



## Vassili E. Koliatsos, M.D.

### Titles & Department

Professor of Pathology, Professor of Neurology, Professor of Psychiatry and Behavioral Sciences

### Specialization Areas

Alzheimer's disease, Axonal degeneration, cellular therapies, pharmacological therapies, traumatic brain injury, and white matter degeneration.

### Summary of Research & Work

The long processes of neurons termed axons are the main element of nerves and the white matter of the brain. Because of their extension away from cell bodies, they have developed substantial molecular autonomy, and mechanisms by which they break down and degenerate are different than the ones used by cell bodies. Although difficult to study, axons are at the heart of many neurological disorders, from traumatic brain injury to neuropathies, and recent progress in understanding their molecular mechanisms of degeneration including work in our lab presents unprecedented opportunities for the development of novel therapeutics with broad implications for neurology.

### Publications

- Koliatsos VE, Alexandris A: *Wallerian degeneration as a therapeutic target in traumatic brain injury*. Current Opinion in Neurology, 2019; 32(6):786-795
- Koliatsos VE, Alexandris A: *NAD<sup>+</sup>, Axonal Maintenance, and Neurological Disease*. Antioxid Redox Signal, in press
- Welsbie DS, Ziogas NK, Xu L, Kim B-J, Ge Y, Patel AK, Ryu J, Lehar M, Alexandris AS, Stewart N, Zack DJ, Koliatsos VE. *Targeted disruption of dual leucine zipper kinase and leucine zipper kinase protects CNS neurons in diffuse traumatic brain injury*. Mol Neurodegener. 2019 Nov 27;14(1):44
- Alexandris AS, Ryu J, Rajbhandari L, Harlan R, McKenney J, Wang Y, Aja S, Graham D, Venkatesan A, Koliatsos VE. *Protective effects of NAMPT and MAPK inhibitors on the Wallerian degeneration of mammalian axons: mechanisms and synergies*. Neurobiol Dis 2022 Sep;171:105808. doi: 10.1016/j.nbd.2022.105808
- Alexandris AS, Lee Y, Lehar M, Alam Z, McKenney J, Perdomo D, Ryu J, Welsbie DS, Zack DJ, Koliatsos VE. *Traumatic axonal injury in the optic nerve: the selective role of SARM1 in the evolution of distal axonopathy*. J. Neurotrauma 2023 Mar 14. doi: 10.1089/neu.2022.0416.