



RNA Innovation Seminar
Monday, April 2nd at 3:00pm
ABC Seminar rooms, Biomedical Research
Science Building (BSRB), 109 Zina Pitcher

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Developmental Biology

“Unveiling metamorphosis: Examining chromatin and gene expression dynamics and their coordination with the cell cycle in the developing *Drosophila* wing”

Abstract:

States of cellular withdrawal from the cell cycle or G0 can range from readily reversible to permanently postmitotic. We are interested in how different states of G0 are controlled during development and why some are more reversible than others. Emerging evidence suggests a close relationship between a repressive chromatin structure and the silencing of cell cycle genes during the postmitotic state, but whether there are differences in the chromatin state between reversible and permanent cell cycle exit remains unclear. We have focused our studies on the *Drosophila* pupal wing at a stage where the cells transition from active proliferation to a postmitotic state. We find there are two stages of G0 in this tissue, a flexible G0 period where cells can be induced to re-enter the cell cycle under specific genetic manipulations and a state we call “robust”, where cells become strongly refractory to cell cycle re-entry. We find that upon robust G0, key enhancers of specific cell cycle genes become occupied by nucleosomes, likely blocking the access of transcription factors. This emphasizes a role for nucleosome remodeling complexes in establishing and maintaining a robust G0 state.