



# FENS

Regional Meeting

Belgrade, Serbia, July 10–13, 2019



Друштво за неуронауке Србије  
Serbian Neuroscience Society



National Neuroscience  
Society of Romania



Neuroscience Society  
of Turkey



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Thursday, July 11, 2019

18:10-19:10

Room Atlantic 2

NANO SYMPOSIUM II

## EXPRESSION OF GROWTH HORMONE RECEPTOR (GHR) IN EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS

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Multiple sclerosis (MS) is a chronic autoimmune disease of the central nervous system (CNS) characterized by inflammation, demyelination, neurodegeneration and gliosis. It is considered as a perplexing multifactorial disease in which the neuroendocrine system plays an important role. Growth hormone (GH) is synthesized and secreted by the somatotroph cells of the anterior pituitary. GH secretion is positively regulated by the hypothalamic factor GHRH and exerts its effects through interaction with the GH receptor (GHR), a member of the class I cytokine receptor family. It was demonstrated that neurons and astrocytes also produce GH and that GHR is widely expressed in the CNS. Nonetheless, it is not known whether expression pattern of GHR changes in the CNS during MS. We investigated GHR expression in the spinal cord during the course of experimental autoimmune encephalomyelitis (EAE), animal model of MS that is broadly used. Our results show that GHR is diminished on mRNA and protein level during EAE. Double immunofluorescence studies demonstrated that GHR is expressed in different cell types in the spinal cord in physiological conditions, including astrocytes and microglia. This expression pattern does not change extensively after the onset of EAE. However, at the peak of disease GHR is absent from astrocytes in the white and grey matter, but still present in microglia, although to a lesser degree. At the end of disease, when the animals have recovered, GHR expression is similar to control conditions. Our results point to complex involvement of GHR in the pathology of EAE.

