

Brain cell identified that may help freeze MS in its tracks

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A type of brain cell that is damaged in multiple sclerosis patients has been pinpointed by scientists, who said it could lead to treatments that “freeze the disease in its tracks”.

A study showed that MS patients' immune systems destroy cells that transport information between regions of the brain. The damage to these cells — projection neurons — could explain the brain shrinkage, movement difficulties and cognition problems associated with the condition.

The research also suggests that existing therapies that deplete part of the immune system — white blood cells known as “B cells” — could combat MS.

Andrew Welchman, head of neuroscience at the Wellcome Trust, said: “This insight should stimulate development of treatments that could freeze the disease in its tracks. It is an exciting advance.”

Multiple sclerosis affects more than 100,000 people in the UK. Symptoms include fatigue, difficulties with vision

and walking, numbness and muscle spasms and problems with thinking, learning and planning. It is most commonly diagnosed in people in their twenties and thirties.

It was known that MS involved the immune system but the latest research offers detail on how the body's defence systems turn against the brain. “We found that antibody-producing immune cells — the B cells — are related to the damage of the important projection neurons in MS brains,” David Rowitch, of the University of Cambridge, said. “This suggests that therapies targeting these immune cells could protect projection neurons and provide a novel treatment for progressive MS.”

The loss of projection neurons could help to explain why the cortex region of the brain shrinks in patients with MS.

The research, published in *Nature*, was conducted at Cambridge, Heidelberg University and the University of California, San Francisco. It is likely to be years before trials show whether therapies that target B cells benefit MS patients, Professor Rowitch said.

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