

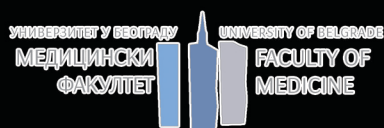


ДНС / SNS  Друштво за неуронауке Србије / Serbian Neuroscience Society

31 May - 02 June
Belgrade Youth Center
Belgrade

Congress
Serbian Neuroscience Society

Book of Abstracts



8th CONGRESS OF SERBIAN NEUROSCIENCE SOCIETY with international participation

31 May – 2 June 2023. Belgrade, Serbia - BOOK OF ABSTRACTS

Published by:

Serbian Neuroscience Society
Bulevar despota Stefana 142, 11060 Belgrade, Serbia

Editors

Selma Kanazir and Danijela Savić

Assistant editors:

Anica Živković
Željko Pavković

Technical editor:

Anđela Vukojević

Graphic design:

Olga Dubljević, Irina Veselinović

Copyright © 2023 by Serbian Neuroscience Society and associates. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher.

ISBN: 978-86-917255-4-9

CONGRESS ORGANIZERS

Serbian Neuroscience Society

University of Belgrade, Institute for Biological Research "Siniša Stanković", National Institute of the Republic of Serbia

CONGRESS CO-ORGANIZERS

University of Belgrade, Faculty of Medicine

**University of Belgrade, VINČA Institute of Nuclear Sciences,
National Institute of the Republic of Serbia**

University of Belgrade, Faculty of Biology

SPONSORED BY

Labena

Promedia

Zeiss

MTORC1 signaling pathway changes under the effect of caloric restriction in the hippocampus of male Wistar rats

Milica Prvulovic, Smilja Todorovic, Valentina Simeunovic, Andjela Vukojevic, Srdjan Sokanovic, Milena Jovic, Desanka Milanovic, Aleksandra Mladenovic

Institute for Biological Research „Siniša Stanković“, National Institute of the Republic of Serbia, University of Belgrade

Caloric restriction (CR) is widely known for delaying age-related changes, but its duration and onset can significantly alter its protective potential. One of the underlying mechanisms of the effect of CR on aging is considered to be mTOR pathway, an important player in nutrient sensing and regulation of cellular metabolism.

Adult, middle-aged, and old male Wistar rats were exposed to CR (60% of AL) to study the effect of CR of early (EOCR) and late onset (LOCR). Ad libitum (AL) fed animals were used to test the effects of aging and as age-matched controls for the effect of CR. Western blot was used to analyze the expression of proteins involved in the signaling cascade of mTOR complex 1 (mTORC1) in rat hippocampus.

At 18 months of age, EOCR led to a decrease in phosphorylation of mTOR S2448, whereas LOCR led to its increase at 24 months of age. pAkt T308 was decreased with LOCR at 18 months, while at 24 months EOCR and LOCR increased its phosphorylation. LOCR also led to an increased phosphorylation of p70S6K1 at 24 months of age.

Although EOCR led to a decrease in phosphorylation of mTOR at 18 months of age, this effect was lost at 24 months, and was also not affecting the activation of the two kinases targeting mTOR S2448. Negative effect of short-term LOCR at 24 months was consistent in all examined proteins suggesting a caution when implementing CR later in life.

Acknowledgement: This study was supported by Ministry of Science, Technological Development and Innovation of the Republic of Serbia, grant 451-03-47/2023-01/200017.