

Epigenomic tech dev. post-doctoral position

Description of Position

Defining the genomic organization of DNA associated proteins is critical for deep understanding of the regulatory mechanisms governing cellular states. However, ChIP-seq, the primary methodology used for mapping DNA associated proteins has several major limitations. For instance, standard ChIP-seq is unable to profile more than one epitope at one time in one sample and the reliance on an inefficient immunoprecipitation step, resulting in signal reduction. A key challenge in chromatin biology is to study the organization of multiple DNA binding proteins simultaneously from a single sample and to identify instances where these proteins are bound to the same genomic molecule originating from a single cell.

The post-doctoral scholar will lead a project aimed at the development of a novel methodology designed to overcome ChIP-seq limitations and will apply this innovative method to study co-association of chromatin regulators, employing the embryonic stem cells as a model system. The new method developed in this project will provide a means to obtain an unprecedented view of the different combinatorial signatures of chromatin regulators, the dynamics of their formation during differentiation and how these signatures may go awry in disease.

Specifically, following on our previous observations (*e.g.*, Ram *et al.*, Cell 2011; Etchegaray *et al.*, Nature Cell Biol., 2015), the novel method developed here would allow us to make the leap from simply studying static configurations of chromatin to studying their dynamics. Mapping co-binding events of DNA associated proteins the same original DNA molecule over different conditions will elucidate properties of dynamic regulation in response to developmental and environmental cues.

Environment

The project will be conducted under the mentorship of Alon Goren. The Goren group (goren-lab.github.io) focuses on epigenomic mechanisms and their dynamics during development and cell cycle. This position offers an exciting opportunity to direct a project to develop a method that will transform the field of chromatin biology. The successful candidate will become a member of the vibrant UCSD genomics/epigenomics community, and will focus on cutting edge research in genomic regulation. Finally, this project will provide a key opportunity for lead authorship on high-impact papers merging technology innovations and basic biology.

Qualifications Required/Academic Background

We are looking for a highly motivated and independent post-doctoral scholar with a Ph.D. in molecular biology or epigenomics to be a scientific driver of this ambitious project. In particular, the successful candidate should have these qualifications:

- Ph.D. in Biology, Molecular Biology, Epigenetics or a related discipline.
- Experience in molecular biology techniques, preferably epigenetic and genomic.
- Ability to communicate scientific material and collaborate well.
- Creativity, high motivation and independence.
- Desire to work in a dynamic, multidisciplinary research environment.
- Ability and will to drive and lead a project.

Application Procedure

Interested individuals should email a cover letter and their resume with names and contact information of at least three references to: Alon Goren, PhD, email: agoren@ucsd.edu. Please do not include reference letters in the application.