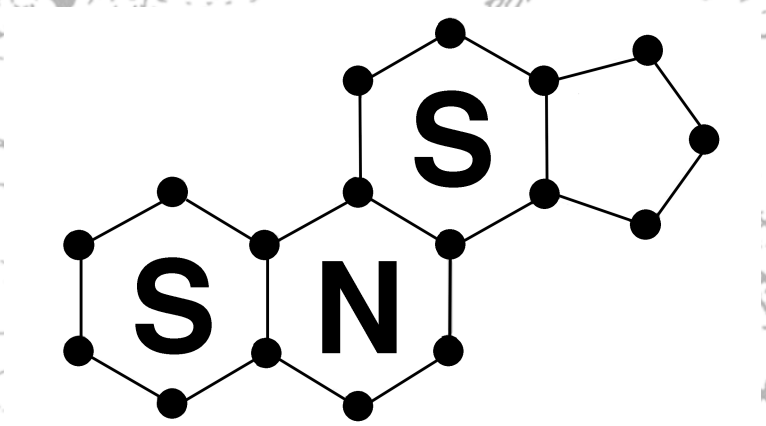
12th International Meeting

STEROIDS AND NERVOUS SYSTEM



Torino, Italy
24-27 February 2024

ABSTRACT BOOK

TORINO – 2024

ABSTRACTS OF INVITED LECTURES AND FREE CONTRIBUTIONS

S. Gotti, editor

Conference organized with the support of

Fondazione Cavalieri Ottolenghi, Torino

Università degli Studi di Milano

Università degli Studi di Torino

Dipartimento di Neuroscienze, Torino

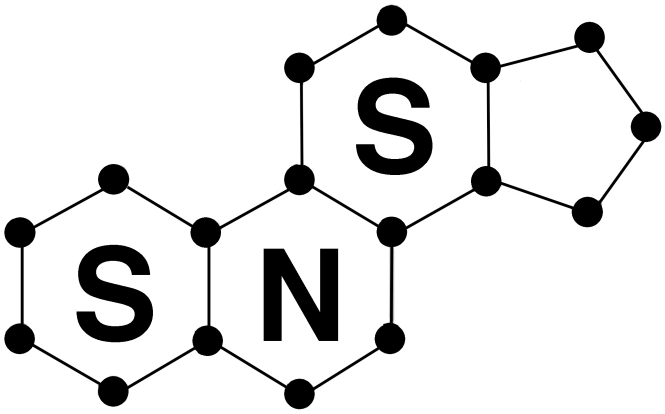
Dipartimento di Scienze Farmacologiche e Biomolecolari, Milano

Journal of Neuroendocrinology (Wiley)

Frontiers in Neuroendocrinology

IBRO

We are very grateful to Susanna Monteleone and Maria Lo Grande for their technical support



12th INTERNATIONAL MEETING

STEROIDS AND NERVOUS SYSTEM

Torino, Italy

February 24-27, 2024

ABSTRACTS OF INVITED LECTURES AND FREE CONTRIBUTIONS

S. Gotti, editor

TORINO – 2024

Organizers

Silvia Giatti	Italy
Stefano Gotti	Italy
Roberto C. Melcangi	Italy

International Scientific Committee

George Barreto	Ireland
Charlotte Cornil	Belgium
Karen M. Frick	USA
Liisa Galea	Canada
Onno Meijer	The Netherlands

Educational Committee

Silvia Diviccaro	Italy
Marilena Marraudino	Italy

Local Organizing Committee

Chiara Ballan (Torino)
Maria Teresa Bellantoni (Torino)
Lucia Cioffi (Milano)
Elena Ricci (Torino)
Barbara Viviani (Milano)
Ornella Vranaraj (Torino)

Honour Committee

Stefano Geuna	Rector of the University of Torino
Alessandro Mauro	Director of the Neuroscience Department of Torino
Alessandro Vercelli	Scientific Director of the Fondazione Cavalieri Ottolenghi

Visit us at our WWW site
https://www.neurosteroids.unito.it/home-page

THE HYPOTHALAMIC-PITUITARY-GONADAL AXIS IS SUPPRESSED DURING EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS IN MALE RATS

Milosevic A., Savic D., Lavrnja I., Milosevic K., Bjelobaba I., Janjic M.M.

Laboratory for Neurochemistry, Department for Neurobiology, Institute for Biological Research "Siniša Stanković"-National Institute of Republic of Serbia, University of Belgrade, Bulevar despota Stefana 142, 11108 Belgrade, Serbia; marija.janjic@ibiss.bg.ac.rs

Multiple sclerosis (MS) is an autoimmune disease that usually occurs in both sexes during the reproductive years. Various neuroendocrine changes have been described in this inflammatory, demyelinating and debilitating disease, and many male MS patients have lower blood testosterone levels. Our aim was to determine the extent of alterations in the hypothalamic-pituitary-gonadal axis in the male rat model of MS, experimental autoimmune encephalomyelitis (EAE). During the course of the disease, hypothalamic tissue showed a transient upregulation of the inflammatory marker genes *Gfap*, *Cd68*, *Ccl2* and *Il1b*, accompanied by a downregulation of *Gnrh1* expression and pituitary *Gnrhr* expression. Serum levels of luteinizing hormone and testosterone were also reduced during the disease. To better understand the causes of decreased testosterone production during EAE, we examined the expression status of genes and proteins associated with steroidogenesis in the testes. No changes in the number of interstitial cells were detected in the EAE animals, but the expression of the gene insulin-like 3 was reduced at the peak of the disease, suggesting that the functional capacity of Leydig cells was impaired. Consistent with this finding, the expression of most steroidogenic enzyme genes and proteins was reduced during EAE, including StAR, CYP11A1, CYP17A1 and HSD3B. No signs of testicular inflammation were observed. Steroidogenesis recovered after the injection of hCG, a placental gonadotropin or buserelin acetate, an analogue of gonadotropin-releasing hormone, at the peak of EAE. Overall, our results are consistent with the hypothesis that impaired testicular steroidogenesis originates upstream of the testes and that low serum LH levels are the main cause of decreased testosterone levels during EAE.

This work was funded by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Grant No. 451-03-47/2023-01/200007).