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Regional neural activation defines a gateway for autoreactive T cells to cross the blood-brain barrier.

Arima Y, Harada M, Kamimura D, Park JH, Kawano F, Yull FE, ..., Betz UA, Márquez G, Blackwell TS, Ohira Y, Hirano T, Murakami M

Cell. 2012 Feb 3; 148(3):447-57

Luc Teyton, The Scripps Research Institute, CA, USA. F1000 Immunology

22 Feb 2012 | New Finding

10
EXCEPTIONAL

This remarkable paper describes how T cells access the central nervous system through the stimulation of a local arc reflex that triggers the local release of CCL20 by the blood vessels surrounding the fifth lumbar spinal cord.

The reflex that controls CCL20 secretion, and subsequent IL6 amplification loops, is a sensory circuit of the lower …

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Dogma maintains that the blood/brain barrier serves to limit the accessibility of immune cells into the central nervous system (CNS) so as to prevent unwanted or destructive immune-mediated responses which could cause either bystander damage or autoreactive lymphocyte-mediated CNS disease. This paper provides compelling data indicating that gateways for leukocyte entry into the CNS exist in the …

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For T cells to mediate inflammatory lesions in the central nervous system (CNS), as occurs in multiple sclerosis (MS), they need to cross the quite formidable blood-brain barrier. However, as with the Maginot line in the Second World War, it seems that the barrier has soft spots where (cell) passage is facilitated. Working with the experimental autoimmune encephalomyelitis (EAE) mouse model of …

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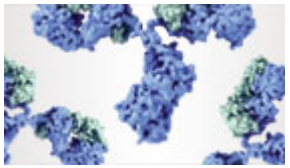

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