



Department of Biomathematics Seminar Series:  
Frontiers in Systems and Integrative Biology

## Guiding Antibody Evolution via Programmable Antigen Environments



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4:00 PM**

**A2-342 MDCC, Moss Auditorium  
Marion Davies Children Clinic**

### ABSTRACT:

Antibodies, soluble forms of B cell receptors, attain increasing affinity for encountered antigens by alternating between somatic mutation and competitive selection in a cyclic fashion, a phenomenon known as affinity maturation. But this Darwinian process becomes ineffective in facing highly mutable complex pathogens, notably HIV, which have evolved various tactics to escape and divert immune responses. In this talk, I will describe the challenges in inducing broadly neutralizing antibodies by vaccination, present an agent-based computational model of affinity maturation driven by multiple antigens with complex epitopes, and discuss novel immunization strategies that can potentially focus antibody response onto the targeted viral vulnerability which test favorably in mice. If time allows, our recent attempts and surprises will be briefly mentioned.

Host: Tom Chou, Ph.D.

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