MARK PLITT, Ph.D.

LABORATORY OF DR. YVETTE FISHER
DEPARTMENT OF MOLECULAR AND CELL BIOLOGY
UNIVERSITY OF CALIFORNIA, BERKELEY

JANE COFFIN CHILDS FELLOW

As we learn new behaviors, we still have to remember old behaviors as well. Thus there is a tension between the flexibility in learning and the stability of maintaining behaviors. Dr. Mark Plitt proposes that neural circuits resolve this tension by using neuromodulation to adaptively switch between stable and labile states. He will investigate these questions in Dr. Yvette Fisher's lab at the University of California, Berkeley. There, Dr. Plitt will use a fly's head direction circuit – a neuronal representation of the fly's orientation in space – to investigate the tradeoffs between flexibility and stability. Dr. Plitt predicts that different neurotransmitters will reinforce learning and maintenance of memory. By developing this powerful model system, Dr. Plitt hopes to uncover physiological and computational principles that govern flexible learning.

As a graduate student in Dr. Lisa Giocomo's lab at Stanford University, Plitt investigated hippocampal "place" cell remapping – a cellular process that encodes an animal's memory-guided navigation. Specifically, Dr. Plitt demonstrated that hippocampal remapping patterns are predictably driven by an animal's prior experience. This expertise in memory establishment will assist Dr. Plitt in investigating the tradeoff between stability and flexibility during adaptive learning.

FELLOW