National Institute of Environmental Health Sciences

Superfund Research Program

e-Posted Notes

January 7, 2022 (Issue 216)

HEADLINES

KC Donnelly Externship Applications Due February 28

The K.C. Donnelly Externship Award Supplements provide current SRP-funded graduate students and postdoctoral researchers with translational and transdisciplinary opportunities to travel and collaborate with other SRP grantees, government laboratories, and state, local, or tribal agencies.

A letter of intent must be submitted to Brittany Trottier (brittany.trottier@nih.gov) and your respective Program Officer by **January 18**. Supplement applications are due **February 28**. For more information about the application process, see this NIH Notice of Special Interest.

2021 Wetterhahn Memorial Award Winner

Congratulations to Molly Frazar, the 24th recipient of the annual Karen Wetterhahn Memorial Award! Frazar, a doctoral candidate under the mentorship of J. Zach Hilt at the University of Kentucky (UK) SRP Center, was recognized for her work to develop inexpensive and reusable sorbent materials to clean up drinking water contaminated with per- and polyfluoroalkyl substances (PFAS). Read more about Frazar's research in a recent NIEHS Environmental Factor article.

IN THE NEWS

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:

- 2021 Papers of the Year: Plant Leaves Work as Reliable Air Monitor in Citizen-Science Study: A publication by University of Arizona researcher Monica Ramirez-Andreotta, which demonstrated that plant leaves work as a reliable air monitor, was selected as one of the top NIEHS papers of 2021.
- Extramural Paper of the Month: Biosensor Characterizes Contaminants and Potential Health Risks After Disasters: A sophisticated biosensor may provide information about polycyclic aromatic hydrocarbon distribution and potential toxicity in the aftermath of natural disasters, according to an NIEHS-funded study.
- Extramural Paper of the Month: Microbiome Affects Early

EMPLOYMENT OPPORTUNITIES

Northeastern Seeks Postdoctoral Fellows

Northeastern University is accepting applications for the following postdoctoral opportunities:

- A one-year postdoctoral research associate with training and research experience in environmental health and community engagement to work in the PFAS Project Lab, led by Phil Brown and Alissa Cordner. To apply, see the job posting and send three letters of reference, including one from your dissertation advisor, to Phil Brown (p.brown@northeastern.edu).
- A two-year postdoctoral fellow with experience in endocrinology, developmental biology, cancer biology, epidemiology, toxicology, chemistry, or informatics to conduct research at Silent Spring Institute. The start date for this position is September 2022. To apply, send a cover letter, a curriculum vitae, three letters of reference, writing samples, and graduate and undergraduate transcripts to p.brown@northeastern.edu and to careers@silentspring.org with "T32 Postdoc" in the subject line.
- A two-year postdoctoral research associate with experience in social sciences and environmental health sciences to work at Northeastern's Social Science

Childhood Behavior Differently in Girls and Boys: Bacteria in the gut of young children may relate to behavioral disorders, affecting girls and boys differently, according to an NIEHS-funded study.

Visit the SRP page for more stories about the program:

- Annual SRP Meeting Highlights Collaboration and Innovation to Address Emerging Challenges: The annual meeting to celebrate the 35th anniversary of SRP was held as an abbreviated virtual event December 16, 2021. Drawing over 400 attendees from across the U.S., the meeting highlighted how SRP's dedication to innovation and collaboration across scientific fields can tackle emerging challenges.

Lohman Quoted in Environmental Health News

University of Rhode Island (URI) SRP Center Director Rainer Lohman was quoted in an Environmental Health News article about PFAS found in beauty products. Lohman explained that the skin can absorb PFAS molecules, but that ability lessens if the PFAS are bound to other substances, like microplastics. Lohmann's SRP research focuses on developing new tools to detect PFAS in the environment.

Pennell Comments on PFAS

UK SRP Center Director Kelly Pennell was interviewed for a story about PFAS contamination in Henderson County, Kentucky. Pennell's SRP research aims to develop strategies to reduce exposures to environmental contaminants, especially PFAS, that result from leaking and damaged water and sewage pipes.

UNM SRP Research Cited in Albuquerque Journal

An Albuquerque Journal article cited University of New Mexico (UNM) SRP Center research that showed that at least 25% of adult Navajo Nation study participants had uranium in their urine at concentrations higher than 95% of the U.S. population. The UNM SRP Center focuses on risk reduction among Native Americans exposed to hazardous metal mixtures from abandoned uranium mine waste.

Stapleton Featured in the Media

Duke University SRP Center Co-Director Heather Stapleton was featured in an NIEHS Story of Success. The story highlighted Stapleton's research to understand the harmful chemical exposures that people may encounter in their homes and how they affect health.

Stapleton's work was also featured in a news article about new PFAS regulations. The story mentioned Stapleton's study that found elevated levels of PFAS in the blood of Pittsboro, North Carolina, residents and in the Haw River, where the town gets its drinking water.

TAMU Lead Work Highlighted

Texas A&M University (TAMU) SRP Center researcher Garett

Environmental Health Research Institute. To apply, send a cover letter, a curriculum vitae, three letters of reference, writing samples, and graduate and undergraduate transcripts to p.brown@northeastern.edu and to careers@silentspring.org with "T32 Postdoc" in the subject line.

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

Faculty Positions – University of Washington

The Department of Environmental and Occupational Health Sciences at the University of Washington invites applications for three full-time, tenure-track faculty positions at the rank of assistant professor, beginning in fall 2022. The successful candidate should have expertise in occupational health and safety, environmental epidemiology, or toxicology. A minimum of a Ph.D., M.D., or other appropriate terminal degree in a relevant field is required.

They also invite applications for two full-time assistant teaching professors (this track is not tenure-eligible) to begin fall 2022. Candidates must have a M.S., M.P.H., or M.S.P.H. with expertise in environmental public health and occupational health and safety.

CURRENT RESEARCH BRIEF

SRP Research Brief 325: Biosensor

Sansom and trainee Leanne Fawkes were interviewed by FOX 26 Houston about their research testing drinking water in Houston-area homes for contaminants, including lead. The team found that about 30% of the homes had detectable levels of lead in their drinking water. To learn more about this research, see this this TAMU SRP video featuring Fawkes.

NCSU PFAS Research Featured in the News

A news article describes the findings of a North Carolina State University (NCSU) SRP Center study to test over 153 people living in the Cape Fear River basin for PFAS. The researchers, led by NCSU SRP Center project leader Jane Hoppin, tested blood samples for 26 PFAS and detected five in almost all samples at levels higher than the U.S. average. The team hopes to conduct a long-term study to assess the health effects of PFAS exposure within the community.

TRAINEE SPOTLIGHT

Former Trainee Nwanaji-Enwerem Talks SRP Experience and Environmental Health Disparities

As a UC Berkeley SRP Center trainee, Jamaji Nwanaji-Enwerem studied the relationship between environmental exposures and the development of disease in vulnerable populations, particularly children.

Under the mentorship of UC Berkeley SRP Center researcher Andres Cardenas, Nwanaji-Enwerem combined molecular approaches and studies in human populations to understand how environmental toxins can speed up or slow down biological aging, one of the risk factors for many human diseases.

In one study, the team showed that certain cellular signs of aging were associated with Zika-related microencephaly—a life-threatening condition where a baby's head is significantly smaller than expected. According to Nwanaji-Enwerem, these findings might help inform future research to develop measures that can better predict risk of infant mortality.

In a recent commentary, Nwanaji-Enwerem and colleagues discussed the importance of integrating the exposome—the measure of all the exposures individuals experience over their lifetime—into biological aging research to improve health equity. They explained this allows researchers to incorporate social and environmental stressors that can help identify and prevent environmental health disparities.

In 2020, Nwanaji-Enwerem was named an Agent of Change in Environmental Justice, an initiative committed to amplifying neglected voices in environmental health. During his time as an Agent of Change fellow, he produced a podcast about creating healthier communities and collaborated with environmental health

Helps Characterize Contaminants and Health Risks Following Disasters. (Virginia Institute of Marine Sciences, Unger; Texas A&M University, Knap)

Past Research Briefs are available on the SRP website. To receive the monthly Research Briefs or to submit ideas, email Michelle Heacock (heacockm@niehs.nih.gov).

Video summaries of the SRP Research Briefs are available on the NIEHS Social Media Shorts YouTube page.

EVENTS

Ethical, Legal, and Social Implications of Gene-Environment Interaction Research
January 11-12, 2022
Virtual

2022 North Carolina Society of Toxicology Annual Meeting
January 19, 2022
Virtual

Advancing Environmental Health Equity Through Implementation Science
February 28 and March 1, 2022
Virtual

Open Science Conference
March 8-10, 2022
Virtual

8th Annual Women's Health Awareness
April 9, 2022
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

professionals with diverse expertise and backgrounds.

He was also named one of the 40 Under 40 Leaders in Health by the National Minority Quality Forum and was recognized for his leadership and innovative research aimed at improving the health of racial minorities.

Now at Emory University, Nwanaji-Enwerem is an emergency medicine resident doctor at the School of Medicine and an adjunct assistant professor at the School of Public Health.

According to Nwanaji-Enwerem, his daily experiences helping people with health issues is an inspiration for many of his environmental health research projects and community-based efforts, including an initiative to help connect, promote, and fund community-level environmental health projects.

In his free time, Nwanaji-Enwerem enjoys spending time with family and friends, exercising, and visiting art exhibits.

HOT PUBLICATION

Exposure to Some Workplace Chemicals May Speed Up Epigenetic Aging

Researchers at the UC Berkeley SRP Center found that regular workplace exposures to benzene and trichloroethylene may affect certain markers of biological aging, or bodily decline. Unlike chronological age, based on birth date, biological age can speed up or slow down based on epigenetic changes, which are environmental and behavioral factors that affect the way genes work.

Traditionally, studies looking at the effect of chemical exposures on biological aging have focused on telomeres, sections of DNA at the end of chromosomes. The team, which included UC Berkeley SRP Center Director Martyn Smith, wanted to see how regular exposure to chemicals commonly found in factories affect a type of epigenetic change called DNA methylation.

They recruited three groups of willing participants who worked in factories in China that reported the use of benzene, trichloroethylene, and formaldehyde. The team also included control groups, matched by age and sex, from nearby factories who had not been exposed to those chemicals.

After monitoring each group's exposure over the course of three weeks, they analyzed blood samples for certain types of DNA methylation. They compared their findings to five different epigenetic clocks—collections of DNA methylation patterns that are highly accurate at predicting chronological age. Their goal was to find patterns that did not match established clocks, which would indicate that the rate of biological aging was faster or slower than chronological aging.

Compared to controls, the team found that workers exposed to benzene had increased biological aging. Some evidence suggested that certain levels of trichloroethylene had a similar effect. According to the authors, these results indicate that some

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 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.

chemicals may cause epigenetic changes that accelerate biological aging.

AWARD WINNERS

Baker Named to 2021 Most Influential Scientists List

Erin Baker, NCSU SRP Center Exposure Science Core leader, was recognized on The Analytical Scientist's 2021 Top 100 Power List. The list honors and celebrates the achievements of 100 of the world's most influential analytical scientists of the year.

Grandjean Chosen for Honorary Doctorate

URI SRP Center project leader Philippe Grandjean is one of four researchers who have been chosen to receive an honorary doctorate from Katholieke Universiteit Leuven at the university's Patron Saint's Day celebration on February 2. The honorary doctorates have been given out by the university since 1954 and are meant to recognize outstanding contributions to science, services to society, or cultural excellence.

Harvard SRP Center Trainees Recognized with Leadership and Teaching Honors

Harvard SRP Center trainee Holly Rudel earned a place in the Yale University School of Engineering and Applied Sciences' Advanced Graduated Leadership Program. This highly competitive program provides outstanding doctoral students with experience and training beyond the research lab with a focus on leadership development, internal internships, and professional development. Rudel is mentored by Harvard SRP Center project leader Julie Zimmerman.

Trainee Mona Dai, mentored by Harvard SRP Center project leader Elsie Sunderland, received a Certificate of Distinction in Teaching Award from the Harvard Graduate School of Arts and Sciences and the Office of Undergraduate Education. These awards are given to graduate student teaching assistants who earn at least an overall score of 4.5 out of 5 on their evaluations for the quarter.

Cordero Receives 2021 Arnold J. Capute Award

Northeastern University SRP Center Co-Director Jose Cordero received the 2021 Arnold J. Capute Award from the American Academy of Pediatrics (AAP) Council on Children with Disabilities. This award is given out every year in recognition of one AAP fellow whose work notably contributes, through service or advocacy, to the health and well-being of children with disabilities.

NCSU Trainee Wins Presentation Award

NCSU SRP Center trainee Drake Phelps won first place in the Best Student Platform Presentation category at the Society of Environmental Toxicology and Chemistry North America Annual Meeting. Phelps' research focuses on the mechanisms of PFAS toxicity to the immune system. His presentation was titled, "Comparing the Respiratory Burst In Vivo and In Vitro After

Exposure to Per- and Polyfluoroalkyl Substances."

WEBINARS AND TRAININGS

Endocrine-Disrupting Chemicals: Hazards and Opportunities Course

A new virtual course, Endocrine-Disrupting Chemicals (EDCs): Hazards and Opportunities, will be taught at the University of Chicago Marine Biological Laboratory (MBL) **May 25 to June 9**. The course will provide an integrated understanding of fundamental EDC concepts, best tools for studying human health risks posed by EDCs, and emerging strategies for building an EDC-free environment. The application deadline is **January 25**.

FUNDING OPPORTUNITIES

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**. For more information about the program, please see the ViCTER webpage or contact Heather Henry (henryh@niehs.nih.gov).

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

This NIH funding opportunity, supports innovative population-based research on connections between the workplace and worker health. Studies must examine NIH-designated U.S. health disparities populations. The Institute also encourages community engaged research approaches that support environmental justice for affected populations. Applications are due **February 5.**

Crushing Pollution Video Challenge

The U.S. Environmental Protection Agency (EPA)'s Crushing Pollution Video Challenge invites students and others, such as people who live near industrial facilities, to create videos illustrating how U.S. businesses are reducing toxic chemical releases and having a positive impact on the environment and communities. The competition invites participants to use the EPA's Toxic Release Inventory P2 Search Tool to identify a facility that has reported innovative pollution prevention strategies and make a video illustrating those techniques. Submissions are due **March 1.**

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 improve environmental literacy and empower communities to improve their

resilience to extreme weather and climate change. Projects should demonstrate how they will engage children, youth, or adults to build these capabilities during the award period. Applications are due **March 17.**

Environmental Justice Video Challenge for Students

The EPA and partners launched a video challenge for students to enhance communities' capacity to address environmental and public health inequities. The challenge is structured in two separate phases:

- Phase 1: The goal is for students to create a video demonstrating innovative approaches to identifying and characterizing environmental justice issues in a select community using publicly available data and tools. Students are strongly encouraged to work in teams and collaborate with community organizations. Submissions are due **April 1.**
- Phase 2: Students will develop a video to display how they worked with community-based organizations to identify strategies and opportunities to address environmental justice issues. A due date and details on the specific requirements for this phase are forthcoming.

DATA SCIENCE AND DATA SHARING

UNC SRP Construct Well Water Database

University of North Carolina at Chapel Hill (UNC) SRP Center researchers constructed the NCWELL database, a comprehensive database of 117,960 geocoded well water tests for 28 metals over 20 years in North Carolina. In a recent study, the team analyzed the database to identify areas of concern for toxic metal contamination and found two at-risk clusters of counties with high levels of arsenic and lead.

Iowa SRP Shares PCBs Dataset

Researchers at the University of Iowa SRP Center released a dataset describing the biodegradation of polychlorinated biphenyls (PCBs) by bacteria in contaminated sediments over time. The team used this dataset to understand the process by which microorganisms can selectively degrade individual PCB compounds over time.

NC ENVIROSCAN

The UNC SRP Center launched the NC ENVIROSCAN, a mapping tool that allows users to visualize trends across environmental contaminants, sociodemographic information, environmental justice indicators, and health outcomes throughout North Carolina.

NIH Data Science and Reuse Seminar Series

The NIH Office of Data Science Strategy hosts a seminar series on the second Friday of each month at noon ET to highlight exemplars of data sharing and reuse. The monthly series highlights researchers who have found clever ways to reuse or generate new findings from existing data. The next webinar will

be **January 14**. For more information, including a link to register and recordings from past webinars, see the Data Science and Reuse Seminar Series website.

Call for Nominations: Chair, CODATA International Data Policy Committee

The Committee of Data of the International Science Council (CODATA) invites nominations for the next chair of the organization's International Data Policy Committee for a three-year term, beginning March 1. Nominations are due **January 17** and are accepted directly from the candidate or from a candidate's institution or endorsing organization.

Open Science Conference

The 9th Open Science Conference will take place **March 8-10**. 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. The German National Library for Economics sponsors the event.

PHOTO OF THE MONTH

EPA Administrator Michael Regan (middle left), North Carolina Governor Roy Cooper (middle right), and other state officials toured NCSU SRP Center labs to learn about the center's PFAS research. They were received by NCSU SRP Center project leader Detlef Knappe (right), who is developing materials to remove PFAS from contaminated sites. (Photo courtesy of North Carolina State University)