Darwin in a Test Tube: Harnessing Evolution to Engineer New Drugs
Terry Takahashi
Assistant Professor (Research) of Chemistry, Dornsife College of Letters, Arts, & Sciences
Natural Sciences

Abstract
We have many medicines that can treat a wide range of human diseases. Still, there are many diseases for which there are no good treatments or no treatments at all. Why is this? And how can we make new drugs to treat these diseases? In this micro-seminar, we will explore how new drugs are discovered, why it is so difficult, and why it takes so long to discover new drugs. We will also discuss how new methods that use the power of evolution to engineer new molecules could be an untapped resource for new drugs.

In this day and age, why are there still so many diseases for which we have only mediocre treatments or no treatments at all? How can we use what we know to make new drugs to treat these diseases? In this micro-seminar, we will explore how new drugs are discovered and why it is so difficult and takes so long to do so. We will also discuss how new methods that use the power of evolution to engineer new molecules could be an untapped resource for new drugs.

In this day and age, it seems like we should have a pill to treat any type of disease â€“ we should be able to go to the doctor, take a pill, and get better. Yet, there are still many diseases for which we only have mediocre treatments or no treatments at all. Why haven't we been able to develop medicines for these diseases? And what can we do to make new drugs for these diseases? In this micro-seminar, we will discuss these questions, and also explore how new methods that use the power of evolution to engineer new molecules, could be an untapped resource for new drugs.

Faculty Biography
Prof. Takahashi received his PhD from Caltech, followed by Postdoctoral research at USC. He became an Assistant Research Professor of Chemistry in 2010 and is currently the Associate Director of the Center for Protein and Peptide Engineering. His research focuses on engineering peptides and proteins for diagnostics, therapeutics, and new tools in biological research.