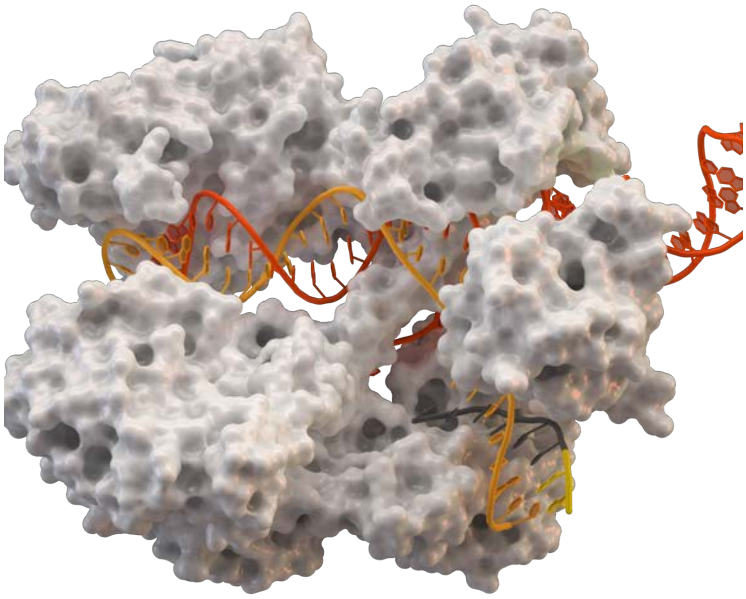
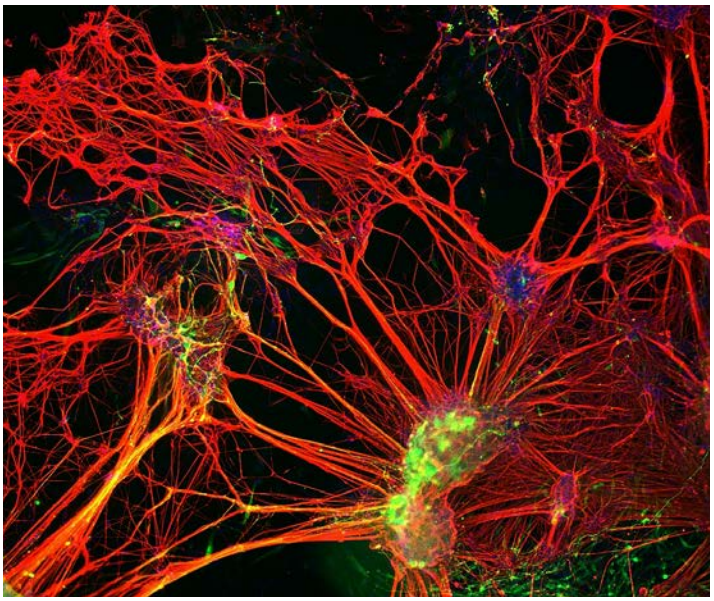
Post Doctoral Research Position Available

Innovative Genomics Institute, Berkeley CA

Schaffer & Dueber Laboratories





Living organisms have evolved incredibly complex and useful traits by sampling immense sequence diversity under selective pressures over many generations. In the laboratory, where both diversity generation and selective pressures can be manipulated, artificial application of natural selection - referred to as “directed evolution” - has emerged as a powerful method for isolating genetic material with desirable properties from a library of sequence variants. However, the sequence space that can be explored is limited by the efficiency of synthesizing and transforming a genetic library. The requirement for efficient transformation rates has especially confined directed evolution to only a few model organisms. The ability to program a cell to elevate mutagenesis at user-defined loci would remove the need to transform a synthesized library of nucleic acids; however, current *in vivo* targeted mutagenesis platforms are unfortunately either confined to targeting a particular, hardwired locus in a specific organism (e.g. a phage genome, or the IgG locus) or have a narrow and biased editing window at user-defined loci.

Recently, the Dueber and Schaffer labs at UC Berkeley collaborated to develop the first homology directed repair-independent system that can exchange all nucleotide types within a tunable window length at user-defined genomic loci in E. coli. This was achieved by localizing the activity of engineered mutagenic enzymes to desired loci via CRISPR-guided nucleases. We are looking for a post-doctoral researcher to join our team and the broader Innovative Genomics Institute (IGI) to help lead the following efforts: (I) increase the tool's mutation rate and mutagenesis window length, (II) adapt the tool for use in plant and mammalian cells, and (III) perform previously impossible targeted genome evolution to discover genotypes of utility to the manufacturing, agriculture and healthcare industries.

The IGI is a non-profit, academic research organization formed through the partnership of UC Berkeley and UC San Francisco aiming to build and use genome editing technologies to cure human disease, end hunger, and protect the environment.

https://innovativegenomics.org/