Project 1.10. Spatiotemporal dynamics of interactions between DNA regulatory elements

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WWW: https://pekowskalab.github.io

Background: The human body consists of over two hundred different tissues, and one of the biggest questions in modern biology is how such tremendous cellular complexity is generated during development and maintained in adulthood. A set of genes active in a given cell type defines its identity. The adequate level of gene expression results from cooperation between DNA regulatory elements (DRE). DREs include promoters, enhancers, silencers, and insulators. It is widely recognized that the functional dialogue between DREs relies on the establishment of direct physical contacts between the cognate DRE elements. However, the dynamics of these interactions in development is largely unknown.

Aim: Estimation of the dynamics of chromatin loop formation in development

We are seeking a highly motivated, talented, and creative scientist to join our group. The PhD student will use CRISPR-Cas9 technology to introduce genetic elements that will allow docking of fluorescent proteins into the genome. Then, using imaging, the person will determine the dynamics of interaction between selected regulatory elements during the differentiation of embryonic cells towards neuronal lineage.

Requirements:

- master's degree in molecular biology, biotechnology, biochemistry, biophysics or neurobiology
- outstanding commitment to science (documented by trainings and/or internships in research institutes)
- ability to work independently
- systematic working style
- excellent lab-work reporting skills
- good spoken and written English
- programming skills are a plus (image processing or bioinformatics).