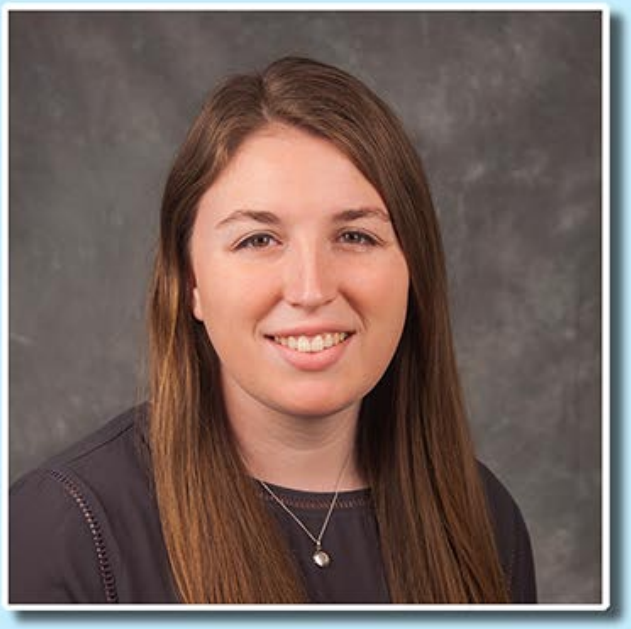
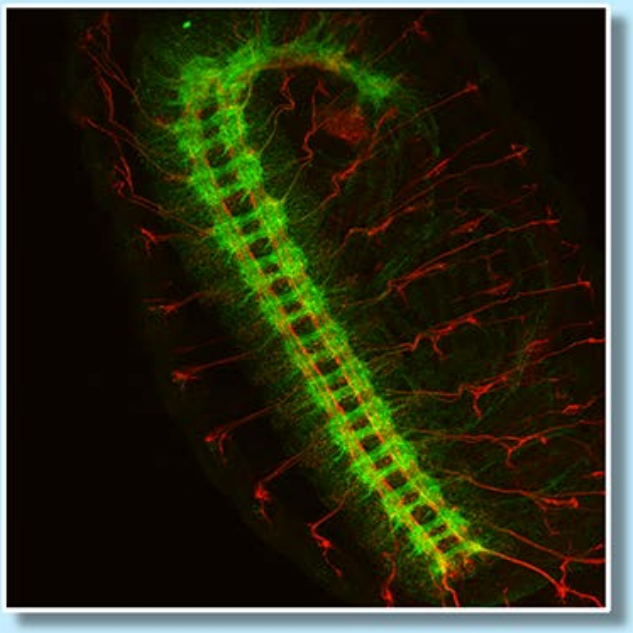


Alison Bonner

Faculty Research Mentor: Dr. Mark Peifer
Department of Biology



Drosophila **Ventral Nerve Cord**
(green: BP102, red: Fas-II)

Characterizing the Role of Crk in Central Nervous System Development in *Drosophila*

Coordinated cell adhesion and actin remodeling are required for normal development and tissue homeostasis. Crk family proteins, including Crk and Crk-like (Crk-L), are a well-conserved family of small adaptor proteins that play a role in cell adhesion, migration, and other biological processes during normal development. Crk also plays a role in various cancers, including invasive bladder cancer, and Crk-L is a key mediator of oncogenic forms of Abelson tyrosine kinase (Abl), a highly conserved developmental regulator, in Leukemia. Previous research showed that Abl has well-defined roles in central nervous system (CNS) patterning, so it was hypothesized that Crk is required for proper CNS patterning. To test this hypothesis, RNAi was used to deplete Crk, both maternally and zygotically, and the effects on embryonic viability and CNS patterning were examined. Crk depletion resulted in higher lethality in embryos, most of which had disrupted CNS patterning. Similar CNS patterning disruption had been observed in *abl* maternal/zygotic mutants. Additionally, zygotic loss of *crk* results in partially penetrant CNS patterning defects. Characterizing Crk's role in CNS development and other morphogenic processes can help to gain a better understanding of Crk's role in cancer and other disease states in which developmental regulatory programs and cell behaviors are misregulated.