

# THE INSTITUTE

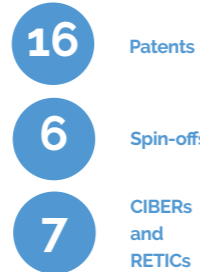
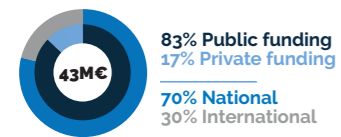


The Institute of Neurosciences of the University of Barcelona is a frontrunner in international neuroscience research, being one of the few institutes in the world that investigates the brain at every level. Director: Jordi Alberch

As a university research Institute, we support training of the neuroscience research workforce and disseminate timely and accurate information about neurological and mental disorders to the research community, physicians, patient associations and the public.

UBneuro was created under the premise to gather all research at the University of Barcelona that focused on a common goal: understanding the nervous system as a whole to give response to society challenges. That is why our research includes fields as neurobiology, neuropharmacology, pathophysiology, neurology, psychiatry, clinical psychology, neuropsychobiology and cognitive neurosciences.

The Institute has been awarded with the **Maria de Maeztu Excellence Unit accreditation**, and gathers 445 researchers from the University of Barcelona. We encourage and welcome collaboration with international research groups and organisations.



476 Publications — 1131 Scientific Journal Ranking



4 Research professors  
6 Academia professors



2 Advanced grants



MDM-2017-0729. Ministerio de Ciencia, Innovación y Universidades. Institute of Neurosciences of the University of Barcelona. 2,000,000€



Institut de Neurociències  
UNIVERSITAT DE BARCELONA



EXCELENCIA  
MARIA  
DE MAEZTU

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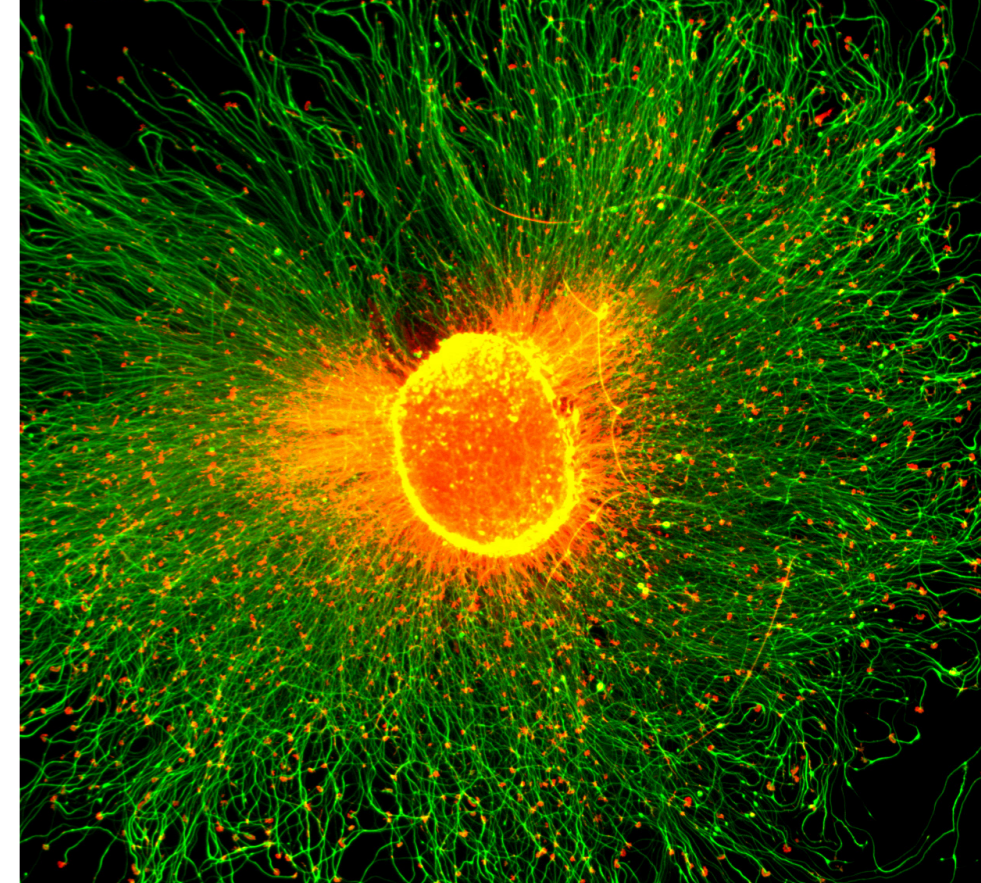
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## Institute of Neurosciences of the University of Barcelona



# ANNUAL REPORT 2020

Institute of Neurosciences  
of the University of Barcelona



Institut de Neurociències  
UNIVERSITAT DE BARCELONA



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## Research Areas



### 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.



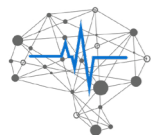
### Experimental Neurology

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 fluid biomarkers and structural, functional and molecular imaging in patients with movement disorders, dementia, autoimmune synaptic disorders and other neurological disorders.



### 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. It also focuses on developing new treatments and therapies in psychotic and affective disorders in childhood, adolescence, and adulthood.



### 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.

## Outstanding Publications in 2020

del Toro, D., Carrasquero-Ordaz, M. A., Chu, A., Ruff, T., Shahin, M., Jackson, V. A., Chavent, M., Berbeira-Santana, M., Seyit-Bremer, G., Brignani, S., Kaufmann, R., Lowe, E., Klein, R., & Seiradake, E. (2020). **Structural Basis of Teneurin-Latrophilin Interaction in Repulsive Guidance of Migrating Neurons.** *CELL*, 180(2), 323-339.e19.

Landa, J., Gaig, C., Plagumà, J., Saiz, A., Antonell, A., Sanchez-Valle, R., Dalmau, J., Graus, F., & Sabater, L. (2020). **Effects of IgLON5 Antibodies on Neuronal Cytoskeleton: A Link between Autoimmunity and Neurodegeneration.** *ANNALS OF NEUROLOGY*, 88(5), 1023-1027.

Llorens, F., Hermann, P., Villar-Piqué, A., Diaz-Lucena, D., Nägga, K., Hansson, O., Santana, I., Schmitz, M., Schmidt, C., Varges, D., Goebel, S., Dumurgier, J., Zetterberg, H., Blennow, K., Paquet, C., Baldeiras, I., Ferrer, I., & Zerr, I. (2020). **Cerebrospinal fluid lipocalin 2 as a novel biomarker for the differential diagnosis of vascular dementia.** *NATURE COMMUNICATIONS*, 11(1), 619.

Ferrer, I., Andrés-Benito, P., Zelaya, M. V., Aguirre, M., Carmona, M., Ausin, K., Lachén-Montes, M., Fernández-Irigoyen, J., Santamaría, E., & Del Rio, J. A. (2020). **Familial globular glial tauopathy linked to MAPT mutations: molecular neuropathology and seeding capacity of a prototypical mixed neuronal and glial tauopathy.** *ACTA NEUROPATHOLOGICA*, 139(4), 735-771.

Stein, H., Barbosa, J., Rosa-Justicia, M., Prades, L., Morató, A., Galan-Gadea, A., Ariño, H., Martínez-Hernandez, E., Castro-Fornieles, J., Dalmau, J., & Compte, A. (2020). **Reduced serial dependence suggests deficits in synaptic potentiation in anti-NMDAR encephalitis and schizophrenia.** *NATURE COMMUNICATIONS*, 11(1), 4250.

Mannara, F., Radosevic, M., Planagumà, J., Soto, D., Aguilar, E., Garcia-Serra, A., Maudes, E., Pedreño, M., Paul, S., Doherty, J., Quirk, M., Dai, J., Gasull, X., Lewis, M., & Dalmau, J. (2020). **Allosteric modulation of NMDA receptors prevents the antibody effects of patients with anti-NMDAR encephalitis.** *BRAIN*, 143(9), 2709-2720.

Palma-Tortosa, S., Tornero, D., Hansen, M. G., Monni, E., Hajj, M., Kartsivadze, S., Aktay, S., Tsupykov, O., Parmar, M., Deisseroth, K., Skibo, G., Lindvall, O., & Kokaia, Z. (2020). **Activity in grafted human iPS cell-derived cortical neurons integrated in stroke-injured rat brain regulates motor behavior.** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES*, 117(16), 9094-9100.

Asnaoui, K. & Radeva, P. (2020). **Automatically Assess Day Similarity Using Visual Lifelogs.** *JOURNAL OF INTELLIGENT SYSTEMS*, 29(1), 298-310.

## Outstanding Projects Granted in 2020

544,936€

**A New Intervention for Implementation of Pharmacogenetics in Psychiatry**  
H2020-SC1-BHC-2018-2020. European Union  
[Eduard Vieta](#)

319,708€

**Gliotransmissors i receptors de cannabinoides en l'origen dels déficits cognitius i de plasticitat sinàptica en la malaltia de Huntington**  
Fundació La Marató de TV3  
[Silvia Ginés](#)

276,182€

**Investigaciones en la encefalitis anti-NMDAR: nuevo test diagnóstico, papel de la inflamación en un modelo animal, y modulación alostérica de NMDAR como estrategia terapéutica**  
PI20/00197. Ministerio de Ciencia, Innovación y Universidades  
[Josep Dalmau](#)

216,048€

**Step by step standing up a Barnahus in Catalonia: A simulation-based training program to avoid secondary victimization in the assessment and treatment of child sexual abuse**  
REC-RDAP-GBV-AG-2019. European Union  
[Noemí Pareda](#)

199,220€

**Registre PSP: estudi de cohort clínics, recerca de biomarcadors i programa d'educació sanitària**  
Fundació La Marató de TV3  
[Yaroslau Compta](#)

176,660€

**Demencias genéticas: cambios longitudinales y diferencias en expresión y epigenéticas con formas esporádicas**  
PI20/00448. Ministerio de Ciencia, Innovación y Universidades  
[Raquel Sanchez-Valle](#)

165,000€

**VIPO customers profiling system to improve the buying experience**  
EIT Digital IVZW. European Union  
[Petia Radeva](#)

142,780€

**La enfermedad de Huntington como una laminopatía: interacción entre el cerebro y la periferia**  
PID2019-106447RB-I00. Ministerio de Ciencia, Innovación y Universidades  
[Esther Perez-Navarro](#)

130,680€

**Modulación de la epóxido hidrolasa soluble (sEH) en cerebro y tejidos periféricos: papel del eje intestino-cerebro en la neurodegeneración**  
PID2019-106285RB-C21. Ministerio de Ciencia, Innovación y Universidades  
[Merce Pallas](#)

