

Aging-Dependent Immune Mediated Control of Axonal Regeneration and Recovery After Injury

November 23

Tuesday, 12:30pm

Online Webinar

For Researchers



Speaker:

Professor Simone Di Giovanni

*Chair in Restorative Neuroscience
Neurology Consultant (Honorary)
Head of the Division of Neuroscience
Department of Brain Sciences -
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Host: Jian Zhong, Ph.D.

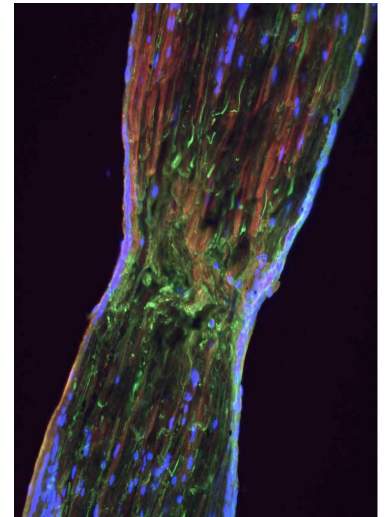
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Abstract

I will talk about a novel aging-dependent mechanism that restricts axonal regeneration after injury. I will show that it involves the role of a specific subset of CD8 T cells in the control of the regenerative ability of sensory neurons. Next I will demonstrate that treatment with monoclonal antibodies that antagonise the recruitment of these immune cells can promote repair and recovery. Lastly, I will discuss the potential broader implications of this discovery beyond the peripheral immune system.



1. Zhou L, Kong G, Palmisano I, Cencioni MT, Danzi M, De Virgiliis F, Chadwick JS, Greg Crawford², Yu Z, De Winter F, Lemmon V, Bixby J, Puttagunta R, Verhaagen J, Pospori C, Lo Celso C, Strid J, Botto M, Di Giovanni S. **Aging causes neuronal regenerative decline via reversible CXCL13-dependent CXCR5/CD8 T cell-neuron communication.** Science. Editing stage. IF: 47,7

2. Kong G, Zhou L, Serger E, Palmisano I, De Virgiliis F, Hutson TH, McLachlan E, Freiwald A, La Montanara P, Shkura K, Puttagunta R, Di Giovanni S. **AMPK controls the axonal regenerative ability of DRG sensory neurons after spinal cord injury.** Nature Metab. 2020 Aug 10. doi: 10.1038/s42255-020-0252-3. IF: 13,5

3. Palmisano I, Danzi MC, Hutson TH, McLachlan E, Zhou L, Serger E, Shkura K, Srivastava PK, Hervera A, O'Neill N, Liu T, Dhrif H, Wang Z, Kubat M, Wuchty S, Merckenschlager M, Levi L, Elliot E, Bixby JL, Lemmon VP, Di Giovanni S. **Epigenomic signatures in dorsal root ganglia underlie differential transcriptional responses between regenerative versus non-regenerative axonal injury.** Nature Neurosci. 2019 Nov;22(11):1913-1924. IF: 24,8

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