

THE INSTITUTE



The Institute of Neurosciences of the University of Barcelona is a frontrunner in international neuroscience research, being one of the few institutes in the world that investigates the brain at every level. Director: Jordi Alberch

This includes research groups in neurobiology, neuropharmacology, pathophysiology, neurology, psychiatry, clinical psychology, neuropsychobiology and cognitive neurosciences.

The Institute has been awarded the **Maria de Maeztu Excellence Unit** accreditation, and gathers about 450

researchers from the Faculties of Psychology, Medicine, Pharmacy and Biology, and develops research activities at the University Hospitals located in the multicultural city of Barcelona.

The Institute promotes close collaboration between basic and clinical neuroscientists in all the research areas to tackle the biggest challenges in neurosciences.

We encourage and welcome collaboration with international research groups and organisations to boost the global vision of the Institute.



378 Publications — 1730 Impact Factor

10 Patents

5 Spin off

6 RETICs and CIBERs



4 Research professors
7 Academia professors



2 Advanced grants



MDM-2017-0729. Ministerio de Economía, Industria y Competitividad. Institute of Neurosciences of the University of Barcelona. 2,000,000€

Institute of Neurosciences of the University of Barcelona

Passeig de la Vall d'Hebron, 171
Mundet Campus, "Ponent" Building,
2nd Building, 3rd floor
08035 Barcelona
(+34) 933125095

ubneuro@ub.edu
www.neurociencies.ub.edu

UBneuroscience

Institute of Neurosciences UB

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

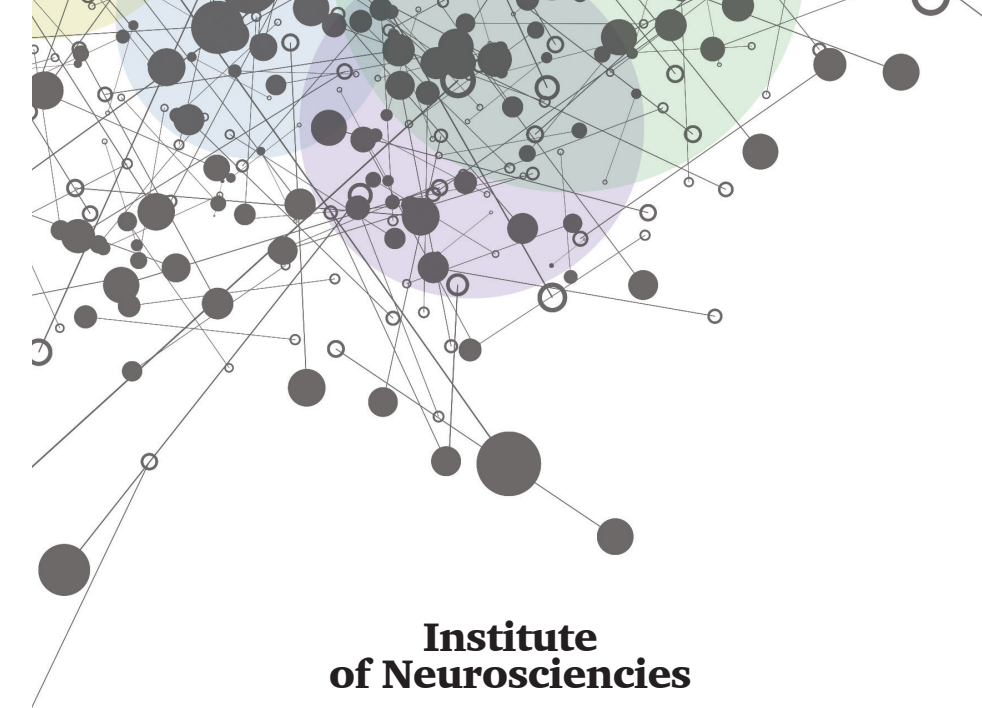
Bellvitge Health Sciences Campus
Feixa Llarga, s/n
08907 L'Hospitalet de Llobregat



Institut de Neurociències
UNIVERSITAT DE BARCELONA



EXCELENCIA
MARÍA
DE MAEZTU



Institute of Neurosciences ANNUAL REPORT 2019



Institut de Neurociències
UNIVERSITAT DE BARCELONA



EXCELENCIA
MARÍA
DE MAEZTU

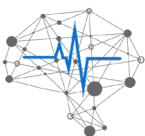


UNIVERSITAT DE
BARCELONA



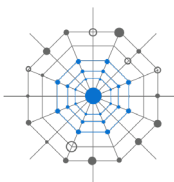
Pathophysiology of Nervous System Diseases

Research in this area focuses on defining the pathophysiological mechanisms involved in the loss of normal and neuronal plasticity related to these diseases. A deeper understanding of neuronal connectivity and dynamics, signaling molecules, cell-cell interaction and epigenetic factors in the nervous system will enable us to devise new pharmacological targets for therapeutic strategies to prevent or delay nervous system diseases.



Cognitive and Behavioural Neuroscience

This research area addresses the cerebral circuits, networks, processes and computational mechanisms that underpin a plethora of functions, such as perception, attention, memory, language, decision making, emotion and the control of action.



Mental Health

Under a multidisciplinary approach, the Institute actively embraces the challenge of advancing mental health knowledge around underlying neurobiological mechanisms, cognitive and daily life functioning, and new treatments and therapies in psychotic and affective disorders in childhood, adolescence, and adulthood.



Experimental Neurology

This area is focused on the study of the nervous system in normal conditions and during neurologic disorders. This includes studies about the correlation between genetic markers, cerebrospinal spinal fluid biomarkers and structural, functional and molecular imaging in patients with movement disorders, dementia, autoimmune synaptic disorders and other neurological disorders.

Esteve, P., Rueda-Carrasco, J., Ines Mateo, M., Jesus Martin-Bermejo, M., Draffin, J., Pereyra, G., Sandonis, A., Crespo, I., Moreno, I., Aso, E., Garcia-Esparcia, P., Gomez-Tortosa, E., Rabano, A., Fortea, J., Alcolea, D., Lleo, A., Heneka, M. T., Valpuesta, J. M., Esteban, J. A., ... Bovolenta, P. (2019). Elevated levels of Secreted-Frizzled-Related-Protein 1 contribute to Alzheimer's disease pathogenesis. *NATURE NEUROSCIENCE*, 22(8), 1258+.



Assaneo, M. F., Ripolles, P., Orpella, J., Lin, W. M., de Diego-Balaguer, R., & Poeppell, D. (2019). Spontaneous synchronization to speech reveals neural mechanisms facilitating language learning. *NATURE NEUROSCIENCE*, 22(4), 627+.

Royal, P., Andres-Bilbe, A., Prado, P. A., Verkest, C., Wdziekonski, B., Schaub, S., Baron, A., Lesage, F., Gasull, X., Levitz, J., & Sandoz, G. (2019). Migraine-Associated TRESK Mutations Increase Neuronal Excitability through Alternative Translation Initiation and Inhibition of TREK. *NEURON*, 101(2), 232+.

Creus-Muncunill, J., Badillos-Rodriguez, R., Garcia-Forn, M., Masana, M., Garcia-Diaz Barriga, G., Guisado-Corcoll, A., Alberch, J., Malagelada, C., Delgado-Garcia, J. M., Gruart, A., & Perez-Navarro, E. (2019). Increased translation as a novel pathogenic mechanism in Huntington's disease. *BRAIN*, 142(10), 3158-3175.

Illan-Gala, I., Montal, V., Borrego-Ecija, S., Vilaplana, E., Pegueroles, J., Alcolea, D., Sanchez-Saudinos, M. B., Clarimon, J., Turon-Sans, J., Bargallo, N., Gonzalez-Ortiz, S., Rosen, H. J., Gorno-Tempini, M. L., Miller, B. L., Llado, A., Rojas-Garcia, R., Blesa, R., Sanchez-Valle, R., Lleo, A., ... Degeneration, F. L. (2019). Cortical microstructure in the behavioural variant of frontotemporal dementia: looking beyond atrophy. *BRAIN*, 142(4), 1121-1133.

Coombs, I. D., Soto, D., McGee, T. P., Gold, M. G., Farrant, M., & Cull-Candy, S. G. (2019). Homomeric GluA2(R) AMPA receptors can conduct when desensitized. *NATURE COMMUNICATIONS*, 10.

Riba, M., Auge, E., Campo-Sabariz, J., Moral-Anter, D., Molina-Porcel, L., Ximelis, T., Ferrer, R., Martin-Venegas, R., Pelegri, C., & Vilaplana, J. (2019). Corpora amylacea act as containers that remove waste products from the brain. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*, 116(51), 26038-26048.

Brito, V., Giralt, A., Masana, M., Royes, A., Espina, M., Sieiro, E., Alberch, J., Castane, A., Girault, J.-A., & Gines, S. (2019). Cyclin-Dependent Kinase 5 Dysfunction Contributes to Depressive-like Behaviors in Huntington's Disease by Altering the DARPP-32 Phosphorylation Status in the Nucleus Accumbens. *BIOLOGICAL PSYCHIATRY*, 86(3), 196-207.

2,199,318€	Moments in Time in Immersive Virtual Environments (MoTIVE) ERC-2016-ADG- 742989. European Union Melvyn Slater
763,002€	Modulation of Tau seeding and pathology in tauopathies by BBB-nanocarriers, epitope selective vaccination and ectoPrP Tau receptor bodies (STOPTauPATHOL) HR18-00452. Fundació Caixa de Pensions 'la Caixa' Isidro Ferrer , Jose Antonio Del Rio
556,820€	A translational model of autoimmune synaptopathy: symptoms, brain networks, and the link to human memory PIE16/00014. Instituto de Salud Carlos III Josefa Castro
501,809€	Training for Advanced Stem Cell Technologies in Neurology (ASCTN-Training) H2020-MSCA-ITN-2018-813851. European Union Josep Maria Canals
498,718€	A Translational Model of Antibody-mediated Synaptic Disease: Symptoms, Neuronal Circuits, and the Mechanisms of Memory Loss and Recovery HR17-00149. Fundació Caixa de Pensions 'La Caixa'. Josep Dalmau
459,800€	Nuevos enfoque para entender la patogénesis y la terapéutica de la Enfermedad de Alzheimer SAF2016-76340-R. Spanish Ministry of Economy, Industry and Competitiveness Eduardo Soriano
435,028€	Healthy minds from 0-100 years: Optimising the use of European brain imaging cohorts (Lifebrain) H2020-SC1-2016-2017- 732592. European Union David Bartres-Faz
326,700€	Modulación de la dinámica de las redes neuronales como estrategia terapéutica para recuperar la disfunción de los ganglios basales en las enfermedades del movimiento SAF2017-88076-R. Spanish Ministry of Economy, Industry and Competitiveness Jordi Alberch
271,040€	Nuevas aproximaciones para entender las funciones de la PrPC y miembros secretables de semaforinas durante el desarrollo del hipocampo y en neurotransmisión RTI2018-099773-B-I00. Spanish Ministry of Economy, Industry and Competitiveness Jose Antonio del Rio