

Weekly Colloquium

Tuesday, 10/17/2017, 12:30pm, Billings Building – Rosedale Conference Room

“Critical determinants of sensory nerve regeneration”

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Research Abstract:

My lab carries out two lines of translation-oriented research using clinically relevant mouse models, aiming to restore motor and sensory functions after peripheral nerve injury or spinal cord root injury. Although it is commonly believed that the peripheral nerve regenerates, recovery from human nerve injuries typically takes months to years, and is incomplete in >90% of cases. The poor functional recovery in humans is primarily because peripheral axons fail to regenerate over long-distances. Moreover, injuries in dorsal root sensory nerves almost certainly lead to the loss of sensation, because sensory axons fail to regenerate into spinal cord. In the first line of research, we aim to promote long-distance regeneration and enable regenerating nerves to reach peripheral targets such as muscles. Our approach is to prevent or reverse the atrophy of Schwann cells, which lose the ability to support axon regeneration over time after injury. For the second line of research, we are studying a novel mechanism that prevent regeneration of sensory nerve into spinal cord, while developing unprecedentedly-effective and translatable treatments to enable robust, long and target-specific regeneration of sensory axons within the spinal cord.

Recent Publications

Han SB, Kim HM, Lee HK, Grove M, Smith GM, Son YJ (2017) Post-injury induction of activated ErbB2 selectively hyperactivates denervated Schwann cells and promotes robust dorsal root axon regeneration. *J. Neuroscience* in press

Grove M, Kim H, Santerre M, Krupka AJ, Han SB, Zhai J, Cho JY, Park R, Harris M, Kim S, Sawaya BE, Kang SH, Barbe MF, Cho SH, Lemay MA, Son YJ (2017) YAP/TAZ initiate and maintain Schwann cell myelination. *Elife*. 2017 Jan 26;6. pii: e20982. doi: 10.7554/eLife.20982.

Son, YJ (2015) Synapsing with NG2 cells, unappreciated barrier to axon regeneration? *Neural Regeneration Research* 10:346-8

