

Chemical Biology Seminar



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Evolving and engineering biomolecular interactions to retune biology

Non-covalent interactions between biomolecules such as proteins and nucleic acids coordinate all cellular processes through changes in proximity. Tools that perturb, control, or reprogram these interactions have and will continue to be highly valuable for basic and translational scientific endeavors. Here, I will present our groups recent work toward harnessing continuous evolution platforms and novel engineering strategies to study and control biomolecular interactions. In one exemplar, I will describe our group's proximity-dependent split RNAP biosensing technology, which when combined with Phage-Assisted Continuous Evolution (PACE), allows us to perform deep-mutational scanning experiments of biomolecular interfaces, to reprogram the specificity between interfaces using evolution, and finally, to evolve bifunctional "molecular glues". In a second exemplar, I will describe our recent efforts to generate bifunctional molecules that bring together RNA targets and protein effectors, with an eye toward therapeutic strategies targeting RNA regulation. Collectively, this work highlights how advances in synthetic biology can lead to novel functional molecules that provide solutions to challenges in biotechnology and medicine.

Tuesday, April 12, 2022 at 3:30 p.m. (CT)

Learning Studio, Room 1435

Host: Prof. Tina Wang



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