“DEVELOPMENT AND REPAIR OF NEURAL CIRCUITS”

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In development, axons are guided to their targets by a large number of directional cues to form neural circuits. Interestingly, we found the same molecular cues are reactivated after traumatic injury in the central nervous system and play similar roles in regulating axon plasticity. I will talk about our latest progress in understanding the growth cone signaling mechanisms in axon guidance and the characterization of the role of axon guidance molecules after spinal cord injury. We found that the highly conserved cell polarity signaling pathways mediate asymmetric signaling in growth cones and that removing repulsive Wnt signaling promotes recovery of proprioceptive functions and fine motor control after spinal cord injury.

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