NIEHS
National Institute of Environmental Health Sciences

CELEBRATING 25 Years of the Superfund Research Program

Srp Superfund Research Program

KC Donnelly Externship Award

Kirby Cornwall (KC) Donnelly, Ph.D., an outstanding mentor and a champion of his students, was a zealous advocate of the SRP until his untimely passing in 2009. He was a professor and head of the Department of Environmental and Occupational Health in the Health Science Center as well as Associate Director of the SRP at Texas A&M University.

Donnelly conducted his research worldwide where it focused on environmental exposures, animal and human population studies, and genotoxicity of complex chemical mixtures. He was strongly committed to active promotion of partnerships and extremely dedicated to his students. In his honor, the NIEHS SRP presents the KC Donnelly Externship Award, which provides current SRP-funded graduate students and postdoctoral researchers with translational and/or transdisciplinary opportunities and experiences with other SRP-funded centers, government laboratories, or other federal, state, or tribal agencies.

2012 Winners

Steven O'Connell, Oregon State University

This externship will provide O'Connell an opportunity to further develop his passive sampling devices (PSD) technologies in the measurement of bioavailable contaminants in water and sediment at the Lower Duwamish Waterway Superfund Site. Kira Lynch, Superfund Technology Liaison in EPA Region 10, will provide mentorship and guidance for his research. "Specifically, this opportunity will allow me to see how state, federal, and local parties collaborate with an ongoing Superfund remediation strategy, and how the bioavailable data I will provide might contribute [to that site remediation]," said O'Connell.

**Vanessa De La Rosa,
University of California (UC), Berkeley**

Under the guidance of James Swenberg, D.V.M., Ph.D., and Jun Nakamura, D.V.M., Ph.D., at the University of North Carolina at Chapel Hill, De La Rosa will study trichlorethylene's metabolite DCVC and its mechanisms mediating TCE-induced renal cancer. The externship will provide her with an opportunity to learn new analytical techniques to apply to her existing data. She will also be able to explore another model system, the avian DT40 cell line to see how DNA damage and repair mediates toxicity and cancer of the Superfund contaminant trichloroethylene. "This work will supplement previous studies conducted in other organisms to identify conserved mechanisms of trichloroethylene toxicity," says De La Rosa.

Sabine Vorrink, University of Iowa

During her externship at the University of Arizona under the guidance of Bernard Futscher, Ph.D., Vorrink will learn new molecular biological techniques to conduct mechanistic studies of the effects of polychlorinated biphenyls (PCBs) on the aryl hydrocarbon receptor (AhR) and hypoxia inducible factor (HIF1α) and with their aryl hydrocarbon receptor nuclear translocator (ARNT) complexes."This will extend my experience and scientific knowledge into related toxicology fields and will significantly expand my training horizons," says Vorrink.

2011 Winners

**Celys Irizarry,
University of Puerto Rico – Mayagüez**

Under the guidance of Ingrid Padilla, Ph.D., of the Northeastern University SRP, Irizarry conducted research alongside of regulatory agencies during her externship. Working at the Caribbean Environmental Protection Division of the EPA and the Puerto Rico Department of Health, she collected water samples and assessed the water quality at 10 Superfund sites on the north coast of Puerto Rico. The agencies used her work to inform water quality assessment models. "My data and analysis will give them a large picture of the problem and show how the water quality is changing over time," said Irizarry.

Alvine Mehinto, University of Florida

Mehinto worked with Chris Vulpe, M.D., Ph.D., at UC Berkeley to learn new bioinformatic techniques that expanded her understanding of pathways of toxicity. During this externship, she was also able to learn and use a new model organism to address conservation of these toxicity pathways. Specifically, she used Vulpe's parallel detection analysis technique to uncover gene changes in a yeast model exposed to the same contaminants used in previous experiments conducted in a different model organism. "The externship allowed me to improve my bioinformatics skills. It gave me a different perspective and new tools to consider for my next research proposal," said Mehinto.

Xianai Wu, University of Iowa

Under the direction of Bruce Hammock, Ph.D., at UC Davis, Wu learned novel metabolomic techniques to evaluate the effects of PCB126 on vitamin D metabolites and oxylipins in blood and tissue samples. These results will contribute to the effects of dietary intervention on PCB metabolism. She was interested in profiling changes in lipids, including lipids known as eicosanoids and lipids derived from polyunsaturated fatty acids. "I learned a technique that employs solid phase extraction and liquid chromatography electrospray ionization tandem mass spectrometry in multiple reaction-monitoring mode," said Wu.

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