

The Axon in Neural Trauma and Degeneration

October 8

Tuesday, 12:30 pm

Weekly Colloquium

Billings Building
Rosedale Conference Room



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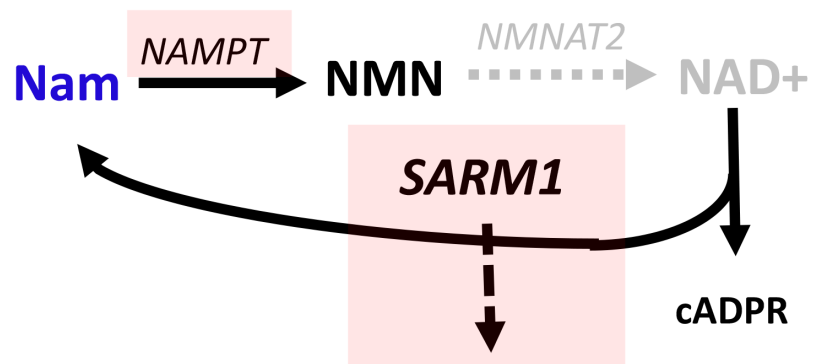
Host: Rajiv R. Ratan, M.D., Ph.D.

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Abstract

Diffuse axonal injury is a principal pathology in traumatic brain injury (TBI) and the resulting axonal loss, disconnection, and brain atrophy contribute significantly to clinical morbidity and disability. In the last decade, we have identified molecular signals that trigger axonal degeneration, including SARM1 and the DLK/LZK MAPK cascade, and we have found that such signals operate in models of TBI. In addition, we can target select enzymes in these pathways with genetic and small-molecule strategies. The partial nature of injury in many traumatized axons and our ability to target axon-destruction pathways opens up new therapeutic opportunities for TBI and neurodegenerative disease.



1. Ziogas NK and Koliatsos VE. Primary traumatic axonopathy in mice subjected to impact acceleration: a reappraisal of pathology and mechanisms with high-resolution anatomical methods. *J Neurosci.* 2018 Apr 18;38(16):4031-4047.
2. Xu L, Ryu J, Nguyen J, Arena J, Rha E, Vranis P, Hitt D, Marmarou C, Marsh-Armstrong N and Koliatsos VE: Evidence for accelerated tauopathy in the retina of transgenic P301S tau mice exposed to repetitive mild traumatic brain injury. *Exp. Neurol.* 273:168-176, 2015
3. Xu L, Schaefer ML, Linville RM, Aggarwal A, Mbuguiro W, Wester BA and Koliatsos VE: Neuroinflammation in primary blast neurotrauma: time course and prevention by torso shielding. *Exp. Neurol.* 277:268-74, 2016.