



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Cellular and Physiological Sciences



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Dept of Medicine | Division of Nephrology

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Institute for Stem Cell and Regenerative Medicine

12:30 PM Thursday, Nov. 29, 2018

Location: LSC3

Hosted by Dr. Elizabeth Rideout,

Dr. Janel Kopp

Modeling Physiology and Disease with Multi-Dimensional Kidney Organoids

Organoids are three-dimensional, multicellular units in vitro that resemble a tissue or organ of the body. Recently, we and others have generated kidney organoids for the first time, starting with human pluripotent stem cells. Kidney organoids include proximal tubules, distal tubules, and podocytes in patterned segments, recapitulating the architectural subunit of the kidney, the nephron. Using the CRISPR-Cas gene editing system, we have further generated kidney organoids with loss-of-function mutations in kidney disease genes, which express three-dimensional phenotypes that resemble diseased tissues in vivo. Organoids can be manufactured and analyzed by robots in high throughput formats, enabling drug screens. These findings raise new possibilities for understanding biology from the cellular to the organoid scale.

Join us for coffee and cookies at Noon in LSC 1416!!!

For more information please contact [Dr.Rideout<elizabeth.rideout@ubc.ca>](mailto:elizabeth.rideout@ubc.ca), [Dr.Kopp<janel.kopp@ubc.ca>](mailto:janel.kopp@ubc.ca)

CPS Seminar Series 2018/19 - External Speaker Student Interview Questionnaire

Date: November 29, 2018

External speaker: Dr. Benjamin Freedman

Student hosts: Atefeh Samani & Andy Wang

1. Describe your career path, what led you to this area of research in particular?

Several members of my family suffered from kidney disease. Discussions with my family gave me the inspiration to apply stem cells in this area of medicine. I gather a lot of inspiration from my family, and the research I was doing during my post-doc also developed serendipitously as I gained a lot of insight and new developments in the field of kidney disease.

2. What are some challenges you see new trainees face and what advice would you offer?

Be calm and patient, and work hard. I know the pay during a PhD is low, but when you advance in your career, the investment will be paid off.

3. What was your worst experience as a trainee?

The first few years of my PhD were hard but taught me how to troubleshoot. This came in handy during my postdoctoral training, because the kidney organoid model did not work right away.

4. How do you feel about incorporating novel techniques (e.g. CRISPR) into your research during a career-defining time of post-doc?

To be honest, I was quite wary at first. With CRISPR, my PI had suggested it to me, but I was very resistant at first because CRISPR was just a method. Eventually, I saw how CRISPR would be valuable conceptually in our experiments, I decided to test it out and it really worked out for me. The great thing about graduate school now is the evolution of techniques and methods is occurring at a fast rate. Being constantly exposed to these techniques really helps you develop as a scientist.

5. How do you prioritize collaborations with industry vs. research collaboration from other laboratories?

We definitely appreciate both. It's more of a spectrum nowadays, with interesting research going on in both sectors. There is a certain culture associated with academia which really fosters an environment that supports to the fortification of basic science- the foundation for all these novel discoveries that have clinical implications. Industry aims to make things happen faster and to develop products and protocols for patenting-to be able to market and distribute them. We have actually really enjoyed collaborating with companies like STEM CELL based in Vancouver.