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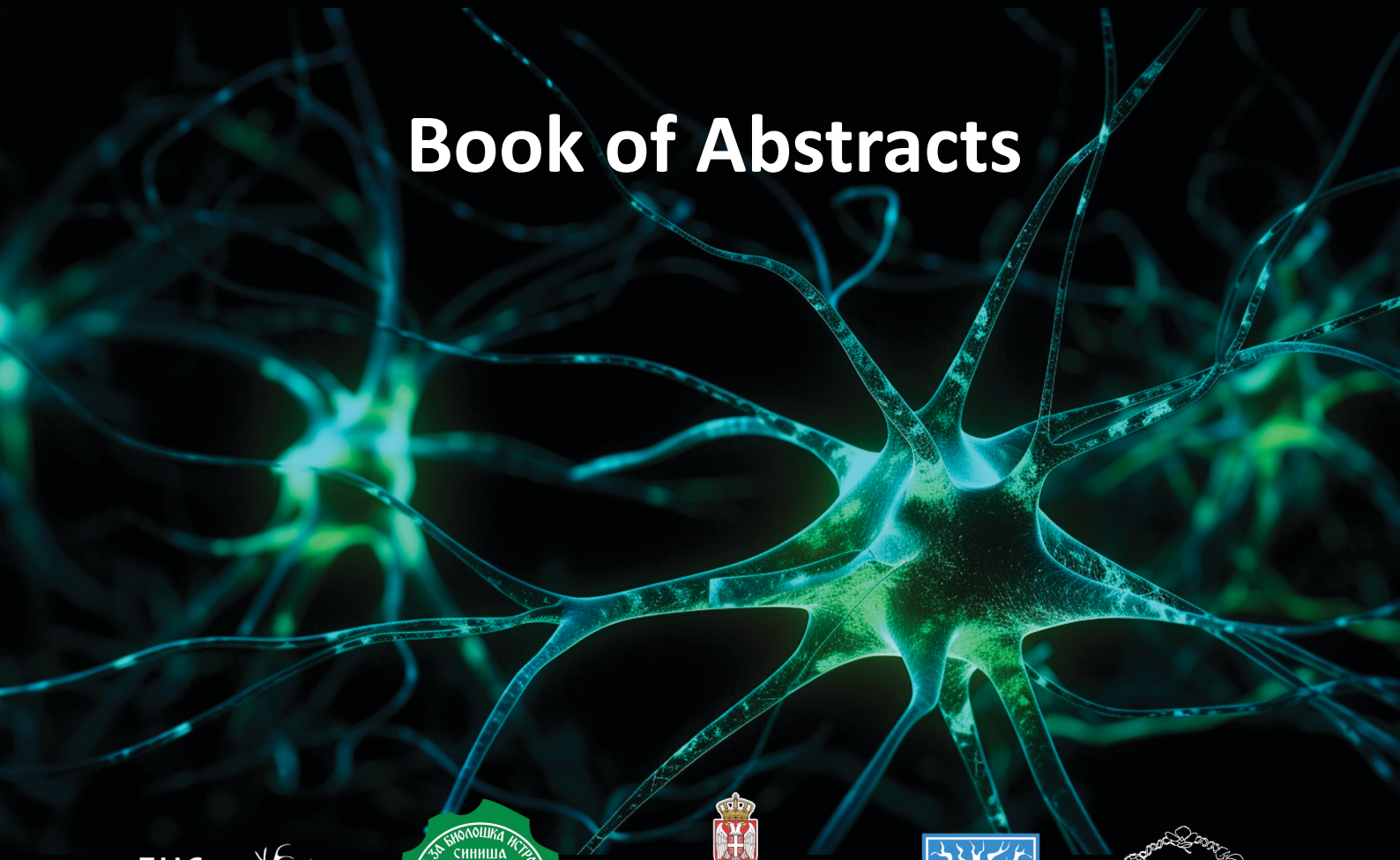

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Growth hormone and prolactin gene expression and protein levels are not affected during EAE in rats

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Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS) that leads to severe neurological deficits. In past decades, numerous studies have observed that anterior pituitary hormones play a pivotal role in regulation of physiological immune response, as well as development and course of autoimmune diseases.

Specifically, growth hormone (GH) and prolactin (PRL), peptide hormones synthesized and secreted by the anterior pituitary, have been implicated in regulating the immune system. Growth hormone secretion is positively regulated by the hypothalamic growth hormone-releasing hormone (GHRH), while somatostatin (SST) inhibits the release of GH.

Previous studies demonstrated that GHRH and GH are implicated in development of experimental autoimmune encephalomyelitis (EAE), a representative animal model of MS. Significantly higher PRL serum levels in MS patients were also reported.

We investigated spatiotemporal differences in GH and PRL levels in pituitaries from EAE animals. Using immunolabeling and stereological methods we evaluated changes in volume density of GH- and PRL-positive cells in pituitary gland of animals with EAE compared to healthy controls. As we determined that there is no change in cell volume density, we checked if there are any changes in gene expression of PRL, GH, as well as GHRH and SST. Growth hormone and prolactin protein expression was also measured in anterior pituitary. Our results show that, in addition to GH- and PRL-positive cells volume density, there are no significant changes in gene and protein expression in anterior pituitary during EAE.

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