Scott S. Auerbach, Ph.D., DABT

Education
Doctor of Philosophy in Pharmacology
University of Washington, School of Medicine, Seattle, WA, USA
Completed in December 2004
Dissertation Topic: "Functional effects of genetic polymorphism and splice variation in human nuclear receptors and their co-activators"

Bachelor of Science in Biochemistry & Molecular Biology
Recipient of the Senior Evan Pugh Scholar Award
The Pennsylvania State University, University Park, PA, USA
Completed in May 1998

Board Certifications
Diplomat of the American Board of Toxicology
2009- Present

Positions
Group Leader in Toxicoinformatics
National Toxicology Program at NIEHS
2015-Present
http://www.niehs.nih.gov/research/atniehs/labs/bmsb/moltox/staff/auerbach/index.cfm
Responsibilities: Lead and manage chemo- and bioinformatics analysis at the Division of the National Toxicology Program. Oversee projects and programs in the area of IVIVe, qHTS, high dimensional relational analysis, in vitro and in silico hazard characterization, short-term in vivo toxicogenomic analysis, toxicogenomic and qHTS database and analystical tool development, rapid response toxicological assessment
DrugMatrix: https://ntp.niehs.nih.gov/drugmatrix/index.html
ToxFX: https://ntp.niehs.nih.gov/toxfx/

Molecular Toxicologist
National Toxicology Program at NIEHS
2009-2015
http://www.niehs.nih.gov/research/atniehs/labs/bmsb/moltox/staff/auerbach/index.cfm
Responsibilities: Lead the implementation, release and upgrade of the NTP DrugMatrix and ToxFX toxicogenomic database and analysis tools; Develop genomics-based toxicity prediction models; Support ongoing efforts on toxicogenomic efforts throughout the NTP; Facilitate the integration of high dimensional assays into the Tox21 effort. Develop novel approaches for high dimensional data analysis. Develop software applications for dissemination and analysis of Tox21 and toxicogenomic data
DrugMatrix: https://ntp.niehs.nih.gov/drugmatrix/index.html
ToxFX: https://ntp.niehs.nih.gov/toxfx/

Postdoctoral IRTA
2007-2009
Toxicology Operations Branch, National Toxicology Program at NIEHS
Research Triangle Park, North Carolina
Responsibilities: Study scientist that designed and report guideline toxicology studies: Development of toxicogenomics signatures that forecast chemical carcinogenic hazard

Postdoctoral IRTA
2005-2007

Laboratory of Respiratory Biology at NIEHS
Research Triangle Park, North Carolina
Responsibilities: Functional validation of genes associated with idiopathic pulmonary fibrosis

Professional Activities
Counselor
Molecular and Systems Biology Specialty Section
Society of Toxicology
2012-Present

Peer-reviewed Publications

Auerbach, S., Filer, D., Reif, D., Walker, V., Holloway, A.C., Schlezinger, J., Srinivasan, S., Svoboda, D., Judson, R., Bucher, J.R., et al. (2016). Prioritizing Environmental Chemicals for Obesity and Diabetes Outcomes Research: A Screening Approach Using ToxCast High Throughput Data. Environmental Health Perspectives.

Dennis, K.K., **Auerbach, S.S.**, Balshaw, D.M., Cui, Y., Fallin, M.D., Smith, M.T., Spira, A., Sumner, S., and Miller, G.W. (2016). The Importance of the Biological Impact of Exposure to the Concept of the Exposome. Environmental Health Perspectives.

Adler, M., Ramm, S., Hafner, M., Muhlich, J.L., Gottwald, E.M., Weber, E., Jaklic, A., Ajay, A.K., Svoboda, D., **Auerbach, S.**, et al. (2015). A Quantitative Approach to Screen for Nephrotoxic Compounds In Vitro. Journal of the American Society of Nephrology : JASN.

Chen, S., Hsieh, J.H., Huang, R., Sakamuru, S., Hsin, L.Y., Xia, M., Shockley, K.R., **Auerbach, S**., Kanaya, N., Lu, H., et al. (2015). Cell-Based High-Throughput Screening for Aromatase Inhibitors in the Tox21 10K Library. Toxicological sciences : an official journal of the Society of Toxicology.

Oshida K, Vasani N, Jones C, Moore T, Hester S, Nesnow S, **Auerbach** S, Geter DR, Aleksunes LM, Thomas RS, Applegate D, Klaassen CD, Corton JC. (2015) Identification of chemical modulators of the constitutive activated receptor (CAR) in a gene expression compendium. Nucl Recept Signal.13:e002

Bourdon-Lacombe JA, Moffat ID, Deveau M, Husain M, **Auerbach S**, Krewski D, Thomas RS, Bushel PR, Williams A, Yauk CL. (2015) Technical guide for applications of gene expression profiling in human health risk assessment of environmental chemicals. Regul Toxicol Pharmacol. May 2

Zeiger, E., Gollapudi, B., Aardema, M.J., **Auerbach, S**., Boverhof, D., Custer, L., Dedon, P., Honma, M., Ishida, S., Kasinski, A.L., et al. (2015). Opportunities to integrate new approaches in genetic toxicology: an ILSI-HESI workshop report. Environmental and molecular mutagenesis 56, 277-285

Gong, B., Wang, C., Su, Z., Hong, H., Thierry-Mieg, J., Thierry-Mieg, D., Shi, L., **Auerbach, S.S.**, Tong, W., and Xu, J. (2014). Transcriptomic profiling of rat liver samples in a comprehensive study design by RNA-Seq. Sci Data 1, 140021.

Auerbach, S.S., Phadke, D.P., Mav, D., Holmgren, S., Gao, Y., Xie, B., Shin, J.H., Shah, R.R., Merrick, B.A., and Tice, R.R. (2015). RNA-Seq-based toxicogenomic assessment of fresh frozen and formalin-fixed tissues yields similar mechanistic insights. Journal of applied toxicology : JAT 35, 766-780.

SEQC/MAQCIII Consortium (2014). A comprehensive assessment of RNA-seq accuracy, reproducibility and information content by the Sequencing Quality Control Consortium. Nature biotechnology 32, 903-914.

Gong, B., Wang, C., Su, Z., Hong, H., Thierry-Mieg, J., Thierry-Mieg, D., Shi, L., **Auerbach, S.S.**, Tong, W., and Xu, J. (2014). Transcriptomic profiling of rat liver samples in a comprehensive study design by RNA-Seq. Scientific Data 1. (Senior author)

Wang, C., Gong, B., Bushel, P.R., Thierry-Mieg, J., Thierry-Mieg, D., Xu, J., Fang, H., Hong, H., Shen, J., Su, Z., et al. (2014). The concordance between RNA-seq and microarray data depends on chemical treatment and transcript abundance. Nature biotechnology 32, 926-932. (Senior author)

Gusenleitner, D., **Auerbach, S.S.**, Melia, T., Gomez, H.F., Sherr, D.H., and Monti, S. (2014). Genomic models of short-term exposure accurately predict long-term chemical carcinogenicity and identify putative mechanisms of action. PloS one *9*, e102579.

Kleensang, A., Maertens, A., Rosenberg, M., Fitzpatrick, S., Lamb, J., **Auerbach, S.**, Brennan, R., Crofton, K.M., Gordon, B., Fornace Jr, A.J., et al. (2013). t4 Workshop Report: Pathways of Toxicity. Altex. 31(1):53-61

Thomas, R.S., Philbert, M.A., **Auerbach, S.S.**, Wetmore, B.A., Devito, M.J., Cote, I., Rowlands, J.C., Whelan, M.P., Hays, S.M., Andersen, M.E., et al. (2013). Incorporating new technologies into toxicity testing and risk assessment: moving from 21st century vision to a data-driven framework. Toxicological sciences: an official journal of the Society of Toxicology 136, 4-18.

Thomas, R., Thomas, R.S., **Auerbach, S.S.**, and Portier, C.J. (2013). Biological networks for predicting chemical hepatocarcinogenicity using gene expression data from treated mice and relevance across human and rat species. PloS one 8, e63308.

Merrick, B.A., Phadke, D.P., **Auerbach, S.S.**, Mav, D., Stiegelmeyer, S.M., Shah, R.R., and Tice, R.R. (2013). RNA-Seq profiling reveals novel hepatic gene expression pattern in aflatoxin B1 treated rats. PloS one 8, e61768. **(NIEHS Paper of the Year 2013)**

Yauk, C.L., Lucas Argueso, J., Auerbach, S.S., Awadalla, P., Davis, S.R., Demarini, D.M., Douglas, G.R., Dubrova, Y.E., Elespuru, R.K., Glover, T.W., et al. (2013). Harnessing genomics to identify environmental determinants of heritable disease. Mutation research 752, 6-9.

Pandiri, A.R., Sills, R.C., Ziglioli, V., Ton, T.V., Hong, H.H., Lahousse, S.A., Gerrish, K.E., **Auerbach, S.S.**, Shockley, K.R., Bushel, P.R., et al. (2012). Differential transcriptomic analysis of spontaneous lung tumors in B6C3F1 mice: comparison to human non-small cell lung cancer. Toxicol Pathol 40, 1141-1159.

Merrick, B.A., **Auerbach, S.S.**, Stockton, P.S., Foley, J.F., Malarkey, D.E., Sills, R.C., Irwin, R.D., and Tice, R.R. (2012). Testing an aflatoxin B1 gene signature in rat archival tissues. Chem Res Toxicol 25, 1132-1144. **(NIEHS Paper of the Year 2012)**

Fielden, M.R., Adai, A., Dunn, R.T., 2nd, Olaharski, A., Searfoss, G., Sina, J., Aubrecht, J., Boitier, E., Nioi, P., **Auerbach, S.**, et al. (2011). Development and evaluation of a genomic signature for the prediction and mechanistic assessment of nongenotoxic hepatocarcinogens in the rat. Toxicological sciences : an official journal of the Society of Toxicology 124, 54-74..

Hoenerhoff, M. J., Pandiri, A. R., Lahousse, S. A., Hong, H. H., Ton, T. V., Masinde, T., **Auerbach, S. S.**, Gerrish, K., Bushel, P. R., Shockley, K. R., Peddada, S. D. and Sills, R. C. (2011). Global Gene Profiling of Spontaneous Hepatocellular Carcinoma in B6C3F1 Mice: Similarities in the Molecular Landscape with Human Liver Cancer. Toxicol Pathol 39, 678-99 **(NIEHS Paper of the Year, 2011)**

Seibold, M. A., Wise, A. L., Speer, M. C., Steele, M. P., Brown, K. K., Loyd, J. E., Fingerlin, T. E., Zhang, W., Gudmundsson, G., Groshong, S. D., Evans, C. M., Garantziotis, S., Adler, K. B., Dickey, B. F., du Bois, R. M., Yang, I.

V., Herron, A., Kervitsky, D., Talbert, J. L., Markin, C., Park, J., Crews, A. L., Slifer, S. H., **Auerbach, S.**, Roy, M. G., Lin, J., Hennessy, C. E., Schwarz, M. I. and Schwartz, D. A. (2011). A common MUC5B promoter polymorphism and pulmonary fibrosis. N Engl J Med 364, 1503-12

Auerbach, S. S., Thomas, R., Shah, R., Xu, H., Vallant, M. K., Nyska, A. and Dunnick, J. K. (2010). Comparative phenotypic assessment of cardiac pathology, physiology, and gene expression in C3H/HeJ, C57BL/6J, and B6C3F1/J mice. Toxicol Pathol 38, 923-42

DeKeyser, J. G., Stagliano, M. C., **Auerbach, S. S.**, Prabhu, K. S., Jones, A. D. and Omiecinski, C. J. (2009). Di(2-ethylhexyl) phthalate is a highly potent agonist for the human constitutive androstane receptor splice variant CAR2. Mol Pharmacol 75, 1005-13

Auerbach, S. S., Shah, R. R., Mav, D., Smith, C. S., Walker, N. J., Vallant, M. K., Boorman, G. A. and Irwin, R. D. (2010). Predicting the hepatocarcinogenic potential of alkenylbenzene flavoring agents using toxicogenomics and machine learning. Toxicol Appl Pharmacol 243, 300-14

Auerbach, S. S., Bristol, D. W., Peckham, J. C., Travlos, G. S., Hebert, C. D. and Chhabra, R. S. (2010). Toxicity and carcinogenicity studies of methylene blue trihydrate in F344N rats and B6C3F1 mice. Food Chem Toxicol 48, 169-77

Auerbach, S. S., Mahler, J., Travlos, G. S. and Irwin, R. D. (2008). A comparative 90-day toxicity study of allyl acetate, allyl alcohol and acrolein. Toxicology 253, 79-88

Auerbach, S. S., Dekeyser, J. G., Stoner, M. A. and Omiecinski, C. J. (2007). CAR2 displays unique ligand binding and RXRalpha heterodimerization characteristics. Drug Metab Dispos 35, 428-39

Shofer, S., Badea, C., Auerbach, S., Schwartz, D. A. and Johnson, G. A. (2007). A micro-computed tomography-based method for the measurement of pulmonary compliance in healthy and bleomycin-exposed mice. Exp Lung Res 33, 169-83

Stoner, M. A., **Auerbach, S. S.**, Zamule, S. M., Strom, S. C. and Omiecinski, C. J. (2007). Transactivation of a DR-1 PPRE by a human constitutive androstane receptor variant expressed from internal protein translation start sites. Nucleic Acids Res 35, 2177-90

Auerbach, S. S., Stoner, M. A., Su, S. and Omiecinski, C. J. (2005). Retinoid X receptor-alpha-dependent transactivation by a naturally occurring structural variant of human constitutive androstane receptor (NR1I3). Mol Pharmacol 68, 1239-53

Auerbach, S. S., Ramsden, R., Stoner, M. A., Verlinde, C., Hassett, C. and Omiecinski, C. J. (2003). Alternatively spliced isoforms of the human constitutive androstane receptor. Nucleic Acids Res 31, 3194-207.

Dunphy, E. L., Johnson, T., **Auerbach, S. S.** and Wang, E. H. (2000). Requirement for TAF(II)250 acetyltransferase activity in cell cycle progression. Mol Cell Biol 20, 1134-9.

NTP Publications

NTP Update. West Virginia Chemical Spill: 5-Day Rat Toxicogenomic Studies. June 2016

NTP Update. West Virginia Chemical Spill: Prenatal Developmental Toxicity Study. June 2015

NTP Update. West Virginia Chemical Spill: Mouse Dermal Irritation and Hypersensitivity Study. June 2015

NTP Update. West Virginia Chemical Spill: Zebrafish Developmental Toxicity Study. June 2015

NTP Update. West Virginia Chemical Spill: Bacterial Mutagenicity Study. June 2015

NTP Update. West Virginia Chemical Spill: 5-Day Rat Toxicogenomic Studies. May 2015

NTP Update. West Virginia Chemical Spill: Nematode (Caenorhabditis elegans) Toxicity Study. March 2015

NTP Update. West Virginia Chemical Spill: Zebrafish Developmental Toxicity Study. December 2015

NTP Update. West Virginia Chemical Spill: High Throughput Screening Assays. December 2015

NTP Update. West Virginia Chemical Spill: Structure-Activity Relationship Analysis. December 2015

Book Chapters
Auerbach S.S. and Merrick B.A.**:** The Application of Omics Technologies to the Study of Mammalian Toxicology. In: Abou-Donia M.B. (Ed.) Mammalian Toxicology: John Wiley & Sons Inc. To be published 24 December 2014. ISBN 13: 9781118683484 ISBN 10: 111868348X

Auerbach S.: Toxicogenomics. In: Schwab M. (Ed.) Encyclopedia of Cancer: SpringerReference (www.springerreference.com). Springer-Verlag Berlin Heidelberg, 2009. DOI: 10.1007/SpringerReference_306689 2012-07-16 08:00:37 UTC

Auerbach S. and Paules R. Application of In Vivo Genomics to the Prediction of Chemical-Induced (hepato) Carcinogenesis. In: Toxicogenomics-Based Cellular Models: Alternatives to Animal Testing for Safety Assessment. Academic Press, 2014. ISBN: 0123978718, 9780123978714

Invited Lectures
Auerbach, S.S. Application of Genomic Benchmark Dose Analysis to the Elk River Chemical Spill**.** California EPA Shop Talk Webinar. May 31, 2016

Auerbach S.S. Inferring Toxicological Similarity with Multidimensional Relational Analysis. Addressing Challenges in the Assessment of Botanical Dietary Supplement Safety. Bethesda, Maryland. April 26-27, 2016

Auerbach, S.S. Application of Genomic Benchmark Dose Analysis to the Elk River Chemical Spill. Society of Toxicology Annual Meeting. New Orleans, Louisiana. March 15, 2016

Auerbach, S.S. Results of the NTP Elk River Chemical Spill Studies. CDC Briefing**.** Webinar. June 30, 2015

Auerbach, S.S. Forecasting toxicity using HTS data. Dashboard Day (hosted by FDA). Crystal City, VA. November 18, 2015

Auerbach, S.S. NTP High Throughput Transcriptomics Update. Tox21 General Meeting. Crystal City, VA. November 18, 2016

Auerbach, S.S. Forecasting toxicity using HTS data. 2015 Triangle Statistical Genetics Conference. Cary, NC November 3, 2015

Auerbach, S.S. The Application of Toxicogenomic Compendium Data to Forecasting Chemical Effects in Biological Systems. NCCU Chemistry Seminar. Durham, NC. November 2, 2015

Auerbach S.S. Mining and Interpreting Tox21 HTS Results. EDF Workshop: Elucidating Environmental Dimensions of Neurological Disorders and Diseases: Understanding New Tools from Federal Chemical Testing Programs. Davis, CA June 18-19, 2015

Auerbach, S.S. Report on NTP Response to the Elk River Chemical Spill. US EPA ORD Seminar. Webinar. June 9, 2015

Auerbach, S.S. Report on NTP Response to the Elk River Chemical Spill. NTP Executive Committee. Washington, D.C., May 28, 2015

Auerbach S.S. Identifying Chemicals to Test for Obesity: Clues from High Throughput Screening Data. IOM Workshop on the Interplay Between Environmental Chemical Exposure and Obesity. RTP,NC, March 2, 2015

Auerbach S.S. Chemical Toxicity Hypothesis Generation through Multivariate Analysis of Tox21 data. 43rd Japanese EMS Meeting. Tokyo, Japan. December 5-6, 2014

Auerbach S.S. The Application of Toxicogenomic Compendium Data to Forecasting Chemical Effects in Biological Systems and Risk Assessment. GEMS Fall 2014 Meeting. RTP, NC October 22nd.

Auerbach S.S. A Large Scale Toxicogenomic Bench Mark Dose Analysis and Resource. EMS Annual Meeting. Orlando, Fl. September 16, 2014

Auerbach S.S. Tox21 and other efforts at the NTP to Augment Toxicology Testing. National Center For Toxicological Research, Jefferson, AR. May 7, 2014

Auerbach S.S. Using Unsupervised Pattern Analysis to Hypothesize Chemical Effects In Biological Systems. Society of Toxicologic Pathology Regional Meeting: Toxicology 21 and the 21st Century Toxicologic Pathologist. Gathersburg, MD (Webinar from RTP). April 23, 2014

Auerbach S.S. A Data Driven Approach to Chemical Prioritization. University of Texas Southwestern, Dallas, TX (webinar from RTP). March 14, 2014

Thayer K.S. and **Auerbach S.S.** NTP Activities on BPA Analogues. Webinar to National Academy of Sciences Committee on the Design and Evaluation of Safer Chemical Substitutions. February 7, 2014

Auerbach S.S. Temporal Dynamics of Molecular Pathways following Chemical Carcinogen Exposure. NCSOT Spring 2014 Meeting. RTP, NC. March 11, 2014

Auerbach S.S. Predictive Toxicology: Using New Data Streams to Forecast Chemical Toxicity. DNTP Trainees Assembly. RTP, N.C. January 21, 2014

Auerbach S.S. The Application of Toxicogenomic Compendium Data to Forecasting Chemical Effects in Biological Systems. FutureTox II: In Vitro Data and In Silico Models for Predictive Toxicology. Chapel Hill, N.C. January 16, 2014.

Auerbach S.S. Characterization and Application of Toxicogenomic Perturbation Space. Society of Toxicology of Canada Annual Symposium. Ottawa, Ontario, Canada. December 4, 2013

Auerbach S.S. A philosophical discourse on toxicoepitranscriptmetabolomics and neologisms related to "modern" toxicology. DNTP Forum. RTP, N.C. November 21, 2013

Auerbach S.S. Chemogenomic Signatures Associated with Carcinogenic Outcomes. NIEHS Science Day. RTP, NC, November 7, 2013

Auerbach S.S. Qualitative and Quantitative Characterization of Mode of Action Signatures. Genetic Toxicology Association Annual Meeting. Newark, DE, October 16, 2013 (Not presented due to furlough)

Auerbach S.S. Strategies for mining mechanistic information from transcriptomics datasets. SEURAT-1 meets Tox21. Ispra, Italy, June 26, 2013

Auerbach S.S. DrugMatrix DB: a large toxicogenomic reference resource. NIEHS-European Union Workshop on Identifying Opportunities for Global Integration of Toxicogenomics Databases. RTP, NC. June 26, 2013

Auerbach S.S. The DrugMatrix® (DM) Database. OpenTox USA Meeting, RTP, NC. October 29, 2013

Auerbach S.S. Integrating Genomics in Carcinogenicity Testing. Moving Forward in Human Cancer Risk Assessment in the Genomics Era 2.0 Workshop. Paris, France, May 16, 2013

Auerbach S.S. The DrugMatrix Database. Online presentation to the CHE committee. December 13, 2012

Auerbach S.S. DrugMatrix® and ToxFX®. Workshop: Exploring existing data bases for modes-of-action of repeated dose systemic toxicity, Tuebingen, Germany, November 13, 2012.

Auerbach S.S. An Overview of DrugMatrix (DM) and its Application to Cancer Hazard Characterization. Computational Genomic Models of Environmental & Chemical Carcinogenicity Workshop. Boston University, October 25, 2012

Auerbach S.S. The behavior of genomic signatures of genotoxicity: Effect of dose level and exposure duration. ILSI/HESI Workshop on Genetic Toxicology: Opportunities to Integrate New Approaches. Washington, D.C., April 25, 2012

Auerbach S.S. The impact of dose level and study duration on toxicogenomics signatures. Health Canada Genomics Working Group. Ottowa, Ontario, Canada, March 21, 2012

Auerbach S.S. Comparison of Genomic Signatures of Disease and Toxicity Across Species. Health Canada Genomics Working Group. Ottowa, Ontario, Canada, March 20, 2012

Auerbach S.S. A bioinformatics-based approach to identify assays that query human health effects. NTP Workshop: Role of Environmental Chemicals in the Development of Diabetes and Obesity. Raleigh, NC, January 12, 2011

Auerbach S.S. Predicting the hepatocarcinogenic potential of alkenylbenzene derivatives using toxicogenomic. Flavoring Extract Manufacturers of America Board of Scientific Counselors Meeting, Miami, FL., February 23, 2009

Auerbach S.S. Predicting the hepatocarcinogenic potential of alkenylbenzene derivatives using toxicogenomic. Flavoring Extract Manufacturers of America SECC Annual Meeting, Bridgewater, NJ October 26, 2009

Poster Presentations

Hsieh J-H, Huang R, Tice RR, Paules RS, Xia M, **Auerbach S.S.** Real-time Cell Viability Profiling of Tox21 10K Compounds**.** Society of Toxicology Meeting 2016. New Orleans, CA. March 13–17, 2016

Seligmann B, Babic M., Shepard, P, **Auerbach S.**, Merrick, A., Mav D, Shah R, Thomas R, Paules R. Yeakley J. TempO-Seq™ Surrogate Whole Transcriptome Targeted Gene Expression Profiling of Archived Rat FFPE. Society of Toxicology Meeting 2016. New Orleans, CA. March 13–17, 2016

Yeakley JM, Shepard, P, McComb, J, VanSteenhouse H, **Auerbach SS**, Paules RS, Seligmann, B. Development of a Gene Expression Analysis Platform Suitable for High Throughput Transcriptomics. Society of Toxicology Meeting 2016. New Orleans, CA. March 13–17, 2016

Mav D., Shah R., Svoboda D., **Auerbach S**, Judson R, Karmaus A, Sipes N, Bushel B, Collins J, Maull E, Gerhold D, Yeakley J, Seligmann B. McComb J, Merrick, B.A., Paules RS. High-throughput Transcriptomics via Select Sentinel Genes. Society of Toxicology Meeting 2016. New Orleans, CA. March 13–17, 2016

Johnson V, **Auerbach SS**, Luster MI, Waidyanatha, Masten SA, Wolfe MS, Burleson F, Burleson GR, Germolec DR. EVALUATION OF 4-METHYLCYCLOHEXANEMETHANOL IN A COMBINED IRRITATION AND LOCAL LYMPH NODE ASSAY+. Society of Toxicology Meeting 2016. New Orleans, CA. March 13–17, 2016

Rider CV, Auerbach SS, Hsieh J-H, Tokar E, Germolec, D. Ferguson, SS, Shockley K, Mutlu E, Masten S, Waidyanatha, In Vitro Screening to In Vivo Testing of Polycyclic Aromatic Compounds by the National Toxicology Program. Society of Toxicology Meeting 2016. New Orleans, CA. March 13–17, 2016

Blystone, C.R., Cunney, H, McIntyre, B., **Auerbach, S.,** Mylchreest, Hebert, C. Maternal and Prenatal Dose Range-Finding Study of 4-Methylcyclohexanemethanol (MCHM) in Harlan Sprague-Dawley Rats. Society of Toxicology Meeting 2015. San Diego, CA. March 22–26, 2015

Sipes NS, Svoboda D, Mav D, Shah R, Paules RS, Judson RS, **Auerbach SS**. Methods for determining optimal cell type selections for covering biological space in HTS toxicity**.** Society of Toxicology Meeting 2015. San Diego, CA. March 22–26, 2015

Shah R, MavD, Judson R, **Auerbach SS**, Svoboda DL, Karmaus A, Gerhold D, Sipes NS, Collins J, Maull EA, Bushel PR, Merrick BA, Mendrick DL, Thomas RS, Paules RS .Gene Selection for Tox21 High-Throughput Transcriptomics. Society of Toxicology Meeting 2015. San Diego, CA. March 22–26, 2015

Rider CV, Collins B, **Auerbach SS**, DeVito M, Blystone CR, Waidyanatha S. Moving forward on Complex Herbal Mixtures. Society of Toxicology Meeting 2015. San Diego, CA. March 22–26, 2015

Pelch KE, Walker VR, Hsieh J, **Auerbach SS**, Svoboda DL, DeVito M, Holmgren S, Tice RR, Thayer K "Systematic Review of Bisphenol A (BPA) Analogues and Analysis of High-Throughput Screening Data. Society of Toxicology Meeting 2015. San Diego, CA. March 22–26, 2015

Tong, W. Xu, J., Bushel, P., Auerbach, S., Wang, C. RNA-seq and Microarray Gene Expression Vie for Toxicogenomics Superiority. Society of Toxicology Meeting 2015. San Diego, CA. March 22–26, 2015

S.S. Auerbach, D.L. Svoboda, B.A. Merrick and R.R. Tice. Patterns of Gene Coregulation across Multiple Tissues Undergoing Toxicological Challenge. Society of Toxicology Meeting 2014. Phoenix, AZ. March 24–27, 2014

B.A. Merrick, E.J. Tokar, D.P. Phadke, R. Shah, X. Wang, M.A. Bostrom, O. Gordon, G.M. Wright, M. Burke, K.E. Pelch, **S.S. Auerbach**, R.R. Tice and M.P. Waalke. Genome-Wide DNA Methylation Changes Influence Gene Expression in Arsenic-Transformed Human Prostate Cells. Society of Toxicology Meeting 2014. Phoenix, AZ. March 24–27, 2014

J.S. Chang, D.P. Phadke, R. Shah, **S.S.Auerbach**, R.R. Tice and B.A. Merrick. Subchronic Aflatoxin B1 Exposure Produces Expression of Novel Liver Transcripts. Society of Toxicology Meeting 2014. Phoenix, AZ. March 24–27, 2014

Daniel Gusenleitner, **Scott Auerbach**, David Sherr, Stefano Monti. Rodent-based Toxicogenomic Models of Hepatocarcinogenicity Superfund Annual Meeting. Baton Rouge, LA. October 2013. **Note**: Won first place in the Biomedical Student Poster Competition

B. Gong, J. Xu, Z. Su, H. Hong, J. Meehan, H. Fang, W. Ge, **Auerbach S.S**., C.Wang, L. Shi1 and W. Tong. Effect of Technical Variation and Bioinformatics on the Biological Discovery in a Mechanistic Toxicogenomics Study. Society of Toxicology Meeting 2013. San Antonio, Tx. March 12, 2013

C. J.Wegerski, C. Garner, M. Doyle-Eisele, J. M. Sanders, J. D. McDonald, **Auerbach S.S.** and S. Waidyanatha. Effect of Vehicle on the Dermal Absorption of 2-Hydroxy-4-Methoxybenzophenone Harlan Sprague-Dawley Rats and B6C3F1/N Mice. Society of Toxicology Meeting 2013. San Antonio, Tx. March 12, 2013 (poster)

M. DeVito, **Auerbach S.S**., A. Merrick, K. L.Witt, K. Janardhan, D. Malarkey, H. Nagai, I. Shah, C. Corton and R. Judson. *In Vitro* to *In Vivo* Extrapolation Using Data from ToxCast. . Society of Toxicology Meeting 2013. San Antonio, Tx. March 12, 2013 (poster)

Auerbach S.S., B. Alex Merrick, Ruchir R. Shah, Dhiral Phadke, Bin Xie, Joo Heon Shin, Yaun Gao, Raymond R. Tice. Whole transcriptome RNA-seq of FFPE liver. Society of Toxicology Meeting 2013. San Antonio, Tx. March 12, 2013 (poster)

Auerbach, S.S. An introduction to the NTP DrugMatrix and ToxFX toxicogenomic database and analysis tools. Society of Toxicology Meeting 2012. San Francisco, Ca. March 12, 2013 (presentation)

B. A. Merrick, **Auerbach S.S**., S. M. Stiegelmeyer, D. P. Phadke2, R. R. Shah and R. R. Tice.. RNA-SEQ PROFILING REVEALS NOVEL GENEEXPRESSION PATTERN AFTER SUBCHRONIC AFLATOXIN B1 (AFB1) IN RATS. Society of Toxicology Meeting 2012. San Francisco, Ca. March 12, 2012(poster)

Auerbach, S.S., Tice, R.R., Thayer, K. Bioinformatics-based identification of assays that inform on disease hazard. OpenTox 2011 InterAction Meeting. August 9th-12th, 2011(poster)

Auerbach, S.S., Shockley, K.R., Thomas, R., Machesky, N.J., Vallant, M.K., Cunny, H.C., Dunnick, J.K. Characterization of the hepatic transcriptome response to a mixture of low molecular weight polybrominated diphenyl ethers. SOT 50th Annual Meeting, Washington, D.C., March 6-10, 2011 (poster)

R. T. Dunn, A. Adai, A. Olaharski, G. H. Searfoss, J. Sina, J. Aubrecht, E. Boitier, P. Nioi, D. Jacobson Kram, N. Raghavan, B. Car, S. Chen, Y. Yang, A. Kinkaid, J. Sherlock, **Auerbach S**., and M. Fielden. DEVELOPMENT AND EVALUATION OF A GENOMIC SIGNATURE FOR THE PREDICTION OF NONGENOTOXIC HEPATOCARCINOGENS IN THE RAT. SOT 50th Annual Meeting, Washington, D.C., March 6-10, 2011 (poster)

B. A. Merrick, **Auerbach S.S**., P. S. Stockton, J. F. Foley, D. E. Malarkey, R. C. Sills, R. D. Irwin and R. R. Tice. QUANTITATIVE (Q)PCR ANALYSIS OF RNA EXTRACTED FROM FORMALIN-FIXED PARAFFIN EMBEDDED (FFPE) LIVER FROM AFLATOXIN B1 (AFB1) TREATED RATS: CORRELATION WITH MICROARRAY DATA. SOT 50th Annual Meeting, Washington, D.C., March 6-10, 2011 (poster)

Auerbach, S.S., K. R. Shockley, R. Thomas, N. J. Machesky, M.K. Vallant, C. D. Hebert, H. C. Cunny and J. K. Dunnick.CHARACTERIZATION OF THE HEPATIC TRANSCRIPTOME RESPONSE TO A MIXTURE OF LOW MOLECULAR WEIGHT POLYBROMINATED DIPHENYL ETHERS: DISEASE, SIGNATURE, NETWORK, AND PATHWAY ANALYSIS. SOT 50th Annual Meeting, Washington, D.C., March 6-10, 2011 (poster)

C. Wegerski, **Auerbach S.S**., J. M. Sanders, M. Doyle-Eisele and J. D. McDonald.METABOLISM OF 2-HYDROXY-4-METHOXYBENZOPHENONE DEPENDS ON SPECIES AND SEX. SOT 50th Annual Meeting, Washington, D.C., March 6-10, 2011 (poster)

M. Doyle-Eisele, Z. Gao, D. Kramer1, L. Thomas, D. Kracko, K. J. Dix, **Auerbach, S.S**., J. M. Sanders and J. M. McDonald DISPOSITION AND METABOLISM OF 2-HYDROXY-4-METHOXYBENZOPHENONE IN MALE SPRAGUE DAWLEY RATS. SOT 49th Annual Meeting, Salt Lake City, UT., March 7-11, 2010 (poster)

L. Fomby, C. Sabourin, N. Machesky, J. Price, M. Kasoji, M.Wendling, D. Bornman, M. Hejtmancik, S. **Auerbach, S.**, M. Hooth, M. Vallant and N. J. Walker. TOXICOGENOMIC STUDY OF MICROCYSTIN-LR IN WISTAR HAN RATS. SOT 49th Annual Meeting, Salt Lake City, UT., March 7-11, 2010 (poster)

Auerbach, S.S., Smith C.S., Walker, N.J., Vallant, M. Boorman, G.A. and Irwin, R. Persistent functional genomic changes produced in the liver by genotoxic and non-genotoxic challenge. SOT 49th Annual Meeting, Salt Lake City, UT., March 7-11, 2010 (poster)

Auerbach, S.S., Shah, R., Mav, D., Walker, N.J., Vallant, M. Boorman, G.A. and Irwin, R. Independent validation of gene expression-based hepatocarcinogenicity prediction models. SOT 48th Annual Meeting, Baltimore, MD., March 15-19, 2009 (poster)

R. Shah, D. Mav, **S. Auerbach** and R. Irwin. NOVEL CLASSIFICATION APPROACH FOR BIOMARKER IDENTIFICATION AND CARCINOGENICITY PREDICTION. SOT 48th Annual Meeting, Baltimore, MD., March 15-19, 2009 (poster)

Auerbach, S.S. Predicting the hepatocarcinogenic potential of (alkoxy)propenyl benzene derivatives using toxicogenomics. NTP board of Scientific Counselors, RTP, NC, November 21-22, 2008 (presentation)

Auerbach S.S., Shah, R., Mav, D., Walker, N.J., Vallant, M., Boorman, G.A. and Irwin, R. Prediction of hepatocarcinogenic outcomes using gene expression models. Genomics Applications in Safety Studies meeting**,** Arlington, Virginia, October 27-28, 2008 (poster)

Auerbach S.S., Shah, R., Mav, D., Vallant, M., Boorman, G.A. and Irwin, R. Prediction of hepatocarcinogenic potential using genome-wide expression analysis. NIH Research Festival 2008, Washington, D.C. October 14-17, 2008 (poster)

Auerbach S.S., Shah, R., Mav, D.and Irwin, R. The Use of Gene Expression Data from Multiple Exposure Times for the Development of Genomic Biomarkers of Carcinogenic Potential. SOT 47th Annual Meeting, Seattle, WA, March 16-20, 2008 (poster)

Dekeyser, J.G., **Auerbach S.S.**, Stoner, M.A., Omiecinski, C.J. CAR2 displays unique ligand binding and RXRα heterodimerization characteristics. Experimental Biology meeting 2007, Washington, D.C., April 28- May 2, 2007 (presentation)

Auerbach, S.S., Stoner, M.A. and Omiecinski, C.J. RXR-dependent transactivation by a naturally occurring structural variant of human CAR (NR1I3). American Society for Pharmacology and Experimental Therapeutics Annual Meeting 2005 (poster)

Auerbach, S.S., Stoner, M.A. and Omiecinski, C.J. Functional assessment of a putative phosphorylation site in a variant isoform of human CAR. Society of Toxicology 44th Annual meeting 2004 (poster)

Stoner, M.A., **Auerbach, S.S.** and Omiecinski, C.J. Amino terminus-deleted constitutive androstane receptor variants are expressed from downstream AUG and CUG start codons. Society of Toxicology 44th Annual meeting 2004 (poster)

Auerbach, S.S. Isoforms of the human constitutive androstane receptor. Fall 2004 EPT Training Grant Semiannual Seminar (presentation)

Hassett C.M., **Auerbach, S.S.**, and Omiecinski, C.J. Characterization of the Human Constitutive Androstane Receptor Gene (NR1I3). American Society for Pharmacology and Experimental Therapeutics Annual Meeting 2002 (poster)

Auerbach, S.S. Identification of alternatively spliced forms of hCAR in liver. Spring 2002 EPT Training Grant Semiannual Seminar (presentation)

Auerbach, S.S., Lu, F. and Omiecinski, C.J. Alterations in histone acetylation are associated with phenobarbital induction of the rat CYP2B2 gene. Society of Toxicology 42nd Annual meeting 2002 (poster and presentation)

Auerbach, S.S. Effects of Dexamethasone on Histone Acetylation in the Rat CYP2B2 Promoter. 1999 UW Pharmacology Annual Retreat (presentation)

Data Sets

GEO Data Set GSE59913. Exposure of rat to a variety of toxicants, kidney assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE59923. Exposure of rat to a variety of toxicants, liver assayed by Codelink microarray. Public on Aug 18, 2014

GEO Data Set GSE59894. Exposure of rat to a variety of toxicants, bone marrow assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE59895. Exposure of rat to a variety of toxicants, brain assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE59905. Exposure of rat to a variety of toxicants, heart assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE59906. Exposure of rat hepatocytes to a variety of toxicants, assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE59907. Exposure of rat to a variety of toxicants, intestine assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE59925. Exposure of rat to a variety of toxicants, spleen assayed by Codelink microarray. Public on Aug 18, 2014

GEO Data Set GSE59926. Exposure of rat to a variety of toxicants, thigh muscle assayed by CodeLink microarray. Public on Aug 18, 2014

GEO Data Set GSE57800. Exposure of rat to a variety of toxicants, heart assayed by Affymetrix microarray. Public on May 27, 2014

GEO Data Set GSE57805. In vitro exposure of rat hepatocytes to a variety of toxicants, assayed by Affymetrix microarray. Public on May 27, 2014

GEO Data Set GSE57811. Exposure of rat to a variety of toxicants, kidney assayed by Affymetrix microarray. Public on May 27, 2014

GEO Data Set GSE57815. Exposure of rat to a variety of toxicants, liver assayed by Affymetrix microarray. Public on May 27, 2014

GEO Data Set GSE57816. Exposure of rat to a variety of toxicants, thigh muscle assayed by Affymetrix microarray. Public on May 27, 2014

GEO Data Set GSE55347. SEQC Toxicogenomics Study: RNA-Seq data set. Public on Aug 08, 2014

GEO Data Set GSE47875. SEQC Toxicogenomics Study: microarray data set. Public on Aug 08, 2014

SRA Data Set SRP022310. Whole transcriptome analysis using RNA extracted from FFPE liver samples. Registration date: 9-May-2013

Pubchem. DrugMatrix HTS and animal data. http://www.ncbi.nlm.nih.gov/pcassay/?term=DrugMatrix

ChEMBL DataSet CHEMBL2924216. DrugMatrix in vivo data: Biochemistry

ChEMBL DataSet CHEMBL2924217. DrugMatrix in vivo data: Hematology

ChEMBL DataSet CHEMBL2924218. DrugMatrix in vivo data: Pathology

ChEMBL DataSet CHEMBL1909046. DrugMatrix in vitro pharmacology data

Teaching
Auerbach S.S. Toxomics. Annual Lecture in the course Mammalian Toxicology. Duke University. Course organizer: Bahie Abou-Donia

Awards and Grants
2015 National Institutes of Health Individual Merit Award – For leading the response to the West Virginia coal chemical spill into the Elk River

2013 NIEHS Paper of the Year. Merrick BA, Phadke DP, **Auerbach SS**, May D, Stiegelmeyer SM, Shah RR, Tice RR. 2013. RNA-Seq profiling reveals novel hepatic gene expression pattern in aflatoxin B1 treated rats. PLoS One 8(4):e61768

2012 NIEHS Paper of the Year. Merrick BA, **Auerbach SS**, Stockton PS, Foley JF, Malarkey DE, Sills RC, Irwin RD, Tice RR. 2012. Testing an aflatoxin B1 gene signature in rat archival tissues. Chem Res Toxicol 25(5):1132-1144.

2011 NIEHS Paper of the Year. Hoenerhoff MJ, Pandiri AR, Lahousse SA, Hong HH, Ton TV, Masinde T, **Auerbach SS**, Gerrish K, Bushel PR, Shockley KR, Peddada SD, Sills RC. 2011. Global gene profiling of spontaneous hepatocellular carcinoma in B6C3F1 mice: similarities in the molecular landscape with human liver cancer. Toxicol Pathol 39(4):678-699.

2011 Poster Award. OpenTox 2011 InterAction Meeting - Bioinformatics-based identification of assays that inform on disease hazard

2010 National Institutes of Health Individual Merit Award – For significant achievements in developing predictive toxicology tools to identify compounds of public health concern

2009 NIEHS Paper of the Year. **Auerbach SS**, Shah RR, Mav D, Smith CS, Walker NJ, Vallant MK, et al. 2009. Predicting the hepatocarcinogenic potential of alkenylbenzene flavoring agents using toxicogenomics and machine learning. Toxicol Appl Pharmacol Doi:10.1016/j.taap.2009.11.021.

2009 SOT Perry J. Gehring Postdoctoral Fellow Abstract Award -Independent validation of gene expression-based hepatocarcinogenicity prediction models.

2008 NCSOT PARC Award – 2nd place -Prediction of hepatocarcinogenic potential using machine learning methods informed by genome-wide expression analysis

1999-2004 - Environmental Health, Toxicology and Pathology Training Grant, University of Washington

2002 – 1st Prize in the Molecular Biology Specialty Section, Society of Toxicology

Editorial Boards
Frontiers in Toxicogenomics

Mutation Research Reviews

Meetings Organized
Chair: OpenTox USA 2013, RTP, NC - http://www.opentox.org/meet/opentoxusa2013

Co-chair: Workshop on Integrating Gene Expression Profiling into High-Throughput Toxicity Testing. SOT Annual Meeting 2015. San Diego, CA

Web Applications and Software
Auerbach's Toxicology Links
http://sites.google.com/site/auerbachpharmtox/
Collection of web resources that are helpful to those who work in chemical biology

Tox21 Actives (in collaboration with Dan Svoboda of Sciome LLC)
http://apps.sciome.com/tox21/toolbox/Tox21Summary.html
An easy to use browser that provides summary results from Tox21 Assays

Tox21 Correlation Browser (in collaboration with Dan Svoboda of Sciome LLC)
http://apps.sciome.com/tox21/toolbox/CorrelationBrowser-All.html
A tool that allows an end user to find chemicals with correlated biological activity across the Tox21 assay set

BmdBrowser (in collaboration with Dan Svoboda)
http://ehsdmxwd01/BmdBrowser.html
A tool for visualizing precalculated pathway-based Benchmark dose plots

Tox21 Enricher (in collaboration with Junguk Hur)
http://hurlab.med.und.edu/tox21enricher/tox21enricher.cgi
Allows the end user to identify characteristics that are enriched in a set of chemicals

BMDExpress 2.0 (in collaboration with Sciome LLC, EPA and Health Canada)
http://apps.sciome.com/installers/bmdexpress2/BMDExpress2_windows-x64_2_00_BETA.exe

Allows the user to perform genomic-dose response analysis and report pathway level benchmark dose values and visualizer results