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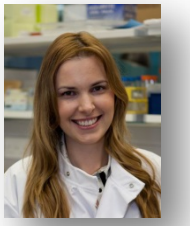
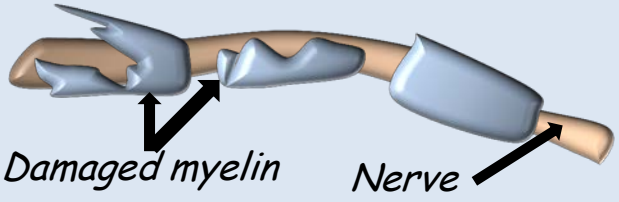
# New strategy for regeneration in multiple sclerosis



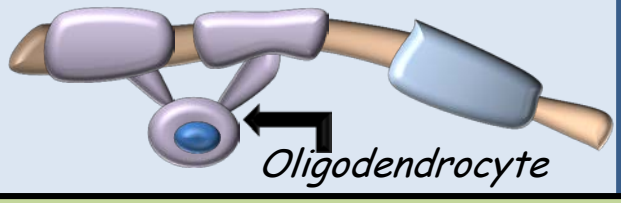
By Dr. Veronique Miron

## What is the idea behind the study?

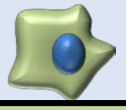
In multiple sclerosis (MS) myelin, the layer around nerves, is damaged disrupting function of the brain and spinal cord.




Myelin regeneration ('remyelination') is carried out by cells called oligodendrocytes. Remyelination fails in progressive MS.

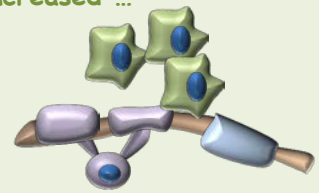



Understanding what stimulates remyelination will help in developing new regenerative therapies for MS. Immune cells called macrophages can be anti-inflammatory (M2), stimulating regeneration of other tissues. Scientists tested whether M2 macrophages stimulate remyelination.

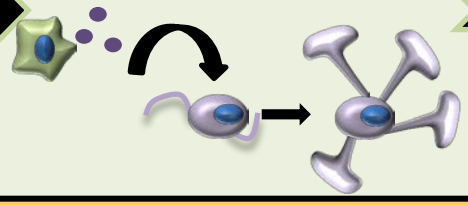



## What did the study show?

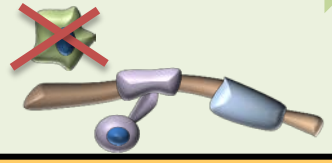
Scientists used mouse models of remyelination and found that when remyelination starts, M2 macrophages were increased …



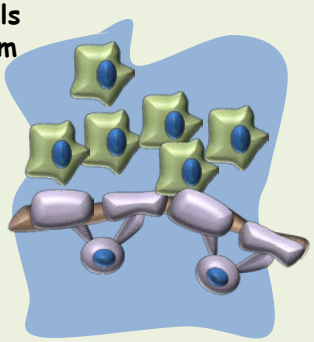
In the laboratory, factors released by M2 macrophages stimulated oligodendrocytes to start making myelin…



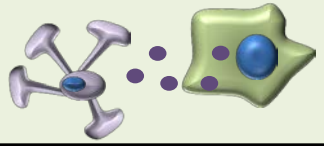
In a mouse model without M2 macrophages, remyelination was dramatically reduced…



In both mouse models and brain tissue from people with multiple sclerosis, M2 macrophages were increased when remyelination was efficient…



M2 macrophages stimulated oligodendrocytes to make myelin by releasing a protein called **activin-A!!!**



## What does this mean for patients?

- Studying M2 macrophages and activin-A might offer exciting new opportunities for development of regenerative therapies for MS.
- Therapies developed from these findings may support regeneration and restore lost functions in people with MS.
- Further studies are required to understand how activin-A works, and to determine the likely safety and effectiveness of potential therapies in humans.

## Funding and publication details


- Publication details: Miron et al. 2013. Nature Neuroscience, http://dx.doi.org/10.1038/nn.3469
- This was a collaborative study between the University of Edinburgh & University of Cambridge, supported by the UK MS Society, the Wellcome Trust, and the MS Society of Canada.