



**STANFORD  
MATERNAL & CHILD HEALTH  
RESEARCH INSTITUTE  
SEMINAR SERIES**

## Unraveling Leukemia Heterogeneity Using Single-cell Studies for Clinical Translation

Monday, February 1, 2021 | 12:00pm - 1:00pm

**REGISTER HERE:**

[https://stanford.zoom.us/webinar/register/WN\\_hMi4brcFQSeP4NujP-zwEw](https://stanford.zoom.us/webinar/register/WN_hMi4brcFQSeP4NujP-zwEw)



**Kara Davis, DO**

Assistant Professor, Pediatrics  
(Hematology and Oncology)  
Stanford School of Medicine

Among children with B-cell progenitor acute lymphoblastic leukemia (ALL), the most common kind of childhood cancer, 15% of children will relapse after initially responding to standard therapies, and 50% of children who relapse will die, making relapsed ALL the second-leading cause of cancer-related death in children. Even with the emergence of novel immunotherapies, including chimeric antigen receptor (CAR) T-cells, at least 40% of children with ALL who initially respond to these novel therapies will still go on to relapse. As such, a critical need remains—to prevent relapse among children with ALL, thus providing a definitive cure.

In this talk, Dr. Kara Davis will discuss the use of a single-cell mass cytometry, or CyTOF, to identify cells associated with relapse from diagnostic patient samples. Using machine learning, Dr. Davis and her research team built an elastic net model to predict relapse using the measured features in the expanded B-cell populations. She will share insight into these relapse predictive cells, including differences in their response to standard leukemia therapies and differences in their cellular metabolism that may contribute to chemoresistance. Further, Dr. Davis will address the application of these tools and other single-cell approaches to study CD19-negative relapse after CD19 targeting CAR-T cell therapies.

### **ABOUT THE SPEAKER**

Kara L. Davis, D.O. is an Assistant Professor of Pediatrics at Stanford University in the Division of Hematology and Oncology. Dr. Davis is the Anne T. and Robert M. Bass Endowed Faculty Scholar in Pediatric Cancer and Blood Diseases. Dr. Davis received her Bachelor of Arts from Pennsylvania State University and Doctor of Osteopathy from Philadelphia College of Osteopathic Medicine. She completed her Pediatrics training at Thomas Jefferson University in Philadelphia, PA and Oncology/Hematology Fellowship at Stanford. Dr. Davis' research focuses on applying single-cell, high-parameter technologies to the study of childhood cancers to identify cell populations and their features predictive of adverse clinical outcomes.