

NEUROSCIENCE

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Q U A R T E R L Y

“Only by having more women in positions of influence will more equitable opportunities be created for everyone.”

– Carol Ann Mason
SfN President

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Message from the President

Women in Neuroscience: A Call to Action



Carol Ann Mason,
SfN President

Just two years ago, past president Moses Chao wrote a Message from the President on *Gender Inequality: Biases and Challenges*. He painted a picture of problems that are “difficult and not immediately tractable,” calling out key areas for attention: recruitment and promotion, mentorship, and climate. After gathering information from my female colleagues, students, and postdocs in neuroscience, and friends in law and business, I have tried to gauge what has changed since that column was written and where we can claim successes.

PROGRESS

Women now outnumber men in many graduate and medical schools, and in neuroscience, the number of women receiving PhDs has risen to around 55 percent. Nearly half of the Society for Neuroscience membership is female.

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Q&A

Robert Finkelstein, Amber Story Discuss Neuroscience Working Group



Robert Finkelstein,
IWGN Co-chair



Amber Story,
IWGN Co-chair

Robert Finkelstein, PhD, and Amber Story, PhD, are co-chairs of the Interagency Working Group on Neuroscience (IWGN). Finkelstein serves as director of the National Institute of Neurological Disorders and Stroke (NINDS) Division of Extramural Research. He is responsible for coordinating NINDS-funded scientific programs and oversees the extramural program’s scientific review, grants management, and administrative services. Story is deputy division director of NSF’s Behavioral and Cognitive Sciences

Division, which supports scientific research on human cognition, language, social behavior, and culture, as well as interactions between human societies and the physical environment.

NQ: What is the Interagency Working Group? Who are its members? What are its goals, and what are your roles?

There is wide-ranging interest in and support for neuroscience across the U.S. federal government. In August 2012, the National Science and Technology Council’s Committee on Science established IWGN to coordinate neuroscience research activities across U.S. federal agencies and departments. The group, which is co-chaired by NSF and NIH, includes nearly 40 representatives from more than 20 agencies, departments, and institutes. The IWGN meets monthly to identify opportunities for facilitating basic and applied

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SfN has raised awareness about recruiting, promoting, and retaining female faculty in academic settings, through the NSF-funded Increasing Women in Neuroscience (IWIn) program. In the last three years, workshops trained 137 chairs of neuroscience departments in 27 U.S. states and the District of Columbia, many of whom have gone on to develop strategies at their own institutions, implementing “change” projects. IWIn resources available on SfN.org include video interviews, interactive quizzes, and best practices for recruiting a diverse faculty, improving promotion and tenure practices and creating a favorable work climate.

Gender bias was the topic of the first Empirical Approaches to Neuroscience and Society Symposium at Neuroscience 2013, where economists and sociologists spoke about how differently men and women act, for example, when they compete. At the 2014 annual meeting, half of the special lectures will be given by women and most of the symposia and minisymposia will have at least one female speaker.

CHALLENGES REMAIN

In the upper echelons of academia, men still greatly outnumber women. In 2003 and 2005, the number of women in tenure-track faculty positions was 25 percent and has stayed steady at 29 percent in 2009 and 2011. Currently, only 24 percent of full professors are women. Further, SfN’s recent Committee of Neuroscience Departments and Programs survey revealed that fewer than one in five department chairs are women. In medical schools, the number of female clinical department chairs or deans is just 13 percent.

The numbers in Europe aren’t much different. The European Union’s “She Figures” study of 33 countries shows that, although 59 percent of EU graduate students in 2010 were female, only 20 percent of senior academicians were women. Rates in both the U.S. and Europe are stuck at 20 percent!

What’s causing the discrepancy? We know that many young women still shy away from the sciences as early as elementary school. In my son’s third grade class, young girls gleefully peered through the microscope I brought to class and exclaimed that they were scientists, but didn’t think they could be scientists when they grew up. Implicit bias continues to undermine possibilities for girls and women interested in science careers. This bias knows no gender. A recent Harvard study revealed that 70 percent of men and women across 34 countries view science as more masculine than feminine. (See link to test on SfN.org/nqmbias)

At many scientific conferences and in our institutions’ seminar series, men far outnumber women as featured speakers. Several

colleagues have compiled a list of female speakers to help conference organizers achieve appropriate gender balance in invited and keynote lectures (See anneslist.net).

The glaring near-absence of women in leadership positions in academia may in part be the result of stereotyping those positions and leadership styles with “male” characteristics, simply because they have traditionally been held by men. These biases can work against women even being considered for such positions by search committees.

FOCUSING ON WHAT WORKS

SfN’s IWIn project has uncovered many ways to address these issues and to successfully recruit, retain, and promote women in the field. Search committees need to be diverse and their members educated on how implicit bias influences the hiring process, from how applications are reviewed and letters of recommendation are written to how salaries are determined.

Of course, even after women are hired, they often enter into workplaces that are inhospitable to them. “The solution in the past has been ‘fix the woman,’” said Jill Becker (University of Michigan), who was co-principal investigator of the NSF grant that funded the IWIn project along with Anne Etgen (Albert Einstein College of Medicine, Yeshiva University). “It’s not just about making women adopt strategies that are beneficial to them; it’s about making sure that the workplace is more welcoming to women and that they are evaluated fairly.”

CALL TO ACTION

As president of SfN, I speak to both the younger generation and to those of us who have been around for a while. We need the diversity of women and men in every layer and facet of our world of science. Women can provide unique approaches to solutions in research, programs, and personnel interactions. Women draw on their experiences as caregivers and as organizers and managers of work/life balance. **Go to SfN.org/nqmf for details of my Call to Action on how to promote women in neuroscience.**

When you are invited to assume leadership positions, I ask that you not shy away from stepping up and saying yes. The message of Sheryl Sandberg’s book “Lean In” can be instructive as a route for change. Even if you aren’t confident you will be heard, or you are unsure about taking on additional responsibility, just do it. Take a seat at the table. Only by having more women in positions of influence will more equitable opportunities be created for everyone. With your help and the collective support of the field, we can change the dynamic for women in neuroscience. ■

neuroscience research, with the ultimate goal of improving health, education, and other outcomes of national importance. As co-chairs, our primary role has been to help this very heterogeneous group identify common goals. We are often asked how agencies share information and coordinate activities; the IWGN is one important avenue for such communication and collaboration. As the group moves forward, we are particularly interested in strengthening our interactions with SfN.

NQ: The working group first met in September 2012 and recently released its final report. What are the key findings in the report and what are the implications of this work for the field?

The IWGN was charged with producing a report that identified “concrete actions the federal government can take to enable acceleration of progress” in key research areas. The IWGN identified five areas: (1) understanding and applying the brain’s information processing capabilities; (2) understanding and treating brain diseases, disorders, and trauma; (3) understanding and optimizing interactions between the environment and the brain across the lifespan; (4) translating research to practice; and (5) improving communication and engaging the public.

The recommendations span a broad spectrum of neuroscience research but focus on strategies to enhance communication among agencies to better identify shared interests, goals, and resources; to bring together individuals from multiple scientific and user communities to strengthen scientific collaborations; and to improve coordination and collaboration among federal agencies when planning new research initiatives. There are already many existing or planned collaborative neuroscience research initiatives such as the BRAIN project, the Collaborative Research in Computational Neuroscience program, and the Big Data initiative, as well as resources funded jointly by federal agencies. These collaborations will inform and provide potential models for future activities.

The IWGN report does not make funding recommendations. The strategies and activities recommended range from those that can be achieved in the short term without additional funding to those that would require significant investments of time, effort, and additional funds across multiple agencies. The recommendations are intended to facilitate collaborations and minimize redundancy.

NQ: How is the working group related to other government programs, such as the BRAIN Initiative and the NIH’s Neuroscience Blueprint?

The IWGN fosters collaboration and communication among federal agencies across a spectrum of programmatic activities, policies, and issues. The BRAIN Initiative and the NIH Neuroscience Blueprint involve specific agencies that are members of the IWGN. The IWGN serves as a forum for those agencies and other interested parties to exchange information and ideas about these and other neuroscience initiatives.

The BRAIN Initiative includes NIH, NSF, the Defense Advanced Research Projects Agency (DARPA), the Food and Drug Administration (FDA), and multiple private sector participants and has involved close collaboration among federal agencies and extensive consultation with scientific and lay stakeholders. Many other federal agencies fund projects with goals related to those of BRAIN. The IWGN will work to ensure that agencies are in a position to capitalize on funding opportunities and research breakthroughs that the BRAIN Initiative will enable.

The NIH Blueprint for Neuroscience Research is a cooperative effort among the 16 NIH institutes, centers, and offices that support neuroscience research. It optimizes communication among these components of NIH and provides a mechanism for joint funding initiatives. Several of NIH’s representatives on the IWGN are also involved in Blueprint activities. They share information about these activities with the IWGN, thereby helping to coordinate Blueprint efforts with those of other federal agencies. The same is true of other federal investments such as the Collaborative Research in Computational Neuroscience program, involving NSF, NIH, international partners, and Big Data efforts.

NQ: Is the working group also coordinating with groups outside of the U.S. government, such as universities, businesses, or international partners?

The IWGN is a part of a wider White House Neuroscience Initiative that promotes partnerships with the private sector to advance neuroscience research and its impact. The member agencies of the IWGN have been and continue to be actively pursuing and engaging in extensive collaborations with universities and private and nonprofit organizations, both domestic and international. For example, NIH, NSF, DARPA, and FDA are all engaged in the President’s BRAIN Initiative along with a number of private partners including the Allen Institute for Brain Science, the Kavli Foundation, and the Howard Hughes Medical Institute. Furthermore, the U.S. BRAIN Initiative and the European Union’s Human Brain Project have plans to enhance coordination of the research programs. ■

Read more of this Q&A at SfN.org/nqiwgn.

Communicating Science in the Spotlight at AAAS Meeting

Reporters, scientists, academics, and nonprofit leaders shared their views about how science news is communicated in a new media landscape at several panels held during the American Association for the Advancement of Science (AAAS) annual meeting, February 13–17.

The AAAS meeting is a highly valued forum for discussion of science and science communication strategies across physical and life sciences that encourages dialogue between scientists and science journalists. Many of the sessions focused on how scientists can take advantage of using social media and nontraditional communications platforms to effectively reach new audiences and engage readers who may not initially be interested in science.

ENSURING SCIENCE IS VETTED

Innovative Vehicles for Vetted Information in a Wiki World was the topic of a panel organized by SfN that included conversation about *BrainFacts.org*, a public initiative of The Kavli Foundation, the Gatsby Charitable Foundation, and SfN. *BrainFacts.org* Editor-in-Chief Nicholas Spitzer, of the University of California, San Diego, set the stage for a discussion of the valuable role nonprofits and associations play in enhancing appreciation of science among the general public.

“There is a role for organizations such as the Society for Neuroscience to play in counteracting misinformation and providing accessible, accurate material,” said Spitzer. “We do that with *BrainFacts.org* by scientifically vetting every piece of content.”

Panelists from the Dana Foundation, Wellcome Trust, the American Institute of Physics, and SfN described the opportunities scientific organizations have to fill the void left by cutbacks in the number of science reporters at traditional media outlets. All have developed new ways to reach nonscience audiences through emerging communications platforms.

“Through new online outreach vehicles and campaigns, we increase our reach fifty-fold,” said Spitzer. “We make science accessible by presenting reliable information in an engaging way, and by doing so we create audiences of people around the globe who find neuroscience content fascinating. We are engaging the next generation of neuroscientists,” he said.

SHARING VIA NEW COMMUNICATIONS TOOLS

Other AAAS panels examined the risks and rewards when scientists share their findings and research frustrations with the general public.



The *BrainFacts.org* homepage features science content written for the public, making science accessible to a wide audience.

Information and stories posted on blogs, Twitter, and other social media websites such as Reddit, Facebook, and Tumblr improve understanding, enhance appreciation for science, and break the traditional mold for delivering news through peer-reviewed research in specialized journals that can come with hefty subscription prices. Scientists joined several award-winning journalists in a three-part *Communicating Science* seminar to discuss the issues scientists face when deciding whether to embrace the Internet as a communication tool.

“I want to see the cultural shift where the scientific community takes more responsibility for the science education of the nation,” said Kishore Hari, director of the Bay Area Science Festival at the University of California, San Francisco and founder of BayAreaScience.org, a web portal for Bay Area science institutions and events.

This current dramatic shift includes soliciting comments in interactive ways, revealing a scientist’s personal side, and talking about the trials and tribulations of research, Hari said.

For example, physicist Stephen Hawking posted a paper about black holes on the arXiv preprint server in January based on his Skype discussion during a meeting at the Kavli Institute for Theoretical Physics. The unvetted paper drew the attention of scientists and fans alike. Hawking, one of the creators of the black hole theory, proposed a new idea about the boundaries of black holes. *Nature* magazine wrote about the article, quoting other physicists about Hawking’s radical theory. Conversations about his paper took off on social media. ■

Read the complete article at SfN.org/nqcs.

Neuroscience 2014 Planning Underway

SfN is hosting Neuroscience 2014 in Washington, DC, this year, where the annual event will be held November 15–19 at the Walter E. Washington Convention Center. Be sure to attend this premier venue for neuroscientists to exchange ideas, network, and learn about the latest developments in the field.

PRESIDENTIAL SPECIAL LECTURE SERIES

The Presidential Special Lecture Series features a variety of neuroscientists discussing this year's theme, "Cells of the Brain." The following speakers will present their science:

Kelsey C. Martin, MD, PhD, is a professor and chair of biological chemistry at the University of California, Los Angeles and a faculty member at UCLA's Center for Neurobiological Genetics. Her research focuses on the cell biology of transcription-dependent forms of synaptic plasticity, especially those underlying learning and memory. She will discuss "The Living Record of Memory: Genes, Neurons, and Synapses."

Gordon J. Fishell, PhD, is a professor and coordinator of the Smilow Neuroscience Program at New York University's School of Medicine. Fishell researches directed differentiation of ES cells related to cortical interneuron identities toward neuronal replacement strategies. He will present the topic, "The Integration of Interneurons into Cortical Circuits: Both Nurture and Nature."

Botond Roska, MD, PhD, is a researcher at the Friedrich Meischer Institute at the University of Basel in Switzerland. Roska's research focuses on understanding the structure and function of retinal degeneration and uses cell type-specific targeting of optogenetic tools to restore photosensitivity to retinas in retinal degeneration. His lecture will focus on "The First Steps in Vision: Computation and Repair."

Fiona Doetsch, PhD, is an associate professor in the departments of pathology and cell biology, neuroscience, and neurology at Columbia University. Doetsch's research focuses on the biology of neural stem cells in the adult human brain. She will discuss "Stem Cells in the Brain: Glial Identity and Niches."

OTHER SPECIAL LECTURES

The annual meeting's special lectures are categorized into the following themes: development; cellular mechanisms; disorders of the nervous system; sensory and motor systems; integrative systems; cognition and behavior; and novel methods and technology development. Special lectures give attendees the opportunity to delve further into specific topics

related to the above themes. Some of the special lectures will include discussions on the following topics:

The Sensory Neurons of Touch: David D. Ginty, PhD, will discuss morphological and physiological features of LTMRs and the organizational logic of LTMR projections and circuits in the CNS.

Exocytosis of Synaptic Vesicles — A Molecular Perspective: Reinhard Jahn, PhD, will discuss new insight on the mechanisms that specialized proteins, such as synaptotagmins and complexins, mediate membrane fusion at the synapse.

The Glymphatic System and Its Possible Roles in CNS Diseases: Maiken Nedergaard, MD, DMSc, will discuss how the glymphatic system represents a novel and unexplored target for treatment of neurological diseases.

Learning and Relearning Movement: Amy J. Bastian, PhD, will focus her lecture on normal and abnormal motor learning, and this information can be used to improve rehabilitation for individuals with neurological damage.

What Drives Sleep? Wake Cycles: Identification of Molecules and Circuits in *Drosophila*: Amita Sehgal, PhD, will discuss how the use of *Drosophila* has led to the identification of mechanisms that generate a circadian clock and highlight some of the downstream circuitry required for circadian timing of behavior.

Affective Neuroscience of Reward: Limbic Modules for Liking and Wanting: Kent C. Berridge, PhD, will present a lecture on how the neurological differences between "wanting" and "liking" can be applied toward treating addiction disorders.

Nanoscopy with Focused Light: Principles and Applications: Stefan W. Hell, PhD, will discuss the relevance of "nanoscopy" techniques to neuroscience.

BEGIN PLANNING YOUR TRIP TO DC

These presentations are just a sampling of the numerous lectures, events, and courses planned for this year's annual meeting. ■

To submit an abstract, go to SfN.org/am2014; abstract submission closes May 8. Registration opens for all members July 16.

Inside Neuroscience

Tuning the Brain to Music

Playing music offers a rich cognitive, motor, and sensory experience — from reading notes on sheet music and keeping rhythmic time to moving fingers along instrument keys and processing sound. Musical training can be introduced at any age, making it an attractive paradigm of study for neuroscientists interested in how the brain responds to changes throughout life.

During a press conference at Neuroscience 2013, a group of scientists presented recent findings revealing differences in the brains and behaviors of trained musicians. The event was moderated by Gottfried Schlaug of Harvard Medical School and Beth Israel of Deaconess Medical Center.

VIRTUOSOS START YOUNG

Although previous studies suggest musical training improves cognitive development in children, little is known about how the age that musical training begins can change the brain.

“If you look back in history it’s not hard to notice that most of the most successful musicians all seemed to start musical training very early,” said Yunxin Wang of Beijing Normal University in China. “Is that a coincidence, or does early musical training have a permanent effect on the neural basis of music performance?”

To begin to answer this question, Wang used MRI to compare the brains of a group of young adults, ages 19–21, who had received at least one year of formal musical training. The participants included a group of musicians whose musical training started before age seven — an age when studies suggest brain maturation peaks.

After controlling for gender and total years of practice, the researchers found that musicians who started playing instruments before age seven had thicker cortical tissue in the right superior temporal gyrus (shown to be associated with auditory abilities) and in the precuneus (believed to be involved in self-awareness) than those who started musical training later in life.

“Our study suggests a potential role of onset age of music[al] training in human brain development,” Wang explained. Wang’s group is now collecting imaging data on people before and after they start musical training so Wang’s group can better track the ways that musical training changes brain structure.

MULTISENSORY ADVANTAGE

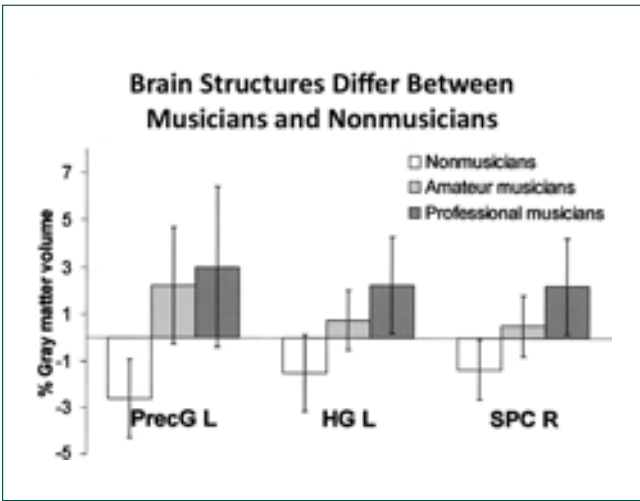
Although recent studies suggest that long-term musical training promotes plasticity and reorganizes regions of the brain that affect multisensory processing, it is unclear how this affects the perception of sensory information. To assess such effects, Julie Roy, who works under the supervision of François Champoux at the University of Montreal, evaluated multisensory performance in people with 15 to 25 years of musical training compared with those with no musical training.

During an audio-tactile integration task, the study participants heard two or more quick tones while simultaneously receiving a single vibration on their finger. After brief instructions to ignore the tones and focus attention on the tactile stimulus, the study participants were asked to report on the sensation they felt at their finger.

When musicians and nonmusicians were exposed to only a single sound, both groups accurately reported they felt a single vibration on the finger. However, when a single vibration was accompanied by two or more tones, the nonmusicians described feeling multiple vibrations. Despite hearing multiple tones, the musicians continued to accurately report feeling only a single vibration.



Press conference presenters at Neuroscience 2013 described recent findings revealing differences in the brains and behaviors of trained musicians.



Studies comparing the brains of adult professional musicians, amateurs, and nonmusicians have revealed structural and functional differences in regions of the brain involved with processing music. This graph shows relative differences in gray matter volume in the left precentral gyrus (PrecG L), left Heschl's gyrus (HG L), and right superior parietal cortex (SPC R). Gaser C, et al., *The Journal of Neuroscience* 2003, 23(27): 9240-9245.

According to Roy, the musicians' ability to not let the auditory stimuli interfere with their perception of the tactile stimuli suggests that long-term musical training influences multisensory processing.

Music's ability to concurrently stimulate multiple systems in the brain may improve the communication and connectivity between key regions in the brain, Roy explained. Such effects may be particularly beneficial for people with neurological impairments.

"Our research suggests that musicians have an enhanced ability to integrate sensory information, Roy said. "We believe enhanced multisensory processing [arising from musical training] may offer new and innovative rehabilitation strategies for people with sensory disabilities."

CREATIVITY AND CONNECTIVITY

Press conference presenter Ana Pinho of the Karolinska Institute in Stockholm used musical training to examine how creativity affects the brain.

According to Pinho, imaging studies over the past 10 years have revealed several brain regions believed to be involved in musical creativity. This network includes the dorsal

lateral prefrontal cortex (DLPFC), which is involved in planning and attention to actions; the pre-supplementary motor area (pre-SMA), which is involved in rhythmic timing; and the dorsal premotor cortex (PMD), which is key to understanding melody.

Curious about the patterns of functional connectivity between the regions that are active during improvisation, Pinho and her colleagues asked a group of pianists to play several short, improvised pieces on a 12-key custom-made piano while undergoing fMRI. Aside from certain instructions — such as a request to improvise a musical sample that expressed fear or happiness, or use only six notes — the investigators left parameters such as rhythm and melody up to the musicians.

After controlling for age and overall time spent playing the piano, the researchers discovered that the more improvisational experience the musicians had, the greater the functional connectivity between the DLPFC, pre-SMA, and PMD and other motor, premotor, and prefrontal regions. The findings suggest that "improvisation experience influences functional brain activity at a network level, improving efficiency in the communication between brain regions involved in musical performance," Pinho said.

The musicians with more improvisation experience also displayed less activity in the DLPFC, the angular gyrus, and the inferior frontal gyrus — a network of regions involved with executive function — and the insula, a key center for self-awareness. Such reduced activity may indicate that long-term training leads to an automation of the cognitive processes involved in improvisation, Pinho said.

FUTURE STUDIES

Scientists are just beginning to uncover the many ways that the brain responds when listening to and making music. However, the panelists expressed optimism that the richness of musical stimuli may one day lead to novel rehabilitation strategies to help a diseased or injured brain bounce back.

"We know that music makes us move and creates emotions ... it also engages pleasure and reward systems," Schlaug explained. "But, music making and singing have a translational component as well. Music can offer alternative access into a broken or dysfunctional system in the brain." ■

SfN Members Advocate for Increased Science Research

Forty-five researchers representing twenty-six states took to Capitol Hill on March 26 for SfN's eighth annual Capitol Hill Day. They took with them the message that federal research funding needs to get back on track. While the fiscal year 2014 federal budget in the U.S. restored much of sequestration's across-the-board spending cuts, overall funding levels are still below FY2012, following a decade where investment failed to keep pace with the rising cost of research.

"This is one of the most important things I do as a scientist," said SfN President Carol Mason, PhD, professor of pathology, cell biology, and neuroscience at Columbia University. "When you realize that public funding is key to research advances, you understand the impact of these meetings with decision makers."

"We go to the meetings ready to talk about funding, and we end up discussing autism, Alzheimer's, multiple sclerosis, or depression and addiction," Mason said. "Everyone has a story about a friend or loved one who is dealing with a brain-related disorder or disease. It actually makes it easy to underscore the importance of our research."

Mason, along with a group of early-career researchers and members from SfN's Government and Public Affairs (GPA) Committee and Committee on Animals in Research, participated in visits with 78 congressional offices. Members discussed advances in neuroscience and made the case for strong public investment in scientific research through NIH and NSF. The meetings are timed to coincide with the federal budget decision-making process.

"We cannot overstate the impact of having scientists from around the country delivering a unified message," said Anne Young, chair of the GPA Committee. "In explaining how the scientific process works, we communicate the need for adequate, predictable funding levels, including adjustments for inflation. We talk about why funding certainty is key to scientific progress," she said.

NIH's FY2014 budget was approved for \$29.9 billion, \$1 billion more than during sequestration, but \$714 million less than pre-sequestration levels. Similarly, NSF's budget was approved for nearly \$7.2 billion, \$287 million more than sequestration levels but still \$82 million less than pre-sequestration. In meetings on Capitol Hill, SfN members stood with the research community in requesting at least \$32 billion in funding for NIH and at least \$7.5 billion for NSF.

SfN hosted a training session in advance of the meetings, where Mason, Young, and Nora Volkow, director of the National Institute of Drug Abuse, thanked the volunteers



U.S. Rep. Charlie Dent (R-PA) met with members of SfN's Government and Public Affairs Committee and Committee on Animal Research on Capitol Hill Day. From left to right, Cecilia Fox, Dent, Jane Roskams, and Peter Strick.

for traveling to Washington, DC, and advocating for scientific research. SfN members also practiced how to concisely explain their research to members of Congress and their staff, who may have no background in science. Laura Martin, assistant professor and associate director of fMRI at the University of Kansas Medical Center and a 2013 Hill Day Young Advocate, said the experience was enlightening.

"The biggest takeaway for me was revamping my 'elevator speech' for policy makers, which highlights different aspects of my research than I would highlight for other researchers," she said. "Most importantly, who cares [about your research]? Why should people care about the type of research you do and why should the federal government be interested in funding this research?" Martin said she thought about her Hill Day discussions throughout the year.

Advocacy messages are critical, according to Rep. Rush Holt (D-NJ), who addressed the group before the individual meetings began. He noted that members of Congress need to be reminded throughout the year that science plays a role in nearly every facet of society. Holt has a PhD in physics and previously served as assistant director of the Princeton Plasma Physics Laboratory in New Jersey, where he conducted extensive research on alternative energy.

"Nearly every policy debate about how to move this country forward touches on science," Holt said. "Scientific advances are key to how we live our lives every day — the new technologies we use, the ways we treat and cure disease, innovations in agriculture that allow us to feed more people — these are just some of the ways we rely on science," he said. "Investment in research is an engine for economic growth that is essential to progress worldwide." ■

Patient Groups Highlight Need for Animal Research

Scientists often face questions about why animals are used in research and whether animal research is necessary to advance science.

“It is important that we raise these issues for our members, who are patient advocates,” said Katie Sale, executive director of the American Brain Coalition (ABC). “This can be a sensitive subject, but we think it’s important to underscore the role that animals play in basic and translational research, so the scientific community and the general public are aware,” she said.

Sale joined panelists at a discussion on *Animal Research and Brain Diseases* cosponsored by ABC and SfN and held at the American Society for Experimental NeuroTherapeutics Annual Meeting in February. The discussion was meant to inform staff and physicians at patient advocacy organizations about the role animals play in research underlying the understanding of human health and specific treatment therapies. Speakers came from scientific, clinical, and pharmaceutical backgrounds.

“Patient advocates and physicians need to know about the vitally important role that animal research plays, both

historically and currently, in developing therapeutic treatments,” said University of Illinois at Chicago Professor Mark Rasenick, who chaired the event. “This audience deals with patients every day and may not know why we need and how we use animal models to conduct research in the lab. Generating that background will provide context to patient care that can go a long way to creating understanding and developing new allies,” he said.

Panelists emphasized that animal research is well regulated and subject to thorough federal, state, institutional, and community review, and that scientists who work with animals do so humanely, using the fewest number of animals possible.

Past SfN President Michael Goldberg, a professor of neuroscience and clinical neurology at Columbia University and chair of SfN’s Committee on Animals in Research, noted the role that nonhuman primates have played in basic research. “There simply is no other way to get reliable, proven data on many systems that are key to understanding human health and disease,” he said. ■

Read the complete article at SfN.org/nqanimals.



SOCIETY FOR NEUROSCIENCE

2014 FELLOWSHIPS, AWARDS & PRIZES

More than \$500,000 in prizes, awards, and honoraria available

Want to recognize a colleague’s achievements, help a neuroscience student attend a relevant conference, support underrepresented and diverse graduate students and postdoctoral fellows, or honor an individual who has helped the advancement of women in neuroscience?

Multiple awards are available in each of the following categories:

- Young Scientists’ Achievements and Research in Neuroscience
- Outstanding Career and Research Achievements
- Science Education and Outreach
- Fellowships
- Promotion and Mentoring of Women in Neuroscience
- Travel Awards



NOMINATE A COLLEAGUE TODAY

For more information, visit SfN.org/awards.

Brain Bee Inspires Next Generation's Neuroscientists

The International Brain Bee competition for high school students has been inspiring future neuroscientists around the world for 16 years.

"I started the program with the future in mind," said Brain Bee founder Norbert Myslinski, associate professor in the Department of Neural and Pain Sciences at University of Maryland School of Dentistry. "Ultimately our goal is to help treat and find cures for neurological disorders, and the Brain Bee is a way to motivate young people to study the brain and pursue neuroscience as a field."

The first Brain Bee was held at the University of Maryland in 1998, and the program has since grown to include contests that span 150 cities in 30 countries across 6 continents. For the first time in the event's history all six continents were represented at the 2013 International Brain Bee Championship (IBBC) in Vienna. The 2014 U.S. Brain Bee took place March 13–14 at the University of Maryland, Baltimore and featured a record 50 participants. The winner was Adam Elliot, a sophomore at Matawan Regional High School in Aberdeen, New Jersey. Washington, DC, will host the 2014 IBBC August 7–10.

At the national and international levels, the Brain Bee is unlike common scholastic competitions in which students answer questions by reciting memorized facts and figures. At last year's championship, students completed an intense five-part interactive competition that included examining real human brains, making patient diagnoses using video of actual patients, and analyzing brain scans — in addition to answering questions posed by expert judges.

"Each international class contributes great hope for the advancement of science," said Julianne McCall, director of the 2013 IBBC and a former student participant. "What's more inspiring is how students naturally commit to maintaining the community and supporting each other's progress years after the common experience."

At its core, the Brain Bee was designed to motivate high school students to learn more about neuroscience. "The Brain Bee acts as an entryway into this discipline, making it less scary and more approachable," said Benjamin Walker, longtime judge of the Washington, DC, bee and assistant professor at Georgetown University.

The Brain Bee has certainly succeeded in motivating its young participants to get "fired up" about neuroscience, Walker said. "One year we almost ran out of questions."



Benjamin Walker (far left), PhD, served as the judge for the 2014 Washington, DC Regional Brain Bee. Winners, from left to right: Arianna DiGregorio from National Cathedral School in second place; Suzanne Xu from Richard Montgomery High School in first place; and William Martin from Crossland High School in third place.



2014 Washington, DC Brain Bee participants look at human brain held by judge Benjamin Walker, PhD.

Students spend months in vigorous preparation for the competition by studying complimentary online materials available in 20 languages. Among these study materials is Brain Facts, an updated primer on the brain published by SfN and available on BrainFacts.org. SfN arranges research internships for winners of the international and U.S. national competitions.

The establishment of the IBBC and similar programs represents a step forward as the scientific community realizes its potential for significantly changing the way society views science education. "Science is never done in a vacuum," McCall said, "and the Brain Bee provides an incredible platform for students to build relationships over their common interest in science." To learn more visit SfN.org/nqbee. ■

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43	trees
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Dynamic Opportunity Benefits Latin American, Caribbean Trainees

SfN is offering a unique opportunity for young investigators across Latin America and the Caribbean to be part of a new Latin American Training Program (LATP). Launching this August with funding from The Grass Foundation, this comprehensive, yearlong online program will consist of webinars, recorded content, informal online discussions, and Web chats incorporating cutting edge science and providing professional development resources to emerging scientists. Additionally, fifteen neuroscience trainees from Latin American and Caribbean countries will travel to Queretaro, Mexico, to participate in a three-week hands-on course hosted by first-year partner Universidad Nacional Autonoma de Mexico (UNAM).

“This program provides students with many things, but most importantly it allows them to network and interact with top scientists and with each other,” said Gregory Quirk, chair of SfN’s Latin American Training Advisory Group (LATAG). “These relationships can last an entire career.”

Under the leadership of Raul Paredes, director of UNAM’s Institute of Neurobiology, select UNAM faculty and top SfN scientists will lead the online sessions on a variety of topics of importance to young scientists, such as how to publish a manuscript, how to navigate scientific meetings, and how to get involved in advocacy and public education around science. After the initial sessions and the Queretaro program, external audiences will have access to the courses and material, extending the reach of the training throughout the region.

The LATP builds on the interactive strengths of the SfN Ricardo Miledi Program, a Grass Foundation funded training initiative that operated from 2003 to 2012. The new effort incorporates funding support from two regional bodies of the International Brain Research Organization (IBRO) as well as the institutions that will host the program along with SfN.

“The Grass Foundation is delighted that SfN will continue to be a valued partner in supporting the great scientific potential in Latin America,” said Felix Schweizer, president of The Grass Foundation. Several hundred trainees from Latin America have participated in programs supported by the two organizations over the past ten years.

Programmatic recommendations for the course are facilitated by LATAG and the SfN International Affairs Committee, whose members will provide insight into the scientific and professional development needs of trainees. Members of the advisory group represent neuroscientists from various countries across Latin America, all of whom have experience in training young people interested in neuroscience.

“I believe my role in the advisory group is to provide input, feedback, and ideas in order to ensure a bright future for the program,” said LATAG member and former Miledi Program trainee Sofia Jurgensen. “As a former participant, I understand firsthand how involvement with the program positively impacts a trainee’s career.”

Neuroscience graduate students and postdoctoral fellows who are citizens of Latin American or Caribbean countries can learn more about the program and apply at SfN.org/LATP. ■

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