



**UNIVERSITY OF
GEORGIA**

College of Pharmacy

*Pharmaceutical &
Biomedical Sciences*

Dr. Mary Goll

February 7, 2018

11 a.m.

Pharmacy South 101

“Chromatin Dynamics During Early Development”

Dr. Goll holds a Ph.D. from Columbia University in Genetics and Development. She is a current American Cancer Society Research Scholar and Assistant Professor in the Department of Genetics at the University of Georgia. Her laboratory is interested in how epigenetic information shapes vertebrate development and influences disease pathology. In particular, they are interested in heterochromatin, a nucleoprotein structure associated with DNA compaction and transcriptional repression.

Heterochromatin has important functions in promoting effective nuclear organization, maintaining genome integrity, and stabilizing gene expression programs. However, the mechanisms that control the establishment of this repressive chromatin structure are not fully understood, particularly in the context of vertebrate development. Here, we demonstrate that the early zebrafish embryo possesses a uniquely decondensed chromatin structure lacking hallmarks of canonical heterochromatin. We find that prior to the midblastula transition, embryonic chromatin is devoid of condensed ultrastructure and lacks histone modifications associated with heterochromatin. My group is now using this system to gain insights into the mechanisms of heterochromatin establishment during vertebrate development. We have several candidate-based screens underway, which have revealed novel regulators of chromatin compaction in the vertebrate embryo. Our latest unpublished findings will be presented.

