

## **Dr. Eric Birgbauer's Research Interests**

Research interests: **Development of the nervous system.** During the process of development, the fertilized egg, a single cell, divides and differentiates into all the tissues and organs of the developing organism. From a developmental perspective, this is extremely amazing in the nervous system, as the nervous system needs to form from nothing (de novo) and then connect itself up into a highly intricate and precisely functioning system. This is accomplished throughout the process of development. Nerve cells, known as neurons, are derived from stem cells which differentiate. After the nerve cells are formed, they then send out long processes known as axons. These axons must navigate through a variety of intervening tissues to connect up to the correct targets where they form connections, known as synapses. I am interested in the question of how do these axons know where to go and where to connect? Specifically, I am interested in what the molecular cues in the tissue environment are that these axons use to determine the correct pathway and target and how these cues work to guide the axons.