

ICB seminar series 2019/20

chairman: Prof. Dr. Paolo Arosio

STUDYING CELL SIGNALING IN COMPLEX ENVIRONMENTS USING OPEN MICROFLUIDICS

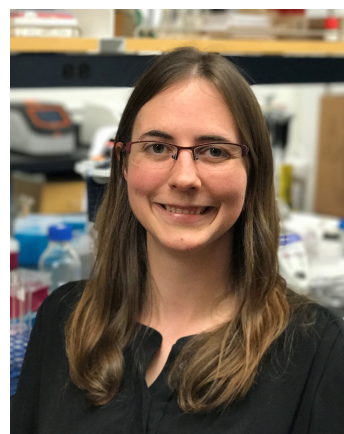
Prof. Dr. Ashley Theberge

University of Washington

ETH Hönggerberg, HCI J 6

Friday, 01/11/2019, 15.00 h

The Seminar will be followed by an Apéro



Abstract: Small molecule and protein signals provide a rich vocabulary for cellular communication. To better understand signaling processes in both normal and disease states, we have developed new open microfluidic platforms that accommodate the culture of multiple cell types in microfabricated compartments while allowing soluble factor signaling between cell types. Our microscale culture systems allow a 10- to 500-fold reduction in volume compared to conventional assays, enabling experiments with limited cells from patient samples. Furthermore, our devices are open, pipette accessible, interface with high resolution microscopy, and can be manufactured at scale by injection molding, increasing translation to collaborators in biological and clinical labs without chemistry and engineering expertise. Finally, this talk will highlight recent results using open microfluidic principles to develop novel strategies to 3D print hydrogels for biological and materials science applications.

Bio: Ashleigh Theberge is Assistant Professor of Chemistry and Adjunct Assistant Professor of Urology at the University of Washington. She holds a BA from Williams College and a PhD from the University of Cambridge. Her group develops microscale culture and analysis methods to study cell-cell, cell-extracellular matrix, and host-microbe interactions. She is also developing new methods for 3D printing using open microfluidics. Selected awards include an NIH K Career Development Award (2014), a Kavli Microbiome Ideas Challenge Award grant (2017), an NIH Maximizing Investigators' Research Award (MIRA) for Early Stage Investigators (2018), and a Beckman Young Investigator Award (2018). She was elected co-Chair for the Gordon Research Conference on Microfluidics in 2021.