MS research could help repair damage affecting nerves

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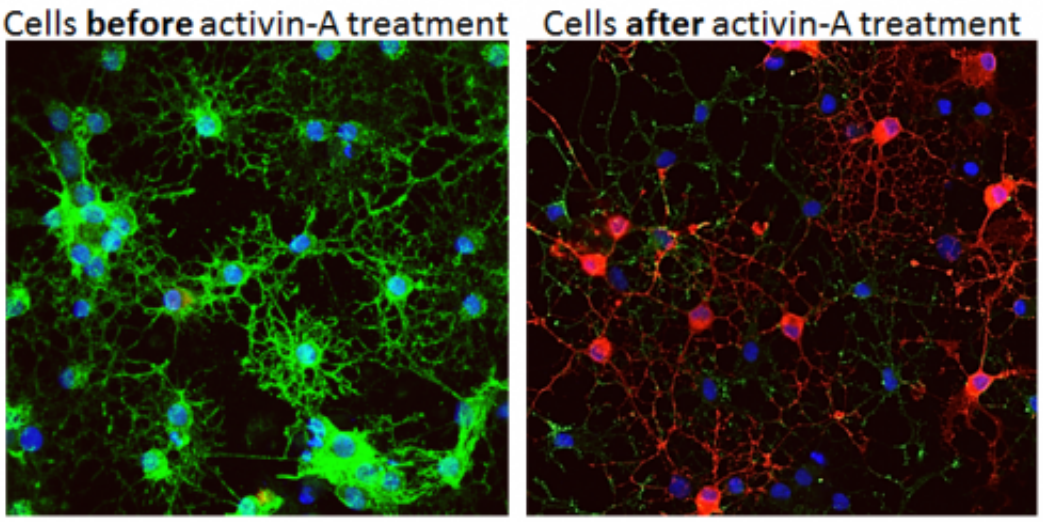

Oligodendrocytes that are not making myelin are in green. Oligodendrocytes that are starting to make myelin are in red. Activin-A treatment of oligodendrocytes stimulates them to start making myelin.

Multiple sclerosis treatments that repair damage to the brain could be developed thanks to new research.

A study has shed light on how cells are able to regenerate protective sheaths around nerve fibres in the brain.

These sheaths, made up of a substance called myelin, are critical for the quick transmission of nerve signals, enabling vision, sensation and movement, but break down in patients with multiple sclerosis (MS).

The study, by the Universities of Edinburgh and Cambridge, found that immune cells, known as macrophages, help trigger the regeneration of myelin.

Researchers found that following loss of or damage to myelin, macrophages can release a compound called activin-A, which activates production of more myelin.

Dr Veronique Miron, of the Medical Research Council Centre for Regenerative Medicine at the University of Edinburgh, said: "In multiple sclerosis patients, the protective layer surrounding nerve fibres is stripped away and the nerves are exposed and damaged.

"Approved therapies for multiple sclerosis work by reducing the initial myelin injury – they do not promote myelin regeneration. This study could help find new drug targets to enhance myelin regeneration and help to restore lost function in patients with multiple sclerosis."

The study, which looked at myelin regeneration in human tissue samples and in mice, is published in *Nature Neuroscience* and was funded by the MS Society, the Wellcome Trust and the Multiple Sclerosis Society of Canada.

Scientists now plan to start further research to look at how activin-A works and whether its effects can be enhanced.

Dr Susan Kohlhaas, Head of Biomedical Research at the MS Society, said: "We urgently need therapies that can help slow the progression of MS and so we're delighted researchers have identified a new, potential

way to repair damage to myelin. We look forward to seeing this research develop further."

Dr Karen Lee, Vice-President, Research at the MS Society of Canada, said: "We are pleased to fund MS research that may lead to treatment benefits for people living with MS. We look forward to advances in treatments that address repair specifically, so that people with MS may be able to manage the unpredictable symptoms of the disease."

More information: *Nature Neuroscience* DOI: 10.1038/nn.3469

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