

Harnessing Neuroplasticity Following Spinal Cord Injury

July 9

Tuesday, 12:30 pm

Weekly Colloquium

Billings Building
Rosedale Conference Room



Speaker: Karim Fouad, Ph.D.
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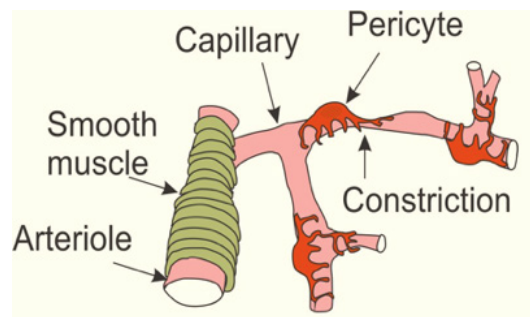
Host: Edmund Hollis II, Ph.D.

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Abstract

Over the last decade the view that the adult central nervous system is a rigid construct, and that there is no recovery following its injuries has been revised. My work has focused on understanding spinal cord injury induced neuroplasticity in order to harness this naturally occurring repair process into treatments. This quest had started on a straight forward path by focusing on rewiring of injured axons, however quickly developed into an odyssey involving adaptive changes (beneficial and detrimental) at various anatomical and physiological levels, far beyond the central nervous system. Such changes include, changes in neuronal properties, to hypoxia in the spinal cord and gut dysbiosis. The many pieces of the puzzle of spinal cord injury induced plasticity opens up various new treatment approaches.



1. Torres-Espin A, Forero J, Fenrich KK, Lucas-Osma AM, Krajacic A, Schmidt E, Vavrek R, Raposo P, Bennett DJ, Popovich PG, Fouad K (2018) Eliciting inflammation enables successful rehabilitative training in chronic spinal cord injury. *Brain*, 141(7):1946-1962
2. Li Y, Lucas-Osma AM, Black S, Bandet MV, Stephens MJ, Vavrek R, Sanelli L, Fenrich KK, Dinarzo A, Dracheva S, Winship IR, Fouad K and Bennett DJ (2017) Chronic ischemic hypoxia after spinal cord injury: Pericytes impair capillary blood flow and motor function after chronic spinal cord injury. *Nat Med* 23(6):733-741
3. Wiersma A, Fouad K, Winship I (2017) Enhancing spinal plasticity amplifies the benefits of rehabilitative training and improves recovery from stroke. *J Neurosci* 8;37(45):10983-10997