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New function of a signal path known from blood pressure research discovered

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The renin-angiotensin system (RAS) plays an important role in regulating the body's fluid levels and blood pressure. However, a new signal path in the RAS may also have a substantial influence on immune cells, as a recent study conducted by researchers at Universitätsklinikum Erlangen of Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) in collaboration with colleagues at Heinrich-Heine-Universität Düsseldorf found. Their findings have been published in the renowned journal *Proceedings of the National Academy of Sciences* (*PNAS*).

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system that occurs especially in young adults and which can lead to a large variety of neurological deficits as well as permanent disability. Just as with arteriosclerosis, the immune system's phagocytes play a major role in the development of the disease. In co-operation with PD Dr. Johannes Stegbauer and his colleagues at the Department of Nephrology at Universität Düsseldorf, the researchers at Friedrich-Alexander-Universität Erlangen-Nürnberg in Prof. Dr. Ralf Linker's team at the Department of Neurology at Universitätsklinikum Erlangen studied the effect of new signal paths in the blood-pressure-regulating renin-angiotensin system in experimental models of MS and arteriosclerosis.

In their study the scientists describe the signal path known as 'angiotensin 1-7/Mas' - also referred to as Mas - as playing a significant role in compensating for inflammatory effects in the body. Both groups of researchers were able to demonstrate that the Mas receptor plays an

important role in the function of inflammation-regulating macrophages. Influencing the receptor using medication can cause these phagocytes to develop anti-inflammatory qualities, thus providing a new option for the treatment of chronic inflammatory diseases.

'These findings contribute to our understanding of the role played by phagocytes in MS and may help to find new therapeutic approaches for this disease, which still has no cure,' explained neurologist Prof. Dr. Ralf Linker, who is responsible for the co-ordination of the experiments in Erlangen. As head of the neuroimmunology outpatient clinic at Universitätsklinikum Erlangen, he aims to utilise the new results from the laboratory for his patients. The FAU researchers surmise that various neurotransmitters known from research on the cardiovascular system and hypertension could play an important role in inflammatory diseases. Additional studies will show whether medications which influence the Mas receptor could also have positive effects on patients with MS or arteriosclerosis.

More information: Anna Hammer et al, Role of the receptor Mas in macrophage-mediated inflammation in vivo, *Proceedings of the National Academy of Sciences* (2016). DOI: 10.1073/pnas.1612668113

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