Wanted: highly motivated and creative students for M.Sc. or PhD

Central research topic:

The identity of eukaryotic cells is defined by the correct temporal and spatial expression of specific genes. The first step in the selective expression of any gene is the ability to single it out from among all the others genes in the genome. This ability, which lies at the heart of many cellular processes, invariably requires the interactions of proteins with DNA molecules.

How do proteins recognize their specific binding sites?

Protein–DNA interactions proceed through an induced-fit mechanism, similar to the induced-fit mechanism of enzyme action. Therefore, both the DNA and the protein are not passive players, but have active roles, dictated by their structural plasticity.

Is there a code for protein-DNA interactions?

We study these questions currently in two important systems: p53/DNA system – an important tumor suppressor protein, and hence the answers may benefit research on diagnostics and therapy for cancer, and NF-kB/DNA system, which is an important system in inflammation research.

We use cutting edge high-throughput techniques (Selex-seq, combined with next-generation sequencing) to study protein/DNA interactions together with novel biophysical techniques to study the mechanical properties of the DNA double helix.

Motivated students with backgrounds in Biology, Physics, or Chemistry are welcome to apply.

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