Research shows interferon-beta regulates excessive alternative splicing in multiple sclerosis

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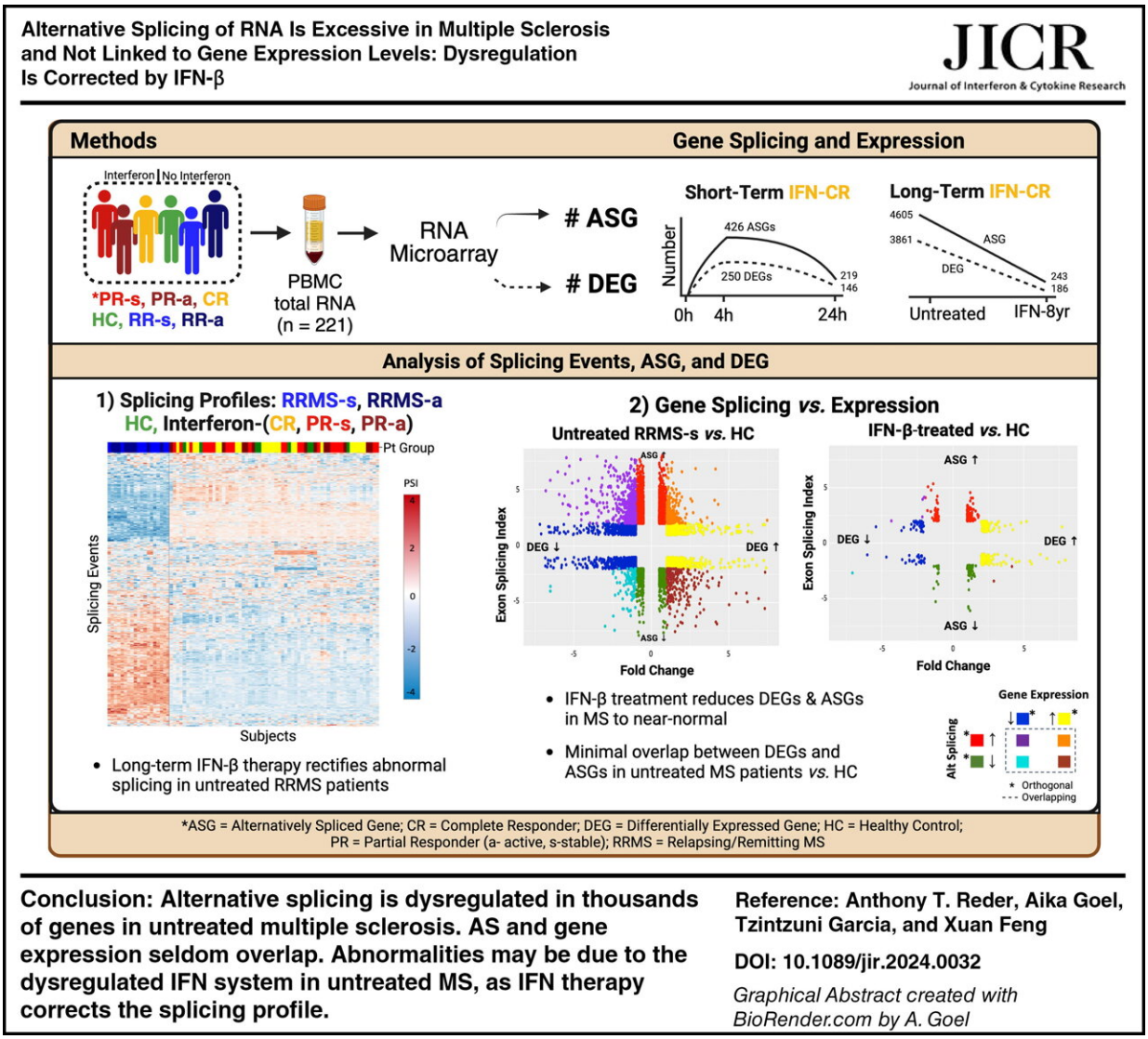

Graphical abstract. Credit: *Journal of Interferon & Cytokine Research* (2024). DOI: 10.1089/jir.2024.0032

A new study found extensive alternative splicing of messenger RNA in the blood cells of untreated multiple sclerosis patients compared to healthy controls. The study, which showed that highly dysregulated alternative splicing was largely corrected by interferon-ß (IFN-ß) therapy, is published in the *Journal of Interferon & Cytokine Research*.

Anthony Reder and Xuan Feng, from the University of Chicago Department of Medicine, and coauthors, reported that during long-term IFN-ß therapy, multiple sclerosis exacerbations were linked to more dysregulated alternative splicing. Furthermore, alternative splicing predicted future clinical exacerbations.

"Alternative splicing is a potential biomarker warning of disease activity and for predicting therapeutic response to IFN- ß treatment," stated the investigators.

"Alternative splicing in multiple sclerosis suggests new directions for investigation of disease mechanisms, therapeutic monitoring, and drug choices in multiple sclerosis and in autoimmune and viral diseases."

"These novel findings demonstrate that measurement of alternatively spliced mRNA transcript levels in blood leukocytes from patients with multiple sclerosis may help to predict clinical responsiveness to IFN-b therapy," says Journal of Interferon & Cytokine Research Executive Editor Raymond Donnelly, PhD.

More information: Anthony T. Reder et al, Alternative Splicing of RNA Is Excessive in Multiple Sclerosis and Not Linked to Gene Expression Levels: Dysregulation Is Corrected by IFN-β, *Journal of Interferon & Cytokine Research* (2024). DOI: 10.1089/jir.2024.0032