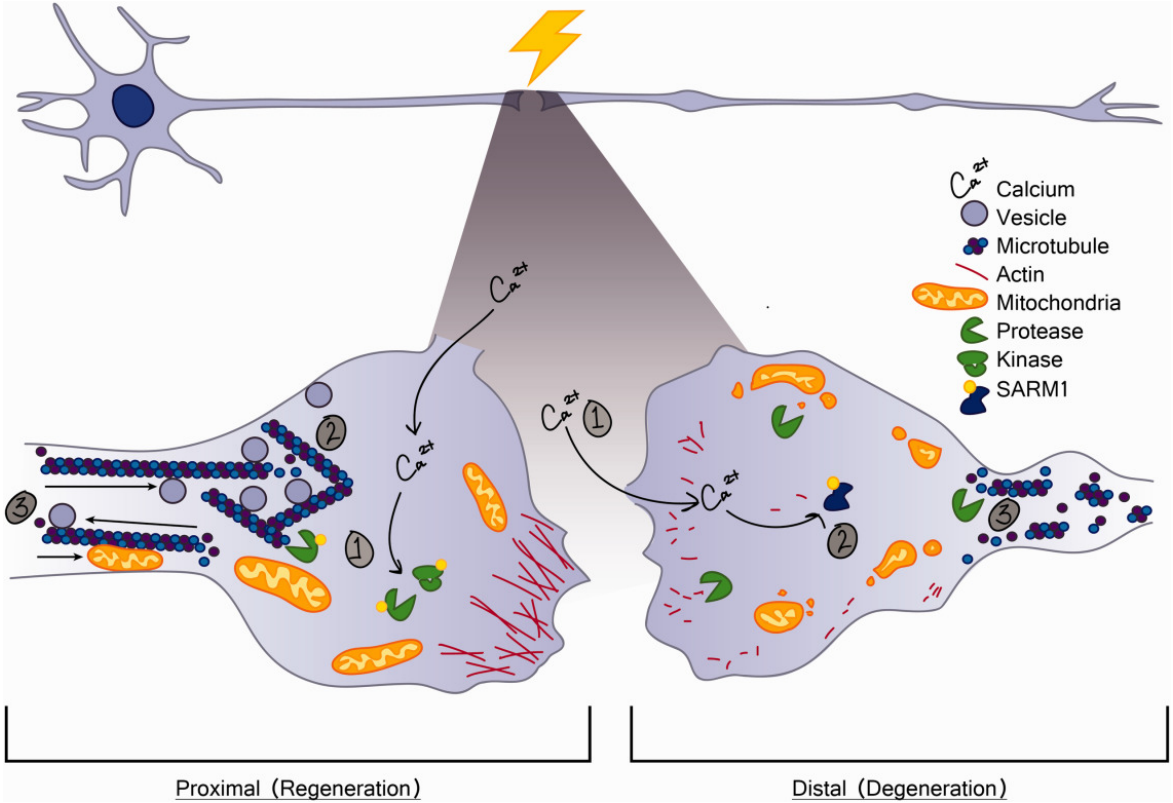
Johns Hopkins Engineering

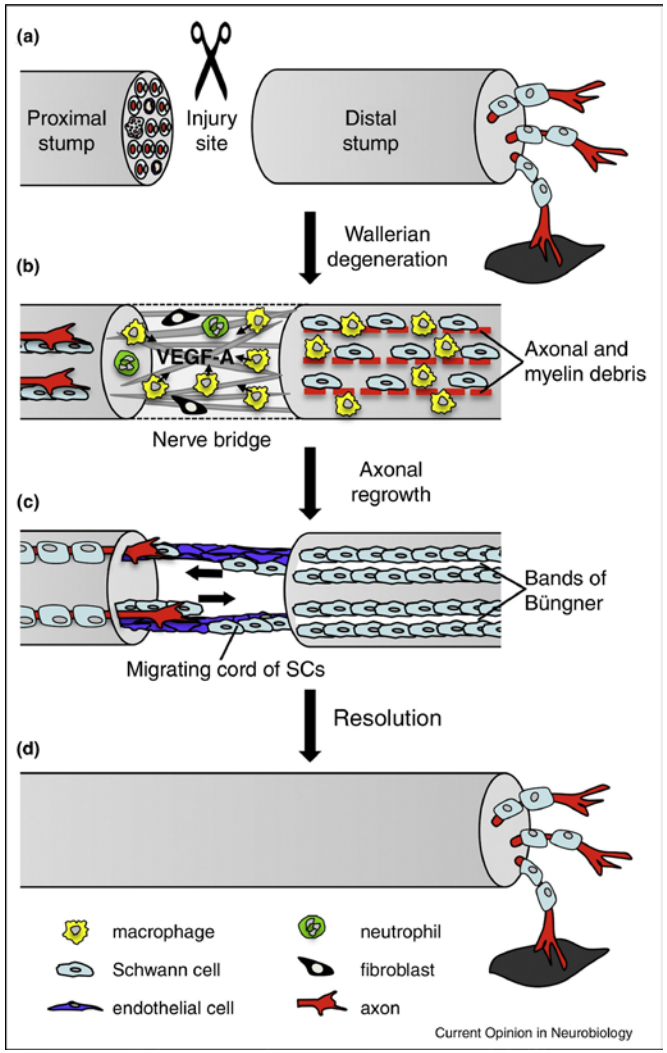
Methods in Neurobiology

Cellular and Molecular Basis of
Peripheral Nerve Regeneration

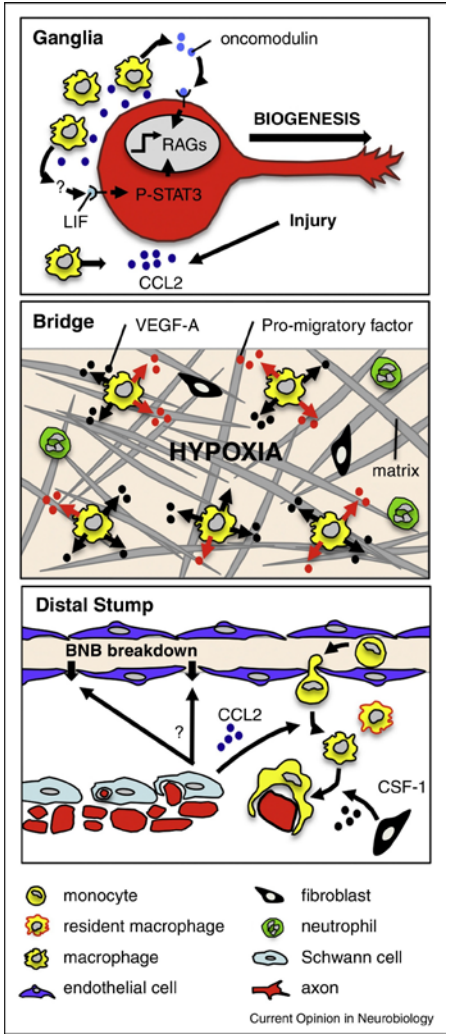
Regeneration of the peripheral nerve (PN)



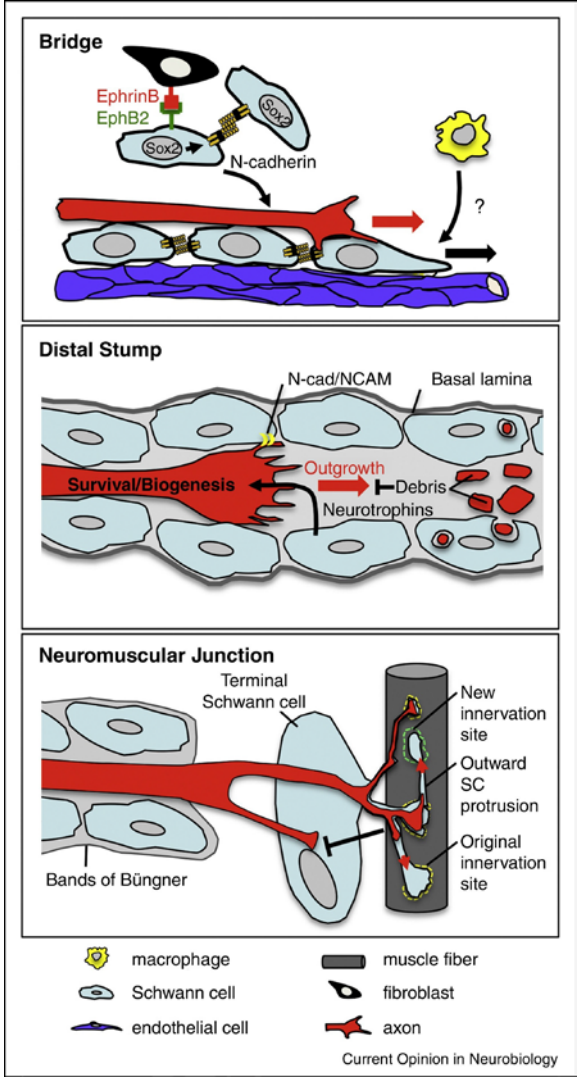
Stages of regeneration in the PN



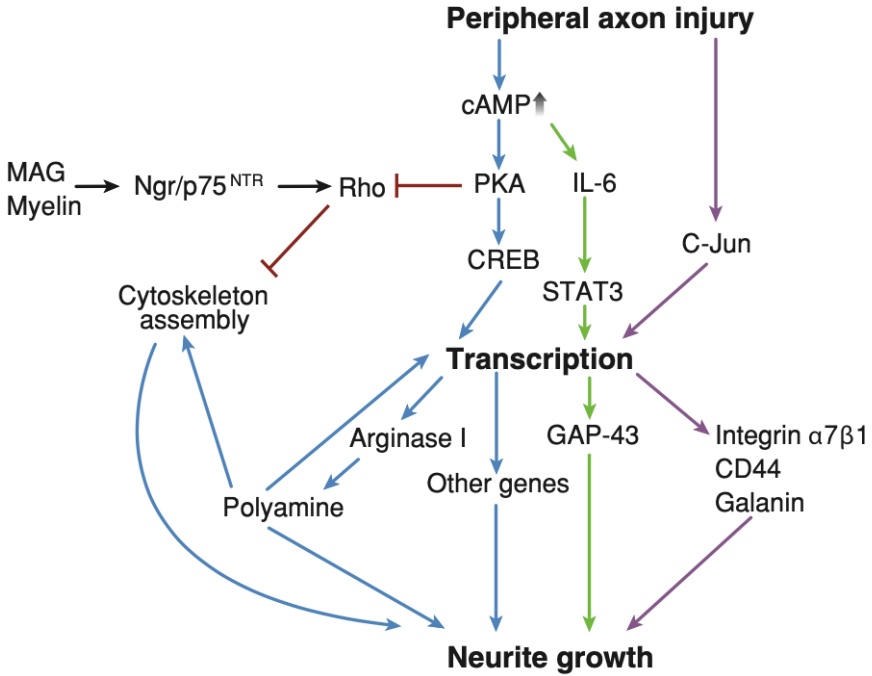
Macrophages: important actors in the regeneration of PN



Schwann cells: primary actors in the regeneration of PN



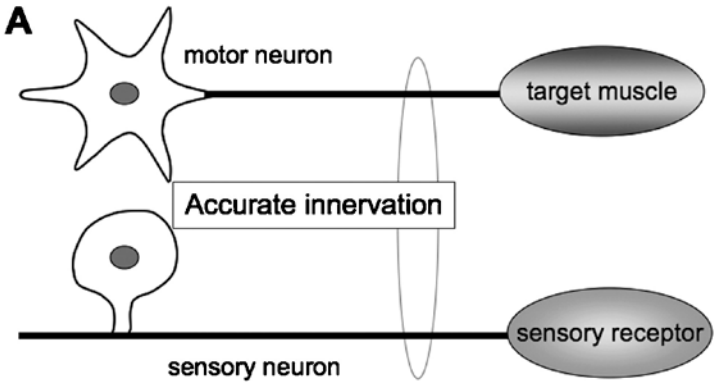
Signaling pathways activated during PN regeneration



Other pathways:

- pI3K/AKT
- RAS/ERK
- Rho/ROC

Specificity of axonal regeneration



- Specific SC cells;
- Tropic factors derived from end-organ.

References

Slide	Reference
2	Girouard, M.-P., Bueno, M., Julian, V., Drake, S., Byrne, A.B. and Fournier, A.E. (2018), The Molecular Interplay between Axon Degeneration and Regeneration. Devel Neurobio, 78: 978-990.
3-5	Cattin, A-L., Lloyd, A.C. 2016 The multicellular complexity of peripheral nerve regeneration. Current Opinion in Neurobiology, Volume 39: 38-46.
6	Yu, W-M., Chen, Z-L., Strickland, S. 2007 Peripheral Regeneration Annu. Rev. Neurosci. 30:209–33.
7	Ilary Allodi, Esther Udina, Xavier Navarro. 2012 Specificity of peripheral nerve regeneration: Interactions at the axon level,. Progress in Neurobiology, 98, Issue 1, 16-37.