

New control system of the body discovered

June 29 2009

It has been known for a long time that T cells can attack the body's own structures and, if they infiltrate the CNS, cause diseases such as multiple sclerosis (MS). The T cells damage the myelin sheath, the material that surrounds and protects the fibers of nerve cells. This damage slows down or blocks messages between the brain and the body, leading to various symptoms of MS such as impaired movements.

The molecular analysis of damaged tissue from patients with MS led the researchers to the B1-receptor. The data they evaluated showed that two different pathways known to play a crucial role in the cardiovascular area also seem to play an important role in the CNS: namely, the renin-angiotensin-system, and the kallikrein-kinin-system, the latter of which the researchers in Berlin put their focus on.

The B1-receptor is part of the kallikrein-kinin-system. Together with Professor Alexandre Prat from the Université de Montréal, Montréal, Canada, and Professor Lawrence Steinman from Stanford University in Stanford, California, USA, the researchers in Berlin detected the B1-receptor on T [cells](#) of MS patients as well as on T cells of mice with encephalitis, an [inflammation](#) of the brain.

The disease got worse in those mice that lacked B1 on their T cells. Therefore, using a certain substance (Sar-[D-Phe]desArg9-bradykinin), they activated the receptor in mice which had B1 on their T cells. As a result, the entry of [T cells](#) into the CNS slowed down and the clinical symptoms of the inflammation markedly decreased.

"We have discovered a control mechanism, which reduces inflammation caused by the immune system" neurologist and MDC research group leader Professor Zipp explains. "It remains to be seen if we succeed in developing a new therapy for chronic inflammation in the CNS, such as MS, in the future."

Source: Helmholtz Association of German Research Centres ([news](#) : [web](#))

Citation: New control system of the body discovered (2009, June 29) retrieved 10 April 2024 from <https://medicalxpress.com/news/2009-06-body.html>

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