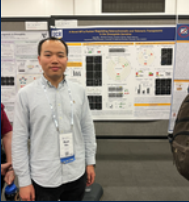


BCH 252 Seminar Series



**Kun Wu, Biochemistry & Molecular Biology
Graduate Student, UC Riverside**

**Seminar Title: “a Novel HP1 Partner Regulating
Heterochromatin and Telomeric Transposons
in the *Drosophila* germline”**

Abstract: Heterochromatin is a basic component of eukaryotic chromosomes that occupies repeat-rich and gene-poor genomic regions around centromeres, telomeres, and some interspersed islands, characterized by a high density of nucleosomes and low transcriptional activity. Despite its critical roles in maintaining genome integrity and transcriptome fidelity, the mechanisms that govern the organization and function of heterochromatin are still not fully elucidated. Here, we uncover a previously unexplored protein interactor of the central heterochromatin effector Su(var)205/HP1a in the *Drosophila* female germline. We demonstrate that this protein engages through its large intrinsically disordered region with the hinge domain of HP1a and is recruited to mirror HP1a binding patterns, including occupancy of centromeres, telomeres, and piRNA clusters. Null mutants generated by CRISPR/Cas9 excision are viable, but display age-related decline in female fertility and telomeric transposon upregulation in the ovary. Further genetic and molecular characterization of this factor led to a model that it acts downstream of HP1a and contributes to the silencing of certain heterochromatin loci. Interestingly, we also found that the physiological levels of this protein are maintained through an autoregulatory mechanism, while its ectopic overexpression in nurse and somatic cells triggers aggregation and nuclear exclusion, underscoring a delicate balance in normal heterochromatin homeostasis. Together, these findings provide novel insights into the regulation and function of germline heterochromatin essential for preserving the genome integrity and fertility.

Tuesday, April 22nd, 2025 12:00 p.m. - 12:50 p.m. PST

In-Person: Genomics Auditorium 1102A

Host: Dr. Maria Ninova / Gregor Blaha