Tempe, AZ,*[3]*Mayo Clinic Hospital, Phoenix, AZ,* [4]*SoMSS, Arizona State university, Tempe, AZ*

P-Sat-297
author cancellation

P-Sat-298
Endothelial Cell Responses to Flow Profiles after Balloon Aortic Valvuloplasty
A. Estrada[1]
[1]*Florida International University, Miami, FL*

P-Sat-299
Pollution and Cardiac Health
M. Tagle Rodriguez[1], A. Grosberg[1], W. Tuet[2], and N. L. Ng[2]
[1]*University of California Irvine, Irvine, CA,* [2]*Georgia Institute of Technology, Atlanta, GA*

P-Sat-300
Consequences of Elevated Serotonin in Angiotensin-II-induced Hypertensive Mice
J. Morales[1], N. Diaz[1], and K. Balachandran[1]
[1]*University of Arkansas, Fayetteville, AR*

Track: Undergraduate Research, Design and Leadership

Cellular and Molecular Bioengineering Posters

P-Sat-306
Chronic Heavy Alcohol Consumption Has A Detrimental Effect On Bone Mechanical Properties In Actively Growing Rats,While LIV Mitigates This Degenerative Effect
J. Qian[1], J. Abraham[1], T. Pamon[1], C. H. Cheung[1], R. T. Turner[2], C. Rubin[1], and M. E. Chan[1]
[1]*Stony Brook University, STONY BROOK, NY,* [2]*Oregon State University, Corvallis, OR*

P-Sat-307
Characterization Of Cl-/H+ Coupling Properties Of ClC-5 Mutants And Transport Stoichiometry
M. Brown[1,2], M. Romero[2], J. Lieske[2], and M-H. Chang[2]
[1]*Wayne State University, Detroit, MI,* [2]*Mayo Clinic School of Medicine, Rochester, MN*

P-Sat-308
Nanoparticle Ingestion Affects Glucose Transportation in *In Vitro* Model of the Intestinal Epithelium
G. Shull[1], J. Richter [1], and G. Mahler[1]
[1]*Binghamton University, Binghamton, NY*

See page 208 for Poster floor plan

P-Sat-309
Overexpression Of The Mcm3 And Mcm7 Subunits Causes Genomic Instability
Y. Mu[1] and A. Schwacha[1]
[1]*The University of Pittsburgh, Pittsburgh, PA*

P-Sat-310
Acidosis Modulates MenaINV mRNAAnd Protein Expression
M. Moufarrej[1], A. Soltis[1], F. Gertler[1], and D. Lauffenburger[1]
[1]*Massachusetts Institute of Technology, Cambridge, MA*

P-Sat-311
CRISPR/Cas9 Knockout Of CD47 To Promote Macrophage Clearance Of Solid Tumors
J. Hsu[1], C. Alvey[1], J. Irianto[1], C. Pfeifer[1], and D. Discher[1]
[1]*University of Pennsylvania, Philadelphia, PA*

P-Sat-312
CRISPR Genetic Engineering to Investigate Extracellular Proteolysis in Synaptic Development
J. Shilts[1] and K. Broadie[1]
[1]*Vanderbilt University, Nashville, TN*

P-Sat-313
The Use Of Draq5 To Inhibit Bacterial Toxin Activity
J. Webb[1] and A. Brown[1]
[1]*Lehigh University, Bethlehem, PA*

P-Sat-314
The Effects Of Cell Division On Early Neural Plate Formation In *Xenopus laevis* Embryos
E. Kieffer[1], D. Vijayraghavan[1], and L. Davidson[1,2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*Department of Developmental Biology, Pittsburgh, PA*

P-Sat-315
Developing And Proving A Drug Assay For Influenza Treatment
K. Callahan [1], P-C. Su [1], and B. Berger[1]
[1]*Lehigh University, Bethlehem, PA*

P-Sat-316
Efficiency of the CRISPR/Cas9 System in Performing Site-specific Knockout
S. Banskota[1], I. Akinsanmi[1], and G. Gibson[1]
[1]*Georgia Institute of Technology, Atlanta, GA*

P-Sat-317
Galectin-7 Human Fc-Fusion Protein Can Be Isolated From Transfected Freestyle 293-F Cells
S. Thomas[1], C. Dimitroff[2], S. Barthel[2], and M. Burdick[1]
[1]*Russ College of Engineering and Technology, Ohio University, Athens, OH,* [2]*Brigham and Women's Hospital, Boston, MA*

P-Sat-318
Microparticles in Three Dimensional Thrombus Formation
C. DeZerga[1], D. Young[2], G. Papavasiliou[2], and C. Hall[1]
[1]*The College of New Jersey, EWING, NJ,* [2]*Illinois Institute of Technology, Chicago, IL*

P-Sat-319
Amperometric Detection Of Ultrasound-Induced Secretory Events From Pancreatic Beta Cells
B. Balteanu[1] and T. Singh[1]
[1]*The George Washington University, Washington, DC*

P-Sat-320
Identification And Characterization Of Novel C-myc Activators For Inner Ear Hair Cell Regeneration
M. Bartel[1,2], G. Kulkarni[2], and J. Jackson[2]
[1]*North Carolina State University, Raleigh, NC,* [2]*Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC*

P-Sat-321
Gold Nanoparticles Alter Immune Response in Murine Retina Model
S. Petchul[1], B. Corliss[1], and S. Peirce[1]
[1]*University of Virginia, Charlottesville, VA*

P-Sat-322
EGFR Antibodies Affect Adhesion of Breast Cancer Cells to E-selectin Under Flow Conditions
K. Turner[1] and M. Burdick[1]
[1]*Ohio University, Athens, OH*

P-Sat-323
3D Analysis of Nuclear Morphology of Mesenchymal Stem Cells with Disrupted LINC complexes.
A. Guduru[1]
[1]*University of North Carolina, Raleigh, NC*

P-Sat-324
Forces Across The Nuclear LINC Complex Are Increased In Elongated Nuclei
K. Bathula[1], E. Eric Buchanan[1], P. Arsenovic[1], and D. Conway[1]
[1]*Virginia Commonwealth University (VCU), Richmond, VA*

P-Sat-325
Development of an Injectable Hydrogel for Encapsulation of Islets to Treat Streptozotocin-Induced Diabetes in Mice
J. Bruns[1]
[1]*Saint Louis University, Saint Louis, MO*

P-Sat-326
Investigating Glycosphingolipids as Potential Functional Biomarkers of Head and Neck Carcinoma Cells Using Optical Tweezers
N. Sova[1], J. Robinson[1], L. Nimrichter[2], N. Bessa Viana[2], D. F. Tees[1], and M. Burdick[1]
[1]*Ohio University, Athens, OH,* [2]*Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil*

P-Sat-327
Fibronectin Fibrillogenesis, EMT, and Breast Cancer Progression
M. Azam[1], L. Griggs[1], C. Lemmon[1], and L. Elmore[1]
[1]*Virginia Commonwealth University, Richmond, VA*

P-Sat-328
Characterization Of Microvascular Endothelial Cell-Fibroblast Co-culture: Quantifying Receptors & Sprouting.
B. Mathias[1], X. Guo[1], S. Chen[1], and P. Imoukhuede[1]
[1]*University of Illinois at Urbana-Champaign, Champaign, IL*

P-Sat-329
The Effect of Cathepsin B on Neutrophil-Mediated Cytotoxicity
E. Ball[1], K. Anderson[2], and H. Shin[2]
[1]*University of South Carolina, Columbia, SC,* [2]*University of Kentucky, Lexington, KY*

P-Sat-330
Rehydration of Mammalian cells Desiccated via Spin-Drying
Q. Osgood[1], J. Solocinski[1], and N. Chakraborty[1]
[1]*University of Michigan-Dearborn, Dearborn, MI*

Track: Undergraduate Research, Design and Leadership
Device Technologies and Biomedical Robotics Posters

P-Sat-352
Integration of Pressure Sensors in Compression Garment for the Treatment of Hypertrophic Scars.
Z. Llaneras[1], J. Calderon[1], A. Jalal[1], P. Roman[1], S. Bhansali[1], and J. Ramella-Roman[1]
[1]*Florida Internaational University, Miami, FL*

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Sat-353
Miniaturizing Photoplethysmography For Use In A Multifunctional Health Monitoring Device With Applications In Asthma Analysis
B. Bent[1], J. Dieffenderfer[1], H. Goodell[1], and A. Bozkurt[1]
[1]North Carolina State University, Raleigh, NC

P-Sat-354
Creating a Platform for Combining Wireless Electrophysiological Signals and Physiological Responses
T. Benigni[1], C. Wassaf[2], and J. Diaz[3]
[1]Florida international university, Miami, FL, [2]Florida International University, miami, FL,[3]Florida International University, Miami, FL

P-Sat-355
Development of a Low-cost Video-based Diagnostic System for Early Detection and Monitoring of Movement Disorders
H. Zander[1,2,3], J. Kakareka[3], J. Krynitsky[3], R. Pursley[3], L. Leggio[4], T. Pohida[3], and B. Harvey[5]
[1]University of Minnesota, St. Paul, MN, [2]National Institute of Biomedical Imaging and Bioengineering, Bethesda, MD, [3]Center for Information Technology, Bethesda, MD, [4]National Institute on Alcohol Abuse and Alcoholism, Bethesda, MD, [5]National Institute on Drug Abuse, Baltimore, MD

P-Sat-356
Biomedical Summer Aid Program in the Dominican Republic
L. Portillo[1], A. Montes de Oca[2], and M. A. Alegría[2]
[1]ITESM, Chihuahua, Mexico, [2]ITESM, Guadalajara, Mexico

P-Sat-357
A Chemically Patterned Paper-Based Microfluidic Device for Glucose Assays
J. Vaughn[1], J. Lee[1], and J. Kim[1]
[1]Texas Tech University, Lubbock, TX

P-Sat-358
Cell Separation Performance Comparison Between Magnetic Deposition Microscopy Devices
J. Lazzara[1], M. Zborowski[2], and L. Moore[2]
[1]The University of Akron, Akron, OH, [2]Cleveland Clinic Lerner Research Institute, Cleveland, OH

P-Sat-359
Use of Force Sensing Resistors to Determine Position Within a Gastrointestinal Model
A. Haxo[1], K. Bieryla[1], E. Geist[1], and D. Diehl[2]
[1]Bucknell University, Lewisburg, PA, [2]Geisinger Health System, Danville, PA

P-Sat-360
Movement Detection with Smart Phone Accelerometers
E. Raeker-Jordan[1], J. Leung[1], H. Ha[1], K. Bieryla[1], and M. Thompson[1]
[1]Bucknell University, Lewisburg, PA

P-Sat-361
Handheld Device for Electrochemical Detection in Resource-Limited Settings
M-N. Tsaloglou[1], A. Nemiroski[1], G. Camci-Unal[1], D. Christodouleas[1], L. Murray[1,2], M. T. Fernández-Abedul [3], and G. Whitesides[1]
[1]Harvard University, Cambridge, MA, [2]Bucknell University, Hopkinton, MA, [3]Universidad de Oviedo, Asturias, Spain

P-Sat-362
Sensor and Expert-Model Based Training System for Laparoscopic Suturing and Knot Tying
C. Garrow[1,2], K-F. Kowalewski[2], F. Nickel[2], S. Bodenstedt[3], H. G. Kenngott[2], M. Wagner[2], A-L. Wekerle[2], S. Speidel[3], R. Dillmann[3], and B. P. Mueller-Stich[2]
[1]University of Missouri, Columbia, MO, [2]University of Heidelberg Hospital, Heidelberg, Germany, [3]Karlsruhe Institute of Technology, Karlsruhe, Germany

P-Sat-363
Optimization of a Capacitive-Sensing Organic Electrochemical Transistor-Based Immunoassay
L. Hu[1], A-M. Pappa[2], X. Strakosas[2], A. Hama[2], B. Marchiori[2], and R. Owens[2]
[1]University of California, Berkeley, Berkeley, CA, [2]E´cole Nationale Supérieure des Mines de Saint-Étienne, Gardanne, France

P-Sat-364
Electroencephalograph-Based Neural Interface to Control a Portable Robotic Exoskeleton for Neuromuscular Rehabilitation
K. Strange[1], C. Sparks[1], S. Kudernatsch[1], T. Asaki[1], and D. Peterson[1]
[1]Texas A&M-Texarkana, Texarkana, TX

Track: Undergraduate Research, Design and Leadership
Drug Delivery Posters

P-Sat-372
Vertical Spray-Dry Synthesis of Nebulized Smart Polymer Carriers of Nano-Therapeutics
N. Bernal[1], S. Witanachchi[1], and D. Denmark[1]
[1]University of South Florida, Tampa, FL

P-Sat-373
Electrospun Drug Release Film for the Targeted Delivery of Chemotherapeutic Agents
G. Rabadam[1], M. Wang[1], and T. Webster[1]
[1]Northeastern University, Boston, MA

P-Sat-374
In Vivo Properties Of Plant Viral Nanoparticles After Repeat Administration
S. Woods[1], S. Shukla[1], D. Dorand[1], J. Myers[1], A. Huang[1], and N. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

P-Sat-375
CRISPR-Cas9 Mediated Knockout of MELK in Panc-1 Cells
K. Lee[1], I. McDonald[2], and L. Graves[2]
[1]University of Pittsburgh, Pittsburgh, PA, [2]University of North Carolina - Chapel Hill, Chapel Hill, NC

P-Sat-376
Development of a Next-Generation Topical Pre-Exposure Prophylactic (PrEP) Technology Using siRNA-Encapsulated, Surface-Modified Nanoparticles
H. Vuong[1] and J. Steinbach[1]
[1]University of Louisville, Louisville, KY

P-Sat-377
Effect of Surface Charge Density and Shear Stress on the Targeting Efficacy of Cationic Liposomes as Drug Delivery Carriers for Anti-Vascular Therapy.
I. Valencia[1,2], M. Sempkowski[2], and S. Sofou[2]
[1]University of Texas at San Antonio, San Antonio, TX, [2]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Sat-378
Ultrasound and Microbubble-Mediated Delivery of Therapeutic miRNA Inhibitor to Promote Angiogenesis
D. Whitehurst[1], J. Kopechek[1], and F. Villanueva[1]
[1]Center for Ultrasound Molecular Imaging and Therapeutics, University of Pittsburgh Medical Center, Pittsburgh, PA

P-Sat-379
Vibrational Spectroscopy and Imaging Reports Concurrent Cellular Trafficking of Co-localized Doxorubicin and Deuterated Niosomes.
A. Ohoka[1,2], S. Misra[1,2,3], P. Mukherjee[1,3], A. Schwartz-Duval[1,2], S. Tiwari[1,3], R. Bhargava[1,3], and D. Pan[1,2,3]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Carle Foundation Hospital, Urbana, IL, [3]Beckman Institute for Advanced Science and Technology, Urbana, IL

P-Sat-380
High Payload Delivery Of Potent Anti-Mitotic Chemotherapeutic Using Rod-Shaped Nanoparticles
D. Kernan[1], A. Wen[1], and N. Steinmetz[1]
[1]Case Western Reserve University, Cleveland, OH

See page 208 for Poster floor plan

P-Sat-381
Optimization of Polymeric Nanoparticles for Intracranial Delivery of Radiosensitizing Agents
E. Chen[1], A. King[1], and M. Saltzman[1]
[1]*Yale University, New Haven, CT*

P-Sat-382
Amphiphilic Poly(β-amino ester) –Poly(ethylene glycol) Block Copolymer Micelles for Anti-tumor Drug Delivery
J. Shamul[1], Y. Kang[1], J. Kim[1], and J. Green[1]
[1]*Johns Hopkins University, Baltimore, MD*

P-Sat-383
Localized Immunotherapy Delivery Using Injectable in situ Forming Chitosan Hydrogel
S. Washispack[1]
[1]*University of Arkansas, Fayetteville, AR*

P-Sat-384
Effects of Encapsulation by Halloysite/Polymer Composite Materials on Antibiotic Release
S. Bittner[1], L. Robeson[1], and E. Davis[1]
[1]*Auburn University, Auburn, AL*

P-Sat-385
Local Delivery Of CTLA-4 Blockade Inhibits Growth Of Pancreatic Tumors
J. Baltz[1], S. Smith[1], and D. Zaharoff[1]
[1]*University of Arkansas, Fayetteville, AR*

P-Sat-386
Development Of 'Stealth' And 'Camouflage' Techniques For Improved Pharmacokinetics Of Nanoparticle-Based Drug Delivery Systems
S. Jameson[1]
[1]*Case Western Reserve University, Cleveland, OH*

P-Sat-387
Controlled Release Of Recombinant Human Transforming Growth Factor Beta One
A. Eneli[1], A. D'Amico[2], and A. Peterson[2]
[1]*The Ohio State University, Columbus, OH,* [2]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-388
Fabrication Of Lipid Vesicles Containing Curcumin and N-(2-mercaptopropionyl)-glycine
M. Kelecy[1], A. Akalkotkar[1], E. Martin[1], W. Ehringer[2], and P. Soucy[1]
[1]*University of Louisville, Louisville, KY,* [2]*Energy Delivery Solutions, Jeffersonville, IN*

P-Sat-389
Experiments Involving Pharmaceutical Concepts for Undergraduate Laboratory Courses: Students' Perspective on Development and Implementation
N. Haden[1] and D. Infusino[1]
[1]*Rowan University, Glassboro, NJ*

Track: Undergraduate Research, Design and Leadership

Nano and Micro Technologies Posters

P-Sat-401
Lysosomal Reacidification via Degradation of PLGA Nanoparticles in a Lipotoxic Cardiomyopathy Model
F. M. Zasadny[1,2], J. A. Ankrum[1,2], and E. D. Abel[2,3]
[1]*University of Iowa College of Engineering-Biomedical Engineering, Iowa City, IA,* [2]*University of Iowa Fraternal Order of Eagles Diabetes Research Center, Iowa City, IA,* [3]*University of Iowa Carver College of Medicine, Iowa City, IA*

P-Sat-402
Three-Dimensional Stereolithographic Patterning of Cells Within A Microfluidic Device
A. Williams[1], R. Raman[1], C. Cvetkovic[1], and R. Bashir[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

P-Sat-403
Using Atomic Force Microscopy to Determine the Young's Modulus of Single Alginate and Polyethylene Glycol Microcapsules for Long-Term Immunoisolation of Pancreatic Islets
K. Paunovska[1]
[1]*University of Miami, Coral Gables, FL*

P-Sat-404
Reduction Of Viscoelastic Membrane Deflection In Microraft Arrays
S. Kantesaria[1], M. Disalvo[1,2], C. Sims[1], and N. Allbritton[1,2]
[1]*University of North Carolina at Chapel Hill, Chapel Hill, NC,* [2]*North Carolina State University, Raleigh, NC*

P-Sat-405
Experimental Design of Iron Oxide Nanoparticle Shapes and Structures for Use in Magnetic Resonance Imaging
Y. Bao [1], J. Sherwood [1], and A. Williams[2]
[1]*The University of Alabama, Tuscaloosa, AL,* [2]*North Carolina State University, Raleigh, NC*

P-Sat-406
3D Printed Microfluidic Device for Dynamic Investigation of the Blood Brain Barrier
H. S. Noor[1], V. H. Harbour[1], M. G. Toralba[1], N. S. Riaz[1], and S. Basuray[1]
[1]*New Jersey Institute of Technology, Newark, NJ*

P-Sat-407
Simplified Lipid Coating On Mesoporous Silica Nanoparticles By Conjugation Of Hydrophobic Aliphatic Monolayer
J. Erstling[1,2], P. Durfee[2], S. Chou[3], A. Lokke[2], A. Muniz[2], Y-S. Lin[4], and C. J. Brinker[2,3]
[1]*Florida International University, Miami, FL,* [2]*University of New Mexico, Albuquerque, NM,*[3]*Sandia National Laboratories, Albuquerque, NM,* [4]*Oncothyreon Inc, Seattle, WA*

P-Sat-408
Microfluidic Pipette Array for Single Cell Mechanics Studies
D. Chase[1], L. M. Lee[2], and A. Liu[2]
[1]*University of Minnesota, Minneapolis, MN,* [2]*University of Michigan, Ann Arbor, MI*

P-Sat-409
A Rapid and Low-Cost Microfluidic Method for Detecting and Isolating Exosomes
B. Li[1,2], F. Rivest[2], S. Leong[2], D. Yang[2], and L. Sohn[2]
[1]*The University of Texas at Austin, Austin, TX,* [2]*University of California, Berkeley, Berkeley, CA*

P-Sat-410
Paper Based Rheological Flow Assay For Simplified Sickle Cell Diagnosis
K. Cyr[1] and C. Marasco[1,2]
[1]*Vanderbilt University, Nashville, TN,* [2]*Vanderbilt Institute for Integrative Biosystems Research and Education, Nashville, TN*

P-Sat-411
Probing The Efficacy Of Transwells And Spheroids As *In Vitro* Models Of The Blood Brain Barrier
C. Weiler[1], C. Hovell[1,2], and Y. Kim[1,2]
[1]*Georgia Institute of Technology, Atlanta, GA,* [2]*Emory University, Atlanta, GA*

P-Sat-412
Characterization of Superparamagnetic Iron Oxide Nanoparticle-Lipid Bilayer Interactions
N. Gay[1], E. Freeman[2], and X. Wang[2]
[1]*University of Connecticut, Somers, CT,* [2]*University of Georgia, Athens, GA*

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

POSTER VIEWING WITH AUTHORS & REFRESHMENT BREAK | 9:30AM - 10:30AM

P-Sat-413
Optical Properties Of DNA: G-Quadruplex And Comparison Of Purine/Pyrimidine Interactions
J. Schimelman[1]
[1]Case Western Reserve University, Cleveland, OH

P-Sat-414
Optimization of a Cell Array for Capture of Single Thyroid or Parathyroid Cells
S. Ahmad[1,2], S. Mestril[2], M. DiSalvo[2], C. Sims[2], and N. Allbritton[2]
[1]University of Florida, Gainesville, FL, [2]University of North Carolina, Chapel Hill, NC

P-Sat-415
Optimization Of Square Channel Micromixer For A Variety Of Reynolds Numbers With Two-Phase Liquid-Liquid Flow
J. Brooks[1] and T. Abdel-Salam[2]
[1]High Point University, Monkton, MD, [2]East Carolina University, Greenville, NC

P-Sat-416
Nanoplasmonic Biosensing Microfluidics For Immune Status Monitoring Of Critically Ill Children
T. Pauls[1], R. Nidetz[2], and K. Kurabayashi[2]
[1]University of Arkansas, fayetteville, AR, [2]University of Michigan, Ann Arbor, MI

P-Sat-417
Optimizing Synthesized Nanoparticles for Applications in Drug Delivery
M. Vasquez[1,2], D. Spencer[1], A. Wagner[1], and N. Peppas[1]
[1]The University of Texas at Austin, Austin, TX, [2]Prairie View A&M University, Prairie View, TX

P-Sat-418
PEGylating Extracellular Matrix Nanoparticles Delays Macrophage Uptake
T. Wang[1], M. Wolf[1], J. Krill[1], and J. Elisseeff[1]
[1]Johns Hopkins University, Baltimore, MD

P-Sat-419
Backpacking Bacteria to Target and Treat Tumors
E. McCaffrey[1], A. Nou[1], and R. Fernandes[1,2,3]
[1]University of Maryland-College Park, College Park, MD, [2]Children's National Health System, Washington, D.C., MD, [3]George Washington University, Washington, D.C., DC

P-Sat-420
A Novel Hepatocyte-Alignment Microfluidic Device
R. O'Hara[1], E. Shaw[1], Z. Bei[1,2], and J. Lippmann[3]
[1]SUNY Buffalo, Buffalo, NY, [2]NYS Center of Excellence in Bioinformatics and Life Sciences, Buffalo, NY, [3]SUNY University at Buffalo, Buffalo, NY

P-Sat-421
Hollow Microspheres For Density-based Bioseparation of CEA Tumor Biomarker
E. Osta[1], L. Li[2], A. Chilkoti[2], G. Lopez[2], and S. Weigum[1]
[1]Texas State University, San Marcos, TX, [2]Duke University, Durham, NC

P-Sat-422
Optimizing Cell Isolation Via Surface Functionalization
K. Schultheis[1], A. Sridaran[2], A. Ansari[1], and P. Imoukhuede[1]
[1]University of Illinois at Urbana-Champaign, Champaign, IL, [2]University of Texas at Austin, Austin, TX

P-Sat-423
Microfluidics For Magnetic Filtration of Blood In Sepsis Patients
J. Musler[1], J. Greer[1], S. Miller[1], C. Bell[1], T. Giorgio[1], and C. Marasco[1]
[1]Vanderbilt University, Nashville, TN

P-Sat-424
Lipid Coated Nanoparticles for Targeted Drug Delivery to Cancer Cells Using Copper-Free Click Chemistry
Q. Ren[1], R. Meyer[1], M. Mathew[1], K. Yarema[1], and J. Green[1]
[1]Johns Hopkins Univeristy, Baltimore, MD

P-Sat-425
Passive and High-throughput Inertial Particle and Cell Sorter
B-J. Jung[1] and A. Chung[1]
[1]Rensselaer Polytechnic Institute, Troy, NY

P-Sat-426
Visualization of Endothelial Focal Adhesion Formation on Transparent Porous Membranes
S. Casillo[1] and T. Gaborski[1]
[1]Rochester Institute of Technology, Rochester, NY

P-Sat-427
Electron Paramagnetic Spectroscopy for the Quantitative Analysis of Magnetic Nanoparticles
C. French[1], A. Chiu-Lam[1], K. Clark[1], T. Casey[1], G. Fanucci[1], and C. Rinaldi[1]
[1]University of Florida, Gainesville, FL

P-Sat-428
Piezoelectric Actuation For Microfluidic Mixing Applications
F. Alhaji[1], M. Nasir[1], and J. Mynderse[1]
[1]Lawrence Technological University, Southfield, MI

P-Sat-429
Author Cancellation

P-Sat-430
Low Cost Method for Patterning Proteins onto Porous Materials
J. Imdieke[1] and E. Fu[1]
[1]Oregon State University, Corvallis, OR

P-Sat-431
The Design Of A Microfluidic Platform For The Evaluation Of A Nanopore Device
O. Anjonrin-Ohu[1], S. Bearden[2], and G. Zhang[2]
[1]University of Tennessee, Kingsport, TN, [2]Clemson University, Clemson, SC

P-Sat-432
Fluorescence *in Situ* Hybridization (FISH) with Compact Quantum Dots
M. Holm[1], S. Chitoor[2], and A. Smith[2]
[1]Arizona State University, Tempe, AZ, [2]University of Illinois, Urbana-Champaign, IL

P-Sat-433
Towards Multiplexed Quantitative Flow Cytometry: Optimizing Nanosensor Binding Saturation
R. White[1], S. Chen[2], and P. Imoukhuede[2]
[1]University of Delaware, Newark, DE, [2]University of Illinois, Urbana-Champaign, IL

P-Sat-434
Formation Of Alginate Microparticles For Cell Encapsulation Via Electrospraying
A. Simonson[1], X. Ma[2], and Y. Wang[1]
[1]Pennsylvania State University, State College, PA, [2]Beijing Institute of Technology, Beijing, China, People's Republic of

P-Sat-435
Benchtop Fabrication of Flexible Indium-based Electrodes
A. S. Ali[1], C. B. King[1], B. Kline[1,2], K. T. Ashong[1], and R. Perez-Castillejos[1]
[1]New Jersey Institute of Technology (NJIT), Newark, NJ, [2]Interamerican University of Puerto Rico, Bayamón, PR

P-Sat-436
Design and Synthesis of Polymer Blend Electrospun Fibers for Sustained Release of siRNA to the Female Reproductive Tract
J. Heidel[1]
[1]University of Louisville, Louisville, KY

P-Sat-437
Stable Rapid Formation of a Stable, Large Area Hypoxia Gradient
R. Favot[1], M. Zhou[1], and J. Lo[1]
[1]University of Michigan at Dearborn, Dearborn, MI

See page 208 for Poster floor plan

Track: Undergraduate Research, Design and Leadership

Neural Engineering Posters

P-Sat-439
Neural Precursor Cell Proliferation In Response To Apoptotic Targets For Phagocytosis
E. Crummy[1], B. Carter[2], and F. Hickman[2]
[1]University of South Carolina, Columbia, SC, [2]Vanderbilt University, Nashville, TN

P-Sat-440
Soy Isoflavones Target Amyloid-β Oligomers Associated With Alzheimer's Disease
C. Moore[1], S. Z. Vance[1], K. Pate[1], and M. Moss[1]
[1]University of South Carolina, Columbia, SC

P-Sat-441
Automated Algorithms For Restoring Touch And Proprioception To Human Amputees Through Peripheral Nerve Multi-channel Arrays
J. George[1], D. Page[2], H. Saal[3], S. Bensmaia[3], and G. Clark[2]
[1]The University of Texas, Austin, TX, [2]The University of Utah, Salt Lake City, UT, [3]The University of Chicago, Chicago, IL

P-Sat-442
Investigating the Mechanism of Platinum-Induced Cell Death for Stimulating Neural Electrodes
V. Srivastava[1], K. Kovach[2], and J. Capadona[1]
[1]Case Western Reserve University, Cleveland, OH, [2]Louis Stokes Cleveland VAMC, Cleveland, OH

P-Sat-443
A Biophysical Model to Explain Sustained Oscillations in the Trans-membrane Current of Cytomegalic Neurons
E. Benk[1], D. Estumano[2], and J. Riera[1]
[1]Florida International University, Miami, FL, [2]Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

P-Sat-444
Predicting The Far-Field Effects Of Deep Brain Stimulation: New Targets For Sub-threshold Neuromodulation
M. Aboseria[1], D. Truong[1], A. Mourdoukoutas[1], and M. Bikson[1]
[1]The City College of New York, New York, NY

P-Sat-445
Identifying Neuronal Pathways for Generating Saccades to Stationary Targets
L. Drnach[1], U. Jagadisan[1], and N. Gandhi[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-446
Brain Regions Matter *In Vitro* and *In Vivo*: A Proteomics Based Evaluation
T. Murty[1], B. Maoz[1], S. Dauth[1], S. Sheehy[1], M. Hemphill[1], T. Grevesse[1], B. Budnik[1], and K. K. Parker[1]
[1]Harvard University, Cambridge, MA

P-Sat-447
Development Of A Real-Time Hollow Organ Measurement System To Quantify The Effect Of Stimulation On Colonic Activity
K. Aamoth[1,2,3], D. Bourbeau[1,2,3], and K. Gustafson[1,2,3]
[1]Case Western Reserve University, Cleveland, OH, [2]Louis Stokes Cleveland VA Medical Center, Cleveland, OH, [3]Cleveland VA FES Center, Cleveland, OH

P-Sat-448
Peripheral Nerve Stimulation for Female Sexual Dysfunction: Slow Oscillations in Vaginal Blood Flow
I. Rice[1], S. Ross[1], and T. Bruns[1]
[1]University of Michigan, Ann Arbor, MI

P-Sat-449
Protoplasmic Astrocyte Conditioned Media Promotes Motoneuron Growth
M. Saunders[1,2]
[1]Johns Hopkins University, Baltimore, MD, [2]Washington University in St. Louis, St. Louis, MO

P-Sat-450
Automated Analysis Of Sleep And Sensory Responses In Adult C. Elegans
A. Marley[1,2], D. Lawler[2], and D. Albrecht[2]
[1]Arizona State University, Tempe, AZ, [2]Worcester Polytechnic Institute, Worcester, MA

P-Sat-451
Mapping and Modeling EEG Signals Before and After a Craniotomy Procedure
D. Issar[1], A. Snyder[1], and M. Smith[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-452
Co-modulating the Mechanical and Bioactive Properties of CMHAS-PEGDA Hydrogels for Neural Tissue Engineering
A. Lebron-Garcia[1], M. Godesky[2], and D. Shreiber[2]
[1]University of Puerto Rico-Mayaguez, Mayaguez, PR, [2]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Sat-453
Fabricating and Evaluating Carbon Fiber Microelectrode Arrays for Recording and Stimulation of Muscle Activity
W. McFadden[1], T. D. Y. Kozai[1], and X. T. Cui[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-454
Resting State fMRI Data and Bayesian Network Diagnostic Capability
M. Yeatts[1], L. Price[2], K. Ballard[3], and D. Robin[1,4]
[1]University of Texas at San Antonio, San Antonio, TX, [2]Texas State University, San Marcus, TX,[3]Neuroscience Research Australia and University of New South Wales, Randwick, Australia,[4]University of Texas Health Science Center, San Antonio, San Antonio, TX

P-Sat-455
Null And Potent Patterns Of Activity In Superior Colliculus During Saccadic Eye Movements.
D. Starkman[1], U. Jagadisan[1], and N. Gandhi[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-456
Neural Representation of Objects During Brain-Computer Interface
S. Neeno[1], J. Downey[2], and J. Collinger[2]
[1]Worcester Polytechnic Institute, Worcester, MA, [2]University of Pittsburgh, Pittsburgh, PA

P-Sat-457
Systemic Inhibition Of Innate Immunity Pathways Improves Intracortical Microelectrode Performance
A. Soffer[1], J. Hermann[1,2], C. Wong[1], J. Chang[1], G. Protasiewicz[1], and J. Capadona[1,2]
[1]Case Western Reserve University, Cleveland, OH, [2]Advanced Platform Technology Center, Louis Stokes Cleveland VA Medical Center, Cleveland, OH

P-Sat-458
Optimal Receptive Fields For The Classification Of Conspecific Vocalizations
P. Haggerty[1] and S. Sadagopan[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-459
Local Changes in Expression of Markers of Excitability in Brain Tissue Surrounding Neuroprostheses
J. Salatino[1], D. Moncrease[1], M. Sass[1], and E. Purcell[1]
[1]Michigan State University, East Lansing, MI

P-Sat-460
Investigating Inflammatory Response Of Neural Tissue Between Implantable Electrode Architectures
B. Koo[1,2], K. Patel[2,3], G. Knaack[2], V. Krauthamer[2], E. Civillico[2], and C. Welle[2]
[1]George Mason University, Fairfax, VA, [2]Food and Drug Administration, Silver Spring, MD,[3]University of Maryland, College Park, MD

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Sat-461
Electrical Characterization of a Flexible, Ultra-fast Degrading Polymer Coated Neural Microelectrode Probe
J. Leipheimer[1], M-C. '. Lo[2], M. '. Zheng[2], and J. Zahn[2]
[1]Robert Morris University, Pittsburgh, PA, [2]Rutgers University, Piscataway, NJ

P-Sat-462
Monitoring The Temperature Of The Skin During Transcranial Direct Current Stimulation
A. Zannou[1], F. Zunara[1], N. Khadka[1], and M. Bikson[1]
[1]City University of New York, CUNY, New York, NY

P-Sat-463
Nonlinear Encoding of Movement by Motor Neurons in Rhesus Monkeys
N. Card[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-464
A System For Identifying Modulators Of Neural Activity In A Whole-Organism Channelopathy Model
C. Dick[1,2], R. Lagoy[2], and D. Albrecht[2]
[1]Massachusetts Institute of Technology, Cambridge, MA, [2]Worcester Polytechnic Institute, Worcester, MA

P-Sat-465
Development of a Leakage Testing Apparatus for Evaluation of Electrode Encapsulation
A. Kumar[1] and S. Cogan[1]
[1]University of Texas at Dallas, Richardson, TX

P-Sat-466
Increased Postsynaptic Response Resulting From High Frequency Stimulation In Cortical Networks
R. Graham[1], F. Hamilton[1], S-A. Zaidi[1], S. Jose[2], and N. Peixoto[1]
[1]George Mason University, Fairfax, VA, [2]Thomas Jefferson High School For Science and Technology, Alexandria, VA

P-Sat-467
Planar Electrodes with Koch Snowflake Geometries Increase Stimulation Efficiency of Neural Tissue
S. Kuchibhatla [1], M. Meller [1], M. Benmassaoud[1], and X. Wei[1]
[1]The College of New Jersey, Ewing, NJ

Track: Undergraduate Research, Design and Leadership

Orthopedic and Rehabilitation Engineering Posters

P-Sat-544
Associations between Intentional Weight Loss and Bone Quality in Obese, Older Adults
D. Jain[1], A. Marsh[2], D. Beavers[2], W. Rejeski[2], A. Weaver[3], J. Stitzel[3], and K. Beavers[2]
[1]University of Maryland, College Park, College Park, MD, [2]Wake Forest University, Winston-Salem, NC, NC, [3]Virginia Tech-Wake Forest University Center for Injury Biomechanics, Winston-Salem, NC

P-Sat-545
Finite Element Study: Novel Acetabular Fracture Reconstruction Plate Alignment Uniformly Distributes Strains across the Fracture Surface
T. Di Pauli von Treuheim[1]
[1]Union College, Schenectady, NY

P-Sat-546
A Possible Mechanism for Morning Stiffness/Pain in Insertional Achilles Tendinopathy
M. Bucklin [1], R. Chimenti[2], A. S. Flemister[3], J. Ketz[3], M. Richards[3], and M. Buckley[1]
[1]University of Rochester, Rochester, NY, [2]University of Iowa, Iowa City, IA, [3]University of Rochester Medical Center, Rochester, NY

P-Sat-547
Surgical Instrument for Reduction and Fixation of Pediatric Tibial Eminence Fractures
M. Dimoff[1], G. Gillispie[1], S. Mannava[2], A. Stone[2], and P. Brown[1]
[1]Virginia Polytechnic Institute and State University-Wake Forest University, Winston-Salem, NC, [2]Wake Forest Baptist Medical Center, Winston-Salem, NC

P-Sat-548
Using Simulation to Quantify Errors in a 2D Lidar Terrain Reconstruction System
S. King[1], M. Liu[1], and H. (. Huang[1]
[1]North Carolina State University, Raleigh, NC

P-Sat-549
Towards Better Control of Upper Prosthetic Limbs: A Force-Myographic Approach
K. Chellamuthu[1]
[1]Johns Hopkins University, Overland Park, KS

P-Sat-550
Design of a Self-Paced Motorized Treadmill (SPMT) to Simulate Over Ground Walking
N. Patel[1] and D. Lura[1]
[1]Florida Gulf Coast University, Fort Myers, FL

P-Sat-551
Rapid Manufacturing Of Custom Foot Orthoses for Reduction Of Peak Plantar Pressure
K. Walker[1], B. Przestrzelski[1], B. Kaluf[2], N. Hooks[2], W. Ballard II[3], T. Pruett[4], S. Hoeffner[5], R. Fitzgerald[6], and J. DesJardins[1]
[1]Clemson University, Clemson, SC, [2]Ability Prosthetics and Orthotics, Inc., Exton, PA, [3]Upstate Pedorthic Services, Greer, SC, [4]Engineering/MTS, Clemson, SC, [5]Hoeffner Consulting, Easley, SC, [6]Greenville Health System, Greenville, SC

P-Sat-552
Characterization of the Antimicrobial Effects of a Silver-Doped Titanium Dioxide-PDMS Hybrid Coating on the Adherence and Proliferation of Multi-Drug Resistant A. baumannii on Spinal Implant Rods of Varying Compositions
A. Minnah[1], E. M. Nguyen[1], D. R. Garcia[1,2,3], J. Jarrell[1,3], and C. Born[1,2,3]
[1]Brown University, Providence, RI, [2]Rhode Island Hospital, Providence, RI, [3]BionIntraface, Inc., North Kingston, RI

P-Sat-553
Examining the Gerwin and Pritzker OARSI Scoring Methods in the MIA and MMT Rodent Models of OA
M. Pires-Fernandes[1], B. Jacobs[1], and K. Allen[1]
[1]University of Florida, Gainesville, FL

P-Sat-554
Dual Quadriceps And Hamstring Loading Instrument For *Ex Vivo* MRI Models Of Knee Extension
L. Lane[1], L. Bertoy[2], M. Black[2], E. McWalter[2], G. Gold[2], and M. Levenston[2]
[1]New Mexico Tech, Socorro, NM, [2]Stanford University, Stanford, CA

P-Sat-555
Depth- vs. Width-Wise Quantification Of Cartilage Damage Following Joint Destabilizing Surgery In The Mouse
A. White[1], C. Price[2], M. David[2], M. Smith[2], R. Pilachowski[2], and R. Locke[2]
[1]University of Delaware, Wilmington, DE, [2]University of Delaware, Newark, DE

P-Sat-556
Graph Theoretical Analysis of Intramuscular Fat in the Suprapinatus
Y. Ho[1], B. Sullivan[1], K. Saul[1], and B. Mork[1]
[1]North Carolina State University, Raleigh, NC

P-Sat-557
Kinematic Effects of 3 Commercially Available Ankle Stabilizing Orthoses.
E. De La Rosa Jr.[1] and N. Gamso[1]
[1]Florida Gulf Coast University, Fort Myers, FL

See page 208 for Poster floor plan

P-Sat-558
Chondrogenesis Deficiency in Matrilin-1 Knock-out Mice
G. Calixte[1,2,3], Y. Gao[2,3], Y. Chen[2,3], and Q. Chen[2,3]
[1]University of Miami, North Miami Beach, FL, [2]Rhode Island Hospital, Providence, RI, [3]Brown University, Providence, RI

P-Sat-559
Smart Sensor-Driven CGI Physical Therapy System For Fine Motor Skill Disabilities
J. Rey[1], O. Ledezma[1], E. Orellana[1], K. Belknap[1], B. Lee[1], N. Carusetta[1], and D. Won[1]
[1]California State University, Los Angeles, Los Angeles, CA

P-Sat-560
Real-Time Tracking with Virtual Reality Headset
J. Keime[1], K. Ladia[1], J. Shah[1], and D. Lura[1]
[1]Florida Gulf Coast University, Fort Myers, FL

Track: Undergraduate Research, Design and Leadership
Respiratory Bioengineering Posters

P-Sat-561
Intact Airways as a Platform for Assessing Long Term Airway Reactivity
S. Satish[1], J. Shelofsky[1], M. Torres[1], H. Parameswaran[1], and K. Lutchen[1]
[1]Boston University, Boston, MA

P-Sat-562
Creating a Hybrid Scaffold for Lung Modeling and Regeneration
B. Allen[1], B. Young[1], B. Blakeney[1], R. Pouliot[1], and R. Heise[1]
[1]Virginia Commonwealth University, Richmond, VA

P-Sat-563
Bicarbonate Hemodialysis for Low-Flow CO2 Removal: Dialysate Recycling
L. Marra[1], A. May[1], and W. Federspiel[1,2]
[1]University of Pittsburgh, Pittsburgh, PA, [2]The McGowan Institute of Regenerative Medicine, Pittsburgh, PA

Track: Undergraduate Research, Design and Leadership
Stem Cell Engineering Posters

P-Sat-564
The Effects of Mechanical Stimulation on Encapsulated Mesenchymal Stem Cells
B. McClarren[1], A. Aijaz[1], S. Mehta[1], and R. Olabisi[1]
[1]Rutgers University, Piscataway, NJ

P-Sat-565
Laminar Shear Stress and Inhibition of DNA Methylation Induce the Protein Expression of von Willebrand Factor in Human Mesenchymal Stem Cells
L. Lou[1], C. Pan[2], R. Nerem[2], and Y. Fan[2]
[1]The Ohio State University, Columbus, OH, [2]Georgia Institute of Technology, Atlanta, GA

P-Sat-566
Multi-transgenic Human Stem Cells Permit Live Visualization of Cytomechanical and Intranuclear Dynamics
R. Prestil[1,2], T. Harkness[1,2], and K. Saha[1,2]
[1]Wisconsin Institute for Discovery, Madison, WI, [2]University of Wisconsin-Madison, Madison, WI

P-Sat-567
Inducing Mechanical Stresses in Electro-active PEGDA Hydrogels to Influence the Fate of Encapsulated Human Mesenchymal Stem Cells
K. Gupta[1], R. Mojoyinola Olabisi[1], K. White[1], and S. Mehta [1]
[1]Rutgers University, Piscataway, NJ

P-Sat-568
Understanding the Role of Primary Cilia Mechanosensing in Human Adipose Derived Stem Cells
M. Hamouda[1]
[1]North Carolina State University, Raleigh, NC

P-Sat-569
Standardizing A Protocol For Cytotoxicity Testing With Mouse Embryonic Stem Cells
K. Klett[1,2], N. Shen[2,3], M. Monaghan[2,3], and K. Schenke-Layland[2,3,4]
[1]University of Pittsburgh, Pittsburgh, PA, [2]Fraunhofer Institute for Interfacial Engineering and Biotechnology, Stuttgart, Germany, [3]Research Institute for Women's Health, Eberhard Karls University, Tübingen, Germany, [4]Cardiovascular Research Laboratories, University of California, Los Angeles, CA

P-Sat-570
The Effects Of The Biophysical Microenvironment On Human Mesenchymal Stem Cell Behavior During Simulated Microgravity
J. Wang[1], C. Luna[2], A. Hsieh[2], and A. Yew[3]
[1]University of California Los Angeles, Los Angeles, CA, [2]University of Maryland, College Park, MD, [3]NASA Goddard Space Flight Center, Greenbelt, MD

Track: Undergraduate Research, Design and Leadership
Tissue Engineering Posters

P-Sat-620
A Novel Bioreactor System for Rotator Cuff Tendon Tissue Engineering
J. Liu[1], J. Arrizabalaga[1], H. Poarch[1], A. Luansing[1], and M. Nollert[1]
[1]University of Oklahoma, Norman, OK

P-Sat-621
Effects of Matrix Mechanics on the Secretion of Leukocyte Chemoattractants from Bone Marrow-Derived Mesenchymal Stromal Cells
M. Cooper[1]
[1]Harvard John A. Paulson School of Engineering & Applied Sciences, Cambridge, MA

P-Sat-622
Characterization of an *in vitro* Colon-on-a-Chip Model
M. Lebhar[1]
[1]UNC Chapel Hill, Chapel Hill, NC

P-Sat-623
Collagen Coated Architectural Gradient Scaffolds for Subchondrial Restoration
D. Castillo[1], J. Pearson[1], S. Montelongo[1], J. Ong[1], and T. Guda[1]
[1]UTSA, San Antonio, TX

P-Sat-624
Determining the Effects of Pegylated Epidermal Growth Factor on RPE Cells
R. Drake[1,2], C. White[2], and R. Olabisi[2]
[1]California Lutheran University, Thousand Oaks, CA, [2]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Sat-625
Viability and Quantification of Nuclei in Engineered Skeletal Muscle Bundles during Maturation
J. Santoso[1], M. Walker[1], B. Davis[1], and G. Truskey[1]
[1]Duke University, Durham, NC

P-Sat-626
Optimizing Porosity Of Fast Degrading Small-Diameter Synthetic Vascular Grafts
J. Zhuang[1], R. Allen[1], C. Stowell[1], and Y. Wang[1]
[1]University of Pittsburgh, Pittsburgh, PA

P-Sat-627
Characterization Of Aligned Collagen Scaffolds Produced From Fibrillar Collagen Hydrogels
I. Reucroft[1], C. Lowe[1], and D. Shreiber[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Sat-628
Optimization Of The Hanging Drop Method For Production Of M231 Multicellular Tumor Spheroids
S. Duongtran[1], D. Kingsley[1], and D. Corr[1]
[1]*Rensselaer Polytechnic Institute, Troy, NY*

P-Sat-629
The Effect of Organ Specific ECM on Endothelial Cell Phenotype
J. Delafontaine[1]
[1]*University of Rochester, Rye Brook, NY*

P-Sat-630
Biocompatible Acetalated Dextran Scaffolds Loaded with Gelatin for Enhanced Cellular Adhesion
G. Collins[1]
[1]*UNC, Chapel Hill, NC*

P-Sat-631
Release Of Conditioned Medium Encapsulated In PEGDA Hydrogels For Tendon Healing
J. Zhingre Sanchez[1]
[1]*Rensselaer Polytechnic Institute, Briarwood, NY*

P-Sat-632
In Situ Crosslinking Gelatin Hydrogel For Vasculogenesis And Delivery Of Mesenchymal Stem Cells
A. Hwang[1,2], S. H. Lee[1], D. Balikov[1], and H-J. Sung[1]
[1]*Vanderbilt University, Nashville, TN,* [2]*SyBBURE-Searle Undergraduate Research Program, Nashville, TN*

P-Sat-633
author cancellation

P-Sat-634
The Effect Of Cell Division On Tissue Spreading
C. Williams[1], J. Shawky[1], and L. Davidson[1]
[1]*University of Pittsburgh, Pittsburgh, PA*

P-Sat-635
The Calcification Potential of Cryogel Scaffolds Incorporated with Hydroxyapatites for Bone Regeneration
C. Eberlin[1], K. Hixon[2], S. McBride-Gagyi[1], and S. Sell[2]
[1]*Saint Louis University, St. Louis, MO,* [2]*Saint Louis University, St Louis, MO*

P-Sat-636
Extrinsic Hyaluronic Acid Affects Early Compaction of Fibrin Gels by Valvular Interstitial Cells
P. Tarboton[1], L. Bortolin[2], F. Benesch-Lee[2], and K. Billiar[2]
[1]*University of Utah, Salt Lake City, UT,* [2]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-637
Improving The Creation Of Functional In-Vitro Skeletal Muscle Tissue
C. Hughes-Oliver[1], J. Forte[2], and R. Page[2]
[1]*University of Virginia, Charlottesville, VA,* [2]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-638
Miniaturization of a Microtissue Bioreactor System to Optimize Tissue Engineering Research
B. Romell[1], R. Gottardi[2], and R. Tuan[2]
[1]*University of Pittsburgh, Pittsburgh, PA,* [2]*Center for Cellular and Molecular Engineering, Pittsburgh, PA*

P-Sat-639
Analyzing Shape and Size of Alginate Microbeads for Preadipocyte Encapsulation
K. Walker[1], V. Ibarra[1], M. Vaicik[1,2], and E. Brey[1,2]
[1]*Illinois Institute of Technology, Chicago, IL,* [2]*Department of Veterans Affairs Hines, Hines, IL*

P-Sat-640
Mechanical Characterization Of Decellularized Cardiac Slices For Myocardial Infarction Treatment
E. Mulvany[1], H. Cebull[1], P. Kc[1], R. Willits[1], and G. Zhang[1]
[1]*The University of Akron, Akron, OH*

P-Sat-641
Construction of a Bioartificial Kidney using Organ ECM and Naïve Pluripotent Stem Cells
P. Deshpande[1], R. Xu[1], A. Allen[1], and J. Zoldan[1]
[1]*University of Texas at Austin, Austin, TX*

P-Sat-642
The Effect of Nanofiber Manufacturing Parameters on the Effective Porosity of Biological Scaffolds
T. Brazell[1], J. Ward[1], V. Phillips[1], and K. Talty[1]
[1]*United States Military Academy, West Point, NY*

P-Sat-643
The Effects of a Fiber Density on Adherens Junctions and Localization of -Catenin
R. Wolfe[1]
[1]*The Pennsylvania State University, University Park, PA*

P-Sat-644
Intact Acellular Dermal ECM Scaffold Supports Tenogenic Dechanodifferentiation
A. Baldwin-LeClair [1] and C. Wagner[1]
[1]*The College of New Jersey, Ewing, NJ*

P-Sat-645
Induced Osteoclastogenesis in Murine Bone Marrow for 3D Osteocyte Network Culture
K. Savitsky[1], Q. Sun[1], J. Zilberberg[2], and W. Lee[1]
[1]*Stevens Institute of Technology, Hoboken, NJ,* [2]*Hackensack University Medical Center, Hackensack, NJ*

P-Sat-646
Influence Of Electrical Stimulation On Gene Expression Of Human Dermal Fibroblasts
A. Casella[1], S. Snyder[1], and R. K. Willits[1]
[1]*The University of Akron, Akron, OH*

P-Sat-647
Engineered Co-cultures of Primary Human Liver Sinusoidal Endothelial Cells and Hepatocytes
M. Durham[1], B. Ware[1], and S. Khetani[1]
[1]*Colorado State University, Fort Collins, CO*

P-Sat-648
Characterization Of Cryptochrome/spCRE System For Optogenetic Control of Myogenesis
T. Chien[1], K. Ali[1], and E. Hui[1]
[1]*University of California, Irvine, Irvine, CA*

P-Sat-649
Measuring the Migration of Mesenchymal Stems Cells from Fibrin Microthreads to Different Protein Substrates
J. Jones[1], K. Hanson[1], J. Gershlak[1], and G. Gaudette[1]
[1]*Worcester Polytechnic Institute, Worcester, MA*

P-Sat-650
Long-Term Culture of Engineered Skeletal Muscle on Micromolded Gelatin Hydrogels
G. Suh[1], A. Bettadapur[1], H. Huber[1], C. Hua[1], E. Wang[1], A. Viscio[1], J. Y. Kim[1], J. Strickland[1], and M. McCain[1]
[1]*University of Southern California, Los Angeles, CA*

P-Sat-651
Development of a Novel Hepatocyte Culture Platform for High Throughput Pharmacokinetic Screening
R. Mines[1], F. Berthiaume[2], and G. Yarmush[2]
[1]*University of South Alabama, Mobile, AL,* [2]*Rutgers University, Piscataway, NJ*

P-Sat-652
Biofabrication of a Vascular Network: Applying AC Electrospinning to 3D Printing for Tissue Engineering
V. Gilchrist[1], R. Bailey[1], S. Baskerville[1], I. McClure[1], and M. Kwan[1]
[1]*Florida Institute of Technology, Melbourne, FL*

See page 208 for Poster floor plan

P-Sat-653
Designing a More Effective in vitro Model for 3D Artificial Tumor Growth
A. Cross[1], C. Williams [1], and V. Sikavitsas[1]
[1]*University of Oklahoma, Norman, OK*

P-Sat-654
Macromolecular Crowding Effects On Collagen Deposition By MG-63 Cells
J. Schweikart[1] and N. Case[1]
[1]*Saint Louis University, Saint Louis, MO*

P-Sat-655
Role of Hydroxyapatite Nanoparticles on the Vascularization of 3D Scaffolds for Bone Tissue Engineering
I. Arias[1], B. Roux[1,2], and E. Brey[1,2]
[1]*Department of Biomedical Engineering, Illinois Institute of Technology, Chicago, IL,*[2]*Research Service, Hines VA Hospital, Chicago, IL*

P-Sat-656
Modular Tissue Engineering With GAG-Chitosan Complex Hollow Fibers
A. Gagliardi[1] and H. Matthew[1]
[1]*Wayne State University, Detroit, MI*

P-Sat-657
Use of Fibrin Beads in a Tubular Perfusion Bioreactor for Formation of Mineralized Tissue
R. Rodriguez[1], J. Gandhi[2], B. Roux[2], and E. Brey[2]
[1]*St. Mary's University, San Antonio, TX,* [2]*Illinois Institute of Technology, Chicago, IL*

P-Sat-658
Effects of Glycosaminoglycan Surface Composition on MSC Differentiation to Valvular Lineages
A. Szpytman[1], A. Jacob[1], and H. Matthew[1]
[1]*Wayne State University, Detroit, MI*

P-Sat-659
Maintaining *In Vitro* Myotube Cultures by Genipin Modification of Micropatterned Fibronectin Lines
S. Chang[1], R. Duffy[1], and A. Feinberg[1]
[1]*Carnegie Mellon University, Pittsburgh, PA*

P-Sat-660
Tracking Cell-generated Compaction Strains in 3D Tissue using Fibronectin Based Nanomechanical Biosensors
S. Liu[1], A. Tsamis[1], R. Duffy[1], T. J. Hinton[1], and A. Feinberg[1]
[1]*Carnegie Mellon University, Pittsburgh, PA*

P-Sat-661
Engineered Cardiac Tissue For Regenerative Medicine And Drug Testing
B. Makavana[1], A. Alassaf[1], V. Mayo[1], and A. Agarwal[1]
[1]*Department of Biomedical Engineering, Department of Pathology, University of Miami, Miami, FL*

P-Sat-662
Primary Chondrocytes and Particulated Cartilage Contract Collagen Gel *in Vitro*
O. Wroblewski[1,2], E. Bird [2], B. Schumacher[2], C. Ong[3], W. Davis-Betanzos[2], F. Hsu[2], V. Wong[2], A. Chen[2], A. Raleigh[2], and R. Sah[2]
[1]*Yale University, New Haven, CT,* [2]*University of California-San Diego, La Jolla, CA,* [3]*Wright State University, Dayton, OH*

Track: Undergraduate Research, Design and Leadership

Translational Biomedical Engineering Posters

P-Sat-666
Implementation and Validation of Discrete Neck Musculature in a Simplified Human Body Model
M. Boswell[1,2,3], B. Koya[2,3], and F. S. Gayzik[2,3]
[1]*The University of Akron, Copley, OH,* [2]*Wake Forest University School of Medicine, Winston-Salem, NC,* [3]*Virginia Tech – Wake Forest University School of Biomedical Engineering and Sciences, Winston-Salem, NC*

P-Sat-667
3D-Printed Micropipette
F. Bokhari[1], M. Brennan[1], and D. Eddington[1]
[1]*University of Illinios at Chicago, Chicago, IL*

P-Sat-668
In Vitro Models for Convection Enhanced Delivery to the Putamen
C. Norsigian[1], P. Hardy[2], and L. Bradley[2]
[1]*University of Virginia, Charlottesville, VA,* [2]*University of Kentucky, Lexington, KY*

P-Sat-669
Medical Device Industry Characteristics and Trends
N. Le[1], B. Johnston [1], and N. Lemme[1]
[1]*Brown University, Providence, RI*

P-Sat-670
Quantification of Microvasculature Blood Flow in Diabetes Mellitus in Relation to Vascular Endothelial Growth Factor
K. Michelson[1,2], E. Dosmar[1], M. Liu[1], C. Osswald[1], J. J. Kang-Mieler[1], and K. M. Tichauer[1]
[1]*Illinois Institute of Technology, Chicago, IL,* [2]*University of North Dakota, Grand Forks, ND*

P-Sat-671
A Brain Phantom Prototype For Cortical Surface Cooling Device Development
M. Fritz[1,2], P. Brown[1,3], G. Popli[1], and F. S. Gayzik[1,3]
[1]*Wake Forest University School of Medicine, Winston-Salem, NC,* [2]*University of Illinois at Urbana-Champaign, Urbana-Champaign, IL,* [3]*Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences, Winston-Salem, NC*

P-Sat-672
Ebstein's Anomaly: Right Ventricle Mapping, Volume, and Flow
S. Lo[1], A. Niquette[1], V. Flamini[1], A. Shore[1], and P. Bhatla[2]
[1]*New York University, Brooklyn, NY,* [2]*New York University, New York, NY*

POSTER SESSION **Sat**

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

Tampa Marriott Waterside

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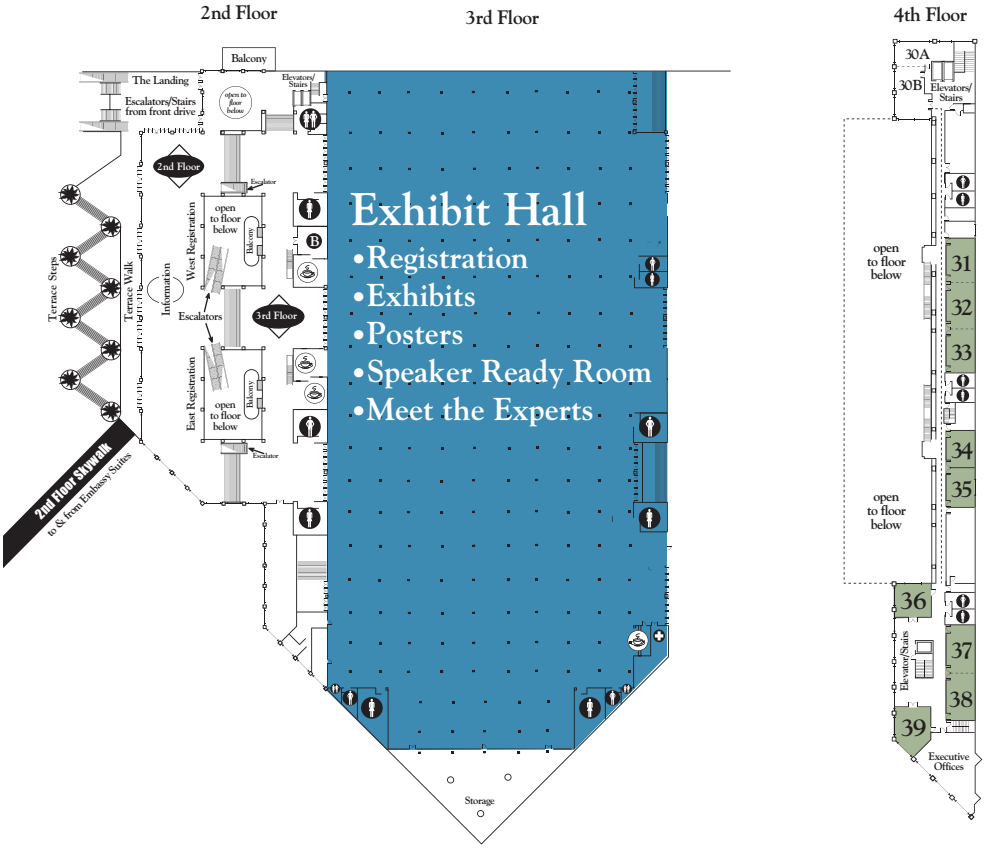

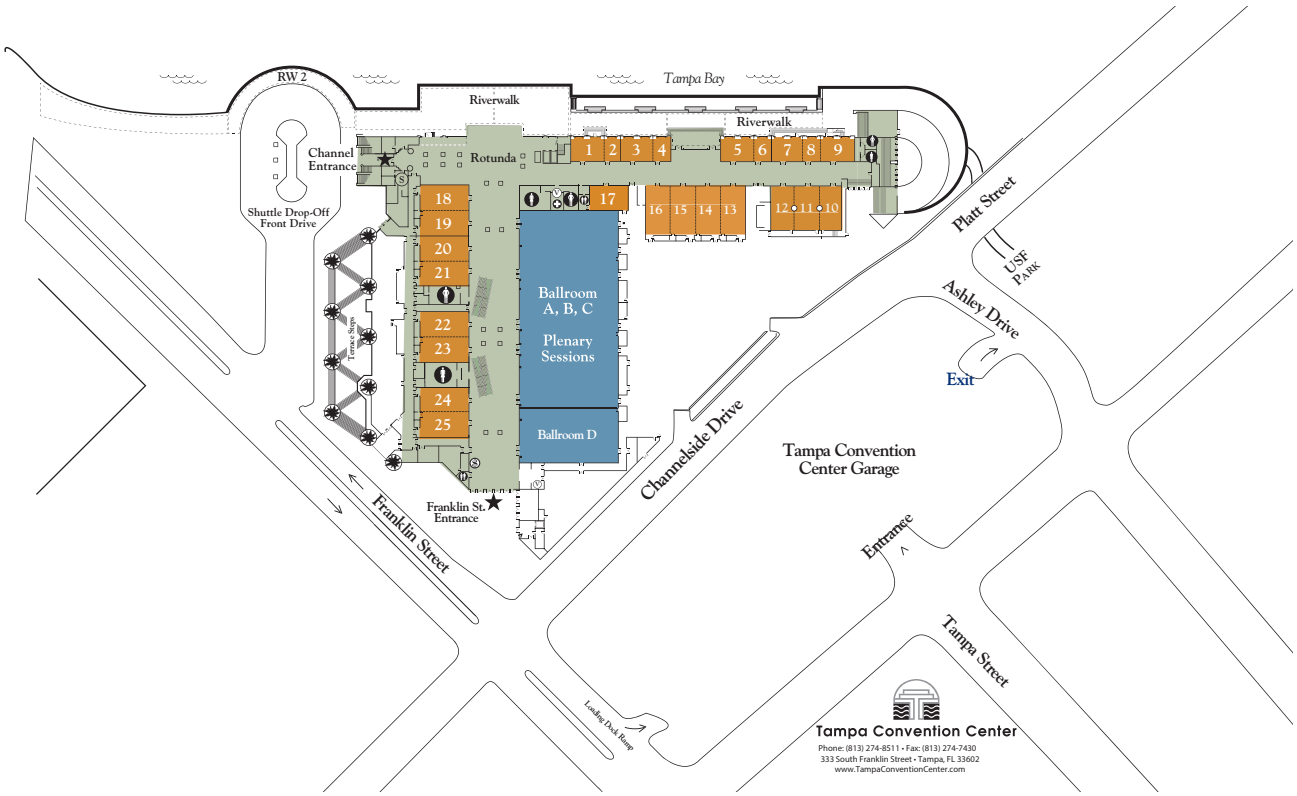

Track	8:00am – 9:30am	2:00pm – 3:30pm	4:30pm – 6:00pm
BIOINFORMATICS, COMPUTATIONAL AND SYSTEMS BIOLOGY			**From Molecules to Cells and Organs in Health and Disease** Room 17
BIOMATERIALS	**Biomaterials Scaffolds I** Room 21 **Micro and Nano Structured Materials I** Room 23	**Biomaterials Scaffolds II** Room 21 **Micro and Nano Structured Materials II** Room 23 **Therapeutic and Theranostic Biomaterials I** Room 22	**Biomaterials Scaffolds III** Room 21 **Bioinspired and Self Assembling Biomaterials I** Room 23 **Biomaterials for Immunoengineering I** Room 22
BIOMECHANICS	**Concussion and Head Impact Measurement and Mitigation in Sports** Room 15 **Computational and Multiscale Modeling, Cellular and Cardiovascular** Room 16	**Head Injury Molecular to Macro, Simulation and Protection** Room 15 **Computational Modeling, Musculoskeletal and Whole Body** Room 16	**Blast Trauma** Room 15 **Organ and Cell Biomechanics** Room 16
BIOMEDICAL ENGINEERING EDUCATION	**ABET Workshop: Criteria for Your Next Accreditation** Room 9		
BIOMEDICAL IMAGING & OPTICS	**Magnetic Resonance Imaging** Room 11	**New Ultrasound Imaging Technologies** Room 11 **Image Processing and Analysis** Room 9	**Multi-modality Imaging Approaches** Room 11 **PET, SPECT, and CT** Room 9
CANCER TECHNOLOGIES	**Engineered Models of Cancer and Tumor Environment I** Room 20	**Engineered Models of Cancer and Tumor Environment II** Room 20 **Cancer Cell Mechanics and Engineering** Room 19	
CARDIOVASCULAR ENGINEERING	**Hemodynamics and Vascular Mechanics** Room 3-4 **Cardiac Electrophysiology** Room 17 **Cardiovascular Tissue Engineering I** Room 13	**Sickle Cell Disease – Pathophysiology** Room 3-4 **Heart Valves** Room 17 **Cardiovascular Tissue Engineering II** Room 13	**Sickle Cell Disease - Engineering Therapies** Room 3-4
CELLULAR & MOLECULAR BIOENGINEERING	**Cell Adhesion and Interactions with the Extracellular Matrix I** Room 18 **Cell Motility** Room 19 **Computational and Multiscale Modeling, Cellular and Cardiovascular** Room 16	**Cell Adhesion and Interactions with the Extracellular Matrix II** Room 18 **Cancer Cell Mechanics and Engineering** Room 19	**Cell Adhesion and Interactions with the Extracellular Matrix III** Room 18 **Mechanotransduction I** Room 19
DEVICE TECHNOLOGIES AND BIOMEDICAL ROBOTICS	**Biomedical Device Design in Translational Research** Room 22	**Biomedical Robotics** Room 14	

PROGRAM-AT-A-GLANCE

Track	8:00am – 9:30am	2:00pm – 3:30pm	4:30pm – 6:00pm
DRUG DELIVERY	**Responsive Delivery Systems** Room 10	**Nano to Micro Devices in Delivery I** Room 10	**Nano to Micro Devices in Delivery II** Room 10
NANO AND MICRO TECHNOLOGIES	**Medical Diagnostics and Screening I** Room 7-8	Medical Diagnostics and Screening II Room 7-8 **Nano to Micro Devices in Delivery I** Room 10	**Theranostics and Nanoparticles I** Room 20 **Nano/Microbiotechnology I** Room 7-8 **Nano to Micro Devices in Delivery II** Room 10
NEURALENGINEERING	**Neural Interfaces: Compatibility, Recording, and Stimulation I** Room 12 **Device-based Approaches for Axonal Growth and Guidance** Room 1	**Neural Interfaces: Compatibility, Recording, and Stimulation II** Room 12 **Neural Progenitor and Tissue Engineering** Room 1	**Neural Interfaces: Compatibility, Recording, and Stimulation III** Room 12
ORTHOPEDIC AND REHABILITATION ENGINEERING			**Articular Cartilage and Joint** Room 14
RESPIRATORY BIOENGINEERING			**Surface Tension and Surfactant Function in the Lung** Room 1
STEM CELL ENGINEERING	**Stem Cells in Pre-clinical and Clinical Models** Room 5-6	**Stem Cells in Pre-clinical and Clinical Models** Room 5-6	**Engineering Stem Cell Environments** Room 5-6
TISSUE ENGINEERING	**Cardiovascular Tissue Engineering I** Room 13 **Inflammation and Immunomodulation in Tissue Engineering I** Room 14	**Cardiovascular Tissue Engineering II** Room 13	**Engineering Replacement Tissues** Room 13
TRANSLATIONAL BIOMEDICAL ENGINEERING	**Biomedical Device Design in Translational Research** Room 22		
OTHER	**ABioM SIG Meeting** Room 35	2-4pm – Room 24 **Biomedical Engineering Technology for the Elimination of Health Disparities**	
STUDENT AND EARLY CAREEER	8-9am – Ballroom A **How to Find a Job in Industry** 9:15-10:15am – Ballroom A **BME Careers in Industry, Government and Academia**	2-4pm - Ballroom BC **Resume Review & Critique**	4-5:30pm – Ballroom A **Transitioning from Academia to Industry Panel**

Track	8:00am – 9:30am	1:45pm – 2:45pm	3:00pm – 4:00pm
BIOINFORMATICS, COMPUTATIONALAND SYSTEMS BIOLOGY	Multiscale Approaches Room 17	Molecules and Molecular Systems Room 17	Cell Signaling and Therapeutics Room 17
BIOMATERIALS	Bioinspired and Self Assembling Biomaterials II Room 23 Biomechanics in Biomaterials and Tissue Engineering Room 21	Biomaterials for Immunoengineering III Room 22 Micro and Nano Structured Materials III Room 23	Therapeutic and Theranostic Biomaterials II Room 22 Biomaterials for Controlling Cell Environment Room 23
BIOMECHANICS	Biomaterials for Immunoengineering II Room 22 Biomechanics in Biomaterials and Tissue Engineering Room 21	Biomechanics, Injury I - Gait and Motion Room 20 Cell and Tissue Biomechanics I Room 21	Biomechanics, Injury II: Spine Room 20 Applications of Imaging in Biomechanics Room 1
BIOMEDICAL ENGINEERING EDUCATION	Novel Techniques for Incorporating Design into BME Curricula Room 9		Interactive Education: How to Engage, Excite, and Teach BME Students Room 21
BIOMEDICAL IMAGING & OPTICS	Image Guided Focused Ultrasound Therapies Room 11	Applications of Imaging in Tissue Engineering Room 11 Imaging in Cancer Room 9	Applications of Imaging in Biomechanics Room 11 Imaging Technologies in Clinical Translation Room 5-6 Imaging in Cardiovascular Systems Room 3-4
CANCER TECHNOLOGIES	Cancer Immunoengineering Ballroom BC	Imaging in Cancer Room 9	Personalized Medicine in Cancer Room 9
CARDIOVASCULAR ENGINEERING	Microcirculation Room 3-4	Stents Room 3-4	Imaging in Cardiovascular Systems Room 3-4 Cardiovascular Devices Room 16
CELLULAR & MOLECULAR BIOENGINEERING	Stem Cell Bioengineering Room 18 Mechanotransduction II Room 19 Young Innovators Session I: Cellular Engineering Room 5-6	Cell and Tissue Biomechanics I Room 21 Mechanotransduction III Room 19 Young Innovators Session I: Regenerative Medicine and Drug/ Cell Delivery Room 5-6	
DEVICE TECHNOLOGIES AND BIOMEDICAL ROBOTICS		Verification and Validation of Computational Models of Medical Devices Room 201 Peripheral Neural Interfaces: Simulation & Recording Room 001B	Cardiovascular Devices Room 16
DRUG DELIVERY	Drug Delivery in Tissue Engineering Room 10	Translation to the Clinic / Personalized Medicine & Novel Materials and Self Assembly Room 10	Multifunctional or Hybrid Systems Room 10
NANO AND MICRO TECHNOLOGIES	Theranostics and Nanoparticles II Room 20 Nano/Microbiotechnology II Room 7-8	Paper Fluidics Room 7-8	Micro and Nano Total Analysis Systems Room 7-8
NEURAL ENGINEERING	Neuro-rehabilitation Room 15	Closed Loop Control of Neural Interfaces/ Networked Neural Sensors, Actuators, and Instrumentation Room 15	Glial Cell Engineering/Addressing Degeneration Room 15

PROGRAM AT-A-GLANCE

Track	8:00am – 9:30am	1:45pm – 2:45pm	3:00pm – 4:00pm
ORTHOPEDIC AND REHABILITATION ENGINEERING	**Musculoskeletal Tissue Engineering and Mechanobiology** Room 14	**Bone** Room 14	**Rehabilitation Engineering** Room 14
RESPIRATORY BIOENGINEERING	**Translational Engineering in Lung Disease** Room 1	**Ventilation of the Injured Lung** Room 1	**Airway Modeling and Imagin** Room 1
STEM CELL ENGINEERING	**Stem Cell Bioengineering** Room 18	**Directing Stem Cell Differentiation II** Room 18	**Other Stem Cell Applications** Room 18
TISSUE ENGINEERING	**Engineering Tissue Interfaces** Room 13 **Biomechanics in Biomaterials and Tissue Engineering** Room 21 **Musculoskeletal Tissue Engineering and Mechanobiology** Room 14 **Drug Delivery in Tissue Engineering** Room 10	**Bioreactor Systems for Tissue Engineering** Room 13	**Inflammation and Immunomodulation in Tissue Engineering II** Room 19 **Tissue Engineered Models for Study of Disease and Drug Discovery I** Room 13
TRANSLATIONAL BIOMEDICAL ENGINEERING	**Translational Therapeutics for Regenerative Medicine** Room 16 **Translational Engineering in Lung Disease** Room 1		**Imaging Technologies in Clinical Translation** Room 5-6 **Biomedical Products and Devices** Room 25
OTHER	**Whitaker International Session** Room 39 **Best Practices in Leadership and Management** Ballroom A	**12:45 – 1:45pm** **Best Practices in Quality & Regulatory** Room 12 **1:45 – 5pm** **BMES – NSF Special Session on Research & Grant Writing** Room 12	
STUDENT AND EARLY CAREER	**8:30 – 9:30am / 9:30 – 10:30am** **BMES Student Chapter Best Practices** • **Outstanding Chapter** • **Outreach and Mentoring** Room 12 **9:00 – 10:30am** **What You Need to Know to Get a Job in Industry, Government and Academia After Your PhD** Ballroom A	**1:45 – 3:15pm** **Undergraduate Student Design Competition** Room Ballroom BC **2:00 – 4:00pm** **Resume Review & Critique** Room 24 **2:00 – 3:00pm** **Start – Ups and Venture Capital: Navigating the Funding Process and Investment Pitches** Room 12	**3:15 – 5:00pm** **Tech Transfer & Licensing – Best Practices in Transferring Technologies from Academia and the Clinic into Industry** Room 12

Track	8:00am – 9:30am	1:30pm – 3:00pm	3:15pm – 4:45pm
BIOINFORMATICS, COMPUTATIONAL AND SYSTEMS BIOLOGY			**Big Data, Single-Cell Measurements, and Clinical Applications** Room 1
BIOMATERIALS	**Biomaterials Design** Room 21 **Biomaterials for Controlling Cell Environment II** Room 23	**Biomaterials for Controlling Cell Environment III** Room 23	
BIOMECHANICS	**Cell and Tissue Biomechanics II** Room 1	**Cardiovascular Biomechanics I** Room 15 **Orthopedic I: Implants, Prosthetics, and Bone** Room 16 **Cell and Tissue Biomechanics III** Room 17	
BIOMEDICAL IMAGING & OPTICS	**Molecular Imaging** Room 5-6 **Optical Imaging I** Room 11	**Optical Imaging II: Oncology Applications** Room 11	
CANCER TECHNOLOGIES	**Cancer Drug Delivery** Room 19 **Micro and Nanotechnologies for Cancer I** Room 20	**Cancer Drug Delivery I** Room 18 **Micro and Nanotechnologies for Cancer II** Room 20 **Computation Modeling Strategies and Other Topics in Cancer** Room 21 **Optical Imaging II: Oncology Applications** Room 11	
CARDIOVASCULAR ENGINEERING	**Cardiac Regeneration and Stem Cells** Room 3-4 **Cardiovascular Flow Modeling in Health and Disease** Room 1	**Cardiovascular Biomechanics I** Room 15 **Angiogenesis I** Room 3-4	
CELLULAR & MOLECULAR BIOENGINEERING	**Cell and Tissue Biomechanics II** Room 17	**Molecular Bioengineering** Room 19 **Cell and Tissue Biomechanics III** Room 17	
DEVICE TECHNOLOGIES AND BIOMEDICAL ROBOTICS	**Biosensors** Room 22 **Wearable Sensors and Devices** Room 16	**Medical Device Development and Computational Models I** Room 22	
DRUG DELIVERY	**Delivery Systems for Immune Modulation** Room 18 **Cancer Drug Delivery** Room 19 **Tissue Engineered Models for Study of Disease and Drug Discovery II** Room 14 **Nucleic Acid Delivery** Room 10	**Cancer Drug Delivery I** Room 18 **Targeted Delivery I** Room 10	

PROGRAM AT-A-GLANCE

Track	8:00am – 9:30am	1:30pm – 3:00pm	3:15pm – 4:45pm
NANO AND MICRO TECHNOLOGIES	**Micro and Nanotechnologies for Cancer I** Room 20 **Cell/Material Interfaces** Room 7-8	**Micro and Nanotechnologies for Cancer II** Room 20 **Cells, Tissues and Organs on a Chip I** Room 5-6 **Microfluidics I** Room 7-8	
NEURAL ENGINEERING	**Neural Coding and Modeling** Room 15 **CNS Injury: SCI, Stroke, TBI and Concussions I** Room 12	**CNS Injury: SCI, Stroke, TBI and Concussions II** Room 12	
ORTHOPEDIC AND REHABILITATION ENGINEERING		**Orthopedic I: Implants, Prosthetics, and Bone** Room 16	
STEM CELL ENGINEERING	**Cardiac Regeneration and Stem Cells** Room 3-4	**Stem Cells in Tissue Engineering** Room 13	
TISSUE ENGINEERING	**Printing and Patterning in Tissue Engineering** Room 13 **Tissue Engineered Models for Study of Disease and Drug Discovery II** Room 14	**Stem Cells in Tissue Engineering** Room 13 **Tissue Engineered Models for Study of Disease and Drug Discovery III** Room 14	
TRANSLATIONAL BIOMEDICAL ENGINEERING			
UNDERGRADUATE	**Undergraduate Research, Design & Leadership I** Room 9	**Undergraduate Research, Design & Leadership II** Room 9	**Undergraduate Research, Design & Leadership III** Room 9
OTHER	**9:30 – 10:30am** **BMES Industry Update** Ballroom A		

WEDNESDAY, October 7, 2015

7:00am – 6:00pm	VentureWell / BME – IDEA 2015 – *affiliate event*	Marriott, Florida Salon V
8:30am – 4:30pm	BMES Board of Directors Meeting	TCC, Room 24
1:00pm – 7:00pm	Registration	TCC, Exhibit Hall
11:30am – 3:30pm	AIMBE Board of Directors Meeting – *affiliate event*	TCC, Room 36
3:30pm – 5:00pm	Match Up Mentoring *(invitation only)*	TCC, Ballroom D
3:30pm – 5:30pm	Meet the Faculty Candidates	TCC, Exhibit Hall
4:30pm – 5:30pm	AIMBE Academic Council Meeting – *affiliate event*	TCC, Room 36
5:30pm – 7:00pm	Welcome Reception	TCC, 2nd Floor Foyer
6:30pm – 7:30pm	*VIP Reception (invitation only)*	Marriott, Il Terrazzo
7:00pm – 10:00pm	Annals of Biomedical Engineering Editorial Board Meeting & Dinner (Springer) – *affiliate event*	Marriott, Florida Salon I
7:30pm – 8:30pm	Industry Committee Planning Meeting	Marriott, Room 7
7:30pm – 10:30pm	Council of Chairs Dinner & Meeting *(invitation only)*	Marriott, Florida Salon II/III
8:00pm – 9:00pm	LGBT Dessert Social *(ticket purchase required)*	Marriott, Room 4

Plenary Sessions
Platform Sessions
Posters
Special Sessionss
Student & Early Career
Exhibits
Special Events
Committee Meetingsl

SCHEDULE AT-A-GLANCE

Plenary Sessions
Platform Sessions
Posters
Special Sessionss
Student & Early Career
Exhibits
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Committee Meetingsl

Be sure to turn your BMES BASH ticket in for an admission wristband before the event at either the Information Counter (level 1) or at BMES registration.

THURSDAY, October 8, 2015

7:00am – 6:00pm	Registration	TCC, Exhibit Hall
7:00am – 8:00am	Diversity Committee Meeting	TCC, Room 36
8:00am – 10:00am	National Meetings Committee Meeting	TCC, Room 31
8:00am – 9:30am	ABioM SIG Meeting	TCC, Room 35
8:00am – 9:30am	**PLATFORM SESSIONS - Thurs-1**	TCC – 19 sessions
8:00am – 9:30am	ABET Workshop	TCC, Room 9
8:00am – 9:00am	Student & Early Career: How to Find a Job in Industry	TCC, Ballroom A
9:15am – 10:15am	Student & Early Career: BME Careers in Industry, Government and Academia	TCC, Ballroom A
9:30am – 5:00pm	Exhibit Hall Open	TCC, Exhibit Hall
7:00am – 8:00am	Diversity Committee Meeting	TCC, Room 36
9:30am – 5:00pm	**POSTER SESSION**	TCC, Exhibit Hall
9:30am – 10:30am	**POSTER VIEWING with AUTHORS & Refreshment Break**	TCC, Exhibit Hall
10:30am – 12:15pm	**PLENARY SESSION:** Pritzker Distinguished Lecture & State of the Society	TCC, Ballroom BC
12:30pm – 1:45pm	Celebration of Minorities in BME Luncheon *(ticket purchase required)*	TCC, Ballroom D
12:00pm – 1:30pm	Cellular & Molecular Bioengineering Editorial Board Luncheon - *affiliate*	Marriott, Florida Salon I
12:15pm – 1:45pm	Lunch on Your Own	
1:30pm – 2:30pm	Membership Committee Meeting	TCC, Room 36
1:30pm - 2:30pm	International Affairs Committee	TCC, Room 31
2:00pm – 3:30pm	**PLATFORM SESSIONS – Thurs - 2**	TCC – 19 sessions
2:00pm – 4:00pm	Rapid Resume Review and Critique	*TCC, Room 24*
2:00pm – 4:00pm	Biomedical Engineering Technology for the Elimination of Health Disparities	TCC, Ballroom BC
3:30pm – 4:30pm	**POSTER VIEWING with AUTHORS & Refreshment Break**	TCC, Exhibit Hall
4:00pm – 5:00pm	AEMB Annual Convention - *affiliate*	TCC, Room 25
4:00pm – 5:30pm	Student & Early Career: Transitioning from Academia to Industry Panel	TCC, Ballroom A
4:00pm – 7:30pm	US-Korea BMES Workshop 2015	TCC, Ballroom D
4:30pm –6:00pm	**PLATFORM SESSIONS – Thurs - 3**	TCC – 19 sessions
5:30pm – 7:00pm	AEMB Reception - *affiliate*	Embassy Suites
6:15pm – 7:30pm	**PLENARY SESSION:** Models for Funding Research	TCC, Ballroom BC
8:00pm – 9:30pm	University Receptions - *Invitations Extended by Hosts*	Marriott Hotel

FRIDAY, October 9, 2015

7:00am – 6:00pm	Registration	TCC, Exhibit Hall
7:00am – 8:00am	Education Committee Meeting	TCC, Room 36
8:00am – 10:00am	2016 Annual Meeting Planning Committee Meeting	TCC, Room 31
8:00am – 9:30am	**PLATFORM SESSIONS - Fri-1**	TCC – *19 sessions*
8:00am – 9:30am	Whitaker Session	TCC, Room 39
8:00am – 9:30am	Best Practices in Leadership and Management	TCC, Ballroom D
8:30am –9:30am	BMES Student Chapter: BMES Student Chapter/Outstanding Chapter Best Practices	TCC, Room 12
9:00am - 10:30am	Student & Early Career: What You Need to Know to Get a Job in Industry, Government and Academia after Your PhD	TCC, Ballroom A
9:00am – 10:30am	AEMB MINDS Workshop - *affiliate*	TCC, Room 25
9:30am –10:30am	BMES Student Chapter: Outreach and Mentoring Best Practices	TCC, Room 12
9:30am – 10:30am	Ethics Meeting	TCC, Room 36
9:30am – 5:00pm	Exhibit Hall Open	TCC, Exhibit Hall
9:30am – 5:00pm	**POSTER SESSION**	TCC, Exhibit Hall
9:30am – 10:30am	**POSTER VIEWING with Authors & Refreshment Break**	TCC, Exhibit Hall
10:30am – 12:00noon	**PLENARY SESSION** – NIBIB Lecture / DEBUT Awards Ceremony	TCC, Ballroom BC
12:00noon – 1:30pm	Lunch on Your Own	
12:15pm – 1:30pm	Women in BME Luncheon - *(ticket purchase required)*	TCC, Ballroom D
12:30pm – 1:30pm	Medical Devices SIG Meeting	TCC, Room 39
12:45pm – 1:45pm	Best Practices in Quality & Regulatory	TCC, Room 12
1:00-pm – 5:00pm	Career Fair	TCC, Exhibit Hall
1:45pm – 3:15pm	Student & Early Career: Undergraduate Student Design Competition	TCC, Ballroom BC
1:45pm – 2:45pm	**PLATFORM SESSIONS – Fri - 2**	TCC – *17 sessions*
2:00pm – 3:00pm	AEMB Annual Ethics Session - *affiliate*	TCC, Room 25
2:00pm – 4:00pm	Rapid Resume Review and Critique	TCC, Room 24
2:00pm – 3:00pm	Student & Early Career: Start-ups and Venture Capital: Navigating the Funding Process and Investment Pitches	TCC, Room 12
1:45pm – 5:00pm	BMES-NSF Special Session on Research & Grant Writing & Reception	TCC, Ballroom A
3:00pm – 4:00pm	**PLATFORM SESSIONS – Fri - 3**	TCC – *17 sessions*
3:15pm – 5:00pm	Student & Early Career: Tech Transfer and Licensing - Best Practices in Transferring Technologies from Academia and the Clinic Into Industry	TCC, Room 12
4:00pm – 5:00pm	**POSTER VIEWING with AUTHORS & Refreshment Break**	TCC, Exhibit Hall
5:15pm – 6:15pm	**PLENARY SESSION** – Prosthetics Advancements: How One Little Dolphin Learned to Swim Again	TCC, Ballroom BC
6:30pm – 9:00pm	**BMES BASH**	TCC, Riverwalk

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SCHEDULE-AT-A-GLANCE

- Plenary Sessions
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SATURDAY, OCTOBER 10, 2015

7:00am – 2:00pm	Registration	TCC, Exhibit Hall
8:00am – 9:30am	**PLATFORM SESSIONS - Sat-1**	TCC – *18 sessions*
8:00am – 9:30am	Undergraduate Research, Design & Leadership Orals #1	TCC, Room 9
8:30am – 9:30am	Industry Advisory Committee (*invitation only)*	TCC, Room 39
9:30am – 1:30pm	Exhibit Hall Open	TCC, Exhibit Hall
9:30am – 1:00pm	**POSTER SESSION**	TCC, Exhibit Hall
9:30am – 10:30am	**POSTER VIEWING with AUTHORS & Refreshment Break**	TCC, Exhibit Hall
9:30am – 10:30am	Student Affairs Committee Meeting	TCC, Room 36
9:30am – 10:30am	BMES Industry Update	TCC, Ballroom A
10:30am – 12:30pm	**PLENARY SESSION –** Rita Schaffer Young Investigator Lecture & Diversity Award Winner	TCC, Ballroom BC
12:30pm – 1:30pm	Lunch on Your Own	TCC
1:00pm – 3:30pm	BMES Board of Directors Meeting	TCC, Room 24
1:30pm – 3:00pm	**PLATFORM SESSIONS - Sat-2**	TCC – *18 sessions*
1:30pm – 3:00pm	Undergraduate Research, Design & Leadership Orals #2	TCC, Room 9
3:15pm – 4:45pm	**PLATFORM SESSIONS - Sat-3**	TCC – *17 sessions*
3:15pm – 4:45pm	Undergraduate Research, Design & Leadership Orals #3	TCC, Room 9

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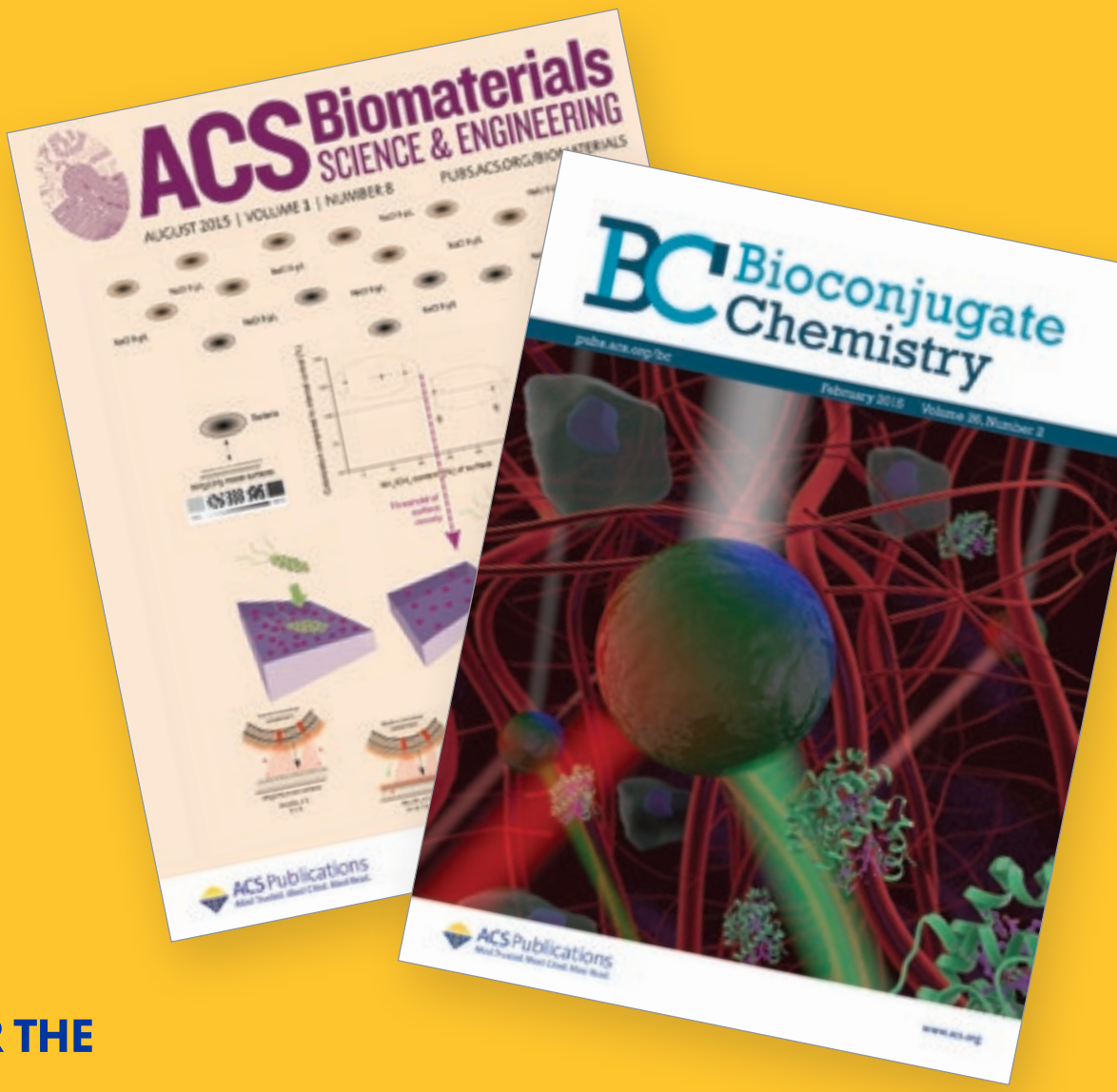

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