PADOVA neuroscience CENTER

UNIVERSITÀ DEGLI STUDI DI PADOVA

19 OCTOBER 2023, 3:00 pm

SALA SEMINARI VIMM

(Via Giuseppe Orus 2, Padova)

PNC SEMINARS

A talk by Valter Tucci (Istituto Italiano di Tecnologia – IIT, Genova)

SLEEP BIOLOGY: MONOALLELIC EXPRESSION, GENETIC NOISE AND THE DEVELOPMENT OF A NOVEL CRISPR-BASED EPIGENETIC WRITER

Genomic imprinting, a widely recognized phenomenon in epigenetics, leads to the transcriptional silencing of either maternally or paternally inherited alleles. Our research proposes the hypothesis that imprinting has played a crucial role in shaping the evolutionary dynamics of mammalian sleep. Within our laboratory, we explore this phenomenon at various levels, utilizing in vitro 2D and 3D models, as well as in vivo EEG and behavioural assessments. Furthermore, we have recently embraced a comparative paleogenomics approach, which has provided insights into trade-offs resulting from historical positive selections. In particular, we identified a protein-coding gene within the locus responsible for Prader-Willi syndrome (PWS) that impact on circadian regulation and lipid accumulation. Incidentally, we have developed an innovative CRISPR-based technology designed to provide an accessible control of epigenetic regulatory mechanisms, enabling us to modify gene expression without altering DNA sequences, and holds promise for enhancing current therapeutic strategies.

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Biography

Valter Tucci, PhD, FRSB, is Principal Investigator Tenured of the Genetics and Epigenetics of Behavior (GEB) Laboratory at the Italian Institute of Technology (IIT) in Genoa, and he is a Fellow of the Royal Society of Biology, UK.

He graduated in Psychology at the University of Padua, where he studied the cardiovascular changes associated with NREM and REM sleep states in humans. During his PhD studies he investigated the physiological and cognitive traits of narcoleptic patients. He then moved to Boston to study sleep physiology and cognitive processes in rhesus monkeys and zebrafish. When he moved to Oxford (UK), he switched to work on behavioural neurogenetics: he was awarded a Career Development Fellowship by the MRC Mammalian Genetics Unit at Harwell and was then promoted to the post of Investigator Scientist. At MRC Harwell he has focused on behavioural/cognitive phenotyping of mouse models, and he has also developed a particular interest in functional genomics. He has taken the lead in developing new cognitive and neuromuscular screens in mice and has participated in several EU funded consortia in the field of mouse genetics.

Valter Tucci is currently Team Leader of the Neurobehavioural Group at the Italian Institute of Technology (IIT). His research focuses on the analysis of the effects that genetic and epigenetic mechanisms exert on sleep and cognition.