



QSB SEMINAR SERIES 291

How HIV Evolves Within a Patient : Fast Adaptation, Fitness Costs, PrEP Resistance and Treatment Success

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Department of Biology
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Date: 12/1/17

Time: 1:30 PM

Location: COB2 170

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ABSTRACT

I will talk about ongoing work in my group related to how HIV evolves within patients. A lot of this work is related to drug resistance and what factors make drug resistance evolution more or less likely. I will talk about the evolution of resistance during HIV treatment or in the context of Pre-Exposure Prophylaxis (Truvada and long-acting Prep). Finally, I will talk about fitness costs of mutations in the HIV genome and what we are learning about the HIV genome and its interaction with humans from the analysis of fitness costs.



BIO:

I am an evolutionary biologist and work on the evolution of drug resistance in HIV. I want to understand what determines the rate of evolution of drug resistance, so that we can find ways to halt the evolution of drug resistance. I also want to make the world of research and tech more inclusive and diverse and help run the PINC program at SFSU, which stands for Promoting Inclusivity in Computing.

I am originally from Castricum, which is a town near Amsterdam. I studied biology at the University of Amsterdam. In 2001, I started a PhD project and gave up after 6 months because I was very unhappy in the department. I worked on science education and ran a company for almost 2 years and then started another PhD project in 2003. This time things were better and I received my PhD in 2007 for work on soft selective sweeps. Although my PhD was successful, I wanted to leave research to spend more time with people and less time with my computer, so I became a program coordinator at the university for a while. About a year later, I changed my mind and became a postdoc working on ants. In 2010, I got a fellowship to move to Boston and work on HIV at Harvard. In 2012 I moved to Stanford and in 2014, after about 70 job applications, I got a job as an assistant professor at SFSU. Now, I do research, I teach genetics and bioinformatics and I advise undergraduate and Master's students. I love it! I also write and tweet (@pleunipennings) and make videos.