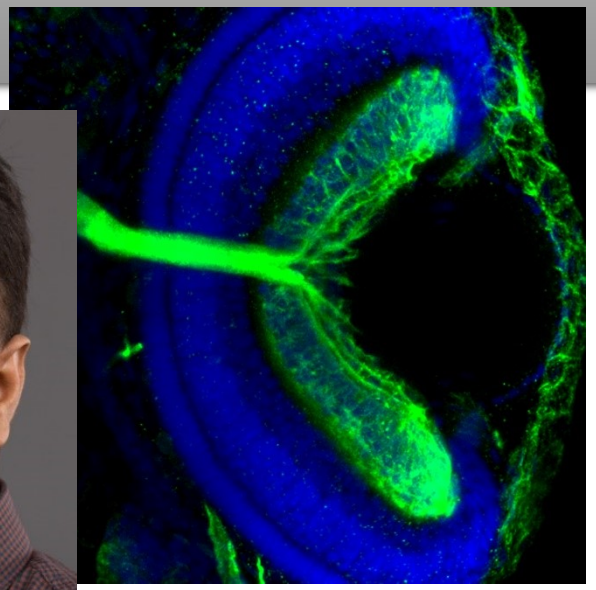
The Role of Nox-derived ROS in neuronal development and regeneration



Reactive oxygen species (ROS) are well known for their detrimental effects leading to oxidative stress, cell death, aging, and degenerative disorders. However, there is increasing evidence that ROS are also specifically produced to regulate cellular processes including cell proliferation, differentiation, and migration. Our group has recently demonstrated that ROS are critical for neurite outgrowth and actin-dependent growth cone motility in cultured *Aplysia* neurons. In order to investigate the role of ROS derived from NADPH oxidase (Nox), a major ROS source, we moved our research into a new model system, developing zebrafish embryos. Using pharmacological inhibition of Nox as well as zebrafish that are deficient in specific Nox isoforms, we found that ROS produced by Nox2 are critical for the development of retinotectal connections. Interestingly, preliminary data further indicates that Nox-derived ROS also play a role in axonal regeneration. Our talk will focus on ROS regulation of axonal growth, guidance, and regeneration.

Featuring Dr. Daniel Suter and Sabbir Alam, Biological Sciences

Research Spotlight Series:
Wednesday 3/10 @ 9:30am here on Zoom

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