

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

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.

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.

The Institute has been awarded with the **María de Maeztu Excellence Unit** accreditation, and gathers around 460 researchers from the University of Barcelona. We encourage and welcome collaboration with international research groups and organisations.

Institute of Neurosciences of the University of Barcelona



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Institute of Neurosciences of
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UBneuroscience

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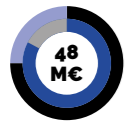


Institute of Neurosciences of the University of Barcelona

ANNUAL REPORT 2021

Ongoing

613 Total Articles



75% National projects
25% International projects
83% Public Funding
17% Private Funding

6 CIBERs and RETICs

6 Spin off

16 Patents



4
Research professors

6
Academia professors



European Research Council

2
Advanced grants



61% Women
39% Men
Total members:460



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



Institut de Neurociències
UNIVERSITAT DE BARCELONA

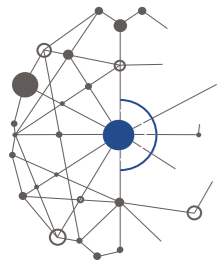


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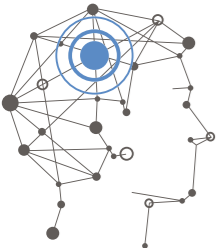
EXCELENCIA
MARÍA
DE MAEZTU

Research Areas



Pathophysiology of Nervous System Diseases

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



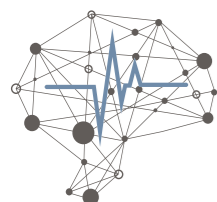
Experimental Neurology

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 diseases.



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 2021

- Crovetto, F., Crispi, F., Casas, R., Martin-Asuero, A., Borràs, R., Vieta, E., Estruch, R., Gratacós, E., & IMPACT BCN Trial Investigators (2021). **Effects of Mediterranean Diet or Mindfulness-Based Stress Reduction on Prevention of Small-for-Gestational Age Birth Weights in Newborns Born to At-Risk Pregnant Individuals: The IMPACT BCN Randomized Clinical Trial.** JAMA, 326(21), 2150–2160. <https://jamanetwork.com/journals/jama/fullarticle/2786831>
- McAllister-Williams, R. H., Arango, C., Blier, P., Demyttenaere, K., Falkai, P., Gorwood, P., Hopwood, M., Javed, A., Kasper, S., Malhi, G. S., Soares, J. C., Vieta, E., Young, A. H., Papadopoulos, A., & Rush, A. J. (2021). **Reconceptualising treatment-resistant depression as difficult-to-treat depression.** LANCET PSYCHIATRY, 8(1), 14–15. [https://doi.org/10.1016/S2215-0366\(20\)30516-2](https://doi.org/10.1016/S2215-0366(20)30516-2)
- Baldwin, K. T., Tan, C. X., Strader, S. T., Jiang, C., Savage, J. T., Elorza-Vidal, X., Contreras, X., Rüllicke, T., Hippenmeyer, S., Estévez, R., Ji, R. R., & Eroglu, C. (2021). **HepaCAM controls astrocyte self-organization and coupling.** NEURON, 109(15), 2427–2442.e10. <https://doi.org/10.1016/j.neuron.2021.05.025>
- Creus-Muncunill, J., Guisado-Corcoll, A., Venturi, V., Pantano, L., Escaramis, G., García de Herreros, M., Solaguren-Beascoa, M., Gámez-Valero, A., Navarrete, C., Masana, M., Llorens, F., Diaz-Lucena, D., Pérez-Navarro, E., & Martí, E. (2021). **Huntington's disease brain-derived small RNAs recapitulate associated neuropathology in mice.** ACTA NEUROPATHOLOGICA, 141(4), 565–584. <https://doi.org/10.1007/s00401-021-02272-9>
- Dávila-Bouziguet, E., Casòliba-Melich, A., Targa-Fabra, G., Galera-López, L., Ozaita, A., Maldonado, R., Àvila, J., Delgado-García, J. M., Gruart, A., Soriano, E., & Pascual, M. (2021). **Functional protection in J20/VLW mice: a model of non-demented with Alzheimer's disease neuropathology.** BRAIN, 145(2), 729–743. <https://doi.org/10.1093/brain/awab319>
- Duran, J., Hervera, A., Markussen, K. H., Varea, O., López-Soldado, I., Sun, R. C., del Río, J. A., Gentry, M. S., & Guinovart, J. J. (2021). **Astrocytic glycogen accumulation drives the pathophysiology of neurodegeneration in Lafora disease.** BRAIN, 144(8), 2349–2360. <https://doi.org/10.1093/brain/awab110>
- Alcalá-Vida, R., García-Forn, M., Castany-Pladevall, C., Creus-Muncunill, J., Ito, Y., Blanco, E., Golbano, A., Crespi-Vázquez, K., Parry, A., Slater, G., Samarajiva, S., Peiró, S., Di Croce, L., Narita, M., & Pérez-Navarro, E. (2021). **Neuron type-specific increase in lamin B1 contributes to nuclear dysfunction in Huntington's disease.** EMBO MOLECULAR MEDICINE, 13(2), e12105. <https://doi.org/10.15252/emmm.202012105>
- Fan, Y., Nirujogi, R. S., Garrido, A., Ruiz-Martínez, J., Bergareche-Yarza, A., Mondragón-Rezola, E., Vinagre-Aragón, A., Croitoru, I., Gorostidi Pagola, A., Paternain Markinez, L., Alcalay, R., Hickman, R. A., Düring, J., Gomes, S., Pratuseviciute, N., Padmanabhan, S., Valldeoriola, F., Pérez Sisqueles, L., Malagelada, C., Ximelis, T., ... Sammler, E. M. (2021). **R1441G but not G2019S mutation enhances LRRK2 mediated Rab10 phosphorylation in human peripheral blood neutrophils.** ACTA NEUROPATHOLOGICA, 142(3), 475–494. <https://doi.org/10.1007/s00401-021-02325-z>

Outstanding Projects Granted in 2021

- 994,890€ **In vivo reprogramming to rescue alterations in Huntington's disease.**
HR21-00622. Fundació 'La Caixa'
[Josep Maria Canals](#)
- 544,936€ **A New Intervention for Implementation of Pharmacogenetics in Psychiatry**
H2020-SC1-BHC-2018-2020. 945151. European Union
[Eduard Vieta](#)
- 320,650€ **Dinámica de los agregados macromoleculares de heteroreceptores de dopamina-adenosina en esquizofrenia y trastornos neurodegenerativos**
PID2020-118511RB-I00. Ministerio de Ciencia e Innovación
[Francisco Ciruela](#)
- 300,291€ **Multiple-level predictors of resilience during the COVID-19 pandemic. Lessons towards a precision preventive medicine**
2020PANDE00043. Agència de Gestió d'Ajuts Universitaris i de Recerca
[David Bartes-Faz](#)
- 290,122€ **Covid-19 and brain: cognition And meNtal heAlth (DIANA)**
2020PANDE00053. Agència de Gestió d'Ajuts Universitaris i de Recerca
[Carme Junque](#)
- 278,300€ **To identify the convergent mechanisms activated by mutant huntingtin and the lack of VPS13A responsible for the selective neurodegeneration of striatal neurons to develop neuroprotective approaches**
PID2020-119386RB-I00. Ministerio de Ciencia e Innovación
[Jordi Alberch & Manuel Rodríguez](#)
- 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 e Innovación
[Josep Dalmau](#)
- 246,755 € **Plataforma Traslacional para la AMS: Descubriendo mecanismos patológicos y nuevas dianas terapéuticas: PTra-ADPT**
AC21_2/00018. Instituto de Salud Carlos III
[Yaroslau Compta](#)
- 208,724€ **Fisioloía de interactores de receptores AMPA (TARPs y CPT1C) en neuronas y glía**
PID2020-119932GB-I00. Ministerio de Ciencia e Innovación
[David Soto](#)
- 205,700€ **Estudio de la función transneuronal de la proteína RTP801/REDD1 en la neuroinflamación en la enfermedad de Alzheimer**
PID2020-119236RB-I00. Ministerio de Ciencia e Innovación
[Cristina Malagelada](#)