

Research cooperation in the field of neuroimmunology

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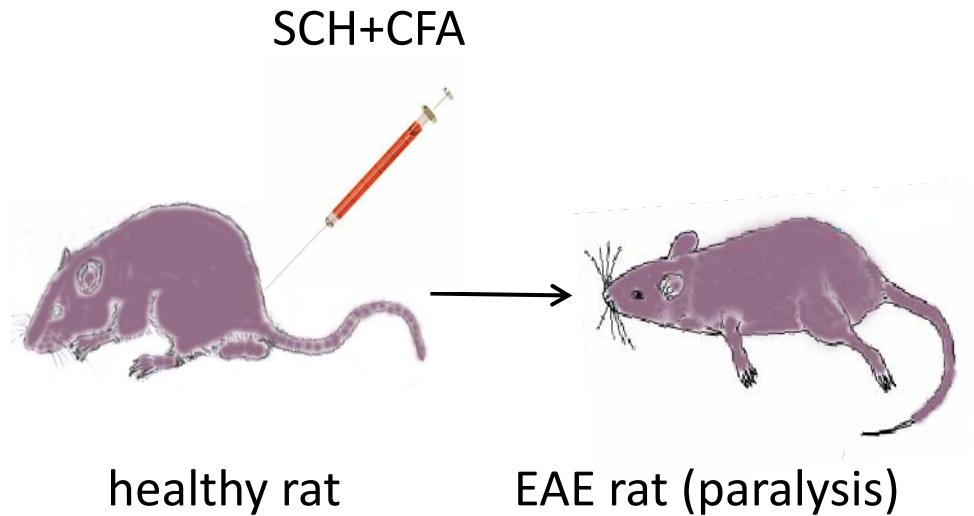
**Serbian-Bavarian Higher Education Day
23-24 september 2019, Bamberg**

Our experimental model

Experimental autoimmune encephalomyelitis (EAE) is an animal model of the human chronic demyelinating inflammatory central nervous system disease, multiple sclerosis (MS).

The relevance of our results obtained on EAE are for better understanding of the pathogenesis and therapy of MS.

EAE induction in rats



Active EAE is induced by immunization with spinal cord homogenate (SCH) mixed with Complete Freund's Adjuvant (CFA)

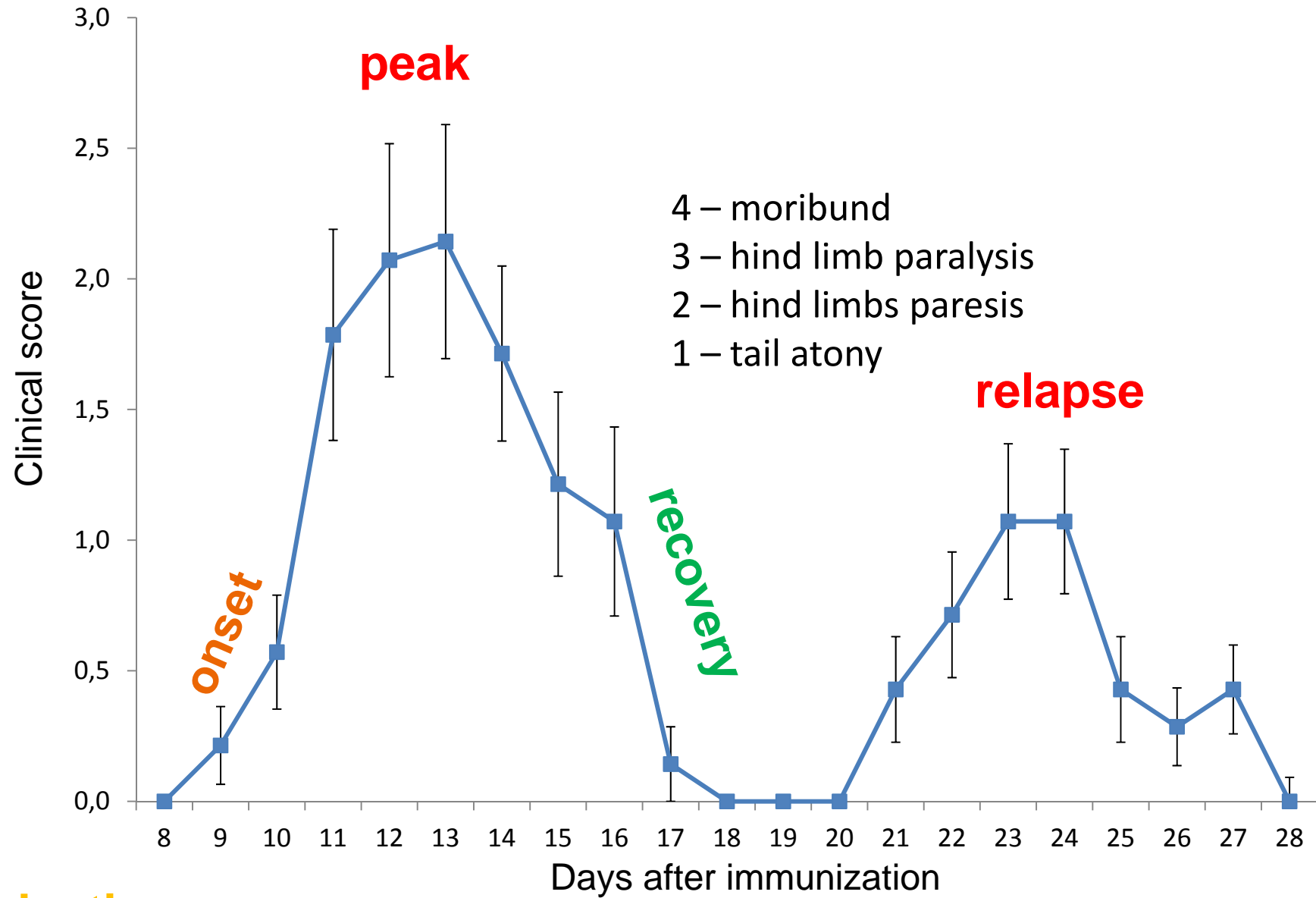
Albino Oxford (resistant)



Dark Agouti (susceptible)



Clinical course of the active EAE (relapse remitting course)



Cells

- Astrocytes
- Dendritic cells
- Macrophages
- Immune cells from CNS
- Immune cells from draining lymph nodes
- Intestinal immune cells (Peyers patches)
- Regulatory T cells
- Microglial cell line BV2

Methodology

- Cell culture
- Viability tests
- Flow cytometry
- ELISA
- WB
- qPCR

What we do

- Pharmacological modulation of EAE *in vivo* using various chemical compounds, plant extracts and examining the *in vitro* effects on immune cells

In vitro effects of binuclear (η (6)-p-cymene)ruthenium(II) complex containing bridging bis(nicotinate)-polyethylene glycol ester ligand on differentiation pathways of murine Th lymphocytes activated by T cell mitogen. Momčilović M et al. J Biol Inorg Chem. 2015 Apr;20(3):575-83. doi: 10.1007/s00775-015-1242-x.

Anti-encephalitogenic effects of ethyl pyruvate are reflected in the central nervous system and the gut.

Djedović N et al. Biomed Pharmacother. 2017 Dec;96:78-85. doi: 10.1016/j.biopha.2017.09.110.

Dry olive leaf extract ameliorates experimental autoimmune encephalomyelitis. Miljković D et al. Clin Nutr. 2009 Jun;28(3):346-50. doi: 10.1016/j.clnu.2009.03.014.

- Determining the potential molecular and/or cellular targets for a therapeutic intervention

Tenascin-C deficiency protects mice from experimental autoimmune encephalomyelitis. Momčilović M et al. J Neuroimmunol. 2017 Jan 15;302:1-6. doi: 10.1016/j.jneuroim.2016.12.001.

CXCL12 expression within the CNS contributes to the resistance against experimental autoimmune encephalomyelitis in Albino Oxford rats.

Miljković D et al. Immunobiology. 2011 Sep;216(9):979-87. doi: 10.1016/j.imbio.2011.03.013.

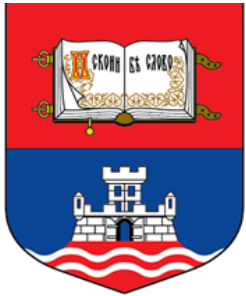
- Interaction of the CNS and the gut (the effect of gut microbiota perturbation on susceptibility to induction of EAE)

Gut Microbiota Confers Resistance of Albino Oxford Rats to the Induction of Experimental Autoimmune Encephalomyelitis.

Stanisavljević S et al. Front Immunol. 2018 May 2;9:942. doi: 10.3389/fimmu.2018.00942.

Oral neonatal antibiotic treatment perturbs gut microbiota and aggravates central nervous system autoimmunity in Dark Agouti rats.

Stanisavljević S, Čepić A, Bojić S, Veljović K, Mihajlović S, Đedović N, Jevtić B, Momčilović M, Lazarević M, Mostarica Stojković M, Miljković Đ, Golić N. Sci Rep. 2019 Jan 29;9(1):918. doi: 10.1038/s41598-018-37505-7.



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