REENA CLEMENTS
Oregon Health and Science University, Neuroscience Graduate Program

Degree:
BA Neuroscience, Boston University

Advisor's name:
Kevin Wright, Ph.D.

Scholar Donors:
Lynn and Steve Pratt

About the Scholar:
Reena is interested in studying how neurons in one part of the brain extend their axons to synapse in distant target areas, a phenomenon known as axon guidance. Her lab recently discovered a novel role for a protein, dystroglycan, in axon guidance. When dystroglycan is mutated or lost, many types of neurons lose their pathfinding abilities. Reena's project is focusing on the effects of this mutation in the visual system. Ganglion cells, the output projection cells in the retina, send their axons out of the eye to project to downstream targets such as the superior colliculus and thalamus. Reena has found that the mutation renders ganglion cells unable to extend their growing axons along normal pathways though the visual system. She is currently working on characterizing the molecular and anatomical bases for this defect in order to gain insight into how functional neural circuits form during development.

Benefits to Society:
Mutations involving dystroglycan cause a type of congenital muscular dystrophy called dystroglycanopathy in humans. Human patients with dystroglycanopathies have many neurodevelopmental defects including diminished visual function. Reena's research will provide an understanding of the types of signaling and axon pathfinding that are disrupted in these patients that could direct future efforts for therapies.

Awards and Honors:
National Science Foundation Graduate Research Fellowship Program (NSF GRFP)
Phi Beta Kappa
Summa cum laude, Boston University
Graduated with honors in Neuroscience, Boston University

Publications and Posters:
Clements, R., N. Rycroft, and J. Atema. "Antennule flick rate as an assay for detection of novel social odors in lobsters." Society for Neuroscience Annual Meeting 2013, San Diego, CA.
Clements, R., N. Rycroft, and J. Atema. "Establishing Antennule Flick Rate as an Assay for Odor Detection in Lobsters." Society for Integrative and Comparative Biology Annual Meeting 2013, San Francisco, CA.
Clements, R., T. Miyashita, O. Pourzia, and D. Feldman. "Inhibitory plasticity and neural projections in somatosensory cortex in rodents." University of California, Berkeley Amgen Scholars Summer Research Symposium and Boston University UROP Symposium. August and October 2012.
Clements, R. and T. Schultz. "A genomic analysis of circatidal rhythms in crab systems." Duke Marine Lab Summer Research Symposium. August 2011.
Clements, R., N. Akula, L. Pfeifer, and F. J. McMahon. "Do Different Risk Variant Frequencies Across Populations Lead to False Genome-Wide Association Study Findings?" NIH Summer Research Program Poster Symposium and Boston University UROP Symposium. August and October 2010.