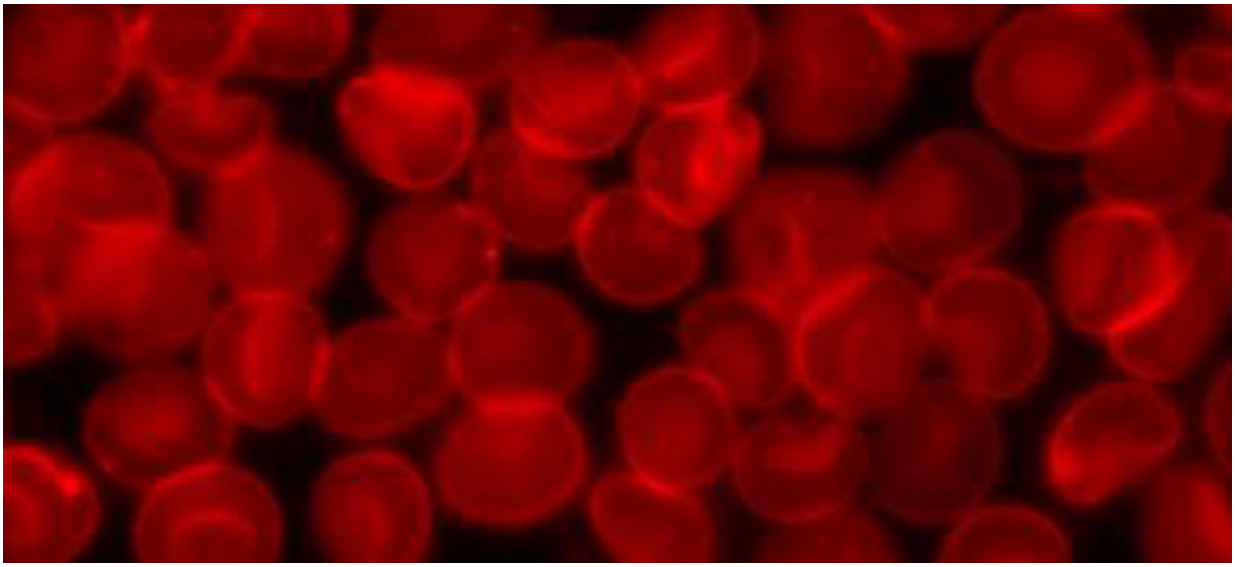
New biomarker for disease progression in multiple sclerosis

February 7 2023, by Barbara Peters, Angelika Jacobs



Credit: Wikimedia Commons

The autoimmune disease multiple sclerosis can take a variety of courses. Determining the current and future course of the disease is important in order to slow down its course as much as possible. Researchers at the University of Basel have presented a biomarker whose values in the blood allow such predictions.

The researchers focused on a cell component that is measurable in the blood and is characteristic of a certain type of brain cell. These cells,

called astrocytes, play a key role in multiple sclerosis (MS) processes, which can lead for example to permanent paralysis and disability.

The blood level of this cellular component, called "glial fibrillary acidic protein" (GFAP), increases when astrocytes are activated or damaged. The new study by the research group led by Professor Jens Kuhle and published in the journal *JAMA Neurology* shows that elevated GFAP blood levels can indicate both current and future progression of MS. Their results are based on data from, inter alia, the Swiss Multiple Sclerosis Cohort.

Use of biomarkers is changing clinical practice

In a short space of time, the research group headed by Kuhle at the University of Basel and the University Hospital Basel has thus presented a second biomarker that can support therapy decisions in MS. Last year, the research team demonstrated that some persons with MS with an apparently stable disease course had high blood levels of the neurofilament light chain (NfL) biomarker. NfL specifically indicates neuronal damage.

These people had a significantly higher probability of presenting symptoms caused by MS in the following year. Since NfL sensitively predicts disease activity at an early stage, these patients can now be treated in a more targeted, proactive manner.

Understanding of the disease mechanism is constantly increasing

Compared with NfL, the GFAP blood marker allows conclusions to be drawn about a different aspect of the complex pathophysiology of MS. Although increased NfL blood values indicate neuronal damage, GFAP in blood specifically indicates chronic disease processes in which

astrocytes are involved and that contribute to gradual progressive disability.

"GFAP and NfL thus complement each other," says Kuhle. "They can help us in making MS therapy more individually tailored and forward-looking." These outcomes of biomarker research bring both potential therapy monitoring and prognosis, as well as research on disease origins, a big step forward.

More information: Stephanie Meier et al, Serum Glial Fibrillary Acidic Protein Compared With Neurofilament Light Chain as a Biomarker for Disease Progression in Multiple Sclerosis, *JAMA Neurology* (2023). DOI: 10.1001/jamaneurol.2022.5250

Provided by University of Basel

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