



HARVARD
FAS Center for Systems Biology



Department of
Systems Biology

Undergraduate Summer Internship in Systems Biology

Internship Project Description: Summer 2018

Project Title: How does an embryo extend its anterior-posterior axis during development?

Supervisor Name: Evi Van Itallie

Lab PI Name: Marc Kirschner

Project Description: How does an embryo extend its anterior-posterior axis during development - transforming from a sphere to an ellipsoid? In many different organisms the non-canonical Wnt signaling pathway(s) has been identified as necessary for this event, but we don't know how the pathway controls the physical behavior of the cells that rearrange during this process. To address this gap, we are using the *Xenopus laevis* embryo and mass spectrometry to quantify how non-canonical Wnt pathway activity changes the phospho-proteome during early development.

As a summer intern on this project you will have the opportunity to analyze proteomics data, validate data-generated hypotheses with experiments, and investigate a quirky feature of the non-canonical Wnt pathway present in many non-mammalian vertebrates. Any background is welcome but enthusiasm to perform "wet-lab" experiments with embryos is a must as is willingness to try handling adult frogs.