

Lake Como School of Advanced Studies – Summer School

Watching at the “D” side: D–amino acids and their significance in neurobiology

5–9 June 2016

Università degli Studi dell’Insubria

*Venue: Villa del Grumello, Via per Cernobbio, 11
22100, Como – ITALY*

Site link at : <http://dasn.lakecomoschool.org/>

Speakers’ short bio:



Loredano Pollegioni

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Loredano Pollegioni graduated at the Università di Milano (Italy) and spent post–doc periods at the Universitat Konstanz (Germany) and at the University of Michigan (USA). He is full professor of Biochemistry and vice–director of the Research Center The Protein Factory – Politecnico of Milano and University of Insubria. He is author of more than 150 publications on main international journals in the field of Biochemistry, Molecular and Structural Biology and Biotechnology. The scientific career of Loredano Pollegioni focused on the structure–function relationships in enzymatic proteins, in particular amino acid oxidases. These enzymes have been investigated by using a multidisciplinary methodological approach for their biochemical, structural and physiological point of view. In the last years, the research activity focused on the evolution of enzymatic activities by using rational design and directed evolution methods, and on the investigation of human enzymes involved in pathologies and in important biochemical processes (such as the modulation of D–serine concentration in the brain).



Stefano Bruno

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Stefano Bruno graduated at the University of Parma and holds a PhD in Biochemical Sciences of the University of Torino. He spent three years as a post-doctoral Research Assistant at the University of Oxford, UK. He is now Associate Professor at the University of Parma and is a member of the Italian Society of Biochemistry. He is author of more than 70 publications on international journals. His research is mainly focused on the functional and structural characterization of heme- and pyridoxal phosphate-dependent proteins, with a specific focus on druggable protein targets. More recently, he has been interested in the biochemical characterization of the interactome of serine racemase.



Herman Wolosker

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Herman Wolosker received his M.D. and Ph.D. Degrees from the Federal University of Rio de Janeiro. He spent a 3 year post-doctoral period at the Department of Neuroscience, Johns Hopkins University working on new neuromodulators/transmitters. He is a full Professor of Biochemistry at the Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, and the coordinator of the Allen and Jewel Prince Center for Neurodegenerative Processes of the Brain. He has been a visiting scholar at the Burnham Institute, Johns Hopkins University and McLean Hospital at the Harvard Medical School. Dr. Wolosker's research focuses on mechanisms of neurodegeneration and uncovering new metabolic pathways controlling neurotransmitter levels.



Silvia Sacchi

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Silvia Sacchi graduated with honor in Biological Sciences from the University of Milan and she earned a Ph.D. in Evolutionary and Developmental Biology at the University of Insubria (Varese, Italy). From 2003 she worked as a post-doc fellow at the University of Insubria and in 2005 in the Laboratory of Dr. Jean-Pierre Mothet at the Istitute Fédératif de Neurobiologie Alfred Fessard (Gif-sur-Yvette, France). From 2009 she is a Research Associate at the Department of Biotechnology and Life Sciences at the University of Insubria. Silvia Sacchi is a member of the Italian Society of Biochemistry and of the European Neurochemical Society. From the beginning of her scientific career she has been involved in the investigation of the functional and structural properties of the FAD-dependent enzyme D-amino acid oxidase. More recently, she has been interested in studying the regulation of the brain concentration of the “atypical” neuromodulator D-serine in physiological and pathological conditions.



Gianluca Molla

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Gianluca Molla received the B.S. with Honor in Biology in 1994 and the Ph.D. degree in Developmental and Evolutionary Biology in 1999 from the University of Milan (Italy); in addition, he had an experience as a visiting researcher in Structural Biochemistry at the University of Konstanz (Germany). He is a research fellow (from 2002) and associate professor of Biochemistry (from 2016) at the Dept. of Biotechnology and Life Sciences of the University of Insubria (Italy). His teaching interests also cover Enzymology, Drug Design and computational structural biology.

The scientific career of Gianluca Molla has been focused on the investigation of the structure-function relationships in enzymatic proteins using a combination of classical, fast-kinetic and structural studies combined to different bioinformatic/computational approaches. More recently, the research activity of Gianluca Molla was focused on the identification, production, engineering (by rational and in vitro evolution) of novel enzymatic activities for biotechnological applications such as enzymatic biocatalysis.



Jean-Pierre Mothet

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Jean-Pierre Mothet is Director of Research at CNRS in Marseille (France). He graduated from the University Pierre and Marie Curie, Paris, in 1996 for his work on the biophysics of synaptic transmission with Dr. Ladislav Tauc. Then, he pursued postdoctoral research with Pr Solomon H. Snyder at The Johns Hopkins School of Medicine in Baltimore, USA. There he worked at elucidating the functions and the synthesis pathway of brain D-serine. In 1999, he moved to the laboratory of Pr Jacopo Meldolesi (Milano, Italy) to study exocytosis of transmitter release. His team “Gliotransmission and Synaptopathies” investigates the regulation of NMDA receptors at synapses and circuits underlying memory formation and decision-making in the context of neuron-glia interactions in the healthy and diseased nervous system. He also explores the mechanisms underlying gliotransmission, i.e. the process by which glia releases chemical messengers, and the functional relevance for neuronal network dynamics. He serves at the Editorial boards of *Frontiers in Synaptic Neuroscience* and *PlosONE* and he is a member of the ESN council.



Alessandro Usiello

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Alessandro Usiello is Associate Professor of Clinical Molecular Biology at the Second University of Naples (Italy), and Principal Investigator of the Behavioral Neuroscience Laboratory at CEINGE-Biotecnologie Avanzate (Naples, Italy). He is currently Coordinator of the Mouse Clinical Phenotyping Technological platform at CEINGE-Biotecnologie Avanzate, Naples, Italy. During his PhD in Molecular Biology at IGBMC Strasburg, France (Dr. Borrelli's Lab), he worked on the in vitro and in vivo characterization of dopamine D2 receptors in regulating Dopamine system homeostasis and drugs of abuse. Then, Dr. Usiello performed a Post Doc program in the Molecular Pharmacology Laboratory (Dr. Fisone's Lab) at Karolinska Institutet, Stockholm. The main project was related to signal transduction processes involved in the striatal action of different drugs, including substances of abuse, antipsychotics and antiparkinsonian compounds. Since 2006, Dr. Usiello as PI of the Behavioral Neuroscience Laboratory at Ceinge Biotecnologie Avanzate has been focusing most of his researches on the neuromodulatory role of D-aspartate in NMDAR-dependent processes. During the last decade, together with Dr Errico he found that d Aspartate acts as an endogenous NMDAR agonist, and higher levels of this

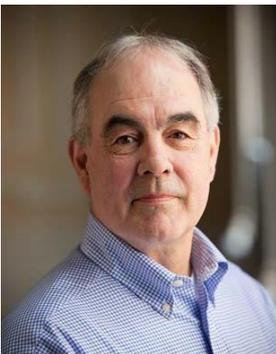
molecule in mouse models enhance NMDAR-dependent functional and structural synaptic plasticity.



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Jean-Marie Billard graduated from the University of Pierre & Marie Curie (Paris VI) and then spent several years of post-doc fellow at the Max Planck Institute for Psychiatry in Munich (Germany). He is research director at the CNRS and presently works at the Center of Psychiatry and Neurosciences supported by INSERM institution and geographically located within Ste Anne Hospital in the south of Paris. He is an internationally recognized expert in the knowledge of functional mechanisms underlying learning and memory. For more than two decades, his specific interests focus on alterations of synaptic processes taking place in the hippocampus during normal and pathological aging. As such he contributes to the Scientific International Board of LECMA attributing grants to research dedicated on Alzheimer's Disease. His work recently characterizes the significant contribution of neuronal- and astrocyte-derived D-serine in the expression of synaptic plasticity in hippocampal networks and demonstrates the critical role of this amino acid in functional deficits occurring during physiological cerebral senescence.



Joseph T. Coyle, MD

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Joseph T. Coyle graduated from Holy Cross College and then received his medical degree from the Johns Hopkins School of Medicine in 1969. Following a pediatric internship, he was a research fellow for three years at the National Institutes of Mental Health with Nobel Laureate, Julius Axelrod. He completed his psychiatric residency at Hopkins and joined the faculty in 1975. In 1982, he became the Director of the Division of Child and Adolescent Psychiatry. From 1991 to 2001, he served as Chairman of the Consolidated Department of Psychiatry at Harvard Medical School. He now holds the Eben S. Draper Chair of Psychiatry and Neuroscience. Dr. Coyle's research interests include developmental neurobiology, mechanisms of neuronal vulnerability and psychopharmacology. He has published over 600 scientific articles and has edited ten books (h-index>100). He is the past-president of the Society for Neuroscience, a member of the Institute of Medicine, and a fellow of the American Academy of Arts and Sciences.



Andrea R. Durrant

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Dr. Andrea R. Durrant is director of the Neuroimmunology Laboratory at Ezrath Nashim – Sarah Herzog Memorial Hospital and acts as adjunct faculty in the Psychiatry Department at Hadassah Medical School – Hebrew University, Jerusalem, Israel. She trained at the Department of Cell Biology & Physiology, Univ. of Pittsburgh School of Medicine, USA; and Department of Neurobiology & Behavior, Cornell University, Ithaca, NY, USA. Dr. Durrant worked at the Dept. of Medical Neurobiology, Institute for Medical Research Israel–Canada, IMRIC, Hebrew University–Hadassah Medical School and joined Sarah Herzog Memorial Hospital in 2012. Dr. Durrant's recent research interests and publications focus on autoimmune brain disorders and the pharmacological manipulation of NMDAR–neurotransmission as an innovative treatment for NMDAR autoimmune encephalopathies.



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Francesco Errico graduated with honors in 1999 in Biological Sciences and received a PhD in Cellular and Molecular Biology and Pathology in 2004, both from the University of Naples “Federico II”. During his PhD, he worked in the laboratory of Molecular Biology and Animal Genetics directed by Prof. Roberto Di Lauro (Stazione Zoologica “A. Dohrn”, Naples), where he generated knockout mice for D–aspartate oxidase by gene targeting approach. From 2006, he worked as a postdoc researcher in the laboratory of Behavioural Neuroscience directed by Prof. Alessandro Usiello at Ceinge Biotecnologie Avanzate, Naples. In the 2012, he became Assistant Professor at the Department of Molecular Medicine and Medical Biotechnology of the University of Naples “Federico II”. His main research interest is addressed to the identification of the role of D–aspartate in NMDA receptor–mediated transmission in the mammalian brain and to the potential involvement of this D–amino acid in brain disorders.



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Jumpei Sasabe is an assistant professor in Keio University School of Medicine, in Tokyo, Japan. He received an M.D. degree (Japan, 2002) and, after an internal medicine residency, carried out his doctoral work on ‘Pathological role of D-serine in neurodegenerative diseases’ with Sadakazu Aiso and received a Ph.D. degree from Keio University (2008). He did postdoctoral research on ‘Role of D-amino acids in the microbe–mammal interplay’ with Matthew K Waldor at Brigham and Women’s Hospital / Harvard Medical School.



Jonathan V. Sweedler

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Jonathan V. Sweedler is a professor of Chemistry, Neuroscience and Physiology at the University of Illinois at Urbana–Champaign. He received his Ph.D. in Chemistry in 1988 at the University of Arizona, and then studied Chemistry and Neuroscience at Stanford from 1988 until 1991, before moving to Illinois. His research interests are two–fold. The first area involves the development of new analytical tools for neurometabolomics and neuropeptidomics using capillary separations, microfluidics, and mass spectrometry. The second research theme uses these approaches to study novel neurochemistry and neurochemical pathways, including d-amino acids and d-amino acid containing peptides, in animal models ranging from mollusks to mammals.



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Annabella Di Giorgio is a consultant psychiatrist and psychoterapist, head of Adult Psychiatry and Psychology Services at IRCCS Casa Sollievo della Sofferenza (FG), and co-coordinator of the Imaging Genetics group at the University of Bari. She graduated in Medicine and Surgery in 1998, and she received the title of Certified Psychiatrist in 2002, both at the University of Catania. In 2007 she obtained a MSc in Affective Neuroscience from the University of Maastricht; and in 2008 she completed a four-year International PhD in Neurobiology at the University of Catania. In 1999/2000 and in 2001/2002 she was an academic visitor at the Institute of Psychiatry, King’s College, University of London, where she was involved in research and clinical training both at the section of Neurobiology of Affective Disorders and Neuroimaging. Her research has mainly focused on brain correlates of schizophrenia and on the association of genetic variation with molecular, brain imaging and behavioral phenotypes crucially linked to this disorder.