



NEUROBIOLOGY OF MENTAL DISORDERS

CIVIS, UAM
Madrid, Spain. 2024



ON-LINE CLASSES

Monday 29/04 15:00-16:00	Lucía Prensa & Javier Gilabert Introduction. History of Psychiatry. Epidemiology.
Tuesday 30/04 15:00-16:00	Maria Mernea Genetics of psychiatric diseases.
Monday 06/05 15:00-16:00	Pilar López Depression
Tuesday 07/05 15:00-16:00	Juan Carlos Leza Schizophrenia
Wednesday 08/05 14:30-15:30	Gerard Anmella Bipolar Disorder
Thursday 09/05 15:00-16:00	José González Martínez Modeling physiological and altered neural development with brain organoids
Monday 13/05 15:00-16:00	Andrzej Cwetsch ADHD and Autism: New Insights on Their Relationship and Background

PHYSICAL CLASSES

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
10:00- 11:00	Javier Gilabert. Anxiety and Stress	Silvia di Angelantonio. <i>in vitro</i> models of neurodevelopmental disorders	Social Program. Visit to Toledo	Javier Caso. The role of autophagy in psychiatric diseases	Jesús Pérez. Outcome of 20 years studying psychotic experiences in Cambridge
11:00- 12:00	Claudio Toma. Genomics of mental disorders.	Rafael Maldonado. Endocannabinoids and microbiota in mental disease		Mercé Masana. Optical tools to monitor and modulate neuronal circuitry in specific brain circuits	Seminars presentations
12:00- 13:00	Pilar López. Neuroimaging	Lunch		Lunch	Lunch
13:00- 15:00	Opening			Lucía Prensa. Neuroanatomy at the laboratory	Seminars presentations
15:00- 16:00	Laura Maggi. Plasticity and the environment	Cajal Legacy. Natural History Museum		Seminars preparation	
16:00-17:00	Seminars distribution				

FACULTY



Lucía Prensa Sepulveda

Associate Professor of Human Anatomy and Embryology, UAM. Doctor of Medicine and Surgery (UAM, 1998). Pre- and postdoctoral training at the Robert-Giffard Neurobiology Research Centre, Université Laval, (Québec, Canada, 1996-2000) and at the Centre for Applied Medical Research (CIMA) of the University of Navarra (2001-2005). She is the author of more than +20 original publications. She investigates the organization of the synaptic connections of dopaminergic and GABAergic neurons of the substantia nigra and the ventral tegmental area, determining the collateralization of their axons. She also studies the structure of the neural circuits that link the thalamus to the basal ganglia at the single-cell and micro-population level.



Javier Gilabert Juan

Associate Professor of Histology, Department of Anatomy, Histology and Neuroscience, UAM. Degree in Biology (University of Valencia, 2006). PhD in Biotechnology (University of Valencia, 2013). Author of 25 scientific articles. Postdoctoral training at CIBERSAM (Valencia, 2013-2016), at the Robert Debre hospital (Paris, 2016-2018) and the College de France (Paris, 2018-2020). His lines of research focus on the study of neuronal plasticity during development and mental illnesses in human postmortem brains and in animal models of mental disorders.



Pilar López García

I graduated in Medicine from the University of Navarra (1994), where I obtained my PhD in Neurosciences with a doctoral thesis on neuroimaging in schizophrenia (2001). Between 2002 and 2004 I did postdoctoral training at the University of Pittsburgh (Pennsylvania, USA) and at the University of California-Davis (California, USA) through a Fulbright postdoctoral fellowship. I have also done research stays at Zucker Hillside Hospital (New York, USA) and regularly collaborate with Dr. Cameron Carter, director of the Imaging Research Center (University of California-Davis).

I have completed my training as a resident intern (MIR) in the specialty of Psychiatry at the Clinic of the University of Navarra (1996-2000). I have carried out clinical-care work for 14 years until I joined the Faculty of Medicine of the UAM (2013). I am currently the Dean of the Faculty of Medicine at UAM.



Silvia Di Angelantonio

Associate Professor at the Department of Physiology and Pharmacology. Sapienza Università di Roma. In the last years, my research interests are focusing on the impact of neuroinflammation in brain pathologies with major interest on the role played by microglia cells on neuron/microglial crosstalk with multidisciplinary approaches (electrophysiology, imaging, molecular and cellular biology, bio-fabrication). My past research in the field of neurophysiology has been focused on functional properties of ligand gated channels and on their potential impact in pathology and therapy.



Laura Maggi

Associate Professor at the Department of Physiology and Pharmacology. Sapienza Università di Roma. My research activity aim at the comprehension of synaptic transmission mechanisms in rodent CNS using Electrophysiology primarily and Molecular Biology. In the last years, I concentrated on the study of the modulation of synaptic transmission and plasticity processes -both in post-natal and adult life- by endogenous factors such as those related to neuro-inflammation, like chemokines. I am particularly intrigued by the bidirectional interplay between nervous and immune systems, along the ongoing changes in the living environment. My current efforts point to the investigation of the mechanisms of action of antidepressants in inflammatory status, neural plasticity and quality of the environment.



Maria Mernea

Associate professor at University of Bucharest, Faculty of Biology. I teach classes of Bioinformatics to students at the Master of Neurobiology and Master of Medical Bioinformatics. My research activities mostly involve the usage of molecular modeling to study the structure and flexibility of biomolecules and biomolecular system. I also use bioinformatics methods to predict the pharmacokinetic and pharmacodynamic profile of drugs and natural compounds useful in the treatment of neurodegenerative diseases or mental disorders.



Claudio Toma

Dr Toma is a Senior Research Officer at Neuroscience Research Australia (NeuRA) and the Centre for Molecular Biology Severo Ochoa in Madrid (Spain). His scientific career has focused on understanding the genetic contributions to a range of complex psychiatric disorders across multiple prestigious institutions in Europe and Australia. Currently, he leads projects on novel candidate genes implicated in bipolar disorder and autism through high-throughput genetic technologies.



Juan Carlos Leza

Professor at the Department of Pharmacology and Toxicology of the Universidad Complutense de Madrid. Neuroinflammatory reactions induced by exposure to inflammatory or stressful stimuli are present in numerous neuropsychiatric pathologies. Our general objective is to provide data from basic research to the development of pharmacological strategies and the search for markers of susceptibility to neuropsychiatric pathologies. In short, to identify and develop pharmacological tools to improve the quality of treatment and diagnosis of these diseases.



Javier Caso Fernández

Associate Professor at the Department of Pharmacology and Toxicology of the Universidad Complutense de Madrid. Study of the role of autophagy (macroautophagy and mitophagy) at the level of the central nervous system and in the periphery in neuropsychiatric diseases (e.g., depression, schizophrenia, etc.) and its possible implication in the pathophysiology of these diseases. Inducing mechanisms of neuroinflammation and oxidative/nitrosative stress in psychiatric illness and strategies for their possible modulation. Search for therapeutic targets and biomarkers. Role of the innate immune system in mental illness.



Gerard Anmella

Medical Degree at the University of Barcelona in 2015. Psychiatry trainee at the Department of Psychiatry of the Hospital Clínic de Barcelona (2016-2020). Researcher at the Depressive and Bipolar Disorders Unit, led by Prof. Vieta since 2016. Research fellow in neurobiology at the IMPACT center, Deakin University, University of Melbourne (Melbourne, Australia) with Prof. Berk (2019-2020). Researcher in psychiatry thanks to a Pons Bartran (2020-2021) and Rio Hortega (2022-2024) grants. Research expertise on affective disorders and especially bipolar disorder. Doctoral thesis in digital technologies applied to affective disorders (2023). Research fellow in translational research at the Douglas Mental Health Institute, McGill University (Montreal, Canada) with Prof. Turecki (2023).



Andrzej Cwetsch

Researcher at the Department of Cell Biology at the Universidad de Valencia. PhD in Neuroscience in Istituto Italiano di Tecnologia (Genova). Postdoctoral stay at IMAGINE in Paris. I'm interested in cell mosaicism phenomena in limited to female disorders, especially in EIEE9 and Rett Syndrome. The role of mosaicism in neurological disease is only beginning to be explored and may have relevance to many types of conditions from brain malformations to epilepsy, intellectual disability, and autism. By combining IUE technique with the latest cell transfection techniques I work on new mouse mosaic models of common neurodevelopmental disorders.



José González Martínez

Pepe trained in Biology (2015) and Clinical Psychology (2022). He obtained his PhD at the Spanish National Cancer Research Centre (2022), focusing on the study of the role of cell division regulators in physiological and altered neurodevelopment. After his PhD studies he led a project about the regulation of developmental timing in cell state transitions during early mammalian embryogenesis. Now, he is a senior postdoctoral researcher at the laboratory of Madeline Lancaster, in the MRC Laboratory of Molecular Biology (Cambridge, UK). His current interests include the study of the molecular determinants of evolutionary differences and the study of autism spectrum disorder using brain organoids. Out of the lab, he loves music, psychology, and traveling.



Rafael Maldonado

Professor of Pharmacology. Universitat Pompeu Fabra (Spain). Laboratory of Neuropharmacology. I carried out research for 11 years in France and the USA. My research lines are focused on the study of the neurochemical/anatomical basis of drug dependence, including opioids, cannabinoids and nicotine. Moreover, I am studying affective disorders (depression, anxiety), neuropathic pain and eating disorders. I have over 380 scientific articles. I am also reviewer/member of the Editorial Board of several scientific journals and have also collaborated with public authorities and private companies in the research policy and pharmaceuticals development on drug abuse and pain.



Mercè Masana

Associate professor at the Department of Biomedicine. Universitat de Barcelona. In our research group, we focus on pioneering novel experimental approaches to assess changes in brain circuits associated with various neurological disorders. Once we identify these circuits, our goal is to design specific modulation strategies, with the aim of correcting the motor, cognitive and affective symptoms that have been affected. In recent years we have employed techniques such as in vitro calcium imaging, along with optogenetics, fiber photometry and magnetic resonance imaging in in vivo experimental models. The ultimate goal is to develop minimally invasive interventions that can restore the normal functioning of these circuits and improve their associated symptomatology.



Jesús Pérez

Psychiatrist at the University Hospital of Salamanca. Honorary Professor of Psychiatry at the University of Cambridge (UK). Honorary Professor of Psychiatry at the University of East Anglia (UEA) (UK) and Senior Lecturer in Psychiatry at the University of Salamanca.

GENERAL BIBLIOGRAPHY

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