National Institute of Environmental Health Sciences

Superfund Research Program

e-Posted Notes

February 1, 2019 (Issue 180)

HEADLINES

Due to the lapse in government appropriations, the ePosted Notes are running a bit late! This edition, scheduled to go out in early January, primarily includes December highlights. Grantee highlights from January will be featured in a delayed February ePosted issue, scheduled for release on February 15.

David Balshaw Appointed as Interim SRP Director

Please join us in welcoming David Balshaw, who will serve as the interim SRP Director and branch chief of the NIEHS Hazardous Substances Research Branch while Bill Suk is on his six-month Fulbright.

David is the chief of the NIEHS Exposure, Response, and Technology Branch and has always worked closely with the SRP. He hopes to strengthen those connections, particularly with regards to efforts to support the exposome concept and the translation of fundamental and mechanistic efforts into applied research going forward.

Day to day management of the SRP will not change significantly and you should continue to work directly with SRP program staff. If you would like to reach out to David, he is happy to discuss any and all topics with you (Balshaw@nih.gov; 984-287-3234).

KC Donnelly Award Supplements Due February 8

The NIEHS SRP KC Donnelly administrative supplements are made available by the SRP to promote transdisciplinary and translational research among SRP trainees (e.g., graduate students/postdoctoral researchers). This includes the recruitment of talented researchers and improving the quality of the educational and training environment. The purpose of these supplements is to provide current SRP-funded graduate students/post-doctoral researchers with translational/transdisciplinary opportunities and experiences within other SRP-funded centers, with other SRP grantees, government laboratories (e.g., EPA, ATSDR, NIEHS), or other agencies (state, local, Tribal).

The KC Donnelly Administrative Supplement **application deadline has been extended to February 8**. Please see the

EMPLOYMENT OPPORTUNITIES

Assistant Professor in Agricultural and Environmental Sciences – UC Davis

As part of a campus-wide initiative to hire leading research faculty with a strong commitment to teaching, research, and service that will promote the success of underrepresented minority students and address the needs of an increasingly diverse state, the University of California, Davis announces an assistant professor faculty position in the College of Agricultural and Environmental Sciences. Applications are encouraged from candidates with a strong disciplinary background in any current or emerging area that will fit within one of the university's departments in the agricultural, environmental, and human/social sciences.

A Ph.D. or equivalent in agricultural, environmental, and human/social sciences or related discipline is required. Apply by February 18 to ensure full consideration by the committee. For more information, visit the UC Davis website.

Director of Environmental Science Cyberinfrastructure – NIEHS

NIEHS is currently recruiting for the Director of Environmental Science Cyberinfrastructure (DESC) position. This is a senior leadership position with primary responsibility for

externship guidelines page to learn more about applying for the award. If you have specific questions about developing a KC Donnelly externship experience (e.g., if within scope of the current grant), please contact your Program Administrator.

New SRP Search Tool

The new SRP Faceted Search Tool allows you to apply one or more filters to browse information about SRP projects. Filters include chemicals studied, health outcomes, environmental media, and remediation approaches. This tool allows you to search for SRP projects by selecting a term or group of terms to narrow results by criteria.

If you are interested in searching SRP publications, datasets, or projects by keyword, SRP has additional search tools to help you learn more.

Save the Date: 2019 SRP Annual Meeting

Please mark your calendars for the 2019 Annual Meeting, which will be held **November 18-20** in Seattle, Washington. The University of Washington will be hosing the meeting. Stay tuned for more information.

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:

- Multi-disciplinary, Early Career Innovation Highlighted at SRP Meeting: The annual SRP meeting, held Nov. 28-30 in Sacramento, California, emphasized innovative research to promote environmental health, particularly research driven by early-stage investigators and trainees.
- Greenness May Promote Heart Health: Living in green neighborhoods could reduce the risk of cardiovascular disease in susceptible individuals by decreasing the body's stress and boosting its ability to repair blood vessels, according to new research funded by NIEHS. University of Louisville SRP Center Research Translation Core Leader Aruni Bhatnagar was the senior author on the study.

Visit the SRP news page for more stories about the Program:

- SRP Researchers Share Findings at Exposome Conference: Current and former SRP researchers described their work and learned from others as part of the New York City Exposome Symposium Nov 2-3. The symposium delved into innovative approaches in exposomics, the study of how the complex mix of nutritional, chemical, and social environments shapes human health throughout the lifespan.
- Microvi Technology to Restore Drinking Water in California

aligning the current and future cyberinfrastructure needs of NIEHS with overall scientific priorities in the field of environmental health sciences. The DESC will develop, implement, and coordinate a multitude of resource environments in information technology and scientific computing to support and propel a wide array of current and future scientific research opportunities at NIEHS.

If you have experience working at the interface between scientific computing and data science and IT services, this position at NIEHS may be of interest to you. Please contact Dr. Gwen Collman (collman@niehs.nih.gov), the chair of the search committee, if you are interested in, and would like to discuss, this important position.

EPA ORISE Research Training

The EPA National Center for Environmental Assessment (NCEA) recently posted an announcement seeking ORISE research participants to support EPA's Integrated Risk Information System (IRIS) Program. This position offers recent graduates an opportunity to analyze, evaluate, and integrate scientific evidence for the development of scientific assessments that support EPA policy and regulatory decisions. For more information, see the position description.

Jobs at Gradient

Gradient is currently recruiting talented and qualified individuals to join their team, including environmental engineers, epidemiologists, biostatisticians, toxicologists, geologists, and database specialists. Critical thinking, supported by a foundation of rock-solid scientific, research, writing, and client development skills are hallmarks of successful Gradient

District: On November 28, SRP small business grantee, Microvi Biotech, Inc. announced that their Microvi MNE technology was selected to treat nitrate contaminated groundwater in the Cucamonga Valley Water District of Rancho Cucamonga, California. The new nitrate treatment facility has the potential to restore to the community more than two billion gallons of nitrate contaminated groundwater per year.

- SRP PFAS Research Highlighted at Federal Remediation Technologies Roundtable: SRP-funded research related to per- and polyfluoroalkyl substances (PFAS) was highlighted at the November 7 Federal Remediation Technologies Roundtable meeting in Reston, Virginia. The goal of the meeting was to identify and discuss current technologies and the emerging science behind PFAS characterization and cleanup.

Three SRP-Funded Publications Chosen as NIEHS Papers of the Year

From nearly 2,900 studies published by NIEHS researchers and grantees during 2018, the institute's leaders selected 10 papers funded by grants for special recognition as 2018 Papers of the Year. Of those 10, three were funded in part by the SRP:

- University of California, Davis: Possible explanation for male and female cardiovascular differences
- University of California, San Diego: New tumor-promoting pathway for liver cancer discovered
- Texas A&M University: Computational tool predicts chemical toxicity

Anderson Highlighted in PNAS News Feature

Research by Oregon State University (OSU) SRP Center investigator Kim Anderson was highlighted in the Proceedings of the National Academy of Sciences (PNAS) as part of a news feature on using the exposome to elucidate disease. The feature describes her work using silicone wristbands to sample chemicals in wearers' environments. According to the article, silicone absorbs organic chemicals much like fat does, so chemicals passively enter the wristbands as wearers go about their days. Anderson's team then extracts the chemicals and identifies them using gas chromatography–mass spectrometry, and they can screen for more than 1,500 organic chemicals at once.

Frickel Discusses Hazardous Waste Legacies

Scott Frickel, leader of the Brown University SRP Center's Community Engagement Core (CEC), and co-author James Elliott published an essay in The Conversation about the hidden legacies of industrial land uses, drawing from their new book, Sites Unseen: Uncovering Hidden Hazards in American Cities. The essay describes the importance of studying industrial histories to better understand and manage potentially toxic contamination in cities. The work Frickel has done in Brown's

staff.

For more information about Gradient, see its Careers Overview document.

CURRENT RESEARCH BRIEF

Research Brief 289: **Study Sheds Light on Respiratory Toxicity of EPFRs** (Tammy Dugas, Ph.D., and Stephania Cormier, Ph.D., Louisiana State University)

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).

SRP EVENTS

Beyond Science and Decisions: From Problem Formulation to Dose-Response Assessment
February 26 – 27, 2019
Austin, Texas

20th International Symposium on Pollutant Responses in Marine Organisms
May 19 – 22, 2019
Charleston, South Carolina

Per- and Polyfluoroalkyl Substances: Second National Conference
June 10 – 11, 2019
Boston, Massachusetts

Save the Date: 2019 SRP Annual Meeting
November 18 – 20, 2019
Seattle, Washington

GET UPDATES FROM OTHER SRP GRANTEES

To see the latest SRP grantee publications, visit the SRP publications page.

Visit the SRP Materials for Grantees page for helpful information, such as SRP administrative supplements information, SRP best practices,

CEC to map historical manufacturing sites is a direct extension of this work.

Ferguson Featured for Work on PFAS

Duke SRP Center researcher Lee Ferguson was quoted in two Associated Press articles regarding per- and polyfluroalkyl substance (PFAS) contamination. The first story summarized the findings of a study that sampled blood and urine from people living near the Chemours Plant in Fayetteville, North Carolina. The second discussed EPA's effort to study the health effects of the PFAS chemical GenX. Ferguson was previously featured in a Duke Today article detailing his work leading the Polyfluorinated Alkyl Substance Testing (PFAST) network through the NC Policy Collaboratory.

Kay Highlighted in ASCO Post Article

MIT SRP Center Research Translation Core leader Jenny Kay was interviewed for an article in the American Society of Clinical Oncology (ASCO) Post, a publication with a circulation of ~35,000 healthcare experts. The interview and article are about the relationships between inflammation and carcinogenesis, important foundations of MIT SRP Center biological research projects.

TRAINEE SPOTLIGHT

Rice Investigates Links Between Maternal PCB Exposure, Exercise, and Child Health

University of Kentucky (UK) SRP Center trainee Brittany Rice is examining how maternal exposure to polychlorinated biphenyls (PCBs) can affect glucose tolerance and body composition in offspring and how maternal exercise may modify that effect. Under the leadership of Kevin Pearson, she has found that short-term maternal exercise reduced indicators of obesity and diabetes in the PCB-treated offspring.

Rice was a winner in the poster competition at the 2018 SRP Annual Meeting. During her poster presentation, she explained her findings in mice and the implications of her research. According to Rice, her data suggest that short-term maternal exercise could be an effective intervention against PCB exposures that occur during fetal and early postnatal development.

In merging her interests in science, education, and outreach, Rice has been a leader and organizer of a wide variety of STEM programs for young people. She was involved in the American Association of University Women - Kentucky Branch's "I Am A

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.

Woman In STEM" initiative as a co-facilitator. She was also an instructor for budding scientists at Newton's Attic Summer Camp and See Blue STEM Camp.

Last year, she received the UK Center for Graduate and Professional Diversity Initiatives' FIERCE Award, which honors women of color for their contributions to the community. She also received the UK College of Medicine's 2018 Diversity Champion Award. When Associate Dean Renay Scales presented Rice the award during a ceremony on September 27, she praised her leadership skills and highlighted her role as a catalyzing advocate for diversity within the UK College of Medicine. Rice also received the 2018 Inclusive Excellence Award from the University of Kentucky Office for Institutional Diversity for her exemplary contributions to advancing diversity and inclusion throughout campus and community leadership and engagement. Further, Rice was recently selected as a fellow for the 2019 Future Leaders Advancing Research in Endocrinology Program.

When she is not in the lab, she enjoys spending time and talking with her loved ones and participating in community service projects to benefit underserved communities. More recently, she has taken up an interest in crafting as a hobby and enjoys hands-on and do-it-yourself projects.

HOT PUBLICATION

Links Between Prenatal Arsenic Exposure, Gestational Age, and DNA Methylation

Prenatal arsenic exposure is inversely associated with birth gestational age, according to a new SRP study. The study shows that methylation of specific regions of DNA in cord blood were linked with this effect on gestational age.

The researchers examined associations between arsenic exposure and DNA methylation, which modifies the way genetic information is expressed without directly changing the genetic code stored in DNA. They also examined how differences in exposure and DNA methylation were linked to reproductive outcomes in an established prospective birth cohort recruited in Bangladesh. They utilized a two-stage approach to test the hypothesis that methylation at specific regions of DNA would mediate the association between prenatal arsenic exposure and reproductive health outcomes. This two-stage approach was economical and potentially reduced the possibility of false discoveries.

The results support the hypothesis that arsenic exposure in utero can disrupt fetal programming that may play a role in the developmental origins of health and disease. Furthermore, this experimental framework for the discovery and validation of candidate methylation regions as mediators of exposures and health outcomes could be extended to other exposures and health outcomes.

AWARD WINNERS

Evans Named 2018 AAAS Fellow

Ronald Evans, a University of California, San Diego SRP project leader, who is also director of the Salk Institute for Biological Studies' Gene Expression Laboratory, has been named a 2018 Fellow of the American Association for the Advancement of Science (AAAS), the world's largest general scientific society. The AAAS acknowledged his discoveries on steroid and orphan receptor signaling, revealing a treasure trove of both known and novel branches of physiology, metabolism, and disease.

WEBINARS AND TRAININGS

ARA Workshop: Beyond Science and Decision

The Alliance for Risk Assessment (ARA) is hosting Beyond Science and Decisions: From Problem Formulation to Dose-Response Assessment **February 26 - 27 in Austin, Texas**. The purpose of the workshop is to extend the findings of the 2009 National Academy of Sciences' Science and Decisions: Advancing Risk Assessment report for risk assessors, risk managers, and researchers interested in risk assessment from a variety of organizations. Interested parties are invited to formulate scientific problems/questions and propose solutions as case studies to a panel of expert risk assessors. Novel risk assessment approaches are encouraged. For more information, please contact Valerie Ayers (ayers@tera.org).

FUNDING OPPORTUNITIES

Community Changemaker Grants for Native Youth

Native youth are engaged, resilient, and strong. Some are taking on leadership roles and participating in their youth councils. Others are forming their own youth groups or independent organizations to address issues they see.

For those young people who are stepping up to plan and lead health and wellness events, the National Indian Health Board (NIHB) would like to help. To support youth in their efforts, NIHB is offering Community Changemaker Grants.

Community Changemaker Grants are small amounts of money ($250) that can help supercharge a youth-led health event. They are open to American Indian and Alaska Native youth ages 14-24 years old. Some will use Community Changemaker funding to buy T-shirts for a suicide prevention walk they organize. Others will use this funding to offer snacks and drinks at a round dance where participants learn about healthy foods. Some might even use the grant to cover the cost of a band at an event they organize on healthy relationships.

The application should be emailed to Wendee Gardner

(wgardner@nihb.org).

NSF Supplemental Funding

The global competitiveness of the United States depends critically on the readiness of its Science, Technology, Engineering, and Mathematics (STEM) workforce, and NSF seeks to continue to invest in programs that directly advance this workforce. As part of this effort, a supplemental funding opportunity is available in Fiscal Years 2019 and 2020 to provide support for non-academic research internships for graduate students to support career opportunities in any sector of the U.S. economy.

The PI of an active NSF award may request supplemental funding for one or more graduate students to gain knowledge, skills, and experiences that will augment their preparation for a successful long-term career through an internship in a non-academic setting. To be eligible, graduate students must have completed at least one academic year in their graduate programs and be making satisfactory progress toward the completion of their degrees.

Supplemental funding requests may be submitted at any time but no later than **May 1, 2019** for available FY 2019 funds and **May 1, 2020** for available FY 2020 funds.

DATA SCIENCE AND DATA SHARING

Repository Finder Tool Helps Researchers Identify Appropriate Data Repositories

A new Repository Finder Tool connects researchers to data repositories in the earth, space, and environmental sciences. The tool was developed to help researchers identify appropriate repositories where they can deposit their research data and to promote progress toward sharing data that are findable, accessible, interoperable, and reusable (FAIR). Requirements for the design of the tool were gathered through a series of workshops and working groups as part of the Enabling FAIR Data initiative led by the American Geophysical Union. That initiative included the development of a decision tree that researchers may follow in selecting a data repository, interviews with domain repository managers, and usability testing.

The tool is hosted by DataCite and enables a researcher to query all data repositories by keyword or to view a list of domain repositories that accept data for deposit, support open access, and provide persistent identifiers. More information about the tool is available in a Purdue Publication.

2019 Data Science Innovation Lab Opportunity

The Big Data to Knowledge (BD2K) Training Coordinating Center is organizing a Data Science Innovation Lab to foster the development of new interdisciplinary teams to tackle the challenges associated with the analysis, modeling, and visualization of large-scale data sets associated with the

biomedicine of rural health. The training targets junior faculty, career development awardees, and senior postdoctoral fellows who are interested in forming new interdisciplinary collaborations which will generate creative strategies for addressing challenges associated with the analysis, modeling, and visualization of large-scale data sets.

The format is a five-day intensive retreat with the participants being half quantitative scientists and half biomedical scientists. All expenses are covered by the organizers. Early-career investigators from quantitative and biomedical fields are highly encouraged to apply. The deadline to submit applications is **March 10**.

PHOTO OF THE MONTH

University of Rhode Island STEEP SRP Center researcher Alan Vajda, right, of the University of Colorado, Denver, and Denis LeBlanc from the U.S. Geological Survey are using a mobile fish laboratory to study the effects of PFAS on fathead minnows. In August 2018, Vajda towed the mobile laboratory to the coastal shores of Barnstable County, Cape Cod. He filled rows of tanks with hundreds of fathead minnows and exposed those fish to water from different local sources that have varying levels of PFAS. Vajda and his team plan to evaluate tens of thousands of data points for patterns in fish responses and determine whether those responses are caused by PFAS in the water.