Zic Transcription Factors that Influence Convergent Extension

Jocelyn Waggoner *, Cell Biology and Neuroscience, Montana State Univeristy, Bozeman

*Indicates Presenter

**Indicates Student Presentation

My research is focused on a specific time frame during embryonic development called gastrulation, in which intricate cell movements give rise to the ectoderm, mesoderm and endoderm layers of the embryo. The mesoderm layer undergoes movements called convergent extension, which allow cells to intercalate and move inside the embryo. The Zic family of zinc-finger proteins have a crucial role in gastrulation and neurulation. Based on findings from our lab (K. See and Merzdorf, in preparation) and others (Cast et al., 2012), I hypothesize that zic genes are required for convergent extension during gastrulation. Since there are 5 different, but very similar, zic genes, I will test each of these genes for a role in convergent extension during gastrulation. A knockdown method for each of the 5 zic genes in embryos of the model organism Xenopus laevis will be combined with a method called Keller Explants to allow analysis of convergent extension. In my experiments, I have ruled out zic 2 as a regulator of convergent extension. My current hypothesis is that zic3 is the most likely candidate because of its known roles in neural tube formation and other reasons I will explain below. I am also analyzing zic1,4, and 5 for convergent extension regulation.