

THE INSTITUTE



The mission of the Institute of Neurosciences is to understand the nervous system at all levels of analysis.
 Director: Carles Escera

We aim to promote neuroscience research from a global perspective, being the first Institute in the country integrating research lines in neurobiology, neuropharmacology, pathophysiology, neurology, psychiatry, clinical psychology, neuropsychobiology and cognitive neurosciences. This translational approach provides understanding of the brain function to reduce the global burden of disease.

The Institute fulfils a series of principles, including: **foster synergies**

among the different areas of research, to support **research at the frontiers of knowledge** to attract highly talented personnel, to promote **technological and knowledge transfer**, to support **high-quality training programmes**, and to align our research activities with the Responsible Research and Innovation guidelines.

In 2017, the Institute initiated the **Neuroscience Conference Series**, which counted with 11 lectures given by international distinguished neuroscientists, gave support to the **EuroLife Symposium on Neurosciences**, and organized the **II PhD workshop**, where around a hundred early stage researchers shared their interests.

Institute of Neurosciences of the University of Barcelona

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Campuses

Mundet Campus
 Passeig de la Vall d'Hebron, 171
 08035 Barcelona

Barcelona Knowledge Campus
 Diagonal, 643
 08028 Barcelona

Medicine Campus- Hospital Clínic August Pi i Sunyer
 Casanova, 143
 08036 Barcelona

Bellvitge Health Sciences Campus
 Feixa Llargà, s/n
 08907 L'Hospitalet de Llobregat



Institute of Neurosciences ANNUAL REPORT 2017



4 Research professors

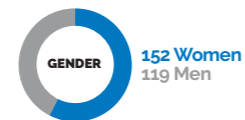
5 Academia professors



European Research Council

1 Advanced grant

1 Proof of concept



Institut de Neurociències
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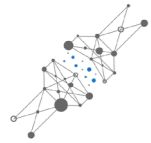


Health Universitat de Barcelona Campus



Barcelona Knowledge Campus

Research Areas



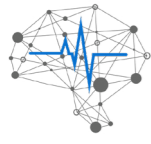
Neurobiology and Neuropharmacology

Studies on cells and neural circuits of the nervous system in normal and pathological situations. Research in identifying new therapeutic targets and drugs to treat neurological disorders.



Pathophysiology of Nervous System Disease

Defining the physiopathological mechanisms involved in the loss of functionality, atrophy and neurodegeneration related to these diseases. A deeper understanding of these mechanisms will allow us to develop new therapeutic strategies to delay or prevent these neurological disorders.



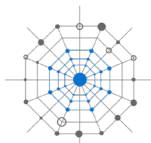
Cognitive Neuroscience and Neuropsychology

Doing research on the neurobiological substrates underlying cognition aiming to unravel the neural circuits implied in mental processes. Neuropsychology groups focus on the clinical application of this knowledge using neuroimaging techniques, genetic studies and cognitive tests.



Cognition, Behaviour and Computation

Mechanisms of human and animal behaviour underlying different cognitive processes. Computational research and modelling analyses on studies of behavior, cognition and conservation, from an evolutionary and comparative perspective.



Clinical and Applied Psychology

Identification, analysis and intervention of human behaviour disorders, both at individual and at group levels. We are especially concerned with psychological problems that affect people's quality of life as well as the social repercussion of these disorders.



Neurology and Psychiatry

Study of the nervous system in normal conditions and in presence of neurological or psychiatric disorders. The main goals of our research lines are the study of severe psychiatric disorders, the neurological disorders and their physiopathological basis, and the development and assessment of new therapies.

Outstanding Publications in 2017

Berk M, Post R, Ratheesh A. et al. (2017) Staging in bipolar disorder: from theoretical framework to clinical utility. *World Psychiatry* 16 (3) 236-244.

HD iPSC Consortium (2017) Developmental alterations in Huntington's disease neural cells and pharmacological rescue in cells and mice. *Nature Neuroscience* 20 (5) 648-660.

Labouesse MA, Lasalle O, Richetto J, et al. (2017) Hypervulnerability of the adolescent prefrontal cortex to nutritional stress via reelin deficiency. *Molecular Psychiatry* 27 (7) 961-971.

Giralt A, Brito V, Chevy Q, et al. (2017) Pyk2 modulates hippocampal excitatory synapses and contributes to cognitive deficits in a Huntington's disease model. *Nature Communications* 8, 15592.

Parras, G, Nieto-Diego J, Carbajal, GV, et al. (2017) Neurons along the auditory pathway exhibit a hierarchical organization of prediction error. *Nature Communications* 8, 2148.

Soto D, Olivella M, Grau C, et al. (2017) Rett-like severe encephalopathy caused by a de novo GRIN2B mutation is attenuated by D-serine dietary supplement. *Biological Psychiatry* 121, 62-63.

Korn CW, Vunder J, Miró J, et al. (2017) Amygdala lesions reduce anxiety-like behavior in a human benzodiazepine-sensitive approach-avoidance conflict test. *Biological Psychiatry* 82 (7) 522-531.

Sokolina K, Kittanakom S, Snider J, et al. (2017) Systematic protein-protein interaction mapping for clinically relevant human GPCRs. *Molecular Systems Biology* 13 (3) 918.

Cariulo C, Azzollini L, Verani M, et al. (2017) Phosphorylation of huntingtin at residue T3 is decreased in Huntington's disease and modulates mutant huntingtin protein conformation. *PNAS* 114 (50) E10809-E10818.

Montejo AL, Arango C, Bernardo M, et al. (2017) Multidisciplinary consensus on the therapeutic recommendations for iatrogenic hyperprolactinemia secondary to antipsychotics. *Frontiers in Neuroendocrinology* 45, 25-34.

Font J, López-Cano M, Notartomaso S, et al. (2017) Optical control of pain in vivo with a photoactive mGlu5 receptor negative allosteric modulator. *eLife* 6, e23545.

Frau-Méndez MA, Fernández-Vega I, Ansoleaga B, et al. (2017) Fatal familial insomnia: mitochondrial and protein synthesis machinery decline in the mediodorsal thalamus. *Brain Pathology* 27 (1) 95-106.

Outstanding Projects Granted in 2017

2,199,318€

Moments in time in immersive virtual environments (MOTIVE)

European Union / European Research Council
Slater, Melyn

326,700€

Modulation of neuronal network dynamics as a therapeutic strategy to recover basal ganglia motor dysfunctions in movement disorders

Spanish Ministry of Economy and Competitiveness
Alberch Vié, Jordi

266,200€

Illuminating the dopamine, adenosine and GPR37 receptors in neurological and neuropsychiatric diseases

Spanish Ministry of Economy and Competitiveness
Ciruela Alférez, Francisco

199,936€

Development of novel inhibitors of the chloride channel LRRC8/VRAC, a novel player in ischemia

La Marató de TV3 Foundation
Estévez Povedano, Raúl

158,121€

Unlocking the virtual body (SYMBIOTIC BODY)

European Union
Gutiérrez Maldonado, José

145,200€

Does RTP801/REDD1 mediate synaptic dysfunction in neurodegenerative processes?

Spanish Ministry of Economy and Competitiveness
Malagelada Grau, Cristina

137,347€

Optimizing response to Li treatment through personalized evaluation of individuals with bipolar I disorder: the R-LiNK initiative (R-LiNK)

European Union
Vieta Pascual, Eduard

135,520€

ARTAG (Aging-related tau astroglipathy)

Institute of Health Carlos III
Ferrer Abizanda, Isidro

133,100€

Functional study of the AMPA receptor proteome

Spanish Ministry of Economy and Competitiveness
Soto Del Cerro, David

128,404€

Effects of combined therapies of exercise, mindfulness and cognitive stimulation in cognition and neuroplasticity in patients with chronic ischaemic ictus

La Marató de TV3 Foundation
Mataró Serrat, Maria

