Motor Cortex and Spinal Cord Neuromodulation to Promote Motor Function After Injury

December 17

Tuesday, 12:30 pm

Weekly Colloquium

Billings Building
Rosedale Conference Room

Speaker: John H. Martin, Ph.D.
Professor, Molecular, Cellular and Biomedical Sciences
Behavioral and Cognitive Neuroscience
The City College of New York
New York, NY

Host: Yutaka Yoshida, Ph.D.

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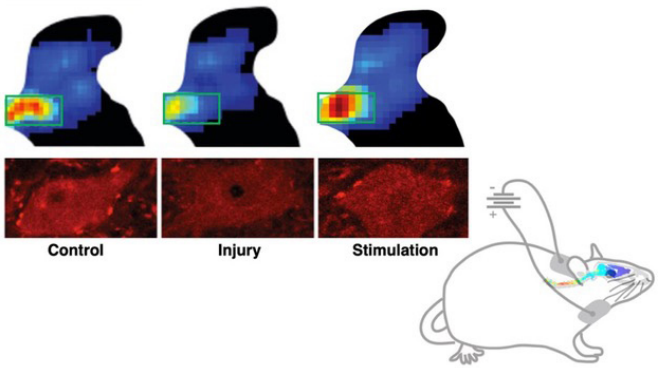
Abstract

Dr. John (Jack) Martin is a Medical Professor at the City University of New York School of Medicine and the City College of New York's Center for Discovery and Innovation. He received his Ph.D. in neurophysiology from Columbia University and received postdoctoral training at Rockefeller and Columbia Universities. Dr. Martin's laboratory studies the neural circuits for movement from the dual perspectives of development and repair. His neural repair research leverages neuromodulatory strategies to promote durable plasticity to repair corticospinal system damage after injury and to restore movement control. His laboratory has discovered that CST neurons can be promoted to sprout axons and make functional connections after injury by increasing their activity, using electrical stimulation. This stimulation, in turn, promotes recovery of function after a brain or spinal cord injury.



1. Jiang Y, Sarkar A, Amer A, Martin J. Transneuronal down-regulation of the premotor cholinergic system after corticospinal tract loss. J Neurosci (2018) 38(39):8329-8344
2. Zareen N, Dodson S, Armada K, Awad R, Sultana N, Hara E, Alexander H, Martin JH. Stimulation-dependent remodeling of corticospinal tract axons and connections require reactivation of growth-promoting developmental signaling pathways. Experimental Neurology Exp Neurol (2018) 307:133-144.
3. Jiang Y, Zaaimi B, Martin JH. Competition with primary sensory afferents drives remodeling of corticospinal axons in mature spinal motor circuits. J Neuroscience (2016) 36:193-203.

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