

HISTORICAL NOTES

Ottorino Rossi was born on 17th January, 1877, in Solbiate Comasco, a tiny Italian village near Como. In 1895 he enrolled at the medical faculty of the University of Pavia as a student of the Ghislieri College and during his undergraduate years was an intern pupil of the Institute of General Pathology and Histology, which was headed by Camillo Golgi. In 1901 Rossi obtained his medical doctor degree with the highest grades and a distinction. In October 1902 he went on to the Clinica Neuropatologica (Hospital for Nervous and Mental Diseases) directed by Casimiro Mondino to learn clinical neurology. In his spare time Rossi continued to frequent the Golgi Institute which was the leading Italian center for biological research. Having completed his clinical preparation in Florence under Eugenio Tanzi, and in Munich at the Institute directed by Emil Kraepelin, he taught at the Universities of Siena, Sassari and Pavia. In Pavia he was made Rector of the University (from 1925 to 1936) and was instrumental in getting the buildings of the new San Matteo Polyclinic completed. Ottorino Rossi made important contributions to many fields of clinical neurology, neurophysiology and neuroanatomy. These include: the identification of glucose as the reducing agent of cerebrospinal fluid, the demonstration that fibers from the spinal ganglia pass into the dorsal branch of the spinal roots, and the description of the cerebellar symptom which he termed "the primary asymmetries of positions". Moreover, he conducted important studies on the immunopathology of the nervous system, the serodiagnosis of neurosyphilis and the regeneration of the nervous system. He was the author of major scientific works including an extensive investigation of arteriosclerosis in the brain, giving a new interpretation of the development of lesions of vascular origin. He died in 1936 at the age of 59, having named the Ghislieri College as his heir. Ottorino Rossi was one of Camillo Golgi's most illustrious pupils as well as one of the most eminent descendants of Pavia's medico-biological tradition.

Since 1990, thanks to an initiative of the new Scientific Director (Prof. Giuseppe Nappi), the C. Mondino National Institute of Neurology Foundation, IRCCS has held an annual Ottorino Rossi Award Conference at which the award is presented to a scientist who has made an important contribution to research in the field of the neurosciences.

The period 2010-2012 was devoted to *The Founders of Neurology* and saw the prize awarded to the founders of the most important Italian Schools of Neurology of the twentieth century.

In 2013, the Ottorino Rossi Award again became a prize for internationally recognized neuroscientists.

SCIENTIFIC SECRETARIAT

G. Nappi, C. Tassorelli

IRCCS C. Mondino and University of Pavia

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OTTORINO ROSSI AWARD: PREVIOUS WINNERS

Vittorio Erspamer - Rome (Italy)	(1990)
Paolo Pinelli - Milan (Italy)	(1991)
Giovanni Di Chiro - Bethesda (USA)	(1992)
Clarence Joseph Gibbs - Bethesda (USA)	(1993)
David Zee - Baltimore (USA)	(1994)
Elio Lugaresi - Bologna (Italy)	(1995)
Michel Fardeau - Paris (France)	(1996)
Salvador Moncada - London (UK)	(1997)
Alain Berthoz - Paris (France)	(1998)
Ottar Sjaastad - Trondheim (Norway)	(1999)
John Timothy Greenamyre - Atlanta (USA)	(2000)
Salvatore DiMauro - New York (USA)	(2001)
Elio Raviola - Boston (USA)	(2002)
Michael Welch - Chicago (USA)	(2003)
François Boller - Paris (France)	(2004)
Jes Olesen - Copenhagen (Denmark)	(2005)
Stanley Finger - S. Louis (USA)	(2006)
Michael A. Moskowitz - Boston (USA)	(2007)
Patricia Smith Churchland - S. Diego (USA)	(2008)
Stephen P. Hunt - London (UK)	(2009)
Vincenzo Bonavita - Naples (Italy)	(2010)
Cesare Fieschi - Rome (Italy)	(2011)
Giorgio Bernardi - Rome (Italy)	(2012)
Henry Markram - Lausanne (Switzerland)	(2013)

IRCCS FONDAZIONE ISTITUTO NEUROLOGICO NAZIONALE C. MONDINO
Presidente: A. Stella

UNIVERSITÀ DEGLI STUDI DI PAVIA
Magnifico Rettore: F. Rugge

Thursday, 5 June 2014

Scientific Director, IRCCS C. Mondino: G. Nappi

XXV OTTORINO ROSSI AWARD

TESTOSTERONE
AND SEXUAL ACTIVITY
Food for the brain

AULA GOLGI
PALAZZO BOTTA
UNIVERSITÀ DI PAVIA
PIAZZA BOTTA
PAVIA

UNDER THE AUSPICES OF

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Regione Lombardia
Sanità



PROVINCIA
DI PAVIA

Abundant evidence shows that hormonal influences on brain function are ubiquitous, found at every level of neuroscience from human behavior to the ion channel. Hormones, and not only the gonadal ones, are influenced by sex and by circadian clocks. Virtually every eukaryotic cell has a biological sex, and virtually every eukaryotic cell has an endogenous circadian clock whose oscillations are controlled by hormones. In mammals, the suprachiasmatic nucleus serves as a master clock serving to phase synchronize all the clocks throughout the body. Gonadal steroid receptors are expressed in almost every site that receives direct input from this nucleus. Sex differences exist in the circadian timing system within different systems: the hypothalamic-pituitary-gonadal axis, the hypothalamic-adrenal-pituitary axis, and sleep-arousal systems. Disruption of circadian rhythms within these systems differs in the sexes and is associated with dysfunction and disease.

Hormonal influences on the brain are not limited to the control of circadian rhythms, but extend to several functions, i.e. pain perception, cognitive performance, emotional behavior, response to stress, and they can be associated with several diseases.

Hypothalamic hormones affect neural network activity and 'stability'. They can influence brain plasticity, which is in turn influenced by genetic, epigenetic and environmental factors. Sex hormones (estrogen, progesterone and testosterone) also alter brain function. Estrogens can modulate neuronal activity both electrophysiologically and morphologically, potentially through estrogen receptors that are widely distributed throughout the brain, but most concentrated in the hypothalamus. Testosterone is able to modulate the expression of certain genes in the brain by binding to androgen receptors. Furthermore, acting via neurotransmitter receptors, testosterone shows the potential to mediate a non-genomic "neuroactive effect". A better understanding of the role of hormones in brain function, and of the different mechanisms underlying male and female functioning, could lead to improved treatment strategies for several neurological conditions.

4.00 p.m.

REGISTRATION AND WELCOME COFFEE

4.30 p.m.

GREETINGS FROM THE AUTHORITIES

4.45 p.m.

ROUND TABLE MEETING

HORMONES AND THE BRAIN

Four decades of neuroendocrine research at the C. Mondino Foundation, Pavia (1974-2014)

Chairmen: G. Nappi and F. Polatti, *Pavia*

Ab initio

G. Bono, *Varese*

Sex hormones and brain function in women

A.R. Genazzani, *Pisa*

Gender-oriented brain. The case of menstrual migraine

F. Facchinetti, *Modena*

Stress, adaptation and neurodegenerative disorders

A. Costa, *Pavia*

Gender and head pain: a neurophysiological approach

G. Sandrini, *Pavia*

The importance of studying sex influence in the neurobiology of migraine

C. Tassorelli, *Pavia*

6.00 p.m.

XXV OTTORINO ROSSI AWARD CEREMONY

Declaration and Presentation of the Winner

A. Stella, C.M. Montecucco, L. Chiovato, *Pavia*

LECTURE BY THE WINNER

Is testosterone a food for the brain?

Emmanuele A. Jannini (Tor Vergata University of Rome)

7.00 p.m.

COCKTAILS

PROFILE OF THE WINNER

Emmanuele A. Jannini, Full Professor of Endocrinology, Andrology and Sexual Medicine at the Department of Systems Medicine, Tor Vergata University of Rome, Rome, Italy, and head of the Laboratory of Molecular Endocrinology and Molecular Sexology at the University of L'Aquila, Italy, was born in Milan, Italy on April 22, 1960.

From 1979 to 1986, he was a fellow at the Institute of Histology and General Embryology (Prof. M. Stefanini) and at the Chair of Andrology of the V Institute of Clinical Medicine (Prof. A. Isidori), La Sapienza University of Rome. In 1986, he received his Medical Doctor degree (with honors), presenting an experimental thesis entitled "New endocrine aspects of idiopathic impotence", and in 1994, he specialized (with honors) in endocrinology and andrology (thesis: "Role of thyroid hormones in testicular ontogenesis").

From 1988 to 1989 he was a PhD fellow in endocrinology at the University of L'Aquila. In 1990, he was made Assistant Professor of Endocrinology at the Medical School of the



University of L'Aquila. Subsequently, in 2000, he was appointed Associate Professor of Endocrinology and Sexology at the Medical School of the University of L'Aquila, and in 2007, Coordinator of the School of Sexology at the University of L'Aquila. In 2010, he received a full professorship in endocrinology. In 2014 he was appointed Full Professor of Endocrinology, Andrology, and Sexual Medicine at the Department of Systems Medicine of the Tor Vergata University of Rome.

Professor Jannini has had numerous experiences abroad: from 1990 to 1991 he was a guest researcher at the Clinical Endocrinology Branch (Chief, Dr. J. Robbins), NIDDK, National Institutes of Health (Bethesda, MD, USA), working in the Laboratory of Molecular Endocrinology (Dr. V.M. Nikodem). This was followed by an appointment (1992 and 1993) as exchange scientist at the Genetics and Biochemistry Branch (Chief, Dr. D. Camerini-Otero), NIDDK, National Institutes of Health (Bethesda, MD, USA), where he worked in the genetics laboratories (Dr. J.E. Rall). From 2007 to 2011, he lectured at St Catherine's College, Oxford (UK) on summer courses organized by the European Academy of Sexual Medicine.

Emmanuele A. Jannini has received various awards in the course of his career: the Valerio Monesi Fellowship for Research in Reproduction (1987), the Becton Dickinson Award of the Italian Society of Endocrinology (1992), the First Award of the European Academy of Andrology (2000), the prize for the best Special Issue of the Journal of Endocrinological Investigation (2004).

Prof. Jannini is currently General Secretary of the Italian Society of Endocrinology, President-elect of the Italian Society of Andrology and Sexual Medicine, a member of the Standards Committee of the International Society for Sexual Medicine, an Executive Council member and Chairman of the Educational Committee of the European Academy of Andrology. Finally, he has served the European Medicines Agency, London, UK, as member of the Scientific Advisory Group for endocrinology and diabetes. He is also Associate Editor of the Journal of Endocrinological Investigation, a member of the Editorial Board of Andrology and has previously been editor of the section "Controversies in Sexual Medicine" of the Journal of Sexual Medicine.

Prof. Jannini's scientific activity is reflected in his 140 full papers published in peer-reviewed international journals (total impact factor: 598; cited 5026 times; H-index: 41). His main research interests are andrology and sexual medicine (erectile dysfunction and subcellular localization of type 5 phosphodiesterase; pathogenesis of premature ejaculation; functional anatomy of female orgasm) and endocrinology of reproduction and sexuality, particularly testosterone and thyroid physiopathology (the role of sexual activity in the control of the hypothalamus-pituitary-testicular axis; molecular localization and the role of the nuclear TH receptor in the male genital tract). He conducts his research in endocrinology, andrology and sexual medicine both from a clinical and a basic perspective employing molecular, clinical and psychological tools. He is the editor of Italian and international textbooks of andrology and sexual medicine, published in different languages (English, Italian, Portuguese, Japanese, Chinese). On the strength of his publications, he is listed as in the classification of Top Italian Scientists and is active in promoting education in sexual medicine and public sexual health worldwide. Prof. Jannini is a recipient of several public and private research grants.