



FENS

Regional Meeting

Belgrade, Serbia, July 10–13, 2019

ДНС
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ABSTRACT BOOK

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Editor: Andjelka Isakovic

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ISBN 978-86-917255-3-2

Publisher: Serbian Neuroscience Society, Belgrade

Graphic design & pre-press Aleksandar Mandić



Thursday, July 11, 2019

13:45-15:00

Room Atlantic 1
Room Atlantic 2

POSTER SESSION 1

P068

THE EFFECT OF INTERMITTENT FEEDING ON THE NUMBER OF PARVALBUMIN-EXPRESSING NEURONS IN THE HIPPOCAMPUS OF 5XFAD MICE

Maja Srbovan, Ksenija Prpa, Vesna Tesic, Desanka Milanovic, Milka Perovic, Selma Kanazir

Laboratory for Molecular Neurobiology, Department of Neurobiology, Institute for Biological Research "Siniša Stanković", University of Belgrade, Serbia

maja.srbovan@ibiss.bg.ac.rs

Aim: Food restriction has been widely associated with beneficial effects on brain aging and age-related neurodegenerative diseases such as Alzheimer's disease (AD). In the present study, the effects of every-other-day (EOD) feeding regimen were studied in the hippocampus of 5XFAD mice, a well characterized animal model of AD. Parvalbumin (PV) inhibitory interneurons that are crucial for maintaining proper excitatory/inhibitory balance were examined.

Methods: Female 5xFAD mice (Tg) and their non-transgenic littermates (non-Tg) were exposed to ad libitum (AL) or intermittent, EOD feeding regimen, beginning at 2 months of age. Neurons expressing PV were detected by immunohistochemistry, in the dorsal hippocampus of 6-month-old animals. The number of parvalbumin-expressing neurons was determined independently in CA1, CA3, and DG hippocampal subregions.

Results: Immunohistochemical analysis revealed a substantial increase in the number of parvalbumin inhibitory neurons in the dorsal hippocampus of Tg-AL mice in comparison to non-Tg animals. In Tg-EOD mice, however, alterations in the number of PV-expressing neurons were subregion-specific comparing to Tg-AL mice of the same age.

Conclusions: The results of our study clearly indicate that PV-expressing interneurons are of importance in further understanding of neural basis of AD-like-associated cognitive impairments and EOD-induced effects in 5xFAD mouse model of AD.