



Licensing Offer

Multiple Sclerosis: First SPONTANEOUS transgenic animal model for relapsing-remitting-type of disease („RR-mouse“)

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Background

Multiple sclerosis (MS) is the most important demyelinating disease in the northern hemisphere. It arises without known trigger and either progresses in isolated bouts or worsens steadily from the very beginning. In the classical form of MS the demyelinating plaques are spread throughout the CNS and the disease characteristically progresses through phases of remittance and relapses.

The two cardinal cell populations mediating adaptive immunity are T and B lymphocytes, though their role in MS is still poorly understood. Classical EAE-animal models (Experimentally induced Autoimmune Encephalomyelitis) suffer from the need for experimentally induced autoimmunity and do very often not resemble human MS subtypes very closely.

Technology

At the Max Planck Institute for Biochemistry, Martinsried/Germany a new T cell receptor (TCR) transgenic mouse carrying a TCR specific for myelin oligodendrocyte glycoprotein (MOG) peptide 92-106 in the context of I-A(s) has been developed. Backcrossed to the SJL/J background, most mice spontaneously develop relapsing-remitting type (RR) of experimental autoimmune encephalomyelitis (EAE) with episodes often altering between different central nervous system tissues like the cerebellum, optic nerve, and spinal cord.

Transgenic T cells seem to expand MOG autoreactive B cells from the endogenous repertoire. The expanded autoreactive B cells produce autoantibodies binding to a conformational epitope on the native MOG protein while ignoring the T cell target peptide. The secreted autoantibodies are pathogenic, enhancing demyelinating EAE episodes.

The „RR-mouse“ constitutes **the first spontaneous animal model** reflecting the most common form of MS, relapsing-remitting-type: RR-MS, as it is seen typically in early phases of the disease.

Licensing Information

Transgenic mice are available through a non-exclusive license agreement with Max-Planck-Innovation the tech-transfer agency of Max Planck Society.

Original Literature:

Pöllinger et al., J Exp Med, **2009**, Jun 8, 206(6):1303-16