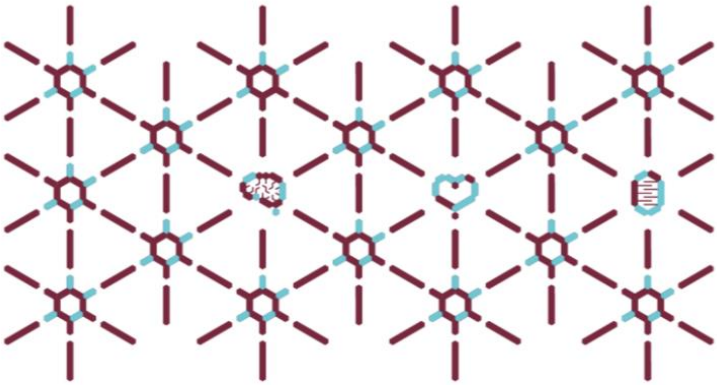
PDBEB DOCTORAL PROGRAM EXPERIMENTAL BIOLOGY AND BIOMEDICINE

IDIN International Doctoral Program in Integrative Neuroscience



ADVANCED COURSES 2026/2027

Unravelling Brain Disorders: Pathogenic Mechanisms in Neuropsychiatric and Neurodegenerative Disorders

16-20 November, 2026

Coordinators:

Sandra Morais Cardoso (CNC-UC/CIBB & FMUC)

Cláudia Fragão Pereira (CNC-UC/CIBB & FMUC)

Ana Cristina Rego (CNC-UC/CIBB & FMUC)

Location:

CNC Auditorium, 2nd floor, Faculty of Medicine Building, Polo I, University of Coimbra

Aim:

This course explores the molecular mechanisms underlying neurodevelopmental, neuropsychiatric, and neurodegenerative disorders, highlighting shared disease pathways, recent research advances, and emerging therapeutic strategies.

Monday, Nov 16, 2026 – Alzheimer's Disease (AD): Present Challenges and Emerging Oportunities

9:00-10:00	Molecular Mechanisms Driving Progression from Down Syndrome to Alzheimer's Disease – *Marzia Perluigi (Sapienza University of Rome)*
10:00-10:45	Transcriptional Regulation and Senescence in Alzheimer's Disease Models – *A. Cristina Rego (CNC-UC & FMUC)*
10:45-11:15	Coffee Break
11:15-12:00	Lipid Droplets Dyshomeostasis in an in vitro Model of Alzheimer's Disease – *Cláudia F. Pereira (CNC-UC & FMUC)*
12:00-12:45	What Fails First in Alzheimer's Disease Neurons? From Genetic Risk to Endosomal and Synapse Dysfunction – *Cláudia Almeida (CEDOC, Nova Medical School, Lisbon)*
12:45-14:00	Lunch Break
14:00-18:00	Scientific Discussions: Marzia Perluigi

Tuesday, Nov 17, 2026 – Parkinson's Disease (PD): From Microbial Triggers and α-Synuclein Trafficking to Immune-Based Therapies

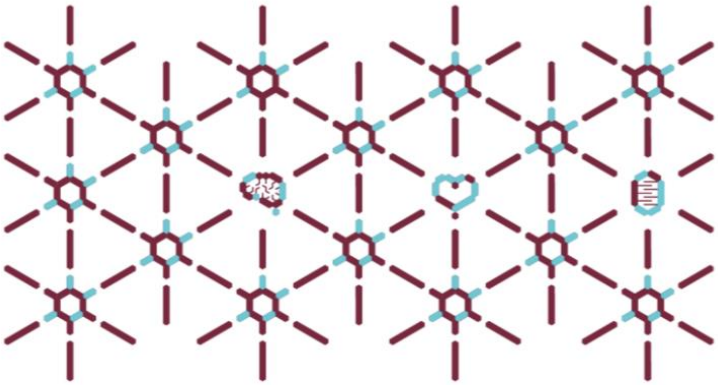
9:00-10:00	Dissecting Gut-brain Communication in Parkinson's Disease – *Rhonda McFleder (University Hospital of Würzburg, Würzburg, Germany)*
10:00-10:45	Neuroimmunity in Parkinson's Disease: From Gut Inflammation to Immune-Based Therapies – *Sandra Morais Cardoso (CNC-UC & FMUC)*
10:45-11:15	Coffee Break
11:15-12:00	Gut MiRs in Immune Stress in Parkinson's Disease – *Ana Raquel Esteves (CNC-UC)*
12:00-12:45	Gut Microbes as Environmental Triggers of Parkinson's Disease – *Nuno Empadinhas (CNC-UC)*
12:45-14:00	Lunch Break
14:00-18:00	Scientific Discussions: Rhonda McFleder

Funded by the European Union

CiBB is an FCT-funded R&D Unit (UID/04539/2025) and an Associate Laboratory (LA/P/0058/2020)

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Wednesday, Nov 18, 2026 – Protein Pathology and Mechanisms of Neuronal Dysfunction in Polyglutamine-Expansion Disorders

9:15-10:00	Huntington's Disease: From CAG Repeats to Synapse Vulnerability – *Chiara Zuccato (University of Milan, Italy)*
10:00-10:45	Striatal Postsynapse and Early Life Stress Impact on Huntington's Disease-Related Mitochondrial Pathogenesis – *A. Cristina Rego (CNC-UC & FMUC)*
10:45-11:15	Coffee Break
11:15-12:00	Transcellular Mitochondrial Degradation in Huntington´s Disease: A Matter of Effective and Cell Specific Neuronal-astrocyte Communication – *Silvia Gines (Universitat de Barcelona)*
12:00-12:45	Glucocorticoid Receptor-Dependent Therapeutics in Machado-Joseph Disease – *Patrícia Maciel (ICVS, University of Minho)*
12:45-14:00	Lunch Break
14:00-15:00	*Open Seminar by Silvia Gines* – From Cells to Mitochondria Cannabinoids and Mechanisms of Cellular Vulnerability in Huntington's Disease
15:00-18:00	Scientific Discussions: Chiara Zuccato

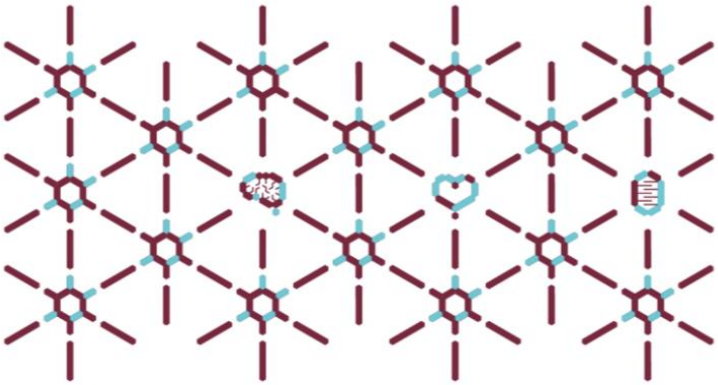
Thursday, Nov 19, 2026 – Neuropsychiatric Disorders: Neurodevelopmental Disruption and Functional Impairment

9:00-10:00	The Neurodevelopmental Hypothesis of Schizophrenia: Prenatal Origins and Timing of Disruption – *Nora Fernandez-Jimenez (University of the Basque Country, UPV/EHU & Biobizkaia)*
10:00-10:45	The Social Brain Under Psychedelics: Sex, Age and Reward learning– *Catarina Gomes (CIBIT-UC)*
10:45-11:15	Coffee Break
11:15-12:00	Endoplasmic Reticulum-Mitochondria Crosstalk in Schizophrenia – *Cláudia F. Pereira (CNC-UC & FMUC)*
12:00-12:45	Environmental Shaping of Schizophrenia: From Maternal Immune Activation to Microbiota-Driven Risk – *A. Raquel Pereira-Santos (CNC-UC)*
12:45-14:00	Lunch Break
14:00-18:00	Scientific Discussions: Nora Fernandez-Jimenez

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Friday, Nov 20, 2026 – Brain Development and Disease

9:00-10:00	**From Sound to Social Interaction: Exploring Auditory Circuit Dysfunction in Autism – Patrícia Monteiro (FFUP)**
10:00-10:45	**Developmental Windows of Vulnerability in Neurodevelopmental Disorders – Ricardo Rodrigues (CNC-UC)**
10:45-11:15	**Coffee Break**
11:15-12:15	**Final Grades and the Pros & Cons of the "Unravelling Brain Disorders" course**

Paper Discussion

For the paper discussion sessions, students will be divided into four groups. Two papers will be discussed each afternoon. For each paper, one group will be responsible for presenting the study, while a second group will lead the critical discussion.

For example, Group A will present Paper 1 and Group B will discuss it, focusing on the strengths and limitations of the study, identifying potential pitfalls, and proposing possible future directions. Group C will then present Paper 2, followed by Group D, who will lead the discussion of that paper using the same critical approach.

All students are expected to read both papers assigned for each afternoon and to participate actively in the discussion, regardless of whether their group is presenting or formally leading the discussion.

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