

# Multiple sclerosis: Scientists ID cause of movement, balance problems

May 19 2015

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Demyelination by MS. The CD68 colored tissue shows several macrophages in the area of the lesion. Original scale 1:100. Credit: [CC BY-SA 3.0](#) Marvin 101/Wikipedia

New research into the causes of the excessive inflammation that drives multiple sclerosis has identified a faulty "brake" within immune cells, a brake that should be controlling the inflammation. This points to a

potential target for developing new therapies to treat multiple sclerosis and could have important implications for other autoimmune diseases, such as the colon disease colitis and the chronic skin condition atopic dermatitis.

Further, the work has produced new research models of [multiple sclerosis](#) symptoms such as [movement disorders](#) and balance control problems that have, until now, resisted efforts to mimic them effectively in the lab. These models represent important new tools in the efforts to better understand - and eventually cure - MS and other autoimmune conditions.

The researchers determined that a mutation in the gene Nlrp12 was causing [immune cells](#) known as T cells to go haywire. Normally, the researchers determined, the protein the gene produces acts as a brake within T cells to control the [inflammatory response](#). But a mutation in that gene disrupts the natural process and provokes severe inflammation - with effects the researchers found most intriguing.

To the researchers' surprise, the resulting inflammation did not produce the paralysis often associated with multiple sclerosis. It did, however, produce other MS symptoms—such as movement disorders and problems with balance control—which scientists have struggled to replicate in experimental lab settings.

"It's important to note that MS is a spectrum disorder - some patients present with paralyzing conditions and some patients don't," said researcher John Lukens, PhD, of the University of Virginia School of Medicine Department of Neuroscience and its Center for Brain Immunology and Glia. "Not everybody's symptoms are the same, so this might give us a glimpse into the etiology or pathogenesis of that family of MS."

By blocking the inflammatory response, doctors may one day be able to control the symptoms it causes, both in MS and in other diseases driven by hyperinflammation.

**More information:** The findings have been published online by the scientific journal *Immunity*:

[http://www.cell.com/immunity/abstract/S1074-7613\(15\)00120-X](http://www.cell.com/immunity/abstract/S1074-7613(15)00120-X)

Provided by University of Virginia

Citation: Multiple sclerosis: Scientists ID cause of movement, balance problems (2015, May 19) retrieved 11 May 2024 from <https://medicalxpress.com/news/2015-05-multiple-sclerosis-scientists-id-movement.html>

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