THE NUCLEAR PORE COMPLEX IN TRANSCRIPTIONAL REGULATION AND EPIGENETIC MEMORY

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RESEARCH ABSTRACT

My lab is interested in how the genome is organized inside the nucleus and how this organization contributes to functional regulation of gene activity, a subject matter highly relevant to understanding cellular control of developmental differentiation, aging and pathology. Our recent work provided one of the first demonstrations that components of the Nuclear Pore Complex bind and functionally regulate genes undergoing developmental activation, thus uncovering a novel mechanism of coupling nuclear structure to gene expression. Our current model envisions Nuclear Pores as active participants in the establishment and maintenance of chromatin organization through physical interactions with specific regions of the genome. Using our approaches of Drosophila genetics, chromatin mapping and high-resolution microscopy, we are well positioned to understand how these interactions are mediated, how they can change in development or disease states, and how they influence the establishment and inheritance of gene expression patterns.

Publications

