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March Newsletter

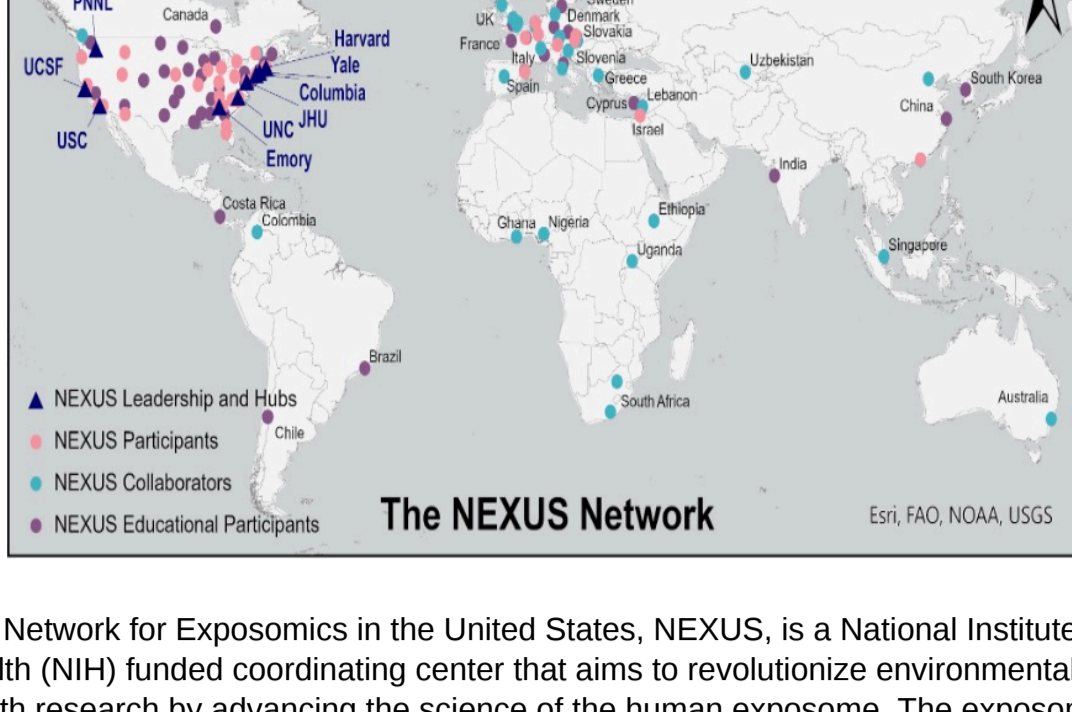
Welcome to the NEXUS monthly newsletter!
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Welcome to NEXUS

What is NEXUS?



The Network for Exposomics in the United States, NEXUS, is a National Institutes of Health (NIH) funded coordinating center that aims to revolutionize environmental health research by advancing the science of the human exposome. The exposome is the cumulative measure of environmental exposures, which include chemical, social, physical, and corresponding biological responses. NEXUS is led by Gary Miller, PhD, Columbia University Mailman School of Public Health, Chirag Patel, PhD, Harvard Medical School, and Rima Habre, ScD, University of Southern California. It consists of four hubs of highly interconnected and globally distributed team members: the ChemBio Analytical Sciences Hub, the Geospatial Sciences Hub, the Data Sciences Hub, and the Administrative and Stakeholder Engagement Hub. NEXUS aims to drive innovation to revolutionize how the biomedical and public health communities think about environmental drivers of disease by creating new tools, investigator research networks, and methods that make exposomics a core part of scientific and biomedical research.

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Spotlight



Chirag, Rima, and Gary at the [Eagle Pub in Cambridge](#). They were excited to get "the booth" where Watson and Crick famously announced their discovery of the structure of DNA on February 28, 1953. The team was visiting the European Molecular Biology Laboratory-European Bioinformatics Institute (EMBL-EBI), along with EIRENE collaborators, to discuss how EMBL-EBI could incorporate exposomics into their data systems that are used worldwide for genomics and other omic sciences.

Fun Fact: Gary likes to frequent bars and pubs that have a scientifically historical significance.

Gary W. Miller, PhD

Columbia University Mailman School of Public Health



Dr. Miller is a Professor of Environmental Health Sciences and Vice Dean of Research Strategy and Innovation at the Columbia University Mailman School of Public Health. He is a leader in exposomics, which strives to provide a systematic and comprehensive analysis of the non-genetic contributors to health and disease. Dr. Miller is the founding director of the [Center for Innovative Exposomics](#) at Columbia University and is also the contact MPI of the Network of Exposomics in the United States (NEXUS). Dr. Miller was the founding director of the [HERCULES Exposome Research Center](#) at Emory University, the first exposome-based research center in the U.S. He authored the first book on the topic, *The Exposome: A Primer* published by Elsevier, and is the founding editor of the journal *The Exposome*. His research focuses on the environmental drivers of neurodegeneration. His laboratory uses exposomics to understand the pathogenesis of Parkinson's disease, Alzheimer's disease, and other disorders.

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NEXUS Ring Trial Survey

[Ring Trial Survey](#)

The ChemBio Analytical Sciences Hub is planning a collaborative, community-based exposure ring trial to assess the chemical space covered by current and emerging technologies in biological and environmental matrices.

As a first step, The ChemBio Hub is requesting the community's input via a survey on methods and tools used to measure molecular features of the exposome. The survey results will be used in part to design the exposure ring trial. Ultimately, we hope that the results of this survey and the ring trial will inform the development of a harmonized method for measuring the exposome.

[Learn more](#)

Upcoming Events

Exposome Moonshot Forum



May 12-15, 2025
 Washington, D.C

A multi-stakeholder forum plotting the future of the Human Exposome. The inaugural Exposome Moonshot Forum aims to gather these diverse stakeholders to collaboratively translate the exposome from concept to utility.

[Learn more](#)

The Exposome Boot Camp: Measuring Exposures on an Omic Scale



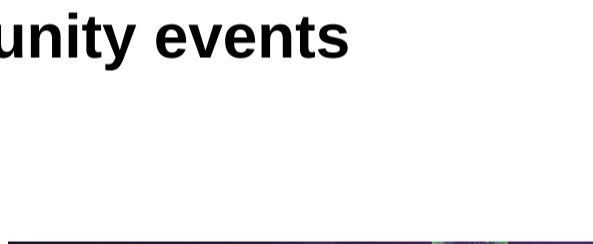
July 17-18, 2025
 New York, New York

A two-day intensive boot camp of seminars and hands-on analytical sessions to provide an overview of concepts, techniques, and data analysis methods used in studies of the exposome. Led by a team of expert scientists in the rapidly growing field of exposomics, the boot camp will integrate seminar lectures with hands-on computer lab sessions to put concepts into practice. Emphasis will be given to leveraging existing resources from ongoing studies and initiating new investigations. The afternoon lab sessions will provide an opportunity to work hands-on with real data. Participants will learn and practice data handling, cleaning, and basic analysis of exposomics data.

[Learn more](#)

NEXUS Community events

Predictive Phenomics Conference



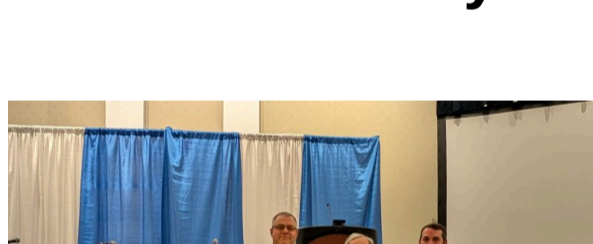
April 29 – May 1, 2025
 Richland, WA

NEXUS Co-Investigator Tom Metz, PhD, Pacific Northwest National Laboratory is on the organizing committee of the 2025 Predictive Phenomics conference. The theme is advancing molecular science for the characterization and manipulation of the phenome. This conference will be a forum for scientists to present research on approaches to study the molecular basis of biological function with a vision to better understand and predict how genomes interact with their environment to produce phenomes. The conference will also feature keynotes, invited talks, poster sessions, and PNHL tours.

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NEXUS in the Scientific Community

After the Genome: What Comes Next and Are We Ready?

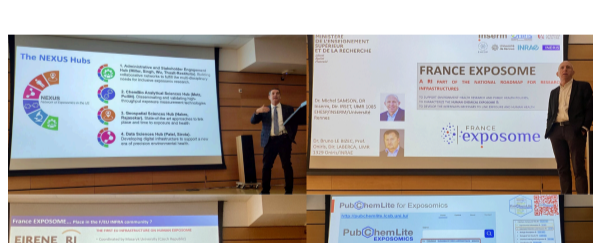


February 14, 2025
 Boston, MA

At this year's AAAS meeting, the exposome was well-represented. NEXUS Co-Investigator Thomas Hartung, PhD, Johns Hopkins Bloomberg School of Public Health, presented his efforts in exposomics and driving the [Exposome Moonshot Forum](#) in May, 2025. The AAAS session [After the Genome: What Comes Next and Are We Ready?](#) was organized by chemist and NEXUS Co-Investigator Thomas Metz, PhD, and data scientist Katrina Waters, PhD, from the Department of Energy at Pacific Northwest National Laboratory. Aristides Patrinos, PhD, New York University Langone Health, kicked off the session leading a discussion about the origins and accomplishments of the Human Genome Project, as well as future directions. In addition, NEXUS MPI Gary Miller, PhD, Columbia University Mailman School of Public Health, explained how his team is using exposomics to study environmental factors and how they affect biological processes to influence living organisms. Dr. Waters rounded out the session with her talk, "Predictive Phenomics: The Next Revolution in Life Sciences."

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One Health & Exposome Day



February 5, 2025
 Strasbourg, France

Gary Miller, PhD, Columbia University Mailman School of Public Health and NEXUS MPI, visited Strasbourg, France to pair up with [Eranice Exposome for One Health and Exposome Day](#). Notable experts in the field gathered at Institut de Sciences et d'Ingénierie Supramoléculaires making for a successful day of discussions. This conference featured presentations from Jean Sibilia, MD, Hôpital Universitaires de Strasbourg; Erik Sauleau, MD, PhD, [Cube Laboratory](#) at Université de Strasbourg; Dimitri Heinz, PhD, [IPHC-CNRS](#); Gary Miller, PhD, Columbia University Mailman School of Public Health; Michel Sanson, PhD, Institut de Recherche en Santé, Environnement et Travail; Emma Schymanski, PhD, University of Luxembourg; Mathilde Tissier, PhD, IPHC-CNRS; Alain Sintzi, PhD, Université de Massawa; Frédéric Blanc, MD, PhD, Hôpital Universitaires de Strasbourg; and Sylvie Massesin, PhD, IPHC-CNRS.

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Metabolomics and Human Health, Gordon Research Conference



February 2 - 7, 2025
 Ventura, CA

The [Gordon Research Conference](#) in Ventura, California, Co-Chaired by Susan Jenkins Sumner, PhD, University of North Carolina at Chapel Hill, and Warwick Dunn, PhD, University of Liverpool, focused on metabolomics and human health. NEXUS MPI, Chirag Patel, PhD, Harvard University, attended the meeting and presented his work on exposure-scale analysis. This conference also featured forward looking talks by the Dorrestein Lab at the University of California San Diego led by Dr. Pieter C. Dorrestein, PhD, along with the Sumner Group at the University of South Carolina at Chapel Hill, led by Susan Jenkins Sumner, PhD, David Weisbar, PhD, University of Alberta, and others spoke about research for the exposome at scale that will be helpful in crafting requirements for the field. Additionally, Bob Wright, MD, MPH, Icahn School of Medicine at Mount Sinai, gave a visionary talk on mapping the exposome.

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NEXUS and EMBL-EBI Collaboration



January 12, 2025
 Cambridge, England

The NEXUS leadership team Gary Miller, PhD, Columbia University Mailman School of Public Health, Chirag Patel, PhD, Harvard Medical School, and Rima Habre, ScD, University of Southern California, visited colleagues at the European Molecular Biology Laboratory-European Bioinformatics Institute (EMBL-EBI) to discuss how to integrate exposomics into existing genomic databases and workflows. They were joined by collaborators involved in the European Strategic Forum for Research Infrastructures (ESERI) project by EIRENE, which is helping to develop the infrastructure needed for exposomics.

[Read more](#)

We want to feature your exposome-related events on the NEXUS website and social media!

[Survey Form](#)

Feature Podcast

As the NEXUS Podcast is being constructed, please enjoy this previous exposome-related podcast by the Mayo Clinic!



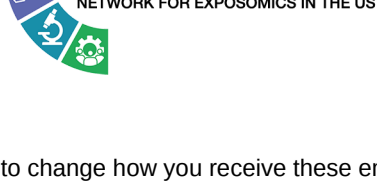
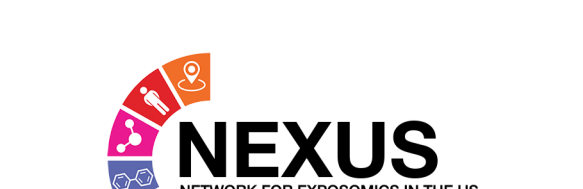
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