

Dean's Award Lecture

in Neuroscience



Walking the Highwire from Synaptic Growth to the Axonal Injury Response

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**8th Floor
Neuroscience Center
of Excellence
Conference Room**

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The DiAntonio laboratory investigates molecular mechanisms that control the structure and function of neural circuits in development and disease. They combine genetic, molecular, neuroanatomical, and electrophysiological studies in both *Drosophila* and mouse to identify pathways required for the development and maintenance of axons and synapses. Their studies have identified a central role for the ubiquitin ligase Highwire/Phr1 and its regulation of a MAP kinase signaling cascade in controlling developmental synaptic plasticity. They have discovered that these developmental pathways are also key regulators of the axonal injury response, controlling both the degenerative and regenerative response of injured axons.