

Researcher Profile: Kimberly Riehle, MD



Dr. **Kimberly Riehle**, Associate Professor in the Division of Pediatric General Surgery, first joined Department of Surgery as a general surgery resident in 2001 and during her surgical training she spent she spent two years in the laboratory of Dr. Nelson Fausto, then chair of the Department of Pathology. During that time, she gained expertise in molecular mechanisms of liver regeneration and hepatocellular carcinogenesis.

After completing her clinical training in pediatric surgery at Boston Children's Hospital in 2010, she returned to the University of Washington to become the first female member of the Division of Pediatric General and Thoracic Surgery, with an adjunct appointment in the Department of Pathology. During her first two years on the faculty, her research continued to focus on liver injury, fibrosis, and regeneration under Professor Fausto's mentorship, then she shifted her research focus to a disease that she encounters as a pediatric surgeon, fibrolamellar hepatocellular carcinoma (FL-HCC). Since 2013, she and Dr. **Raymond Yeung**, Professor of Surgery, Division of General Surgery, have formed a multidisciplinary collaborative team with faculty in the Departments of Pharmacology, Pathology, and Medical Oncology, all working together to find a cure for this disease.

FL-HCC is a life-threatening cancer in children and young adults, and does not respond to traditional chemotherapy. The underlying genetic defect in these tumors leads to a mutant form of protein kinase A (PKA), but it is unclear how this mutant PKA causes cancer. The overarching goal of Dr. Riehle's work is to understand how this mutation causes liver cancer in otherwise healthy children and young adults, and to develop novel therapeutic options for these patients. Her lab's work centers around the hypothesis that the mutant PKA phosphorylates and activates a different set of substrates than wild type PKAc. and that in turn, downstream kinases stimulate cell proliferation and hepatocyte transformation. Given the difficulty in identifying appropriate pharmacologic targets in cancers, she and her collaborators have developed multiple innovative platforms in order to determine the most important kinases driving proliferation in a given cell type. In collaboration with Dr. John Scott, Professor and Chair of the Department of Pharmacology and using cell lines developed by Professor Fausto, Dr. Riehle's lab has developed an FL-HCC cell line; in addition to organoid cultures and fresh tumor slice cultures developed by Dr. Yeung, these

cells are being used to validate the importance of various kinase pathways in FL-HCC, and to develop novel therapies for these patients.

Dr. Riehle's work has been supported by the National Cancer Institute of the National Institutes of Health, the Fibrolamellar Cancer Foundation, an American College of Surgeons Louis C. Argenta Fellowship, an American Surgical Association Foundation Fellowship, a Fred Hutchison Cancer Research Center New Investigator Award, the Seattle Children's Hospital Discovery Fund, the UW Royalty Research Fund, the Department of Surgery Research Reinvestment Fund, and the Herbert Coe Foundation. Her basic scientific investigations into the molecular pathogenesis of FL-HCC mesh well with her clinical practice of pediatric general and thoracic surgery at Seattle Children's Hospital, where she cares for children with abdominal cancers among other diagnoses. Her other clinical leadership positions are in managing the Prenatal Diagnosis and Treatment Clinic, and as surgical co-director of the Extracorporeal Life Support program.

SAVE THE DATES

UW Medicine
UW SCHOOL
OF MEDICINE

Surgical Ethics Conference

Friday, August 3, 2018

South Campus Center, University of Washington Campus - Seattle, WA

Join us at this **one-day conference** which will employ the methods of ethical analysis to analyze topics of special interest to surgeons, anesthesiologists, surgical nurses, physician assistants, social workers, and hospital administrators.

For more information or to register
visit <http://www.uwmc.org/>



Sponsored by University of Washington School of Medicine
Department of Bioethics and Humanities • Department of Surgery
Office of Continuing Medical Education