

Speakers

NIEHS Inflammation Faculty Workshop: Circulating Cell Free DNA: Applications in the Clinical and Toxicology Setting

September 24 – 25, 2018

NIEHS, Research Triangle Park, North Carolina



Adam Sowalsky, Ph.D.

National Cancer Institute, Center for Cancer Research

<https://ccr.cancer.gov/Laboratory-of-Genitourinary-Cancer-Pathogenesis/adam-g-sowalsky>

Adam Sowalsky received his Ph.D. from Tufts University's Sackler School of Graduate Biomedical Sciences, performing his dissertation research in the lab of Larry Feig. He conducted postdoctoral training at Harvard Medical School/Beth Israel Deaconess Medical Center with Steven Balk. The central theme of Sowalsky's research is understanding the biology of the molecular events associated with prostate cancer development, progression, and resistance to therapy.



Andrew Nixon, Ph.D.

Duke University Medical Center

<https://medicine.duke.edu/faculty/andrew-benjamin-nixon-phd>

Andrew Nixon, Ph.D., is Associate Professor of Medicine at Duke University and Director of the Duke Phase I Biomarker Laboratory, a credentialed Molecular Reference Laboratory for the evaluation blood-based biomarkers within the Alliance oncology cooperative group. He is a nationally recognized expert regarding the development of biomarkers, serving on ASCO Program Committee (Chair -Tumor Biology), Chair-elect of the ASCO Taxonomy

Governance Committee, and an ad-hoc reviewer of the newly created NCI/NCTN Core Correlative Sciences Committee. Additionally, he serves as an Associate member of the Group Banking Committee (GBC), helping to harmonize the activities of multiple cooperative group banks and developing more consistent standardization of practices and approaches to banking activities. Within the Alliance Oncology Cooperative Group, he serves as an executive member of the Translational Research Program, vice-Chair for GI correlative research, and has recently been appointed to co-Chair the newly established Immuno-Oncology Working Group. His research focuses on the interrogation of circulating markers found in the blood, referred to as the 'liquid biopsy', pursuing the development of novel biomarkers for immuno-oncology and anti-angiogenic agents. Overall, Nixon brings extensive experience in coordinating multi-investigator and multicenter analyses, having operational experience ranging from biomarker kit development, to assay development, including all aspects of sample handling, processing, inventory management, data cleaning, and statistical analyses.



Brian Elgart

National Institute of Environmental Health Sciences

Brian Elgart is a Post-baccalaureate trainee at the National Institute of Environmental Health Sciences in the Molecular Genomics Core Laboratory. He graduated Summa Cum Laude from East Carolina University in May, 2017 with a Bachelor's of Science in Biology. In the Molecular Genomics Core, he works as part of a collaborative, cross divisional project developing methodologies to study circulating cell free DNA in clinical and toxicology applications. Brian recently received an outstanding poster award at the NIH Post-bac Poster Day for his work. He is currently applying to medical school and plans to matriculate in the fall of 2019.



David S. Pisetsky, Ph.D., M.D.

Duke University Medical Center

<https://immunology.duke.edu/people/david-stephen-pisetsky-phd-md>

Dr. Pisetsky received his B.A. from Harvard College and his Ph.D. and M.D. degrees from the Albert Einstein College of Medicine. Following house staff training at the Yale-New Haven Hospital, he was a clinical associate at the National Cancer Institute. He joined the faculty of Duke University Medical Center in 1978 as Chief of Rheumatology at the Durham VA Hospital where he has remained since. He served as Chief of Rheumatology and Immunology at Duke from 1996-2007.

Dr. Pisetsky has conducted basic and translational research on the pathogenesis of systemic lupus erythematosus (SLE). These studies have concerned the mechanisms of production of antinuclear antibodies (ANAs) and the immunological properties of nuclear molecules. Topics investigated include the immune activity of DNA of bacterial and mammalian origin, the antigenicity of DNA and the influence of base sequence and backbone structure on the antigenic and immunogenic properties of oligonucleotides. More recently, he has investigated the role of microparticles as an important source of extracellular DNA.

In 2001, Dr. Pisetsky was awarded the Howley Prize from the Arthritis Foundation for his work on the immune properties of DNA. In 2016, he received the Presidential Gold Medal from the American College of Rheumatology. From 2000-2005, Dr. Pisetsky served as Editor of *Arthritis and Rheumatism* and from 2006-2011, he was the first Physician Editor of *The Rheumatologist*.



Doug White, M.S.

Promega

Doug White received his Bachelor's degree in chemistry from the Illinois Institute of Technology and his Master's degree in biochemistry from The University of Wisconsin-Madison, where he studied with Dave Nelson. In 1990 he joined Promega's R&D department, where he worked on projects related to protein kinases and DNA purification from myriad sources. For the past 5 years, he has focused on the purification and analysis of circulating cell-free DNA.



Jennifer Martinez, Ph.D.

National Institute of Environmental Health Sciences

<https://www.niehs.nih.gov/research/atniehs/labs/iidl/pi/inflammation/index.cfm>

Jennifer Martinez, Ph.D., heads the Inflammation and Autoimmunity Group, and holds a secondary appointment in the NIEHS Signal Transduction Laboratory. The Inflammation and Autoimmunity Group investigates the mechanisms by which cargo from the extracellular environment, including pathogens, allergens, and dying cells, is processed by immune cells and how these events influence their pursuant immune response.



Margaret Gulley, M.D.

UNC School of Medicine

<https://www.med.unc.edu/pathology/faculty-2/biosketch-of-dr-margaret-gulley/>

Margaret L. Gulley, M.D., is professor and Director of Molecular Pathology in the Department of Pathology and Laboratory Medicine at University of North Carolina at Chapel Hill. She provides clinical laboratory services to patients with cancer, heritable disease, infectious disease, transplant or immunologic disorders. Research services involve development and validation of genomic assays supporting translational research in oncology, virology and other chronic infections. Emphasis is on generating an evidence base to justify implementing novel gene-based assays that add value for disease diagnosis, classification and monitoring.



Neeta L. Vora, M.D.

UNC School of Medicine

Neeta L. Vora, M.D., is triple boarded in Obstetrics and Gynecology, Maternal Fetal Medicine, and Clinical Genetics. She completed her residency and fellowship at Tufts Medical Center in Boston, MA and moved to UNC-Chapel Hill in 2012. She is now an Associate Professor and Director of Reproductive Genetics at UNC-CH. She has a K23 from the NICHD to study use of new genomic technologies in obstetrics.

She has authored more than 30 articles on prenatal genetics, ranging from cell free DNA to whole exome and genome sequencing.



Pen Jin, Ph.D.

Emory University

<http://genetics.emory.edu/faculty/primary/jin-peng.html>

Dr. Peng Jin received his doctorate degree in Molecular and Developmental Biology from Cincinnati Children's Hospital/University of Cincinnati, and postdoctoral training at Emory University. At Emory, Dr. Jin is interested in the roles of noncoding RNAs and epigenetic modulation in neural development and brain disorders. Dr. Jin is the recipient of Beckman Young Investigator Award, Basil O'Connor Scholar Research Award, Alfred P. Sloan Research Fellow in Neuroscience, and NARSAD Independent Investigator Award.



Rebecca Fry, Ph.D.

UNC Gillings School of Global Public Health

https://sph.unc.edu/adv_profile/rebecca-fry-phd/

Rebecca Fry, Ph.D., is Director of the Institute for Environmental Health Solutions. Her lab focuses on understanding how environmental exposures are associated with human disease with a particular focus on genomic and epigenomic perturbations. Using environmental toxicogenomics and systems biology approaches, the researchers aim to identify

key molecular pathways that associate environmental exposure with diseases. A current focus in the lab is to study prenatal exposure to various types of metals including arsenic, cadmium, and lead.

Fry also aims to understand molecular mechanisms by which such early exposures are associated with long-term health effects in humans. For example, she examines DNA methylation profiles in humans exposed to metals during the prenatal period. This research will enable the identification of gene and epigenetic biomarkers of metal exposure. The identified genes can serve as targets for study to unravel potential molecular bases for metal-induced disease.

Ultimately, her lab aims to identify mechanisms of metal-induced disease and the basis for inter-individual disease susceptibility.



Swee Lay Thein, Sc.D., M.D.

National Heart, Lung, and Blood Institute (NHLBI)

<https://irp.nih.gov/pi/swee-lay-thein>

Swee Lay Thein, Sc.D., M.D., was educated in both Malaysia and the United Kingdom. She completed her specialist training in hematology at the U.K. Royal Postgraduate Medical School, Hammersmith, and the Royal Free Hospital, London. In 1982, she joined the U.K. Medical Research Council Molecular Hematology Unit in Oxford where she held various positions, including clinical training fellow, Wellcome Senior Fellow in Clinical Science, senior clinical scientist, and honorary consultant hematologist.

Thein was appointed in 2000 to the position of professor of molecular hematology and consultant hematologist at King's College London, and served as clinical director of the Red Cell Centre in King's College Hospital. At the hospital, she treated adult patients with sickle cell disease and also provided consultation to clinicians and researchers throughout the world on patients with unusual forms of thalassemias, inherited blood disorders that disrupt the normal production of hemoglobin, resulting in anemia.

She joined the NHLBI in spring 2015 as Senior Investigator and Chief of the institute's newly formed Sickle Cell Branch.

She is author or co-author of more than 300 peer-reviewed research publications, invited review articles, and book chapters. She has been honored for her research with awards from the U.K. Academy of Medical Sciences and the Academy of Life Sciences for Chinese in the U.K. She also was awarded a visiting professorship from Kuwait University and an honorary professorship in pathology from the University of Hong Kong. She serves on the editorial boards of the research journals *Blood*, *Pathology*, *Annals of Haematology*, *Hemoglobin*, and the *American Journal of Hematology* and is feature editor of the journal *Blood's Sickle Cell Disease* hub, a micro-website that complements research published in the journal with links to articles, images and slideshows, and other multimedia.

She was chair of the European Hematology Association's scientific working group for red blood cells and iron disorders from 2011 – 2014 and has organized annual international conferences on sickle cell disease since 2006. She also has been instrumental in organizing scientific and educational conferences on red blood cell disorders for the European Hematology Association and European School of Hematology.