Both DNA sequence and the organization of DNA associated proteins are transmitted during cell divisions. This organization is disrupted during the cell cycle, and the original structure of chromatin must be restored after each cell division, a process termed ‘epigenetic memory’. This project, in collaboration with the Simon and Gymrek labs, focuses on the mechanisms that provide cellular epigenetic memory. We merge cell cycle synchronization methods, automated ChIP-seq and computational framework to model temporal dynamics of CRs and histone modifications during the cell cycle and predict critical regulators of cell cycle epigenomic maintenance. We will functionally evaluate these predictions using an inducible degradation system to perturb specific CRs and then follow the dynamics of the histone modifications in the perturbed cells.

We are looking for a post-doctorate researcher to develop a novel method for simultaneous mapping of the genomic location of multiple DNA-associated proteins.

We are part of the <a href="http://bioinformatics.ucsd.edu/"> Bioinformatics and Systems Biology</a> and <a href="http://biomedsci.ucsd.edu/">Biomedical Sciences (BMS)</a> graduate programs at UCSD and are accepting rotation students. Interested graduate, undergraduate, or masters students from other programs are welcome to get in touch.

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