Understanding the Multicellular Response to Injury in the Mouse Spinal Cord

November 12

Tuesday, 12:30 pm

Weekly Colloquium

Billings Building
Rosedale Conference Room

Speaker: Binhai Zheng, Ph.D.
Professor, Department of Neurosciences
Director, Microscopy Imaging Core
UC San Diego School of Medicine
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Host: Yutaka Yoshida, Ph.D.

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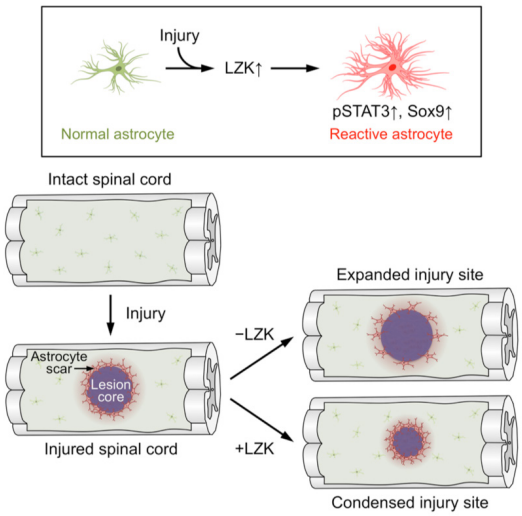
Abstract

Our lab studies the mechanisms of axon regeneration and sprouting after central nervous system (CNS) injury using mouse models of spinal cord injury. We started with the myelin-derived inhibitors and recently shifted focus to neuron-intrinsic pathways such as Pten/mTOR and MAP3Ks. We documented an age-dependent decline in axon regeneration and illustrated a multicellular role for the MAP3K12/13 pathway after CNS injury. Our in vivo imaging data supports a synaptic suppression hypothesis of axon regeneration.



1. Lorenzana AO, Lee JK, Mui M, Chang A, Zheng B. A surviving intact branch stabilizes remaining axon architecture after injury as revealed by in vivo imaging in the mouse spinal cord. Neuron. 2015 May 20;86(4):947-954.
2. Geoffroy CG, Hilton BJ, Tetzlaff W, Zheng B. Evidence for an Age-Dependent Decline in Axon Regeneration in the Adult Mammalian Central Nervous System. Cell Rep. 2016 Apr 12;15(2):238-46.
3. Chen M, Geoffroy CG, Meves JM, Narang A, Li Y, Nguyen MT, Khai VS, Kong X, Steinke CL, Carolino KI, Elzière L, Goldberg MP, Jin Y, Zheng B. Leucine Zipper-Bearing Kinase Is a Critical Regulator of Astrocyte Reactivity in the Adult Mammalian CNS. Cell Rep. 2018 Mar 27;22(13):3587-3597.

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