Research Interests

One of the remarkable features of the brain is the exquisite precision with which neurons assemble into neural circuits. An important aspect of this process is that neurons select and establish synaptic connections with their appropriate postsynaptic partners. The goal of my research is to understand the regulatory programs that instruct the terminal identity of a neuron, and in particular, its synaptic specificity. To address this question my approach is based on the study of closely related neuronal subtypes in the fly and mouse visual system. It is expected that a large fraction of the molecular differences between closely related neuronal subtypes, with shared development and similar function, will be utilized to generate specific patterns of connectivity. I am currently focusing on the use of whole genome approaches (RNAseq) to identify molecular differences between closely related neuronal subtypes. With the power of genetics I expect to identify cell-type specific gene batteries determining synaptic specificity and with the study of their cis-regulatory regions gain an insight into the transcriptional strategies that bring about specific connectivity patterns.

Relevant Publications.


