

PIONEERS IN BIOMEDICAL RESEARCH SEMINAR

Presented by the Fralin Biomedical Research Institute at VTC, and co-sponsored by the institute's Center for Neurobiology Research



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In Person Seminar: Brainstem Serotonin Neurons Selectively Gate Retinal Information Flow to Thalamus

In this talk, Dr. Andermann will describe his lab's recent studies testing the hypothesis that neuromodulators might efficiently determine which visual information streams reach the cortex, by selective gating of transmission at specific retinal ganglion cell (RGC) axons in the thalamus. The lab found that optogenetic stimulation of serotonergic axons in visual thalamus of awake mice suppressed calcium activity and glutamate release in RGC boutons. Two-photon calcium imaging revealed that serotonin axon stimulation suppressed RGC boutons preferring global changes in luminance more than those preferring local visual stimuli, while the converse was true for suppression induced by increases in arousal. Convergent evidence from brain slice electrophysiology, immunohistochemistry, single cell sequencing and retinal electrophysiology indicates that presynaptic 5-HT_{1B} receptors are enriched in RGC boutons preferring global luminance changes. Together, these data suggest a mechanism by which brainstem serotonin axons differentially suppress specific streams of visual information before they reach thalamocortical neurons.

FRIDAY, JAN. 20, at 11 a.m.

Room G101 A/B, 4 Riverside Circle, or watch via Zoom at <https://fralinbiomed.info/PBR-Join>, or via live webcast at <https://fbri.vtc.vt.edu/events/live-webcast.html>.



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