Robert H. Schiestl, PhD  
Professor of Pathology, Environmental Health and Oncology

Thursday: April 16, 2015  
12pm in 43-105 CHS

About the Lecture: I work in radiation-induced effects and in the area of genetic toxicology. We work on DNA damage and cancer induced by high and low LET radiation and chemical toxins. One important contribution of my laboratory is related to genotoxicity testing that uses a short-term test that predicts whether any given chemical may cause cancer. We have developed assays for DNA deletions (DEL assays) that detect cancer-causing chemicals that are negative with other tests including the Ames Assay, the most widely used short-term test for carcinogens. The same chemicals cause an increased frequency of DNA deletions in yeast, human cells as well as in vivo in mice. We have also used the yeast DEL assay to investigate the genetic control of DEL recombination and the mechanism of the induction of deletions by carcinogens. We have further developed the yeast assay into the only high throughput genotoxicity assay currently available and applied for a patent. Almost all pharmaceutical companies are very interested in developing the high throughput assay to use very limited amounts of compound so that chemical libraries can be screened for genotoxicity already at a very early stage during drug development. Using this assay we have screened through more than 16,000 chemicals and isolated chemicals that counteract the frequency of DNA deletions as well as cell killing. We are excited about our novel results that these chemicals turned out to be powerful radiation mitigators that reduce low LET radiation induced toxicity, genetic instability and cancer in mice. Even more important they also reduce chemical toxin (MMS, EMS and nitrogen mustard and cigarette smoke extract) induced genetic instability and toxicity. They even prolong the life of senescent cells. On a molecular level they induce DNA repair a completely novel paradigm in cancer prevention.

About the Speaker: Robert H. Schiestl obtained his PhD from the University of Vienna at the age of 23 years. He was a postdoctoral fellow at Edmonton, Alberta, Rochester, NY, and Chapel Hill, NC before becoming a professor at Harvard at the age of 31 where he stayed for 10 years. Since 15 years he is professor at UCLA with 187 publications, 10 patents and 2 startup companies.

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