

Immune system activated in schizophrenia

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Researchers at the Swedish medical university Karolinska Institutet have discovered that patients with recent-onset schizophrenia have higher levels of inflammatory substances in their brains. Their findings offer hope of being able to treat schizophrenia with drugs that affect the immune system.

The causes of [schizophrenia](#) are largely unknown, and this hinders the development of effective treatments. One theory is that infections caught early on in life might increase the risk of developing schizophrenia, but to date any direct evidence of this has not been forthcoming.

Scientists at Karolinska Institutet have now been able to analyse inflammatory substances in the spinal fluid of patients with schizophrenia, instead of, as in previous studies, in the blood. The results show that patients with recent-onset schizophrenia have raised levels of a signal substance called interleukin-1beta, which can be released in the presence of [inflammation](#). In the healthy control patients, this substance was barely measurable.

"This suggests that the brain's immune defence system is activated in schizophrenia," says Professor Göran Engberg, who led the study. "It now remains to be seen whether there is an underlying infection or whether the [immune system](#) is triggered by some other means."

According to the dominant hypothesis, schizophrenia is related to an overactive dopamine system. Previous studies have shown that

interleukin-1beta can upset the [dopamine system](#) in rats in a similar way to schizophrenia in humans.

"We would have made terrific progress if we were one day able to treat schizophrenia patients with [immunotherapy](#), as it might then be possible to interrupt the course of the disease at an early stage of its development," says Professor Engberg.

The group is now studying if the inflammatory process is only activated in connection with the development of schizophrenia, or whether chronic patients exhibit the same phenomenon.

More information: Activation of brain interleukin-1 β in schizophrenia, J Söderlund, J Schröder, C Nordin, M Samuelsson, L Walther-Jallow, H Karlsson, S Erhardt, G Engberg, *Molecular Psychiatry*, vol.14; no. 12; November 2009

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