



# Superfund Research Program *e-Posted Notes*

December 3, 2021 (Issue 215)

## HEADLINES

### Register Now: Virtual SRP Annual Meeting

The virtual SRP annual meeting will be **December 16, 1:00-4:30 p.m. EST**. Although we are delaying the full in-person meeting, we are still holding a shorter virtual meeting. It will include remarks from NIEHS leadership and talks from SRP trainees, including the 2021 Wetterhahn winner and K.C. Donnelly awardees. More information, including the agenda and a link to register, is available on the [annual meeting website](#).

### SRP Data Science and Data Sharing Publications

Do you have any publications related to data science and sharing? Take a look at the new [data science and data sharing bibliography](#) on the SRP website! If you can't find your publication but would like to see it on the website, you can send your suggestions to [SRPinfo@mail.nih.gov](mailto:SRPinfo@mail.nih.gov).

### Fundamental Discovery Points to New Therapies for Wide-Ranging Diseases

Research led by University of California, Davis SRP Center Director Bruce Hammock revealed insight into an important molecular pathway as a potential therapeutic target for a variety of human diseases and pain. Read more in the latest [SRP Public Health Impact Story](#).

### NIEHS Environmental Justice Workshop

NIEHS is hosting a virtual workshop, [Addressing Racism as a Public Health Issue Through the Lens of Environmental Health Disparities and Environmental Justice](#), **December 10, 9:00 a.m.-4:45 p.m. EST**. The workshop will foster dialogue to examine racism as a public health issue and its contributing role to environmental health disparities. It will also highlight current environmental justice outreach activities and engage regional and local community leaders in discussing best practices for community engagement.

### Diversity Funding Opportunities

Through several grants and supplements, NIEHS aims to support the training of students from population groups that are often underrepresented in the environmental, biomedical, behavioral, or clinical research workforce. For specific details about funding opportunities, see this [fact sheet](#).

## EMPLOYMENT OPPORTUNITIES

### University of Michigan Seeks Geospatial/Statistical Analyst

The University of Michigan is looking for a research analyst with expertise in geospatial and statistical analyses to develop exposure scores and other analyses related to amyotrophic lateral sclerosis (ALS). Qualifications include a masters' degree with 2-4 years of experience or Ph.D. with 1-2 years of experience with GIS and/or related analyses and experience with GIS and statistical software, including but not limited to ArcGIS, SAS, SaTScan, and R. To apply, visit the University of Michigan [careers website](#).

### Health Scientist – NIEHS Division of the National Toxicology Program

The Office of Policy, Review, and Outreach at the NIEHS Division of the National Toxicology Program is seeking a health scientist to join their team. The successful candidate must possess a bachelor's degree or graduate/higher level degree in an academic area related to the medical field, health sciences, or allied sciences appropriate to the work of this position. Applications are due **December 13**. To apply, see the [job announcement](#).

### APHL-CDC Fellowship and Internship Programs

The Association of Public Health Laboratories (APHL) and the U.S. Centers for Disease Control and Prevention (CDC) are offering a

## NIEHS SRP News Stories

Take a moment to read about some of our colleagues' latest activities in this month's [Environmental Factor](#), the NIEHS newsletter:

- [Extramural Paper of the Month: Greenness May Reduce Effects of Air Pollution on Mortality in Cancer Patients](#): Greenness — vegetation, green spaces, and so forth — is associated with lower mortality risk in cancer patients, even in the presence of air pollution, according to a new NIEHS-funded study at the University of Louisville.
- [Extramural Paper of the Month: Metabolomics Shed Light on the Microbiota-Brain Link](#): According to NIEHS-funded researchers at the University of North Carolina at Chapel Hill (UNC), the gut microbiome may control conditions in the brain that could lead to altered brain function.

Visit the SRP page for more stories about the program:

- [Studying Alligators and Humans May Reveal How PFAS Harm the Immune System](#): Researchers at the NIEHS SRP Center at North Carolina State University (NCSU) are exploring connections between exposure to per- and polyfluoroalkyl substances (PFAS) and immune function in both animals and humans.

## URI and Northeastern Researchers Comment on PFAS

University of Rhode Island (URI) SRP Center Community Engagement Core (CEC) member Laurel Schaidler and Northeastern University SRP Center Director Phil Brown were quoted in a [recent article](#) on PFAS in The Provincetown Independent. Rainer Lohman, director of the URI SRP Center, was also featured in [an article](#) on PFAS by the Hartford Courant. Schaidler, Brown, and Lohman investigate sources, exposure, and effects of PFAS.

## Horney Interviewed on Covid and Burnout

Texas A&M University (TAMU) SRP CEC co-leader Jennifer Horney, Ph.D., was [recently interviewed](#) by the American Public Health Association about how the COVID-19 pandemic affects public health workers. Horney discussed findings from [a paper she co-authored](#), which surveyed public health workers across the country on their stress levels and burnout during the pandemic. Her study and others have indicated the pandemic is having a significant negative effect on public health workers' mental health.

## OSU SRP Research on PAHs Highlighted

A [recent paper](#) from the Oregon State University (OSU) SRP Center was highlighted in [a post](#) on the Pacific Northwest National Laboratory (PNNL) website. Led by SRP researcher Jordan Smith in collaboration with PNNL scientist Aaron Wright, the study measured metabolic changes in mice following

variety of [laboratory fellowship programs](#) to train and prepare scientists for careers in public health laboratories and support public health initiatives. Applications are due **February 28, 2022**, with an expected start date of July 2022. See the [program page](#) for more information and to apply.

## OHSU Recruiting New Faculty Members

The Oregon Institute of Occupational Health Sciences is recruiting two new faculty members at the rank of assistant or associate professor in the areas of environmental stress. Consideration of applicants will begin **December 15** and continue until the position is filled. Please see the specific announcements for more information:

- [Studying the role of cellular and physiological responses to psychosocial stress in health and disease](#)
- [Studying the role of genetic variation in response to environmental stressors in human health and disease](#)

## CAES Seeks Postdoctoral Scientist

The Department of Analytical Chemistry at the Connecticut Agricultural Experiment Station is seeking applications for a postdoctoral scientist. The project will focus on determining the effects of novel nanomaterials on plant uptake of PFAS and leaching of PFAS from contaminated soils. See the [announcement](#) for more information and to apply.

## CURRENT RESEARCH BRIEF

### [SRP Research Brief 324:](#)

Combined Approach Sheds Light on Global Cancer Risk (Selin, Massachusetts Institute of Technology)

Past [Research Briefs](#) are available on the SRP website. To receive the

exposure to polycyclic aromatic hydrocarbon (PAH) mixtures.

## Hoppin Interviewed on PFAS Research

NCSU SRP Center project leader Jane Hoppin was [recently interviewed](#) by a local news outlet about PFAS in the Cape Fear River. Hoppin's research focuses on North Carolina communities along the river and the effects PFAS exposure has on thyroid-related health outcomes.

monthly Research Briefs or to submit ideas, email Michelle Heacock ([heacockm@niehs.nih.gov](mailto:heacockm@niehs.nih.gov)).

Video summaries of the SRP Research Briefs are available on the [NIEHS Social Media Shorts YouTube page](#).

## TRAINEE SPOTLIGHT

### Developing a Sensor to Detect Nitrosamine in Water

Jessica Beard, a trainee at the Massachusetts Institute of Technology (MIT) SRP Center, studies how the compound nitrosamine spreads through the environment. Classified as a probable human carcinogen, nitrosamines are a group of chemicals formed as a by-product during rubber manufacturing, leather tanning, and pesticide production and have been found at various Superfund sites.



Nitrosamines are commonly detected in air and food, but their presence in water is a particular human health concern because they do not degrade easily in water. Current methods to detect nitrosamines in water require time-consuming sample preparation and the use of expensive laboratory equipment.

Under the mentorship of MIT SRP Center researcher Timothy Swager, Beard is exploring how the light-emitting properties of nitrosamines can be leveraged to detect them in water and sediments. Beard hopes to create a simple portable sensor that can be used for on-site water testing by researchers and community members alike. According to Beard, allowing community members to test their own water will help provide information about more sites faster than relying on traditional lab-based methods.

Beard presented this concept in a poster at the 2020 SRP Annual Meeting and was one of the winners of the meeting's poster competition. She is also first author on a publication describing the [structure and reactivity](#) of nitrosamine compounds and how those features may dictate their effects on human health.

Outside of the lab, Jessica enjoys hanging out with her friends, exploring local breweries, and spending time at home with her cat. She is also learning German on a phone app – she has been learning the language for 2,060 days and has not missed a day yet.

## EVENTS

[Addressing Racism as a Public Health Issue Through the Lens of Environmental Health Disparities and Environmental Justice](#)

December 10, 2021

Virtual

[Telomeres & Telomerase](#)

December 14-17, 2021

Virtual

[SRP Virtual Annual Meeting](#)

December 16, 2021, 1:00-4:30 p.m. EST

Virtual

[International Data Week](#)

June 20-23, 2022

Seoul, South Korea and Virtual

[SETAC 8th World Congress](#)

September 4-8, 2022

Singapore

[11th Conference on Metal Toxicity and Carcinogenesis](#)

October 16-19, 2022

Montreal, Canada

## GET UPDATES FROM OTHER SRP GRANTEES

To see the latest SRP grantee publications, visit the [SRP Grantee Publications page](#).

Visit the [SRP Materials for Grantees page](#) for helpful information, such as SRP administrative supplements information, SRP best practices, guidelines for NIEHS logo use, and the Data Collection Form.

See the [SRP Science Digest](#) to read more about recent SRP research highlights and activities.

The [SRP Events page](#) contains information about upcoming

## HOT PUBLICATION

### New Tool May Help Prioritize PFAS for Additional Testing

A [new tool](#) developed by researchers at the NCSU SRP Center can quickly characterize important information about how PFAS may be transported within the body.

The research team set out to develop a high-throughput approach to predict the physical and chemical properties of PFAS compounds, their biological activity, and potential to be toxic. Specifically, they used a protein called albumin, which binds to hormones, pharmaceuticals, and chemicals and transports them through blood, to characterize protein binding properties for PFAS. Protein binding plays a key role in how chemicals are absorbed, metabolized, or excreted, all critical factors in how much of the contaminant is able to cross biological membranes and potentially cause harm.

The team developed and optimized an approach, called differential scanning fluorimetry, to measure the binding interactions between albumin and 24 different PFAS chemicals. Their approach can also be used to determine the different characteristics of PFAS that influence binding.

For example, they found straight-chain PFAS compounds were more likely to bind to albumin than branched PFAS compounds. They also observed that PFAS compounds with a 6-9 carbon chain length could bind to albumin more easily compared to PFAS with shorter or longer carbon chains.

While the tool was developed using albumin, the team noted that their approach is flexible to use with other proteins as well. According to the authors, differential scanning fluorimetry may be useful as a rapid, high-throughput approach to determine the protein binding properties of different PFAS, identify their chemical structures, and allow researchers to prioritize PFAS for further toxicity studies.

## AWARD WINNERS

### Nigra Receives NIH Early Independence Award

Anne Nigra, a former Columbia University SRP Center trainee, is one of the recipients of the [2021 NIH Director's Early Independence Award](#). The award supports outstanding early-career scientists who have already established a record of scientific innovation to bypass the traditional postdoctoral training period and launch independent research careers. Nigra's work focuses on addressing racial/ethnic, socioeconomic, and geographic inequities in metal exposures and related adverse health outcomes in U.S. populations.

### Newman Honored with Teaching Award

Texas A&M University (TAMU) SRP Center CEC leader Galen Newman received a [2021 Distinguished Achievement Award at the College Level for Teaching](#) from the TAMU Association of Former Students. These awards recognize talented classroom teachers who are dedicated to instilling knowledge and mentoring their students.

### NCSU SRP Trainees Receive Recognitions

meetings, seminars, and webinars.

The SRP website also has [Search Tools](#) to help you learn more about projects funded by the program.

## JOIN THE @SRP\_NIEHS KNOWLEDGE NETWORK ON TWITTER!

NIEHS uses Twitter, a popular social media tool, for information sharing through tweets. Many SRP Centers also have accounts, and it would be great if all participated! Follow us [@SRP\\_NIEHS](#) to instantly hear news about the program, noteworthy publications, events, and job opportunities for trainees.

## CONTACT INFORMATION

Need to get in touch with an NIEHS SRP staff member? Check out our [Contact Staff](#) page.

NCSU SRP Center trainee Chuhui Zhang received a best poster award at the [FLUOROS 2021 conference](#). The conference provided an opportunity for multidisciplinary researchers across the world to exchange information regarding the latest scientific research on PFAS and how they affect humans and the environment.

Adrian Green, also a NCSU SRP Center trainee, won second place in the [Bioinformatics Challenge](#) hosted by the Environmental Mutagenesis and Genomics Society. The purpose of this competition was to develop novel tools and approaches to harness publicly available datasets and identify signatures of genotoxic hazards and provide insight into their mechanisms of action. Green's project was titled "Leveraging Zebrafish High-throughput Screening Data and Conditional Generative Adversarial Networks to Advance Predictive Toxicology."

### **UNC SRP Trainee Receives Diversity Enrichment Award**

University of North Carolina at Chapel Hill (UNC) SRP Center trainee Jeliyah Clark was chosen for the Burroughs Wellcome Fund [Graduate Diversity Enrichment Program](#). The program provides underrepresented minority Ph.D. students with funding for opportunities for research enrichment experiences. Clark is mentored by UNC SRP Center Director Rebecca Fry.

### **TAMU Trainees Receive Travel Awards to Present Posters**

Several TAMU SRP Center trainees received travel awards to present their research at the TAMU Toxicology Training Program Retreat. Alina Roman-Hubers, Noor Aly, Alexandra Cordova, Alan Valdiviezo, and Lucie Ford presented posters and fielded questions on [their research](#), which focuses on analytical methods for identifying and characterizing hazardous chemical mixtures and developing tools for managing exposure to these substances during disasters.

## **CALL FOR ABSTRACTS**

### **Conference of Innovations in Climate Resilience**

Battelle and the Department of Energy National Laboratories are [requesting abstract submissions](#) for the [Conference on Innovations in Climate Resilience](#). The conference will be **March 29-30, 2022**, in Columbus, Ohio. Abstracts are welcome on all relevant topics focused on climate change and must be submitted by **December 6**.

They also invite submissions for early-career scientists interested in giving [lightning talks](#) focused on cutting-edge technologies and [presentations](#) that will demonstrate use of, or solicit feedback on, a technology, software, prototype, or tool. Submissions for these presentations are due **December 13**.

## **FUNDING OPPORTUNITIES**

### **NIH Blueprint and BRAIN Initiative Diversity Specialized**

## **Predoctoral to Postdoctoral Advancement in Neuroscience Award**

The NIH Blueprint and Brain Research through Advancing Innovative Neurotechnologies (BRAIN) released a [funding opportunity](#) for predoctoral and postdoctoral researchers who have demonstrated an interest in a neuroscience research career. The award will support a defined pathway across career stages for outstanding graduate students from diverse backgrounds, including those from groups underrepresented in biomedical and behavioral sciences. Applications are due **December 15**.

## **NIH, CDC, and FDA Seek Small Business Innovation Research Grant Applications**

The NIH, Centers for Disease Control and Prevention (CDC), and Food and Drug Administration (FDA) invite eligible U.S. small businesses to submit [Small Business Innovation Research \(SBIR\) grant applications](#). The SBIR program provides funds to stimulate technological innovation in the private sector and strengthen the role of small business in meeting federal research and development needs. Applications are due **January 5, 2022**.

## **Strategic Environmental Research and Development Program**

The Department of Defense's Strategic Environmental Research and Development Program (SERDP) is seeking to fund [environmental research and development proposals](#). SERDP is an environmental science and technology program that invests across the broad spectrum of basic and applied research, as well as advanced development. SERDP is soliciting applications for multi-year projects relevant to environmental restoration, munitions response, resource conservation and resilience, and weapons systems and platforms. Pre-proposals are due **January 6, 2022**.

## **Virtual Consortium for Translational/Transdisciplinary Environmental Research**

NIEHS reissued a [Funding Opportunity Announcement](#) for the Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER). The ViCTER program fosters and promotes early-stage transdisciplinary collaborations and translational research among fundamental, clinical, and population-based researchers in the environmental health field. Applications are due **February 1, 2022**. For more information about the program, please see the [ViCTER webpage](#) or contact Heather Henry ([henryh@niehs.nih.gov](mailto:henryh@niehs.nih.gov)).

## **The Role of Work in Health Disparities in the U.S. (R01 Clinical Trials Optional)**

Through this [funding opportunity](#), NIH seeks to support innovative population-based research that can contribute to identifying pathways and mechanisms through which occupation functions as a social determinant of health. Studies must examine [NIH-designated U.S. health disparities populations](#). NIEHS is interested in applications that focus on the intersection of work as

a social determinant of health, the physical environment, and other social determinants of health. Community engaged research approaches are strongly encouraged, as well as applications that move the science of environmental health disparities toward achieving environmental justice for affected populations. Applications are due **February 5, 2022**.

### **Environmental Literacy Program: Increasing Community Resilience to Extreme Weather and Climate Change**

The National Oceanic and Atmospheric Administration announced a [funding opportunity](#) for projects that develop the collective environmental literacy necessary for communities to take actions that build resilience to extreme weather and climate change. Projects should demonstrate how they will engage children, youth, or adults to build these capabilities, particularly through active and social learning, during the award period. Applications are due **March 17, 2022**.

## **INTERAGENCY NEWS**

### **U.S. Climate Change and Health Equity Office**

The U.S. Department of Health and Human Services established the [Office of Climate Change and Health Equity](#) on August 30. The office addresses the impact of climate change on the health of Americans and pursues environmental justice and equitable health outcomes through climate change and health policy, programming, and analysis. Its mission is to protect disadvantaged communities and vulnerable populations experiencing a disproportionate share of climate impacts and health inequities.

## **DATA SCIENCE AND DATA SHARING**

### **Arizona SRP Center Integrates Citizen Science Datasets**

Researchers at the University of Arizona SRP Center [developed a data model](#) to integrate data collected by community members with federal and state datasets. Their model will allow environmental health researchers working at different scales and research disciplines to exchange data and address new questions about environmental public health. The team also created a methodology, common vocabulary, and ontologies to make citizen science data reusable.

### **IEEE International Conference on Big Data**

The Institute of Electrical and Electronics Engineers (IEEE) is hosting an [International Conference on Big Data](#) **December 15-18**. The purpose of the conference is to facilitate innovation, knowledge transfer, and technical progress in addressing the 5 Vs – velocity, volume, variety, value, and veracity – of big data. The event will provide a forum for disseminating the latest results in big data research, development, and application. For more information, see this [NIH news release](#).

### **Open Science Conference**

The [9th Open Science Conference](#) will take place **March 8-10, 2022**. The annual, international conference is dedicated to the Open Science movement and provides a unique forum for researchers, librarians, practitioners, infrastructure providers, policy makers, and other important stakeholders to discuss the latest and future developments in Open Science. It is sponsored by the German National Library for Economics.

## PHOTO OF THE MONTH



The Brown University SRP Center hosted a community partner volunteer day at the Narragansett Indian tribal farm. Brown SRP trainees collaborated with community partners and spent 10 hours working on the farm. (Photo courtesy of the Brown University SRP Center)