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UC San Diego Superfund Research Program Receives \$15 Million Grant Renewal

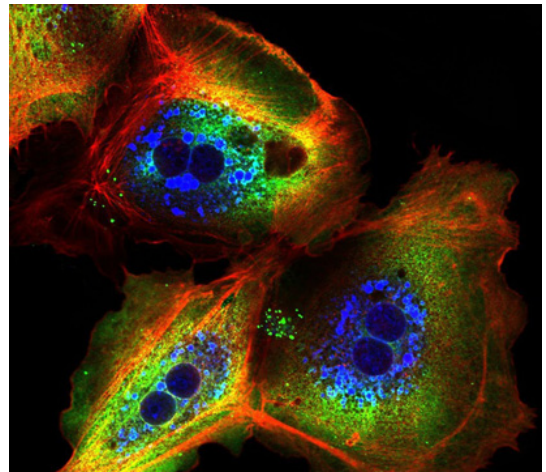
The National Institute of Environmental Health Sciences (NIEHS), part of the National Institutes of Health, has renewed funding for the Superfund Research Program (SRP) at the University of California, San Diego. Over the next five years, the \$15 million grant will fund continued research on the molecular and genetic consequences of exposure to uncontrolled toxicants from Superfund and other hazardous waste sites.

It is the third funding cycle for UC San Diego's SRP, which was originally funded by the NIEHS in 2000.

"The overall goal of the Superfund Research Program is to understand why environmental toxicants cause disease," said Robert H. Tukey, PhD, Professor of Pharmacology, Chemistry & Biochemistry at UC San Diego and Director of the UC San Diego SRP. "Our focus is on the development of novel biological models to define how toxicant exposure leads to illness and disease. We want to learn how to better detect toxicants and model the health effects of exposure, assess the risks, and find effective ways to remediate."

Since 2000, the SRP at UC San Diego has chalked some notable achievements. Most recently:

- Michael Karin, PhD, Distinguished Professor of Pharmacology in UC San Diego's Laboratory of Gene Regulation and Signal Transduction, has identified initiating cells in the liver that progress into liver cancer following exposure to chemical carcinogens. The identity of these cells may lead to an understanding of the mechanisms that underlie the development of liver cancer.



Among the research supported by UC San Diego's Superfund Research Program is Michael Karin's work identifying how hepatocytes (liver cells) become cancerous after exposure to chemical carcinogens.

- Robert Tukey, PhD has produced new mouse models expressing human genes that result in dramatically elevated levels of serum bilirubin, a potent and natural antioxidant that can be used to study the role of oxidative stress in toxicant-induced disease.
- Julian Schroeder, PhD, in the Biology Department at UC San Diego, has used the plant model Arabidopsis to create genetically engineered plants that may eventually prove useful to bioaccumulate heavy metals from contaminated soils on a commercially viable scale.
- David Brenner, MD, vice chancellor of UC San Diego Health Sciences, and dean, UCSD School of Medicine, and Ekihiro Seki, MD, from the Department of Medicine, have investigated the genetic mechanisms that lead to the development of toxicant induced liver fibrosis.
- Ronald Evans, PhD, at the Salk Institute, has identified key cellular receptors that serve to transport environmental toxicants to the nucleus, allowing for identification of the genes that may lead to disease.
- Paul Russell, PhD, at the Scripps Research Institute, has been successful in using yeast to characterize intracellular proteins important in arsenic induced toxicity.
- William Trogler, PhD, Professor of Chemistry and Biochemistry, has developed novel chemical tools to detect toxicant exposure in the environment.

On-going and future projects, said Tukey, will use functional genomics and proteomics to investigate the cellular and molecular responses leading to toxicant -induced liver toxicity.

The SRP at UC San Diego is broad-based, with biomedical researchers, chemists, plant biologists, and public outreach experts. It includes research projects led by scientists from other institutions, including The Scripps Research Institute, the Salk Institute for Biological Studies and the Howard Hughes Medical Institute.

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