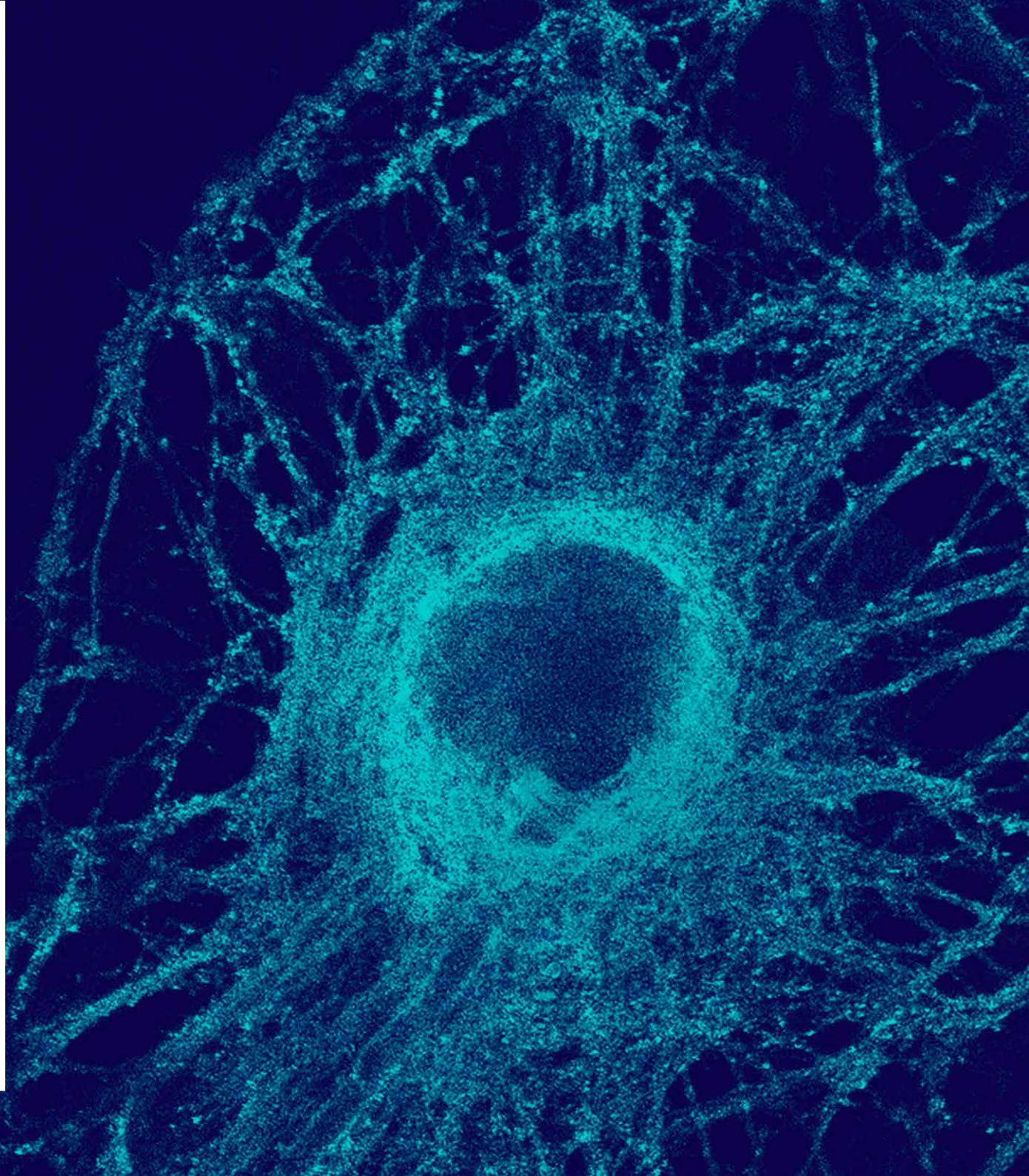
UNIVERSITAT DE BARCELONA

ANNUAL REPORT 2019

Institute of Neurosciences of the University of Barcelona



Institut de Neurociències
UNIVERSITAT DE BARCELONA

UNIT OF EXCELLENCE MARÍA DE MAEZTU

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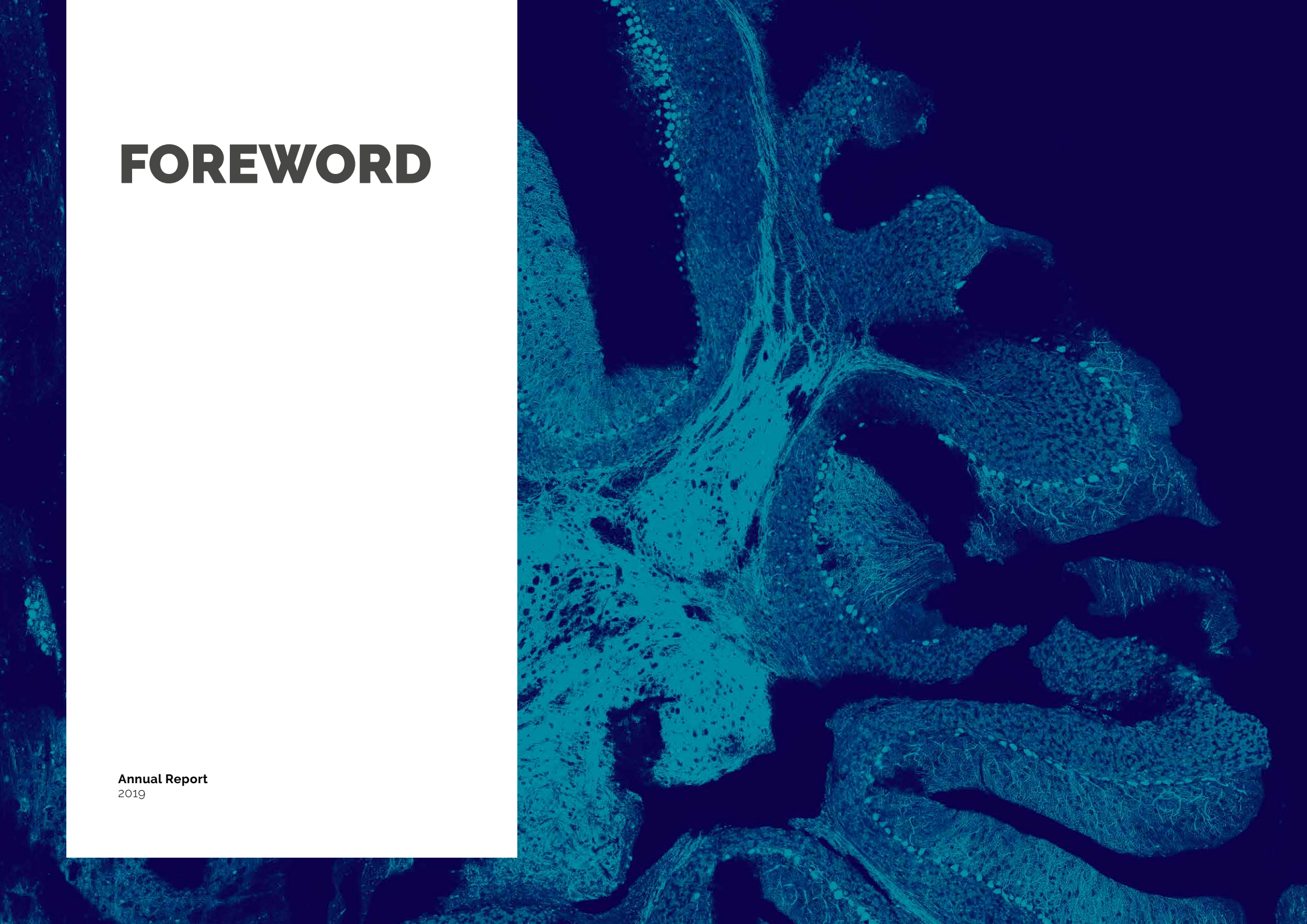
FOREWORD



Annual Report
2019

Foreword

About us

The **Institute of Neurosciences** is a frontrunner in international neuroscience research, being one of the few institutes in the world that investigates the brain at every level. This includes research groups in neurobiology, neuropharmacology, pathophysiology, neurology, psychiatry, clinical psychology, neuropsychobiology and cognitive neurosciences.

The Institute has been awarded with the María 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.

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

Our members enjoy benefits such as being part of a close community, learning from some of the best neuroscience researchers in the world, collaborating in both the private and public sectors, and state-of-the-art facilities.

Foreword

Dr. Jordi Alberch
Director

Message from the Director

It is my pleasure to release the 2019 edition of the Annual Report of the Institute of Neurosciences of the University of Barcelona. The year 2019 has shown the first results of the new strategy after the Institute was awarded with one of the greatest honours within Spanish Science, the **Maria de Maeztu Unit of Excellence** award (MdM) in 2018. We have dedicated this year to start new initiatives and to take action to support the work of the great scientists that are part of the Institute. It is thanks to all our members that we continue to push the boundaries of neuroscience research.

The Institute has achieved an international research leadership in Neuroscience with an outstanding scientific contribution over the past few years. We are proud to rank 32th in Neuroscience and Behaviour in the US News Best Global Universities Ranking.

This year we have worked to support excellent research with high impact. We are very proud to show that our researchers, using multidisciplinary approaches, have obtained novel findings in understanding brain function and pathology from the molecular levels to cognition and behaviour. We also kept a close interaction between basic and clinical research. Many of these fascinating discoveries have only been possible thanks to the wide international collaborative networks of the researchers of the Institute.

We have also increased the scientific potential capacity of the Institute with new researchers. Several young and talented researchers joined the Institute as group leaders. Furthermore, we have built new programmes to retain and attract the best talent, including new grants for excellent master and PhD students and a personalized support programme for researchers interested in applying for Postdoctoral fellowships. We have created eight new technical positions to support scientific and technological platforms that support multiple research groups. Furthermore, this year we also focused on transference with a dedicated person in the team to help our researchers explode their transferability potential and make sure our research reaches society.

Last November we celebrated the second **Scientific Advisory Board** meeting. I would like to acknowledge the hard work of our Advisory Board. They are really involved with the Institute. We reviewed the new opportunities that are open to the Institute since we reached the MdM Unit of Excellence. The members of the Board made interesting and stimulating suggestions for developing a roadmap to keep moving forward as a reference in translational research in Neuroscience in Spain and abroad.

Internationalization is one of our top priorities and thus we support the exchange of knowledge and experience between scientists in many ways. We have awarded 12 grants to conduct short-term research stays in Institutions all around the world and we have hosted 9 distinguished scientists within the Neuroscience conference series programme.

In line with previous years, we have organized the **IV PhD workshop** to support and inspire early stage researchers and master students. This year, the workshop, led by the PhD committee, took a new approach to enhance the impact of the sessions and ended with a concert, allowing the attendants to learn new skills and share experiences with each other.

We continuously strive to align our research activities with the **Responsible Research and Innovation** guidelines fostered by the European Commission supporting the design of inclusive and sustainable research and innovation. This year, the Institute has strengthened its presence in several scientific dissemination and outreach activities such as the 100xCiencia, the 5th Science Festival of the University of Barcelona, Escolab, Pint of Science and the World Brain Week. Once more, the Institute has organized the NeuroArt project. In 2019, we initiated a collaboration with the Centre of Contemporary Culture of Barcelona (CCCB) to take this project to the next level. More than 2000 high school students, and 30 researchers participated in the project, which concluded in an inspiring award Gala at CCCB.

Overall, we keep working toward scientific excellence and strive to advance neuroscience research at all its levels, from discovering new innovative strategies to identifying new therapeutical approaches for neurological and psychiatric disorders, gathering knowledge and building collaborations across disciplines to ultimately tackle current and future challenges and together build a better world.

Dr. Jordi Alberch
MD, PhD, Director

Governing and Advisory Bodies

Director

- **Jordi Alberch, MD, PhD**
  Department of Biomedical Sciences

Secretary

- **Xavier Gasull, PhD**
  Department of Biomedical Sciences

Management team

- **Marta Turro**
  Administrative officer
- **Laia Tremosa, MSc**
  Communication manager
- **Cristina Pulido, PhD**
  Research developer
- **Katia Verger, PhD**
  Transference manager

PhD Committee

Oriol Busquets, Marta Riba, Lidia Vaque, Carla Castany, Alicia Georghiades, Esther Garcia Garcia, Josep Argerich, Ana Martina.

Board of Directors

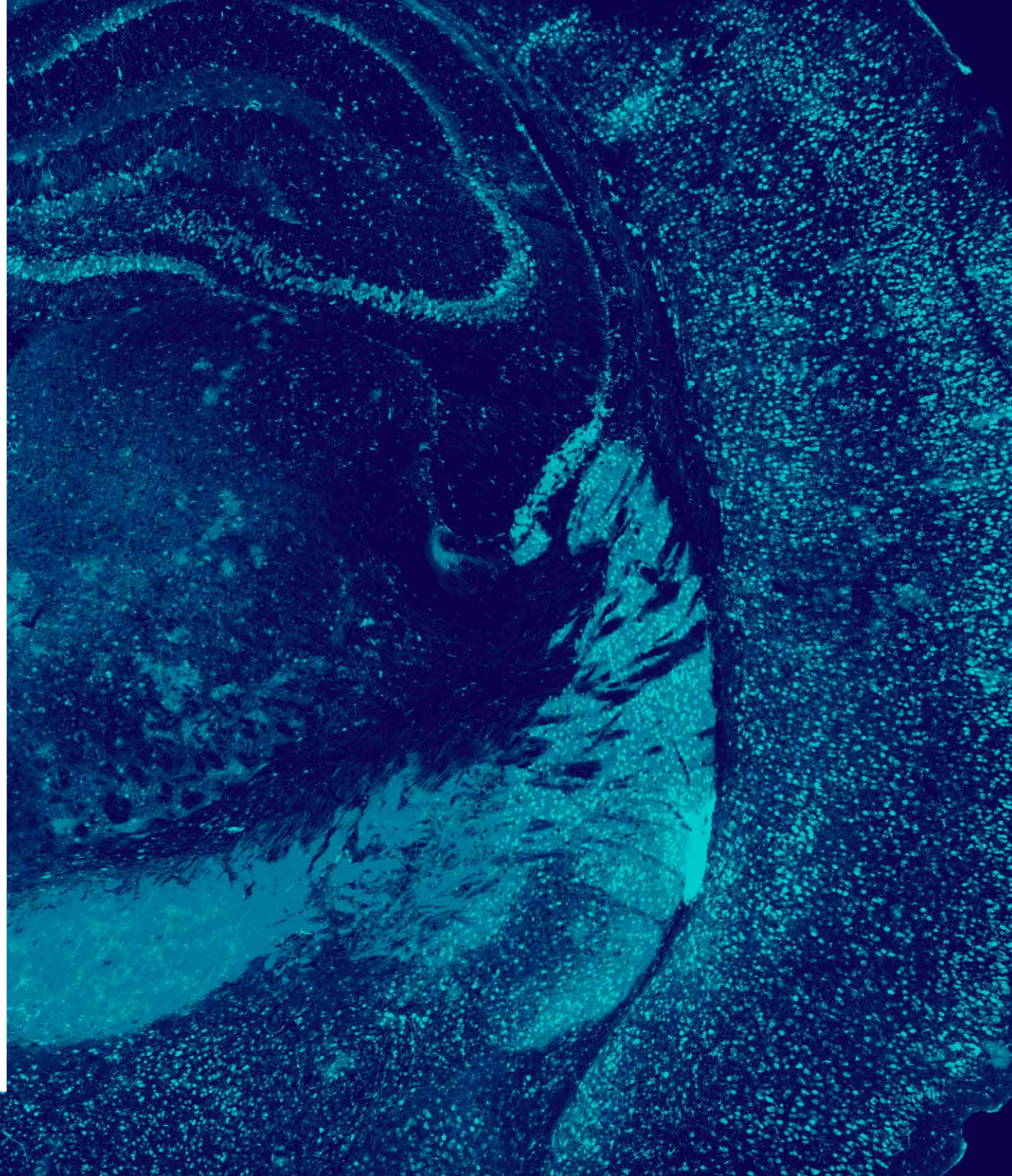
- **Josep Marco, PhD**
  Department of Cognition, Development and Educational Psychology
- **Maria Angels Jurado, PhD**
  Department of Clinical Psychology and Psychobiology
- **Georgina Guilera, PhD**
  Department of Social Psychology and Quantitative Psychology
- **Raul Estevez, PhD**
  Department of Physiological Sciences
- **Merce Pallas, PhD**
  Department of Pharmacology, Toxicology and Therapeutic Chemistry
- **Yaroslau Compta, MD, PhD**
  Department of Medicine

Scientific Advisory Board

- **Kimmo Alho, PhD**
  University of Helsinki, Finland
- **Ernest Arenas, MD, PhD**
  Karolinska Institute, Sweden
- **Mercedes Atienza, PhD**
  Universidad Pablo de Olavide, Spain
- **Carmen Sandi, PhD**
  Ecole Polytechnique Federale de Lausanne, Switzerland
- **Frederic Saudou, PhD**
  Institute of Neuroscience, University Grenoble-Alps, France

2019 IN A NUTSHELL

GLOBAL NUMBERS



Annual Report
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OUTPUTS

378
Total articles

5
Average impact factor

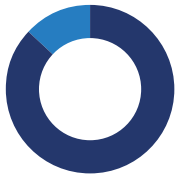
1730
Total impact factor

INPUTS

282 Projects | **37.000.000€**

79% National projects
29M€

21% International projects
8M€



87% Competitive projects
32M€

13% Non competitive projects
5M€

UNIT OF EXCELLENCE MARÍA DE MAEZTU

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

erc

2 Advanced Grants

ICREA

4 Research professors
7 Academia professors

4
CIBERs
9 research groups

2
RETICs

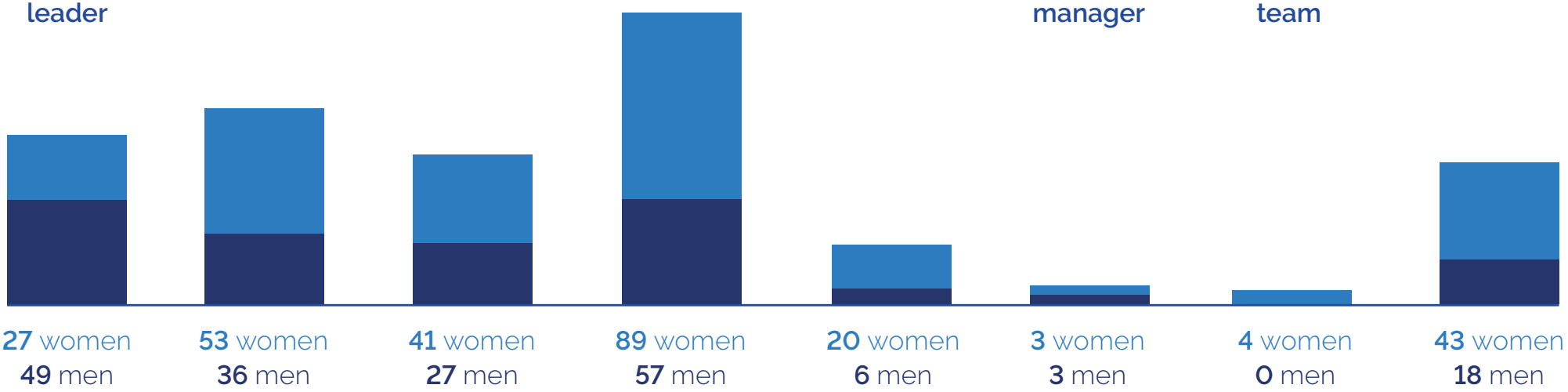
5
Spin off

10
Patents

476 Total Human resources

280 women | **59%**

196 men | **41%**



RESEARCH

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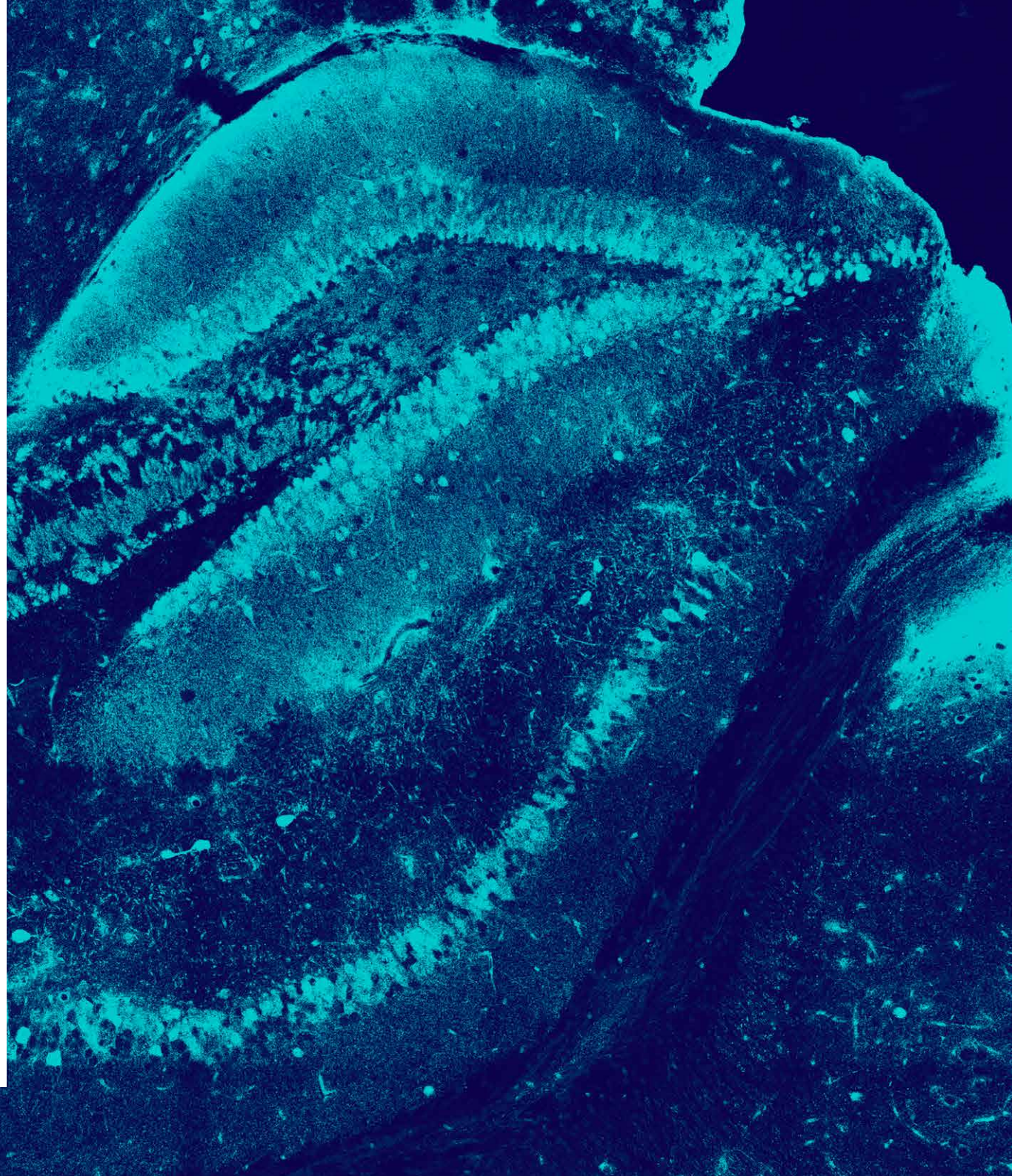

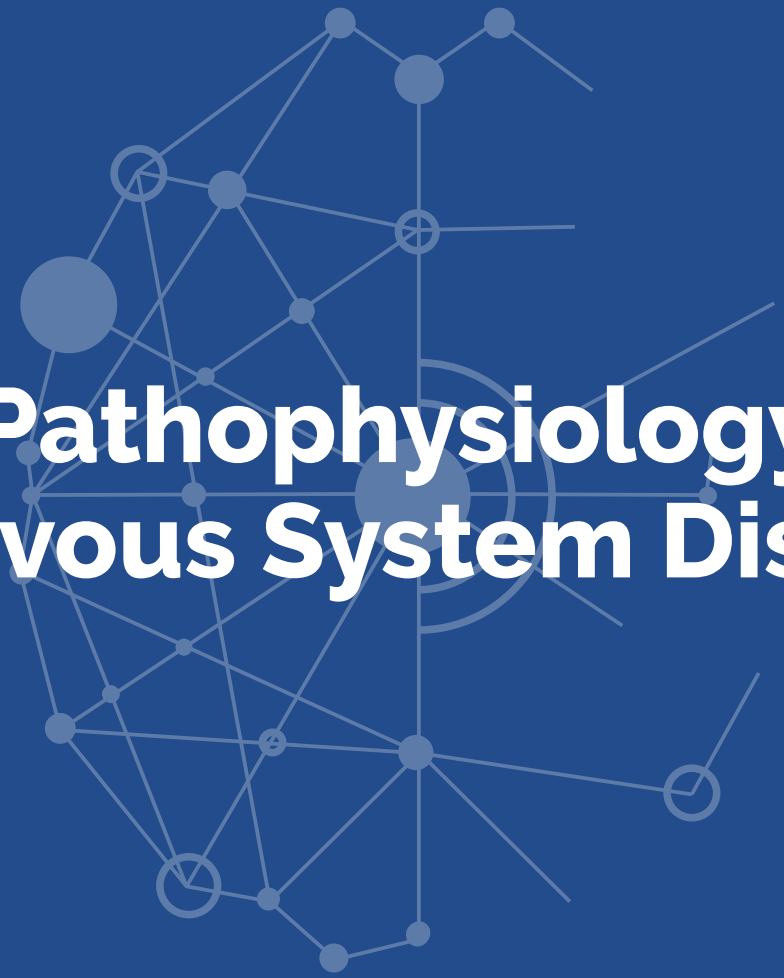

Pathophysiology of Nervous System Diseases

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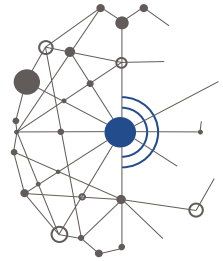
Pathophysiology of Nervous System Diseases



The study of the pathophysiology of nervous system diseases is an important challenge in biomedicine to develop new successful therapies.

Neurological and psychiatric disorders can disrupt molecular pathways, synapses, neuronal and glial subpopulations, and local circuits in specific brain regions, as well as higher-order neural networks. Therefore, research must range from the study of large-scale brain network alterations to the microscopic and/or genetic abnormalities. Improving our knowledge of the pathophysiology of these conditions will enable not only to identify new potential therapeutic targets but also biomarkers, whose usefulness can range from detecting diseases in very early stages more likely to respond to disease-modifying treatments than advanced stages, to differentiate among similar conditions and to monitor response to treatments.

Research in this area focuses on defining the pathophysiological mechanisms involved in the loss of normal and neuronal plasticity related to these diseases using 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.

Another therapeutic approach for nervous system disorders is neuroregenerative medicine. The institute is also interested in mimicking neural development on stem cells for replacing strategies as new therapies for diseases affecting the brain and spinal cord.

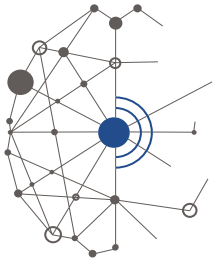
Thus, the current structure and expertise of the Institute of Neurosciences constitute the best environment to conduct multidisciplinary and translational research to find therapeutic approaches for motor and cognitive dysfunctions.

PROJECTS

- **Studying Human MSN Differentiation from PSC using Single-cell RNAseq and Rodent Chimeric Models.** A-12076. CHDI Foundation. Josep M.Canals.
- **Training for Advanced Stem Cell Technologies in Neurology (ASCTN-Training).** H2020-MSCA-ITN-2018-813851. European Union. Coordinator: Josep M. Canals. Total: 3,700,000€. UB: 501,809€
- **Nuevos enfoque para entender la patogénesis y la terapéutica de la Enfermedad de Alzheimer.** SAF2016-76340-R. Ministerio de Economia y Competitividad. Eduardo Soriano. 459,800€
- **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'. Jose Antonio Del Rio. 290,640€
- **Nuevas aproximaciones para entender las funciones de la PrPC y miembros secretables de semaforinas durante el desarrollo del hipocampo y en neurotransmission.** RTI2018-099773-B-I00. Ministerio de Ciencia, Innovación y Universidades. Jose Antonio Del Rio. 271,040€
- **Iluminando los receptores de dopamina, adenosina y GPR37 en enfermedades neurológicas y neuropsiquiátricas.** SAF2017-87349-R. Ministerio de Economía y Competitividad. Francisco Ciruela. 266,200€

Stem cells and regenerative medicine

JOSEP M. CANALS



Pathophysiology of Nervous System Diseases

Members

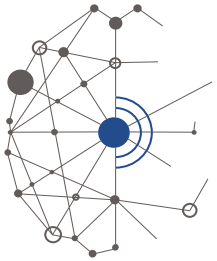
Members: Unai Perpiña Martin, Clara Farres Alvarez, Cristina Herranz Sotoca, Mireia Galofre, Phil Sanders, Georgina Bombau, Cristina Salado Manzano, David Vanneste, Paola Lucero Calabuig, Andres Miguez Gonzalez, Anna Lopez, Cristina Vila, Felipe Chiappe, Veronica Monforte Pizarro, Marco Straccia, Myriam Olive, Daniel Tornero, Waseem Abbas, Clelia Introna, Francisco J. Molina, Andrea Honrubia

Selected projects

- **Studying Human MSN Differentiation from PSC using Single-cell RNAseq and Rodent Chimeric Models**. 600101. CHDI Foundation. Josep M. Canals.
- **Training for Advanced Stem Cell Technologies in Neurology (ASCTN-Training)**. 813851. European Union. Josep M. Canals.
- **Estudio de la implantantación de las alteraciones del neurodesarrollo en la enfermedad de Huntington.** RTI2018-099001-B-I00. Ministerio de Economía y Competitividad. Josep M. Canals.
- **Confidential**. 310042. Universidad de Navarra. Josep M. Canals.
- **Confidential**. 310260. 310260. Hospital Clínic de Barcelona. Josep M. Canals.

Selected publications

- Sanders, P., Iacono, G., Bombau, G., Honrubia, A., Galofre Centelles, M., Rodriguez-Esteban, G., Heyn, H., & Canals, J. M. (2019). Identification of in vitro differentiated striatal progenitor cell sub-types for cell therapy treatment of Huntington's disease. *HUMAN GENE THERAPY, 30*(11), A125.
- Miguez, A., Fernandez-Garcia, S., Monguio-Tortajada, M., Bombau, G., Galofre, M., Garcia-Bravo, M., Vila, C., Sanders, P., Roura, S., Alberch, J., Segovia, J. C., Allen, N. D., Borras, F. E., & Canals, J. M. (2019). In vivo progressive degeneration of Huntington's disease patient iPSC-derived neurons reveals human-specific pathological phenotypes. *HUMAN GENE THERAPY, 30*(11), A122.
- Comella Bolla, A., Valente, T., Miguez, A., Brito, V., Gines, S., Solà, C., Straccia, M., & Canals, J. M. (2019). CD200 is up-regulated in R6/1 transgenic mouse model of Huntington's disease. *PLOS ONE, 14*(12), e0224901–e0224901. https://doi.org/10.1371/journal.pone.0224901.
- Salado-Manzano, C., Bombau, G., Galofre, M., Garcia-Bravo, M., Perpina, U., Marin, P., Segovia, J. C., Sanders, P., & Canals, J. M. (2019). Innovative cell-based therapy to treat Huntington's Disease. *HUMAN GENE THERAPY, 30*(11), A38–A39.



Pathophysiology of Nervous System Diseases

Neural development

SOLEDAD ALCANTARA

Members

Alba Aina Castells Santamaria, Rafael Balada Caballe, Jose Pablo Soriano Esque

Selected projects

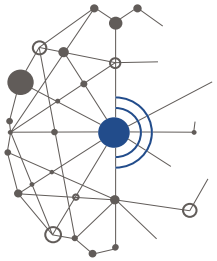
- **Ayudando al cerebro a reconstruirse: comprendiendo las propiedades físicas y metabólicas de los nichos neurogénicos en la búsqueda de terapias regenerativas para daño cerebral**. BFU2017-83435-R. Ministerio de Economía y Competitividad. Soledad Alcantara.

Selected publications

- Castells, A.-A., Gueraldi, D., Balada, R., Tristán-Noguero, A., Cortès-Saladelafont, E., Ramos, F., Meavilla, S., De Los Santos, M., Garcia-Volpe, C., Colomé, R., Couce, M. L., Sierra, C., Ormazábal, A., Batllori, M., Artuch, R., Armstrong, J., Alcántara, S., & Garcia-Cazorla, À. (2019). Discovery of Biomarker Panels for Neural Dysfunction in Inborn Errors of Amino Acid Metabolism. *SCIENTIFIC REPORTS*, *9*(1), 9128. https://doi.org/10.1038/s41598-019-45674-2

Neuropharmacology: aging prevention (GREN)

ANTONI CAMINS



Pathophysiology of Nervous System Diseases

Members

Andres Jimenez Guerrero, Miren Ettcheto, Oriol Busquets, Jaume Folch

Selected projects

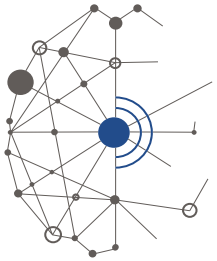
- **Modulación de la vía del receptor de la insulina hipocampal como estrategia terapéutica para el tratamiento de la pérdida cognitiva**. SAF2017-84283-R. Ministerio de Economía y Competitividad**.** Antoni Camins.
- **Enfermedades neurodegenerativas (CIBERNED)**. CB06/05/0024. Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Antoni Camins.

Selected publications

- Busquets, O., Ettcheto, M., Eritja, A., Espinosa-Jimenez, T., Verdaguer, E., Olloquequi, J., Beas-Zarate, C., Castro-Torres, R. D., Casadesus, G., Auladell, C., Bullo, M., Folch, J., & Camins, A. (n.d.). c-Jun N-terminal Kinase 1 ablation protects against metabolic-induced hippocampal cognitive impairments. *JOURNAL OF MOLECULAR MEDICINE-JMM*. https://doi.org/10.1007/s00109-019-01856-z
- Abad, S., Ramon-Duaso, C., Lopez-Arnau, R., Folch, J., Pubill, D., Camarasa, J., Camins, A., & Escubedo, E. (2019). Effects of MDMA on neuroplasticity, amyloid burden and phospho-tau expression in APPswe/PS1dE9 mice. *JOURNAL OF PSYCHOPHARMACOLOGY, 33*(9), 1170–1182. https://doi.org/10.1177/0269881119855987
- Ettcheto, M., Cano, A., Busquets, O., Regina Manzine, P., Sanchez-Lopez, E., Castro-Torres, R. D., Beas-Zarate, C., Verdaguer, E., Luisa Garcia, M., Oquequi, J., Auladell, C., Folch, J., & Camins, A. (2019). A metabolic perspective of late onset Alzheimer's disease. *PHARMACOLOGICAL RESEARCH, 145*. https://doi.org/10.1016/j.phrs.2019.104255
- Cano, A., Ettcheto, M., Chang, J.-H., Barroso, E., Espina, M., Kuhne, B. A., Barenys, M., Auladell, C., Folch, J., Souto, E. B., Camins, A., Turowski, P., & Luisa Garcia, M. (2019). Dual-drug loaded nanoparticles of Epigallocatechin-3-gallate (EGCG)/Ascorbic acid enhance therapeutic efficacy of EGCG in a APPswe/PS1dE9 Alzheimer's disease mice model. *JOURNAL OF CONTROLLED RELEASE, 301*, 62–75. https://doi.org/10.1016/j.jconrel.2019.03.010
- Busquets, O., Eritja, A., Lopez, B. M., Ettcheto, M., Manzine, P. R., Castro-Torres, R. D., Verdaguer, E., Ollequequi, J., Vazquez-Carrera, M., Auladell, C., Folch, J., & Camins, A. (2019). Role of brain c-Jun N-terminal kinase 2 in the control of the insulin receptor and its relationship with cognitive performance in a high-fat diet pre-clinical model. *JOURNAL OF NEUROCHEMISTRY, 149*(2), 255–268. https://doi.org/10.1111/jnc.14682

Neuropharmacology and pain

FRANCISCO CIRUELA; ESTER ASO



Pathophysiology of Nervous System Diseases

Members

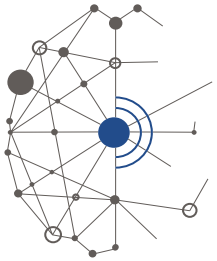
Victor Fernandez Dueñas, Maria Laura Cuffi Cheliz, Xavier Morato Arus, Marc Lopez Cano, Marta Valle Leon, Josep Argerich, Hector Godoy Marin, Kristoffer Sahlholm, Salut Sanchez Rodriguez, Sebastian Videla, Xavier Altafaj, Pilar Hereu Boher

Selected projects

- **Iluminando los receptores de dopamina, adenosina y GPR37 en enfermedades neurológicas y neuropsiquiátricas**. SAF2017-87349-R. Ministerio de Economía y Competitividad. Francisco Ciruela.
- **Neurofarmacologia i dolor.** 2017SGR1604. Agència de Gestió d'Ajuts Universitaris i de Recerca. Francisco Ciruela.
- **Confidential.** 310048. Laboratorios del Dr. Esteve, S.A. Francisco Ciruela.
- **El complejo trans-sináptico formado por CB1-A2A y mGlu5 en el hipocampo como sustrato de los efectos terapéuticos de los cannabinoides en la enfermedad de Alzheimer.** RTI2018-097773-A-I00. Ministerio de Ciencia, Innovación y Universidades. Ester Aso.
- **Confidential.** 309882. DBA Orgaceutical Co. Ester Aso.

Selected publications

- Lanznaster, D., Massari, C. M., Markova, V., Simkova, T., Duroux, R., Jacobson, K. A., Fernandez-Duenas, V., Tasca I, C., & Ciruela, F. (2019). Adenosine A(1)-A(2A) Receptor-Receptor Interaction: Contribution to Guanosine-Mediated Effects. *CELLS*, *8*(12). https://doi.org/10.3390/cells8121630
- 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+. https://doi.org/10.1038/s41593-019-0432-1
- Soto, D., Olivella, M., Grau, C., Armstrong, J., Alcon, C., Gasull, X., Santos-Gomez, A., Locubiche, S., de Salazar, M. G., Garcia-Diaz, R., Gratacos-Batlle, E., Ramos-Vicente, D., Chu-Van, E., Colsch, B., Fernandez-Duenas, V., Ciruela, F., Bayes, A., Sindreu, C., Lopez-Sala, A., … Altafaj, X. (2019). L-Serine dietary supplementation is associated with clinical improvement of loss-of-function GRIN2B-related pediatric encephalopathy. *SCIENCE SIGNALING*, *12*(586). https://doi.org/10.1126/scisignal.aaw0936
- Morato, X., Goncalves, F. Q., Lopes, J. P., Jauregui, O., Soler, C., Fernandez-Duenas, V., Cunha, R. A., & Ciruela, F. (2019). Chronic adenosine A(2A) receptor blockade induces locomotor sensitization and potentiates striatal LTD IN GPR37-deficient mice. *JOURNAL OF NEUROCHEMISTRY*, *148*(6), 796–809. https://doi.org/10.1111/jnc.14653
- Aso, E., Fernandez-Duenas, V., Lopez-Cano, M., Taura, J., Watanabe, M., Ferrer, I., Lujan, R., & Ciruela, F. (2019). Adenosine A(2A)-Cannabinoid CB1 Receptor Heteromers in the Hippocampus: Cannabidiol Blunts Delta(9)-Tetrahydrocannabinol-Induced Cognitive Impairment. *MOLECULAR NEUROBIOLOGY*, *56*(8), 5382–5391. https://doi.org/10.1007/s12035-018-1456-3



Pathophysiology of Nervous System Diseases

Physiology and pathology of the functional relations neuron-glia

RAUL ESTEVEZ

Members

Carla Perez Rius, Xavier Elorza Vidal, Hector Gaitan Peñas, Marta Alonso Gardon, Efren Xicoy Espaulella, Adria Pla Casillanis, Mercedes Armand-Ugon, Aida Castellanos Esparraguera

Selected projects

- **Enfermedades Raras (CIBERER).** CB06/07/1003. Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Raul Estevez.
- **Regulación de canales de cloruro en salud y enfermedad.** RTI2018-093493-B-I00. Ministerio de Ciencia, Innovación y Universidades. Raul Estevez.
- **Ajut per incentivar i consolidar la recerca d'excel·lència ja existent a les universitats públiques de Catalunya.** Programa ICREA Academia 2014. Fundació Institució Catalana de Recerca i Estudis Avançats. Raul Estevez.
- **Development of novel inhibitors of the chloride channel LRRC8/VRAC, a novel player in ischemia**. 201710.30. Fundació La Marató de TV3. Raul Estevez.
- **Misslocalization of astrocytic VCAM-1 in Megalencephalic leukoencepahlopathy**. ELA2017-012F4. ELA Research Foundation. Raul Estevez.

Selected publications

- Brignone, M. S., Lanciotti, A., Serafini, B., Mallozzi, C., Sbriccoli, M., Veroni, C., Molinari, P., Elorza-Vidal, X., Petrucci, T. C., Estevez, R., & Ambrosini, E. (2019). Megalencephalic Leukoencephalopathy with Subcortical Cysts Protein-1 (MLC1) Counteracts Astrocyte Activation in Response to Inflammatory Signals. *MOLECULAR NEUROBIOLOGY*, *56*(12), 8237–8254. https://doi.org/10.1007/s12035-019-01657-y
- Perez-Rius, C., Folgueira, M., Elorza-Vidal, X., Alia, A., Hoegg-Beiler, M. B., Eeza, M. N. H., Luz Diaz, M., Nunes, V., Barrallo-Gimeno, A., & Estevez, R. (2019). Comparison of zebrafish and mice knockouts for Megalencephalic Leukoencephalopathy proteins indicates that GlialCAM/MLC1 forms a functional unit. *ORPHANET JOURNAL OF RARE DISEASES*, *14*(1). https://doi.org/10.1186/s13023-019-1248-5
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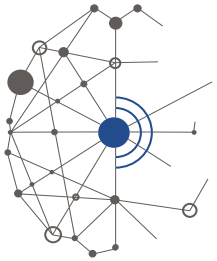
- Elorza-Vidal, X., Gaitan-Penas, H., & Estevez, R. (2019). Chloride Channels in Astrocytes: Structure, Roles in Brain Homeostasis and Implications in Disease. *INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES*, *20*(5). https://doi.org/10.3390/ijms20051034

Neurodegeneration and neuroprotection

CARME AULADELL



Pathophysiology of Nervous System Diseases

Members

Ester Verdaguer Cardona

Selected projects

- **Modulación de la vía del receptor de la insulina hipocampal como estrategia terapéutica para el tratamiento de la pérdida cognitiva**. SAF2017-84283-R. Ministerio de Economía y Competitividad. Carme Auladell.
- **Enfermedades neurodegenerativas (CIBERNED).** CB06/05/0024. Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Carme Auladell.

Selected publications

- Busquets, O., Ettcheto, M., Cano, A., Manzine, P. R., Sanchez-Lopez, E., Espinosa-Jimenez, T., Verdaguer, E., Dario Castro-Torres, R., Beas-Zarate, C., Sureda, F. X., Olloquequi, J., Auladell, C., Folch, J., & Camins, A. (2020). Role of c-Jun N-Terminal Kinases (JNKs) in Epilepsy and Metabolic Cognitive Impairment. *INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES*, *21*(1). https://doi.org/10.3390/ijms21010255
- Castro-Torres, R. D., Landa, J., Rabaza, M., Busquets, O., Olloquequi, J., Ettcheto, M., Beas-Zarate, C., Folch, J., Camins, A., Auladell, C., & Verdaguer, E. (2019). JNK Isoforms Are Involved in the Control of Adult Hippocampal Neurogenesis in Mice, Both in Physiological Conditions and in an Experimental Model of Temporal Lobe Epilepsy. *MOLECULAR NEUROBIOLOGY*, *56*(8), 5856–5865. https://doi.org/10.1007/s12035-019-1476-7
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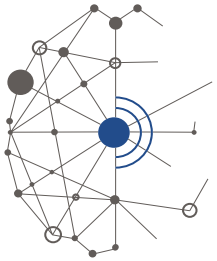

Pathophysiology of Nervous System Diseases

Neurodegeneration and synaptic dysfunction in Huntington´s disease

SILVIA GINES

Members

Anika Pupak, Veronica Brito, Laura Lopez-Molina, Marc Espina

Selected projects

- **Transmitofagia entre astrocitos y neuronas: una nueva forma de comunicación entre neurona y glía en la enfermedad de Huntington?.** RTI2018-094374-B-I00. Ministerio de Ciencia, Innovación y Universidades. Silvia Gines.
- **Interacción CB-Grp78: ¿un nuevo mecanismo regulador de la actividad neuroprotectora de los cannabinoids? (CIBERNED).** Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Silvia Gines.

Patents

- **Methods and pharmaceutical composition for the treatment of neurodegerative disease**. UBTT0329-E

Selected publications

- 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. https://doi.org/10.1016/j.biopsych.2019.03.001
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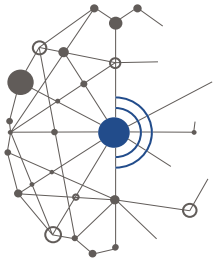
- Suelves, N., Miguez, A., Lopez-Benito, S., Garcia-Diaz Barriga, G., Giralt, A., Alvarez-Periel, E., Carlos Arevalo, J., Alberch, J., Gines, S., & Brito, V. (2019). Early Downregulation of p75(NTR) by Genetic and Pharmacological Approaches Delays the Onset of Motor Deficits and Striatal Dysfunction in Huntington's Disease Mice. *MOLECULAR NEUROBIOLOGY*, *56*(2), 935–953. https://doi.org/10.1007/s12035-018-1126-5
- Montalban, E., Al-Massadi, O., Sancho-Balsells, A., Brito, V., de Pins, B., Alberch, J., Gines, S., Girault, J.-A., & Giralt, A. (2019). Pyk2 in the amygdala modulates chronic stress sequelae via PSD-95-related micro-structural changes. *TRANSLATIONAL PSYCHIATRY*, *9*. https://doi.org/10.1038/s41398-018-0352-y
- Comella Bolla, A., Valente, T., Miguez, A., Brito, V., Gines, S., Solà, C., Straccia, M., & Canals, J. M. (2019). CD200 is up-regulated in R6/1 transgenic mouse model of Huntington's disease. *PLOS ONE*, *14*(12), 1–19. https://doi.org/10.1371/journal.pone.0224901



Pathophysiology of Nervous System Diseases

Cellular and molecular basis of sensory disorders

JORDI LLORENS

Members

Blanca Cutillas Arroyo, Carla Soler Martin, Alberto Maroto Ferrer, Erin Greguske, Alejandro Barrallo Gimeno

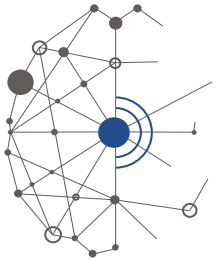
Selected projects

- **Respuesta molecular del sistema vestibular a la ototoxicidad crónica; identificación de mecanismo y desarrollo de modelos de análisis in vivo.** RTI2018-096452-B-I00. Ministerio de Ciencia, Innovación y Universidades. Jordi Llorens.

Selected publications

- Martins-Lopes, V., Bellmunt, A., Greguske, E. A., Maroto, A. F., Boadas-Vaello, P., & Llorens, J. (2019). Quantitative Assessment of Anti-Gravity Reflexes to Evaluate Vestibular Dysfunction in Rats. *JARO-JOURNAL OF THE ASSOCIATION FOR RESEARCH IN OTOLARYNGOLOGY*, *20*(6), 553–563. https://doi.org/10.1007/s10162-019-00730-6

- Greguske, E. A., Carreres-Pons, M., Cutillas, B., Boadas-Vaello, P., & Llorens, J. (2019). Calyx junction dismantlement and synaptic uncoupling precede hair cell extrusion in the vestibular sensory epithelium during sub-chronic 3,3-iminodipropionitrile ototoxicity in the mouse. *ARCHIVES OF TOXICOLOGY*, *93*(2), 417–434. https://doi.org/10.1007/s00204-018-2339-0



Pathophysiology of Nervous System Diseases

Neuropharmacology in aging and neurodegeneration

MERCE PALLAS; CHRISTIAN GRIÑAN-FERRE

Members

Anna Maria Canudas Teixido, M. Dolors Puigoriol Illamola, Foteini Vasilopoulou, Coral Sanfeliu, Vanesa Izquierdo Cadenas, Julia Companys Alemany

Selected projects

- **Estudio de una nueva diana farmacológica para la enfermedad de Alzheimer: modulación del estrés oxidativo y la función mitocondrial**. SAF2016-77703-C2-1-R. Ministerio de Economía y Competitividad. Merce Pallas.
- **A New family of sEH inhibitors for Alzheimer Disease.** CI17-00053. Fundació Caixa de Pensions 'La Caixa'. Merce Pallas.
- **Confidential.** 310277. Biosearch S.A. Merce Pallas.
- **Confidential.** 310346. Oryzon Genomics, S.A. Merce Pallas.
- **Inhibidors de l'epòxid hidrolasa soluble per fer front a la malaltia de Niemman-Pick C.** 2018 LLAV 00007. Agència de Gestió d'Ajuts Universitaris i de Recerca. Merce Pallas.

Patents

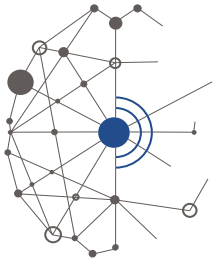
- **Phenoxycyclohexylurea derivatives for use in reducing accumulation of amyloid plaques and/or hyperphosphorylation of tau protein**. UBTT0307a
- **Compounds for use in reducing accumulation of amyloid plaques and/or hyperphosphorylation of tau protein.** UBTT0307b
- **Synthetic I2 imidazoline receptor ligands for prevention or treatment of human brain disorders.** UBTT0327
- **Composiciones para uso en el tratamiento de trastornos cognitivos.** PCT/ES2020/070005

Selected publications

- Puigoriol-Illamola, D., Leiva, R., Vazquez-Carrera, M., Vazquez, S., Grinan-Ferre, C., & Pallas, M. (2019). 11 beta-HSD1 Inhibition Rescues SAMP8 Cognitive Impairment Induced by Metabolic Stress. *MOLECULAR NEUROBIOLOGY*, *57*(1, SI), 551–565. https://doi.org/10.1007/s12035-019-01708-4
- Grinan-Ferre, C., Marsal-Garcia, L., Bellver-Sanchis, A., Kondengaden, S. M., Turga, R. C., Vazquez, S., & Pallas, M. (2019). Pharmacological inhibition of G9a/GLP restores cognition and reduces oxidative stress, neuroinflammation and beta-Amyloid plaques in an early-onset Alzheimer's disease mouse model. *AGING-US*, *11*(23), 11591–11608. https://doi.org/10.18632/aging.102558
- Grinan-Ferre, C., Vasilopoulou, F., Abas, S., Rodriguez-Arevalo, S., Bagan, A., Sureda, F. X., Perez, B., Callado, L. F., Garcia-Sevilla, J. A., Julia Garcia-Fuster, M., Escolano, C., & Pallas, M. (2019). Behavioral and Cognitive Improvement Induced by Novel Imidazoline I-2 Receptor Ligands in Female SAMP8 Mice. *NEUROTHERAPEUTICS*, *16*(2, SI), 416–431. https://doi.org/10.1007/s13311-018-00681-5
- la Rosa, A., Solana, E., Corpas, R., Bartres-Faz, D., Pallas, M., Vina, J., Sanfeliu, C., & Carmen Gomez-Cabrera, M. (2019). Long-term exercise training improves memory in middle-aged men and modulates peripheral levels of BDNF and Cathepsin B. *SCIENTIFIC REPORTS*, *9*. https://doi.org/10.1038/s41598-019-40040-8
- Izquierdo, V., Palomera-Avalos, V., Lopez-Ruiz, S., Canudas, A.-M., Pallas, M., & Grinan-Ferre, C. (2019). Maternal Resveratrol Supplementation Prevents Cognitive Decline in Senescent Mice Offspring. *INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES*, *20*(5). https://doi.org/10.3390/ijms20051134

Blood-brain barrier research group

CARME PELEGRI; JORDI VILAPLANA



Pathophysiology of Nervous System Diseases

Members

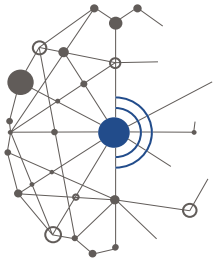
Marta Riba Baques, Elisabet Auge Mari

Selected projects

- **Estudio de la presencia de neo-epítopos en estructuras degenerativas cerebrales y de la existencia en el plasma de anticuerpos naturales dirigidos contra dichos neo-epítopos**. BFU2016-78398-P. Ministerio de Economía y Competitividad. Carme Pelegri; Jordi Vilaplana.

Selected publications

- 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. https://doi.org/10.1073/pnas.1913741116
- Auge, E., Bechmann, I., Llor, N., Vilaplana, J., Krueger, M., & Pelegri, C. (2019). Corpora amylacea in human hippocampal brain tissue are intracellular bodies that exhibit a homogeneous distribution of neo-epitopes. *SCIENTIFIC REPORTS*, *9*. https://doi.org/10.1038/s41598-018-38010-7



Pathophysiology of Nervous System Diseases

Kinases and phosphatases in neuronal function and dysfunction

ESTHER PEREZ-NAVARRO

Members

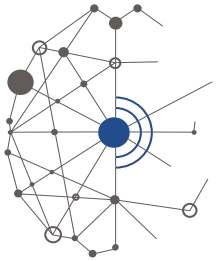
Jordi Creus Muncunill, Marta Garcia Forn, Anna Guisado Corcoll, Carla Castany Pladevall

Selected projects

- **Alteraciones de la lámina nuclear y de la traducción proteica como nuevos mecanismos patogénicos en la enfermedad de Huntington**. SAF2016-80573-R. Ministerio de Economía y Competitividad. Esther Perez-Navarro.

Selected publications

- 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. https://doi.org/10.1093/
- Molina-Porcel, L., Perez-Navarro, E., Garcia-Forn, M., Westaway, D., Colom-Cadena, M., & Gelpi, E. (2019). Teaching case 3-2019: Are nuclear clefts or invaginations the niche of intranuclear inclusions in FTLD-TDP? *CLINICAL NEUROPATHOLOGY*, *38*(3), 97–99. https://doi.org/10.5414/NP301202brain/awz230
- Blazquez, G., Castane, A., Saavedra, A., Masana, M., Alberch, J., & Perez-Navarro, E. (2019). Social Memory and Social Patterns Alterations in the Absence of STriatal-Enriched Protein Tyrosine Phosphatase. *FRONTIERS IN BEHAVIORAL NEUROSCIENCE*, *12*. https://doi.org/10.3389/fnbeh.2018.00317



Pathophysiology of Nervous System Diseases

Cellular and molecular neurobiology – multiple sclerosis

JUAN BLASI; ARTUR LLOBET; CARLES SOLSONA

Members

Beatrice Terni, Pablo Martinez, Cecilia Velasco

Selected projects

- **Análisis de la interacción entre la toxina épsilon de Clostridium perfringens y la proteína MAL como causa de procesos neuroinflamatorios**. SAF2017-85818-R. Ministerio de Economía y Competitividad. Juan Blasi.
- **Regulación outside-in de la función presináptica por factores neuronales y gliales secretados.** RTI2018-096948-B-I00. Ministerio de Ciencia, Innovación y Universidades. Artur Llobet.
- **Confidential.** 310155. Laboratorios del Dr. Esteve, S.A. Artur Llobet.
- **Confidencial.** 309999. Almirall, S.A. Artur Llobet.
- **Confidencial.** 310276. Almirall, S.A. Artur Llobet.

Patents

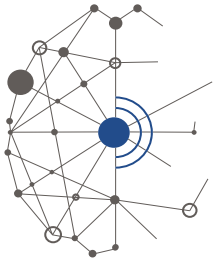
- **Extensímetro para estructuras biológicas.** AVCRI243-E

Selected publications

- Tozzi, A., Durante, V., Manca, P., Di Mauro, M., Blasi, J., Grassi, S., Calabresi, P., Kawato, S., & Pettorossi, V. E. (2019). Bidirectional Synaptic Plasticity Is Driven by Sex Neurosteroids Targeting Estrogen and Androgen Receptors in Hippocampal CA1 Pyramidal Neurons. *FRONTIERS IN CELLULAR NEUROSCIENCE*, *13*. https://doi.org/10.3389/fncel.2019.00534
- Gil, C., Dorca-Arevalo, J., & Blasi, J. (2019). Calcium enhances binding of Clostridium perfringens epsilon toxin to sulfatide. *BIOCHIMICA ET BIOPHYSICA ACTA-BIOMEMBRANES*, *1861*(1), 161–169. https://doi.org/10.1016/j.bbamem.2018.08.003

Neurophysiology

XAVIER GASULL; DAVID SOTO



Pathophysiology of Nervous System Diseases

Members

Arcadio Gual Sala, Nuria Comes Beltran, Alba Andres Bilbe, Anna Pujol Coma, Sara Abello Salo, Montserrat Pau Ramon, Esther Gratacos Batlle, Anna Priscil.la Perez Gonzalez, Federico Miguez Cabello, Roberto Garcia Diaz

Selected projects

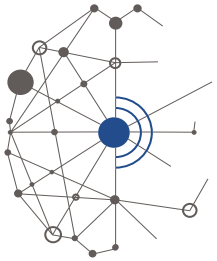
- **Bases neurofisiológicas del picor y dolor crónico: canales iónicos en neuronas sensoriales implicados en enfermedades inflamatorias y oculares.** PI17/00296. Ministerio de Economia y Competitividad. Xavier Gasull.
- **Red Temática de Investigación Cooperativa en Salud - Enfermedades oculares.** RD16/0008/0014. Instituto de Salud Carlos III. Ministerio de Economia y Competitividad. Xavier Gasull.
- **Estudio funcional del proteoma de los receptores AMPA.** BFU2017-83317-P. Ministerio de Economia y Competitividad. David Soto.
- **Confidential.** 310351. Fundación Española para la Ciencia y la Tecnologia. David Soto.
- **Confidential.** 310232. Iproteos S.L. Xavier Gasull i David Soto.

Selected publications

- Giblin, J. P., Etayo, I., Castellanos, A., Andres-Bilbe, A., & Gasull, X. (2019). Anionic Phospholipids Bind to and Modulate the Activity of Human TRESK Background K+ Channel. *MOLECULAR NEUROBIOLOGY*, *56*(4), 2524–2541. https://doi.org/10.1007/s12035-018-1244-0
- 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+. https://doi.org/10.1016/j.neuron.2018.11.039
- Gasull, X., Castany, M., Castellanos, A., Rezola, M., Andres-Bilbe, A., Canut, M. I., Estevez, R., Borras, T., & Comes, N. (2019). The LRRC8-mediated volume-regulated anion channel is altered in glaucoma. *SCIENTIFIC REPORTS*, *9*. https://doi.org/10.1038/s41598-019-41524-3
- Soto, D., Olivella, M., Grau, C., Armstrong, J., Alcon, C., Gasull, X., Santos-Gomez, A., Locubiche, S., de Salazar, M. G., Garcia-Diaz, R., Gratacos-Batlle, E., Ramos-Vicente, D., Chu-Van, E., Colsch, B., Fernandez-Duenas, V., Ciruela, F., Bayes, A., Sindreu, C., Lopez-Sala, A., … Altafaj, X. (2019). L-Serine dietary supplementation is associated with clinical improvement of loss-of-function GRIN2B-related pediatric encephalopathy. *SCIENCE SIGNALING*, *12*(586). https://doi.org/10.1126/scisignal.aaw0936
- 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*. https://doi.org/10.1038/s41467-019-12280-9

Molecular and cellular neurobiotechnology

JOSE ANTONIO DEL RIO



Pathophysiology of Nervous System Diseases

Members

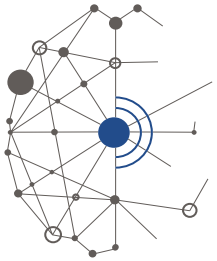
Rosalina Gavin Marin, Vanesa Gil Fernandez, Andreu Matamoros i Angles, Ana Lopez Mengual, Laia Lidon Gil, Miriam Segura Feliu, Francina Mesquida Veny, Arnau Hervera Abad, Julia Sala

Selected projects

- **Enfermedades neurodegenerativas (CIBERNED)**. CB07/05/2011. Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Jose Antonio del Rio.
- **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'. Jose Antonio del Rio.
- **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. Ministerio de Ciencia, Innovación y Universidades. Jose Antonio del Rio.
- **Análisis celular y molecular de la siembra y progresión de tau en modelos animales y celulares de distintas taupatías humanas.** CNED-2018-2. Consorcio CIBER del área de Enfermedades Neurodegenerativas. Jose Antonio del Rio.
- **Bases cel·lulars i moleculars en neurodegeneració i neuroregeneració (CMBNN).** 2017SGR648. Agència de Gestió d'Ajuts Universitaris i de Recerca. Jose Antonio del Rio.

Selected publications

- Hervera, A., Zhou, L., Palmisano, I., McLachlan, E., Kong, G., Hutson, T. H., Danzi, M. C., Lemmon, V. P., Bixby, J. L., Matamoros-Angles, A., Forsberg, K., De Virgiliis, F., Matheos, D. P., Kwapis, J., Wood, M. A., Puttagunta, R., del Rio, J., & Di Giovanni, S. (2019). PP4-dependent HDAC3 dephosphorylation discriminates between axonal regeneration and regenerative failure. *EMBO JOURNAL*, *38*(13). https://doi.org/10.15252/embj.2018101032
- Gil, V., & Antonio Del Rio, J. (2019). Generation of 3-D Collagen-based Hydrogels to Analyze Axonal Growth and Behavior During Nervous System Development. *JOVE-JOURNAL OF VISUALIZED EXPERIMENTS*, *148*. https://doi.org/10.3791/59481
- Ferrer, I., Aguilo Garcia, M., Carmona, M., Andres-Benito, P., Torrejon-Escribano, B., Garcia-Esparcia, P., & del Rio, J. (2019). Involvement of Oligodendrocytes in Tau Seeding and Spreading in Tauopathies. *FRONTIERS IN AGING NEUROSCIENCE*, *11*. https://doi.org/10.3389/fnagi.2019.00112
- Gil, V., & del Rio, J. (2019). Functions of Plexins/Neuropilins and Their Ligands during Hippocampal Development and Neurodegeneration. *CELLS*, *8*(3). https://doi.org/10.3390/cells8030206
- Ferrer, I., Zelaya, M. V., Aguiló García, M., Carmona, M., López-González, I., Andrés-Benito, P., Lidón, L., Gavín, R., Garcia-Esparcia, P., & del Rio, J. A. (2020). Relevance of host tau in tau seeding and spreading in tauopathies. *BRAIN PATHOLOGY*, *30*(2), 298–318. https://doi.org/10.1111/bpa.12778



Pathophysiology of Nervous System Diseases

Developmental neurobiology and regeneration

EDUARDO SORIANO

Members

Marta Pascual Sanchez, Ferran Burgaya Marquez, Jesus Mariano Ureña Bares, Fausto Alexander Ulloa Darquea, Tiziana Cortrufo, Ashraf Muhaisen, Yasmina Manso Sanz, Antoni Parcerisas Mosqueda, Cristina Rosello Busquets, Marc Hernaiz Llorens, Irene Lobon Garcia, Alba del Valle Vilchez Acosta, Lluis Pujadas Puigdomenech, Alba Ortega Gasco, Eva Davila Bouziguet

Selected projects

- **Enfermedades neurodegenerativas (CIBERNED).** CB06/05/0098. Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Eduardo Soriano.
- **Nuevos enfoque para entender la patogénesis y la terapéutica de la Enfermedad de Alzheimer**. SAF2016-76340-R. Ministerio de Economía y Competitividad. Eduardo Soriano.
- **Ajut per incentivar i consolidar la recerca d'excel·lència ja existent a les universitats públiques de Catalunya.** Programa ICREA Academia 2014. Fundació Institució Catalana de Recerca i Estudis Avançats. Eduardo Soriano.

Selected publications

- Fuschini G., Cotrufo T., Ros O., Muhaisen A., Andrés R., Comella J. X., Soriano E. Syntaxin-1 / TI-VAMP SNARE interactúan con los receptores Trk y son necesarios para el crecimiento dependiente de neurotrofinas. *Oncotarget. 2018; 9* : 35922-35940.
- Pittolo, S., Lee, H., Llado, A., Tosi, S., Bosch, M., Bardia, L., Gomez-Santacana, X., Llebaria, A., Soriano, E., Colombelli, J., Poskanzer, K. E., Perea, G., & Gorostiza, P. (2019). Reversible silencing of endogenous receptors in intact brain tissue using 2-photon pharmacology. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*, *116*(27), 13680–13689. https://doi.org/10.1073/pnas.1900430116
- Davila-Bouziguet, E., Targa-Fabra, G., Avila, J., Soriano, E., & Pascual, M. (2019). Differential accumulation of Tau phosphorylated at residues Thr231, Ser262 and Thr205 in hippocampal interneurons and its modulation by Tau mutations (VLW) and amyloid-beta peptide. *NEUROBIOLOGY OF DISEASE*, *125*, 232–244. https://doi.org/10.1016/j.nbd.2018.12.006
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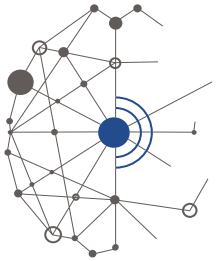
- Bentivoglio, M., Cotrufo, T., Ferrari, S., Tesoriero, C., Mariotto, S., Bertini, G., Berzero, A., & Mazzarello, P. (2019). The Original Histological Slides of Camillo Golgi and His Discoveries on Neuronal Structure. *FRONTIERS IN NEUROANATOMY*, *13*. https://doi.org/10.3389/fnana.2019.00003

Neuro-celltec-UB

FRANCESC X. SORIANO



Pathophysiology of Nervous System Diseases

Members

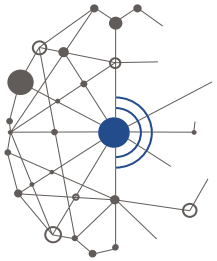
Marc Segarra Mondejar, Sergi Casellas Diaz, Guillem Rique Pujol, Raquel Larramona Arcas

Selected projects

- **ER-mitochondria contacts in neurodegeneration. Looking for a novel therapeutic approach.** Velux Stiftung. Francesc X. Soriano.
- **Nuevas aproximaciones frente al accidente cerebrovascular. De los mecanismos moleculares a los tratamientos farmacológicos**. SAF2017-86622-C2-1-R. Ministerio de Economía y Competitividad. Francesc X. Soriano.

Selected publications

- Velecela, V., Torres-Cano, A., Garcia-Melero, A., Ramiro-Pareta, M., Muller-Sanchez, C., Segarra-Mondejar, M., Chau, Y.-Y., Campos-Bonilla, B., Reina, M., Soriano, F. X., Hastie, N. D., Martinez, F. O., & Martinez-Estrada, O. M. (2019). Epicardial cell shape and maturation are regulated by Wt1 via transcriptional control of Bmp4. *DEVELOPMENT*, *146*(20). https://doi.org/10.1242/dev.178723



Pathophysiology of Nervous System Diseases

Functional genomics of neurodegenerative diseases

EULALIA MARTI

Members

Ana Gamez, Georgia Escaramis, Anna Guisado, Maria Solaguren-Beascoa, Marina Herrero

Selected projects

- **Confidential.** 310562. Grifols Worldwide Operations, Ltd. Eulalia Marti.
- **Análisis de ARNs con repeticiones CAG como factores patogénicos en la enfermedad de Huntington: implicaciones translacionales en enfermedades de poliglutamina**. SAF2017-88452-R. Ministerio de Economía y Competitividad. Eulalia Marti.
- **Epidemiología y Salud Pública (CIBERESP).** Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Eulalia Marti.

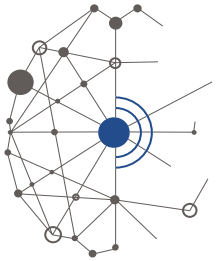
Selected publications

- Pantano, L., Pantano, F., Marti, E., & Ho Sui, S. (2019). Visualization of the small RNA transcriptome using seqclusterViz. ***F1000RESEARCH***, ***8***, ISCB Comm J-232. https://doi.org/10.12688/f1000research.18142.2

- Pallarès-Albanell, J., Zomeño-Abellán, MT, Escaramís, G., Pantano, L., Soriano, A., Segura, MF y Martí, E. (2019). Un examen de alto rendimiento identifica los inhibidores de microARN que influyen en el mantenimiento neuronal y / o la respuesta al estrés oxidativo. *TERAPIA MOLECULAR. ÁCIDOS NUCLEICOS* , ***17*** , 374–387. https://doi.org/10.1016/j.omtn.2019.06.007

Hippocampal function in health and disease

ALBERT GIRALT



Pathophysiology of Nervous System Diseases

Members

Anna Sancho-Balsells, Laura Lopez Molina

Selected projects

- **Definiendo el rol de la familia Ikaros en la esquizofrenia.** RTI2018-094678-A-I00. Ministerio de Ciencia, Innovación y Universidades. Albert Giralt.
- **Identification of altered specific neuronal subpopulation in different phases of stress-induced major depression**. 24803. Brain & Behaviour Research foundation. Albert Giralt.

Patents

- **Methods and pharmaceutical composition for the treatment of neurodegerative disease.** UBTT0329-E

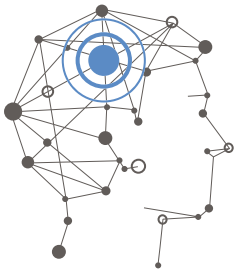
Selected publications

- 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. https://doi.org/10.1016/j.biopsych.2019.03.001
- Tible, M., Liger, F. M., Schmitt, J., Giralt, A., Farid, K., Thomasseau, S., Gourmaud, S., Paquet, C., Reig, L. R., Meurs, E., Girault, J.-A., & Hugon, J. (2019). PKR knockout in the 5xFAD model of Alzheimer's disease reveals beneficial effects on spatial memory and brain lesions. *AGING CELL*, *18*(3). https://doi.org/10.1111/acel.12887
- de Pins, B., Cifuentes-Diaz, C., Farah, A. T., Lopez-Molina, L., Montalban, E., Sancho-Balsells, A., Lopez, A., Gines, S., Maria Delgado-Garcia, J., Alberch, J., Gruart, A., Girault, J.-A., & Giralt, A. (2019). Conditional BDNF Delivery from Astrocytes Rescues Memory Deficits, Spine Density, and Synaptic Properties in the 5xFAD Mouse Model of Alzheimer Disease. *JOURNAL OF NEUROSCIENCE*, *39*(13), 2441–2458. https://doi.org/10.1523/JNEUROSCI.2121-18.2019
- Suelves, N., Miguez, A., Lopez-Benito, S., Garcia-Diaz Barriga, G., Giralt, A., Alvarez-Periel, E., Carlos Arevalo, J., Alberch, J., Gines, S., & Brito, V. (2019). Early Downregulation of p75(NTR) by Genetic and Pharmacological Approaches Delays the Onset of Motor Deficits and Striatal Dysfunction in Huntington's Disease Mice. *MOLECULAR NEUROBIOLOGY*, *56*(2), 935–953. https://doi.org/10.1007/s12035-018-1126-5
- Montalban, E., Al-Massadi, O., Sancho-Balsells, A., Brito, V., de Pins, B., Alberch, J., Gines, S., Girault, J.-A., & Giralt, A. (2019). Pyk2 in the amygdala modulates chronic stress sequelae via PSD-95-related micro-structural changes. *TRANSLATIONAL PSYCHIATRY*, *9*. https://doi.org/10.1038/s41398-018-0352-y

Experimental Neurology

Annual Report
2019

Experimental Neurology



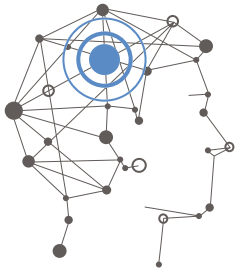
Neurodegenerative diseases are usually linked with aging. Thus, nowadays there is an important increase in these disorders with a strong social and economical impact in our society.

Unfortunately, the majority of therapeutic interventions available are merely symptomatic, often with very limited response, whereas disease-modifying and neuroprotective or neuroregenerative treatments are only experimental with precedents in human clinical trials having been unsuccessful so far.

The research area of Experimental Neurology is focused on the study of the nervous system in normal conditions and during neurologic disorders. A close collaboration between basic neuroscientists and clinical neurologists is already established in the Institute of Neurosciences. The Institute, together with the university hospitals, provides a good environment to perform 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. Furthermore, the study of the molecular and biological bases of Alzheimer's disease, Parkinson's disease, Huntington's chorea, and multiple sclerosis in preclinical stages can provide information for diagnosis, prevention and treatment for these neurological diseases.

PROJECTS

- **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. 498.718€
- **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. Ministerio de Economia y Competitividad. Jordi Alberch. 326,700€
- **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. 312,950€
- **European Training Network for Cell-based Regenerative Medicine (Training4CRM).** H2020-MSCA-ITN-2016-722779. Jordi Alberch. 247,872€
- **Confidential.** HCB/15/646. IQVIA RDS Spain SL. Raquel Sanchez-Valle. 193,724€
- **¿La proteína RTP801/REDD1 media la disfunción sináptica en procesos neurodegenerativos?** SAF2017-88812-R. Ministerio de Economía y Competitividad. Cristina Malagelada. 145,200€



Experimental Neurology

Cellular and molecular basis of Huntington's disease and other disorders of the basal ganglia

JORDI ALBERCH; MERCE MASANA; JOSE MANUEL RODRIGUEZ

Members

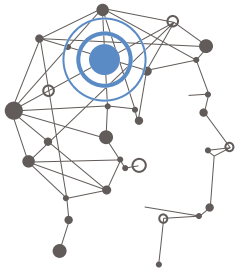
Alfonso Gerardo Garcia Diaz-Bariga, Sara Fernandez Garcia, Ened Rodriguez Urgelles, Marco Pugliese, Carmen Andrade Lopez, Esther Garcia Garcia, Nerea Chaparro

Selected projects

- **Enfermedades neurodegenerativas (CIBERNED)**. CB06/05/0054. Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Jordi Alberch.
- **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. Ministerio de Economía y Competitividad. Jordi Alberch / Jose Manuel Rodriguez.
- **European Training Network for Cell-based Regenerative Medicine (Training4CRM)**. H2020-MSCA-ITN-2016-722779. European Union. Jordi Alberch.
- **Confidential.** 310450. Laboratorios del Dr. Esteve, S.A. Jordi Alberch /Merce Masana.
- **Confidential.** 309965. Fundació ChAC. Jordi Alberch / Jose Manuel Rodriguez /Merce Masana.

Selected publications

- de Pins, B., Cifuentes-Diaz, C., Farah, A. T., Lopez-Molina, L., Montalban, E., Sancho-Balsells, A., Lopez, A., Gines, S., Maria Delgado-Garcia, J., Alberch, J., Gruart, A., Girault, J.-A., & Giralt, A. (2019). Conditional BDNF Delivery from Astrocytes Rescues Memory Deficits, Spine Density, and Synaptic Properties in the 5xFAD Mouse Model of Alzheimer Disease. *JOURNAL OF NEUROSCIENCE*, *39*(13), 2441–2458. https://doi.org/10.1523/JNEUROSCI.2121-18.2019
- 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. https://doi.org/10.1016/j.biopsych.2019.03.001
- Creus-Muncunill, J., Badillos-Rodríguez, R., Garcia-Forn, M., Masana, M., Garcia-Díaz Barriga, G., Guisado-Corcoll, A., Alberch, J., Malagelada, C., Delgado-García, J. M., Gruart, A., & Pérez-Navarro, E. (2019). Increased translation as a novel pathogenic mechanism in Huntington's disease. *BRAIN*, *142*(10), 3158–3175. https://doi.org/10.1093/brain/awz230
- Montalban, E., Al-Massadi, O., Sancho-Balsells, A., Brito, V., de Pins, B., Alberch, J., Ginés, S., Girault, J.-A., & Giralt, A. (2019). Pyk2 in the amygdala modulates chronic stress sequelae via PSD-95-related micro-structural changes. *TRANSLATIONAL PSYCHIATRY*, *9*(1), 3. https://doi.org/10.1038/s41398-018-0352-y
- Suelves, N., Miguez, A., Lopez-Benito, S., Garcia-Diaz Barriga, G., Giralt, A., Alvarez-Periel, E., Carlos Arevalo, J., Alberch, J., Gines, S., & Brito, V. (2019). Early Downregulation of p75(NTR) by Genetic and Pharmacological Approaches Delays the Onset of Motor Deficits and Striatal Dysfunction in Huntington's Disease Mice. *MOLECULAR NEUROBIOLOGY*, *56*(2), 935–953. https://doi.org/10.1007/s12035-018-1126-5



Experimental Neurology

Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research

YAROSLAU COMPTA

Members

Maria J Marti, Eduard Tolosa, Francesc Valldeoriola, Esteban Muñoz, Almudena Sanchez, Ana Camara, Mario Ezquerra, Ruben Fernandez, Marta Pulido, Manel Fernandez, Pilar Santacruz, Lluis Planellas, Sandra Perez-Soriano, Celia Painous, Laura Maragall

Selected projects

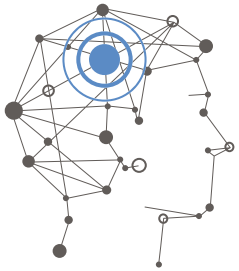
- **FAIR-PARK-II A multicentre, parallel group, randomized, placebo-controlled trial of deferiprone (DFP) 15 mg/kg BID.** EudraCT 2015 003679-31. European Commission. Yaroslau Compta.
- **The beginnings of Parkinson Disease: a study of early disease mechanisms in a humanized in-vitro model.** SAF2015-73508-JIN. Ministerio de Economía y Competitividad. Yaroslau Compta.
- **MicroRNAs as biomarker of conversion of REM behaviour disorder to Parkinson's disease.** FUNDTATIANA16_PROY03. Yaroslau Compta.
- **2017 SGR/1502 (AGAUR).** Agencia de Gestión de Ayudas Universitarias y de Investigación. Yaroslau Compta.

Patents

Diagnostic Method for Multiple System Atrophy. P4761EP00

Selected publications

- Compta, Y., Dias, S. P., Giraldo, D. M., Perez-Soriano, A., Munoz, E., Saura, J., Fernandez, M., Bravo, P., Camara, A., Pulido-Salgado, M., Painous, C., Rios, J., Jose Marti, M., Pagonabarraga, J., Valldeoriola, F., Hernandez-Vara, J., Jauma Classen, S., Puente, V., Pont, C., … Consortium, C. (2019). Cerebrospinal fluid cytokines in multiple system atrophy: A cross-sectional Catalan MSA registry study. *PARKINSONISM & RELATED DISORDERS*, *65*, 3–12. https://doi.org/10.1016/j.parkreldis.2019.05.040
- Grimm, M.-J., Respondek, G., Stamelou, M., Arzberger, T., Ferguson, L., Gelpi, E., Giese, A., Grossman, M., Irwin, D. J., Pantelyat, A., Rajput, A., Roeber, S., van Swieten, J. C., Troakes, C., Antonini, A., Bhatia, K. P., Colosimo, C., van Eimeren, T., Kassubek, J., … Soc-endorsed, M. D. (2019). How to apply the movement disorder society criteria for diagnosis of progressive supranuclear palsy. *MOVEMENT DISORDERS*, *34*(8), 1228–1232. https://doi.org/10.1002/mds.27666
- aig, C., & Compta, Y. (2019). Neurological profiles beyond the sleep disorder in patients with anti-IgLON5 disease. *CURRENT OPINION IN NEUROLOGY*, *32*(3), 493–499. https://doi.org/10.1097/WCO.0000000000000677
- Abos, A., Segura, B., Baggio, H. C., Campabadal, A., Uribe, C., Garrido, A., Camara, A., Munoz, E., Valldeoriola, F., Jose Marti, M., Junque, C., & Compta, Y. (2019). Disrupted structural connectivity of fronto-deep gray matter pathways in progressive supranuclear palsy. *NEUROIMAGE-CLINICAL*, *23*. https://doi.org/10.1016/j.nicl.2019.101899
- Baggio, H. C., Abos, A., Segura, B., Campabadal, A., Uribe, C., Giraldo, D. M., Perez-Soriano, A., Munoz, E., Compta, Y., Junque, C., & Jose Marti, M. (2019). Cerebellar resting-state functional connectivity in Parkinson's disease and multiple system atrophy: Characterization of abnormalities and potential for differential diagnosis at the single-patient level. *NEUROIMAGE-CLINICAL*, *22*. https://doi.org/10.1016/j.nicl.2019.101720



Experimental Neurology

Pathogenesis of immune-mediated neuronal disorders

JOSEP DALMAU

Members

Ester Aguilar Creixenti, Mercedes Alba Boix, Helena Ariño Rodriguez, Thais Armangue Salvador, Eva Maria Caballero Pariente, Anna Garcia Serra, Pablo Jercog, Jon Landa Medrano, Francesco Mannara, Eugenia Maria Martinez-Hernandez, Estibaliz Maudes Garcia, Marta Muñoz Batista, Maria del Mar Petit Pedrol, Jesus Planaguma i Valls, Marija Radosevic, Maria Rodes Hernandez, Myrna Rosenfeld Kaskowitz, Lidia Sabater Baudet

Selected projects

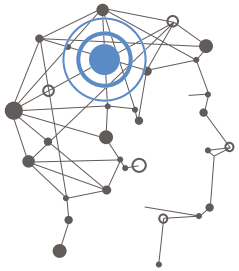
- **A Translational Model of Antibody-mediated Synaptic Disease: Symptoms, Neuronal Circuits, and the Mechanisms of Memory Loss and Recovery**. HR17-00149. Fundació Caixa de Pensions 'La Caixa'. Josep Dalmau.
- **Análisis multiescala de los autoanticuerpos contra el receptor NMDA en psicosis**. AC18/00009. Instituto de Salud Carlos III. Josep Dalmau.
- **Encefalitis anti-NMDAR: Subclases de anticuerpos, y estudio de los efectos de la presencia crónica de anticuerpos en el cerebro de ratón adulto, desarrollo cerebral fetal y sinaptogénesis**. PI17/00234. Ministerio de Economía y Competitividad. Josep Dalmau.
- **Confidential.** 15/318. Fundació Privada CELLEX. Josep Dalmau.
- **Incorporació del Dr. Jesús Planagumà al grup de recerca del Programa de Neuroimmunologia.** SLT002/16/00346. Departament de Salut de la Generalitat de Catalunya. Josep Dalmau.

Patents

- **Diagnosis of a neurological disease**. AVCRI233-E

Selected publications

- Dalmau, J., Armangue, T., Planaguma, J., Radosevic, M., Mannara, F., Leypoldt, F., Geis, C., Lancaster, E., Titulaer, M. J., Rosenfeld, M. R., & Graus, F. (2019). An update on anti-NMDA receptor encephalitis for neurologists and psychiatrists: mechanisms and models. *LANCET NEUROLOGY*, *18*(11), 1045–1057. https://doi.org/10.1016/S1474-4422(19)30244-3
- Gaig, C., Iranzo, A., Cajochen, C., Vilaseca, I., Embid, C., Dalmau, J., Graus, F., & Santamaria, J. (2019). Characterization of the sleep disorder of anti-IgLON5 disease. *SLEEP*, *42*(9). https://doi.org/10.1093/sleep/zsz133
- Graus, F., & Dalmau, J. (2019). Paraneoplastic neurological syndromes in the era of immune-checkpoint inhibitors. *NATURE REVIEWS CLINICAL ONCOLOGY*, *16*(9), 535–548. https://doi.org/10.1038/s41571-019-0194-4
- Geis, C., Planaguma, J., Carreno, M., Graus, F., & Dalmau, J. (2019). Autoimmune seizures and epilepsy. *JOURNAL OF CLINICAL INVESTIGATION*, *129*(3), 926–940. https://doi.org/10.1172/JCI125178
- Linnoila, J., Pulli, B., Armangue, T., Planaguma, J., Narsimhan, R., Schob, S., Zeller, M. W. G., Dalmau, J., & Chen, J. (2019). Mouse model of anti-NMDA receptor post-herpes simplex encephalitis. *NEUROLOGY-NEUROIMMUNOLOGY & NEUROINFLAMMATION*, *6*(2). https://doi.org/10.1212/NXI.0000000000000529



Experimental Neurology

Neuropathology

ISIDRO FERRER; FRAN LLORENS

Members

Marta Barrachina Castillo, Paula Garcia-Esparcia, Pol Andres Benito, Margalida Frau Mendez, Margarita Carmona Murillo, Raisa Camila Alvear Contreras, Daniela Diaz Lucena

Selected projects

- **Red de Investigación Transfronteriza en Enfermedades Priónicas Humanas y Animales (REDPRION)**. EFA148/16 REDPRION. European Union. Isidro Ferrer.
- **ARTAG (Aging-related tau astrogliopathy)**. PI17/00809. Ministerio de Economía y Competitividad. Isidro Ferrer.
- **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.
- **Contratos I-PFIS: doctorados IIS-empresa en ciencias y tecnologias de la salud.** IFI15/00035. Ministerio de Economia y Competitividad. Isidro Ferrer.
- **Projecte ELA.** ELA Research Foundation. Isidro Ferrer.

Patents

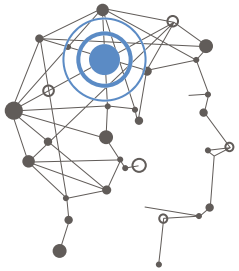
Mitochondrial markers of neurodegenerative diseases.
AVCRI247-E

Selected publications

- Olivé, M., Engvall, M., Ravenscroft, G., Cabrera-Serrano, M., Jiao, H., Bortolotti, C. A., Pignataro, M., Lambrughi, M., Jiang, H., Forrest, A., Benseny-Cases, N., Hofbauer, S., Obinger, C., Battistuzzi, G., Bellei, M., Borsari, M., Di Rocco, G., Viola, H. M., Hool, L. C., Cladera, J., … Laing, N. G. (2019). Myoglobinopathy is an adult-onset autosomal dominant myopathy with characteristic sarcoplasmic inclusions. *NATURE COMMUNICATIONS*, *10*(1), 1396. https://doi.org/10.1038/s41467-019-09111-2
- Esteve, P., Rueda-Carrasco, J., Inés Mateo, M., Martin-Bermejo, M. J., Draffin, J., Pereyra, G., Sandonís, Á., Crespo, I., Moreno, I., Aso, E., Garcia-Esparcia, P., Gomez-Tortosa, E., Rábano, A., Fortea, J., Alcolea, D., Lleo, A., Heneka, M. T., Valpuesta, J. M., Esteban, J. A., Ferrer, I., … Bovolenta, P. (2019). Elevated levels of Secreted-Frizzled-Related-Protein 1 contribute to Alzheimer's disease pathogenesis. *NATURE NEUROSCIENCE*, *22*(8), 1258–1268. https://doi.org/10.1038/s41593-019-0432-1
- Blennow, K., Diaz-Lucena, D., Zetterberg, H., Villar-Pique, A., Karch, A., Vidal, E., Hermann, P., Schmitz, M., Abizanda, I. F., Zerr, I., & Llorens, F. (2019). CSF neurogranin as a neuronal damage marker in CJD: a comparative study with AD. *JOURNAL OF NEUROLOGY NEUROSURGERY AND PSYCHIATRY*, *90*(8), 846–853. https://doi.org/10.1136/jnnp-2018-320155
- 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+. https://doi.org/10.1038/s41593-019-0432-1
- Del Cerro, I., Villarreal, M., Abulafia, C., Duarte-Abritta, B., Sanchez, S., Castro, M., Bocaccio, H., Ferrer, I., Menchón, J., Sevlever, G., Soriano-Mas, C., & Guinjoan, S. (2019). S42. Functional Connectivity of the Locus Coeruleus Identifies Individuals at Familial Risk for Alzheimer's Disease. *BIOLOGICAL PSYCHIATRY*, *85*, S312. https://doi.org/10.1016/j.biopsych.2019.03.793

Neuroimaging in degenerative disorders (CJneurolab)

CARME JUNQUE



Experimental Neurology

Members

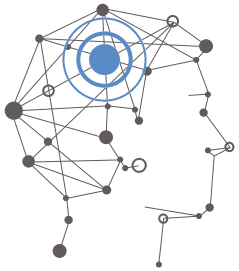
Barbara Segura Fabregas, Hugo Cesar Baggio, M. del Carmen Uribe Codesal, Alexandra Abos Ortega, Anna Inguanzo Pons, Anna Campabadal Delgado, Nuria Bargallo Alabart, Javier Oltra Gonzalez, Roser Sala Llonch, Gemma Cristina Monte Rubio

Selected projects

- **Fenotipos cognitivos en la enfermedad de Parkinson mediante la identificación de patrones de neuroimagen multimodal**. PSI2017-86930-P. Ministerio de Economía y Competitividad. Carme Junque.
- **Neuropsicologia**. 2017SGR748. Agència de Gestió d'Ajuts Universitaris i de Recerca. Carme Junque.

Selected publications

- Uribe, C., Segura, B., Baggio, H. C., Abos, A., Garcia-Diaz, A. I., Campabadal, A., Marti, M. J., Valldeoriola, F., Compta, Y., Bargallo, N., & Junque, C. (2019). Progression of Parkinson's disease patients' subtypes based on cortical thinning: 4-year follow-up. *PARKINSONISM & RELATED DISORDERS*, *64*, 286–292. https://doi.org/10.1016/j.parkreldis.2019.05.012
- Baggio, H. C., Abos, A., Segura, B., Campabadal, A., Uribe, C., Giraldo, D. M., Perez-Soriano, A., Munoz, E., Compta, Y., Junque, C., & Jose Marti, M. (2019). Cerebellar resting-state functional connectivity in Parkinson's disease and multiple system atrophy: Characterization of abnormalities and potential for differential diagnosis at the single-patient level. *NEUROIMAGE-CLINICAL*, *22*. https://doi.org/10.1016/j.nicl.2019.101720
- Abos, A., Baggio, H. C., Segura, B., Campabadal, A., Uribe, C., Milena Giraldo, D., Perez-Soriano, A., Munoz, E., Compta, Y., Junque, C., & Jose Marti, M. (2019). Differentiation of multiple system atrophy from Parkinson's disease by structural connectivity derived from probabilistic tractography. *SCIENTIFIC REPORTS*, *9*. https://doi.org/10.1038/s41598-019-52829-8
- Campabadal, A., Segura, B., Junque, C., Serradell, M., Abos, A., Uribe, C., Baggio, H. C., Gaig, C., Santamaria, J., Bargallo, N., & Iranzo, A. (2019). Comparing the accuracy and neuroanatomical correlates of the UPSIT-40 and the Sniffin' Sticks test in REM sleep behavior disorder. *PARKINSONISM & RELATED DISORDERS*, *65*, 197–202. https://doi.org/10.1016/j.parkreldis.2019.06.013
- Uribe, C., Segura, B., Cesar Baggio, H., Abos, A., Isabel Garcia-Diaz, A., Campabadal, A., Jose Marti, M., Valldeoriola, F., Compta, Y., Bargallo, N., & Junque, C. (2019). Progression of Parkinson's disease patients' subtypes based on cortical thinning: 4-year follow-up. *PARKINSONISM & RELATED DISORDERS*, *64*, 286–292. https://doi.org/10.1016/j.parkreldis.2019.05.012



Experimental Neurology

Signaling in Neurodegenerative diseases (Malagelada's lab)

CRISTINA MALAGELADA

Members

Nuria Martin Flores, Leticia Perez Sisques

Selected projects

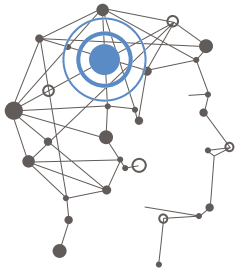
- **¿La proteína RTP801/REDD1 media la disfunción sináptica en procesos neurodegenerativos?**. SAF2017-88812-R. Ministerio de Economía y Competitividad. Cristina Malagelada.

Patents

- **Method for predicting the onset of extrapyramidal symptoms (EPS) induced by an antipsicotic-based treatment**. AVCRI196.
- **Method for predicting early onset and severity of levodopa induced dyskinesia (LID) in subjects diagnosed of Parkinson disease (PD).** UBTT0304

Selected publications

- 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. https://doi.org/10.1093/brain/awz230
- Fernandez-Santiago, R., Martin-Flores, N., Antonelli, F., Cerquera, C., Moreno, V., Bandres-Ciga, S., Manduchi, E., Tolosa, E., Singleton, A. B., Moore, J. H., Noyce, A. J., Kaiyrzhanov, R., Middlehurst, B., Kia, D. A., Tan, M., Houlden, H., Morris, H. R., Plun-Favreau, H., Holmans, P., … Conso, I. P. D. G. (2019). SNCA and mTOR Pathway Single Nucleotide Polymorphisms Interact to Modulate the Age at Onset of Parkinson's Disease. *MOVEMENT DISORDERS*, *34*(9, SI), 1333–1344. https://doi.org/10.1002/mds.27770
- Martin-Flores, N., Fernandez-Santiago, R., Antonelli, F., Cerquera, C., Moreno, V., Josep Marti, M., Ezquerra, M., & Malagelada, C. (2019). MTOR Pathway-Based Discovery of Genetic Susceptibility to L-DOPA-Induced Dyskinesia in Parkinson's Disease Patients. *MOLECULAR NEUROBIOLOGY*, *56*(3), 2092–2100. https://doi.org/10.1007/s12035-018-1219-1



Experimental Neurology

Alzheimer's disease and other cognitive disorders group

RAQUEL SANCHEZ-VALLE

Members

Albert Llado, Mircea Balasa, Magda Castellvi, Lorena Rami, Anna Antonell, Beatriz Bosch, Guadalupe Fernandez, Jaume Olives, Adria Tort, Neus Falgas, Sergi Borrego, Oscar Ramos, Cristina Muñoz, Jose Miguel Contador Muñana, Nuria. Montagut Colomer

Selected projects

- **Confidential.** HCB/15/646. IQVIA RDS Spain SL. Raquel Sanchez-Valle.
- **Dominantly Inherited Alzheimer Network (DIAN).** UF1 AG032438. National Institutes of Health (NIH). Raquel Sanchez-Valle.
- **Estudio de biomarcadores y desarrollo de nuevas estrategias terapéuticas en una cohorte multicéntrica de Demencia Frontotemporal.** SLT002/16/00408. Departament de Salut de la Generalitat de Catalunya. Raquel Sanchez-Valle.
- **Incorporació d'un científic a la línia de recerca en Demències genèticament determinades i minoritàries**. SLT002/16/00329. Departament de Salut de la Generalitat de Catalunya. Raquel Sanchez-Valle.
- **Contratos de formación en investigación "Rio Hortega" (Post Formación Sanitaria Especializada).** CM18/00028. Instituto de Salud Carlos III. Raquel Sanchez-Valle.

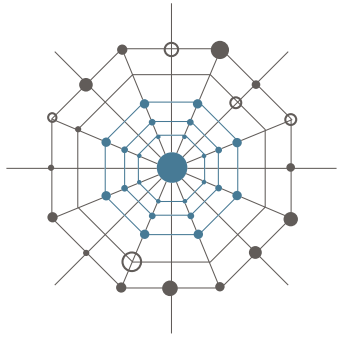
Selected publications

- Borrego-Ecija, S., Antonell, A., Anton Puig-Butille, J., Pericot, I., Prat-Bravot, C., Teresa Abellan-Vidal, M., Mallada, J., Olives, J., Falgas, N., Oliva, R., Llado, A., & Sanchez-Valle, R. (2019). Novel P397S MAPT variant associated with late onset and slow progressive frontotemporal dementia. *ANNALS OF CLINICAL AND TRANSLATIONAL NEUROLOGY*, *6*(8), 1559–1565. https://doi.org/10.1002/acn3.50844
- Falgas, N., Tort-Merino, A., Balasa, M., Borrego-Ecija, S., Castellvi, M., Olives, J., Bosch, B., Fernandez-Villullas, G., Antonell, A., Auge, J. M., Lomena, F., Perissinotti, A., Bargallo, N., Sanchez-Valle, R., & Llado, A. (2019). Clinical applicability of diagnostic biomarkers in early-onset cognitive impairment. *EUROPEAN JOURNAL OF NEUROLOGY*, *26*(8), 1098–1104. https://doi.org/10.1111/ene.13945
- Falgas, N., Sanchez-Valle, R., Bargallo, N., Balasa, M., Fernandez-Villullas, G., Bosch, B., Olives, J., Tort-Merino, A., Antonell, A., Munoz-Garcia, C., Leon, M., Grau, O., Castellvi, M., Coll-Padros, N., Rami, L., Redolfi, A., & Llado, A. (2019). Hippocampal atrophy has limited usefulness as a diagnostic biomarker on the early onset Alzheimer's disease patients: A comparison between visual and quantitative assessment. *NEUROIMAGE-CLINICAL*, *23*. https://doi.org/10.1016/j.nicl.2019.101927
- 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. https://doi.org/10.1093/brain/awz031
- Sala-Llonch, R., Falgas, N., Bosch, B., Fernandez-Villullas, G., Balasa, M., Antonell, A., Perissinotti, A., Pavia, J., Campos, F., Llado, A., Lomena, F., & Sanchez-Valle, R. (2019). Regional patterns of 18F-florbetaben uptake in presenilin 1 mutation carriers. *NEUROBIOLOGY OF AGING*, *81*, 1–8. https://doi.org/10.1016/j.neurobiolaging.2019.04.010

Mental Health

Annual Report
2019

Mental Health

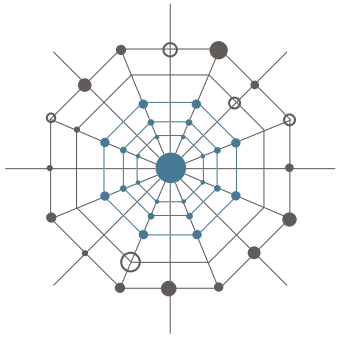


Psychotic and affective disorders are among the most disabling mental disorders in the world.

Depression, schizophrenia and bipolar disorder have a substantial economic impact in mental health and social services. They are a major contributor to increasing direct healthcare system costs (e.g., hospital inpatient stays, prescription drugs), direct social system costs (e.g., pensions, guardianship) and indirect costs (e.g., loss of productivity from unemployment, reduced work productivity among family caregiver). Recently, there has been a paradigm shift in the way we understand mental disorders, moving from pursuing a clinical remission (i.e., symptom-free periods) to a full recovery (i.e., good performance in everyday life). 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.

PROJECTS

- **A translational model of autoimmune synaptopathy: symptoms, brain networks, and the link to human memory.** PIE16/00014. Instituto de Salud Carlos III. Josefa Castro-Fornieles. 556,820€
- **Contextualising psychosocial wellbeing and mental health within sociocultural dynamics (PSYCHOCONTEXT).** H2020-MSCA-IF-2014- 654808. European Union. Guillem Feixas. 239,191€
- **Autism innovative medicine studies-2-trials.** H2020-BBI-JTI-2016-777394. European Union. Rosa Maria Calvo. 203,125€
- **Optimizing response to Li treatment through personalized evaluation of individuals with bipolar I disorder: the R-LiNK initiative.** H2020-SC1-2016-2017-754907-1. European Union. Eduardo Vieta. 137,347€
- **Caracterització dels pròdroms i detecció de factors predictors pronòstics en una mostra de pacients bipolars amb un primer episodi maniac.** SLT006/17/00357. Departament de Salut de la Generalitat de Catalunya. Eduard Vieta. 123,073€
- **Eficacia de la Rehabilitación Funcional adaptada a pacientes con primeros episodios psicóticos coadyuvante al tratamiento farmacológico versus tratamiento farmacológico habitual (FROzEN).** PI18/00789. Ministerio de Economia y Competitividad. Ana Isabel Martinez. 118,580€



Mental Health

Group of advanced studies on violence (GEAV)

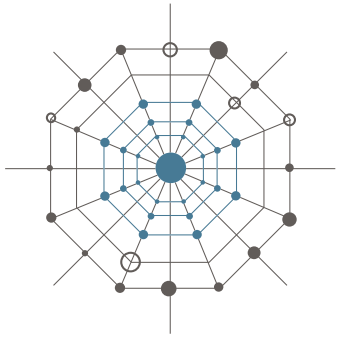
ANTONIO ANDRES-PUEYO; SANTIAGO REDONDO

Selected projects

- **Confidential.** 310405. Universidad Nacional de Colombia. Antonio Andres-Pueyo.
- **Confidential.** 310519. Departament de Treball, Afers Socials i Famílies. Generalitat de Catalunya. Antonio Andres-Pueyo.
- **Confidential.** 310390. Ministerio del Interior. Antonio Andres-Pueyo.
- **Confidential.** 310295. Generalitat de Catalunya. Centre d'Estudis Jurídics i Formació Especialitzada. Antonio Andres-Pueyo.
- **Confidential.** 304621. Diversos. Antonio Andres-Pueyo.

Selected publications

- Jose Lopez-Ossorio, J., Luis Gonzalez-Alvarez, J., Munoz Vicente, J. M., Urruela Cortes, C., & Andres-Pueyo, A. (2019). Validation and Calibration of the Spanish Police Intimate Partner Violence Risk Assessment System (VioGen). *JOURNAL OF POLICE AND CRIMINAL PSYCHOLOGY*, *34*(4), 439–449. https://doi.org/10.1007/s11896-019-09322-9
- Gallardo-Pujol, D., Penelo, E., Sit, C., Jornet-Gibert, M., Suso, C., Buades-Rotger, M., Maydeu-Olivares, A., Andres-Pueyo, A., & Bryant, F. B. (2019). The Meaning of Aggression Varies Across Culture: Testing the Measurement Invariance of the Refined Aggression Questionnaire in Samples From Spain, the United States, and Hong Kong. *JOURNAL OF PERSONALITY ASSESSMENT*, *101*(5), 515–520. https://doi.org/10.1080/00223891.2019.1565572
- Martin, A. M., Padron, F., & Redondo, S. (2019). Early Narratives of Desistance from Crime in Different Prison Regimes. *EUROPEAN JOURNAL OF PSYCHOLOGY APPLIED TO LEGAL CONTEXT*, *11*(2), 71–79. https://doi.org/10.5093/ejpalc2019a2



Mental Health

Intervention in clinical and health psychology

GUILLEM FEIXAS; FRANCISCO JOSE EIROA-OROSA

Members

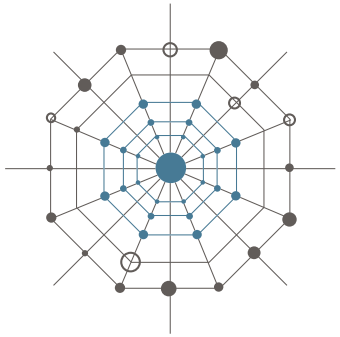
Juan Carlos Medina Alcaraz, Helena Garcia Mieres, Danilo Moggia Navaez, Victor Suarez Aragones

Selected projects

- **Contextualising psychosocial wellbeing and mental health within sociocultural dynamics (PSYCHOCONTEXT)**. 654808. European Union. Guillem Feixas.
- **Psicoterápia para jovenes con depresión moderada: ¿Puede la realidad virtual aumentar su eficacia?**. RTI2018-094294-B-I00. Ministerio de Ciencia, Innovación y Universidades. Guillem Feixas.
- **Confidential.** 309562. ITA Clinic BCN, S.L. Guillem Feixas.
- **Identidad Personal y Cambio en Procesos Sociales**. EUIN2017-88733. Ministerio de Economía y Competitividad. Guillem Feixas.
- **Significados personales, identidad y procesos de cambio.** EIN2019-103060. Ministerio de Economia y Competitividad. Guillem Feixas.

Selected publications

- Jose Eiroa-Orosa, F., & Garcia-Mieres, H. (2019). A Systematic Review and Meta-analysis of Recovery Educational Interventions for Mental Health Professionals. *ADMINISTRATION AND POLICY IN MENTAL HEALTH AND MENTAL HEALTH SERVICES RESEARCH*, *46*(6), 724–752. https://doi.org/10.1007/s10488-019-00956-9
- Lomas, T., Carles Medina, J., Ivtzan, I., Rupprecht, S., & Jose Eiroa-Orosa, F. (2019). A Systematic Review and Meta-analysis of the Impact of Mindfulness-Based Interventions on the Well-Being of Healthcare Professionals. *MINDFULNESS*, *10*(7), 1193–1216. https://doi.org/10.1007/s12671-018-1062-5
- Paz, C., Montesano, A., Winter, D., & Feixas, G. (2019). Cognitive conflict resolution during psychotherapy: Its impact on depressive symptoms and psychological distress. *PSYCHOTHERAPY RESEARCH*, *29*(1), 45–57. https://doi.org/10.1080/10503307.2017.1405172
- García-Mieres, H., Niño-Robles, N., Ochoa, S., & Feixas, G. (2019). Exploring identity and personal meanings in psychosis using the repertory grid technique: A systematic review. *CLINICAL PSYCHOLOGY & PSYCHOTHERAPY*, *26*(6), 717–733. https://doi.org/10.1002/cpp.2394
- Aguilera, M., Paz, C., Compañ, V., Medina, J. C., & Feixas, G. (2019). Cognitive rigidity in patients with depression and fibromyalgia. *INTERNATIONAL JOURNAL OF CLINICAL AND HEALTH PSYCHOLOGY*, *19*(2), 160–164. https://doi.org/https://doi.org/10.1016/j.ijchp.2019.02.002



Mental Health

Study group on invariance of analysis and measurement instruments of change in the social and health areas (GEIMAC)

JUANA GOMEZ-BENITO

Members

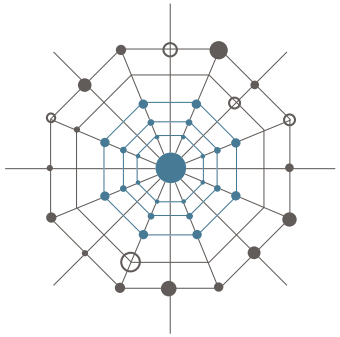
Juan Antonio Amador Campos, Maria Teresa Barrios Cerrejon, Roser Bono Cabre, Jorge Escartin Solanelles, Georgina Guilera Ferre, Teresa Kirchner Nebot, Ernesto Magallon Neri, Manuel Vicente Rojas Castellanos, Gomaa Said Mohamed Abdelhamid

Selected projects

- **Integrando a las personas con esquizofrenia: una evaluación válida de la funcionalidad en diferentes contextos culturales**. PSI2015-67984-R. Ministerio de Economía y Competitividad. Juana Gomez-Benito
- **Grup d'Estudis d'invariància dels instruments de mesura i anàlisi del canvi en els àmbits social i de la salut (GEIMAC).** 2017SGR1681. Agència de Gestió d'Ajuts Universitaris i de Recerca. Juana Gomez-Benito
- **Comparación entre Modelos Lineales Mixtos y Modelos Lineales Mixtos Generalizados: Estudios de Simulación y Aplicaciones**. PSI2016-78737-P. Ministerio de Economía, Industria y Competitividad. Roser Bono.
- **Confidential.** 310536. Fundació per a la Recerca i Docència de Sant Joan de Déu. Juana Gomez-Benito
- **Confidential**. 309888. Federació Salut Mental Catalunya. Juana Gomez-Benito

Selected publications

- Nuño, L., Barrios, M., Moller, M. D., Calderón, C., Rojo, E., Gómez-Benito, J., & Guilera, G. (2019). An international survey of Psychiatric-Mental-Health Nurses on the content validity of the International Classification of Functioning, Disability and Health Core Sets for Schizophrenia. *INTERNATIONAL JOURNAL OF MENTAL HEALTH NURSING*, *28*(4), 867–878. https://doi.org/10.1111/inm.12586
- Carmona, V. R., Gómez-Benito, J., & Rojo-Rodes, J. E. (2019). Employment Support Needs of People with Schizophrenia: A Scoping Study. *JOURNAL OF OCCUPATIONAL REHABILITATION*, *29*(1), 1–10. https://doi.org/10.1007/s10926-018-9771-0
- Berrío, Á. I., Herrera, A. N., & Gómez-Benito, J. (2019). Effect of Sample Size Ratio and Model Misfit When Using the Difficulty Parameter Differences Procedure to Detect DIF. *THE JOURNAL OF EXPERIMENTAL EDUCATION*, *87*(3), 367–383. https://doi.org/10.1080/00220973.2018.1435502
- Álvarez-Tomás, I., Ruiz, J., Guilera, G., & Bados, A. (2019). Long-term clinical and functional course of borderline personality disorder: A meta-analysis of prospective studies. *EUROPEAN PSYCHIATRY : THE JOURNAL OF THE ASSOCIATION OF EUROPEAN PSYCHIATRISTS*, *56*, 75–83. https://doi.org/10.1016
- Krieger, V., Amador-Campos, J. A., & Peró-Cebollero, M. (2019). Interrater agreement on behavioral executive function measures in adolescents with Attention Deficit Hyperactivity Disorder. *INTERNATIONAL JOURNAL OF CLINICAL AND HEALTH PSYCHOLOGY*, *19*(2), 141–149. https://doi.org/https://doi.org/10.1016/j.ijchp.2019.02.007



Mental Health

Structural equation modeling and item response theory (SEM&IRT)

ALBERT MAYDEU-OLIVARES

Members

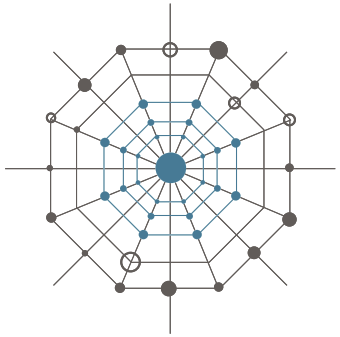
David Gallardo Pujol

Selected projects

- **Confidential.** 309232. Randstad España, S.L. Sociedad Unipersonal. Albert Maydeu-Olivares.
- **Confidential.** 310070. Randstad España, S.L. Sociedad Unipersonal. Albert Maydeu-Olivares.
- **Confidential**. 306714. Diversos. David Gallardo Pujol.

Selected publications

- Gallardo-Pujol, D., Penelo, E., Sit, C., Jornet-Gibert, M., Suso, C., Buades-Rotger, M., Maydeu-Olivares, A., Andres-Pueyo, A., & Bryant, F. B. (2019). The Meaning of Aggression Varies Across Culture: Testing the Measurement Invariance of the Refined Aggression Questionnaire in Samples From Spain, the United States, and Hong Kong. *JOURNAL OF PERSONALITY ASSESSMENT*, ***101***(5), 515–520. https://doi.org/10.1080/00223891.2019.1565572
- Pavlov, G., Maydeu-Olivares, A., & Fairchild, A. J. (2019). Effects of Applicant Faking on Forced-Choice and Likert Scores. *ORGANIZATIONAL RESEARCH METHODS*, *22*(3), 710–739. https://doi.org/10.1177/1094428117753683
- Maydeu-Olivares, A., Shi, D., & Rosseel, Y. (2019). Instrumental Variables Two-Stage Least Squares (2SLS) vs. Maximum Likelihood Structural Equation Modeling of Causal Effects in Linear Regression Models. *STRUCTURAL EQUATION MODELING-A MULTIDISCIPLINARY JOURNAL*, *26*(6), 876–892. https://doi.org/10.1080/10705511.2019.1607740
- Liu, Y., Yang, J. S., & Maydeu-Olivares, A. (2019). Restricted Recalibration of Item Response Theory Models. *PSYCHOMETRIKA*, *84*(2), 529–553. https://doi.org/10.1007/s11336-019-09667-4
- Weaver, R. G., Beets, M. W., Perry, M., Hunt, E., Brazendale, K., Decker, L., Turner-McGrievy, G., Pate, R., Youngstedt, S. D., Saelens, B. E., & Maydeu-Olivares, A. (2019). Changes in children's sleep and physical activity during a 1-week versus a 3-week break from school: a natural experiment. *SLEEP*, *42*(1). https://doi.org/10.1093/sleep/zsy205



Mental Health

Invictus research

ALVARO RODRIGUEZ-CARBALLEIRA

Members

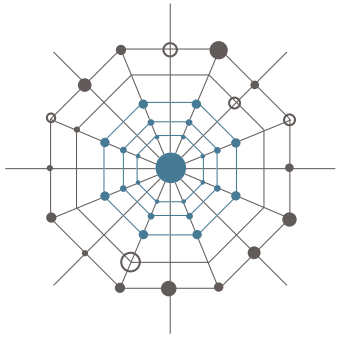
Omar Andres Saldaña Tops, Ana Varela Rey, Emma Antelo Gonzalez, Lara Longares Hernandez, Jorge Escartin Solanelles, Carolina Andana Lopez, Leonor Garay Villarroel

Selected projects

- **Violencia psicológica aplicada para el sometimiento o la exclusión: análisis, evaluación y modelos explicativos**. PSI2016-75915-P. Ministerio de Economía y Competitividad. Álvaro Rodríguez-Carballeira.

Selected publications

- Longares, L., Rodríguez-Carballeira, A., Escartín, J., & Garrido-Rosales, S. (2019). Un estudio cualitativo sobre el abuso psicológico en parejas intragénero: Identificación, tipos y explicación. *PSYKHE (Santiago)*, *28*, 1–14. https://scielo.conicyt.cl/scielo.php?script=sci_arttext&pid=S0718-22282019000200106&nrm=iso
- Saldana, O., Antelo, E., Almendros, C., & Rodriguez-Carballeira, A. (2019). Development and Validation of a Measure of Emotional Distress in Survivors of Group Psychological Abuse. *SPANISH JOURNAL OF PSYCHOLOGY*, *22*. https://doi.org/10.1017/sjp.2019.32
- Salin, D., Cowan, R., Adewumi, O., Apospori, E., Bochantin, J., D'Cruz, P., Djurkovic, N., Durniat, K., Escartin, J., Guo, J., Isik, I., Koeszegi, S. T., McCormack, D., Ines Monserrat, S., & Zedlacher, E. (2019). Workplace bullying across the globe: a cross-cultural comparison. *PERSONNEL REVIEW*, *48*(1), 204–219. https://doi.org/10.1108/PR-03-2017-0092



Mental Health

Research group in gerontology

FELICIANO VILLAR

Members

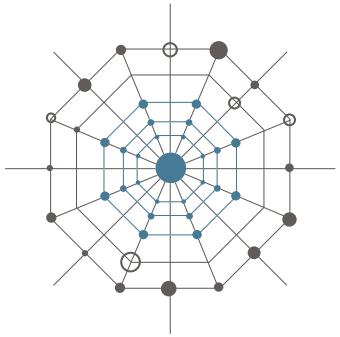
Maria Carmen Triado Tur, Montserrat Celdran Castro

Selected projects

- **Trayectorias asociadas al género en la exclusión de las relaciones sociales en la vejez y sus consecuencias para la salud y bienestar: una perspectiva de ciclo vital.** PCI2019-103627. Ministerio de Ciencia, Innovación y Universidades. Feliciano Villar.
- **Hacia una concreción del envejecimiento activo: antecedentes y consecuencias según el tipo de actividad realizada**. PSI2016-77864-R. Ministerio de Economía y Competitividad. Feliciano Villar.

Selected publications

- Villar, F., Serrat, R., Celdrán, M., Faba, J., Genover, M., & Rodríguez, T. (2019). Staff perceptions of barriers that lesbian, gay and bisexual residents face in long-term care settings. *SEXUALITIES*, 136346071987680. https://doi.org/10.1177/1363460719876808
- Villar, F., Serrat, R., Celdrán, M., Faba, J., Rodríguez, T., & Twisk, J. (2019). 'I do it my way': long-term care staff's perceptions of residents' sexual needs and suggestions for improvement in their management. *EUROPEAN JOURNAL OF AGEING*. https://doi.org/10.1007/s10433-019-00546-6
- Villar, F., Celdran, M., Serrat, R., Faba, J., & Martinez, T. (2019). Staff responses to residents exposing their genitals in public in long-term care settings: The gap between common and perceived best practices. *JOURNAL OF CLINICAL NURSING*, *28*(19–20), 3575–3581. https://doi.org/10.1111/jocn.14952
- Villar, F., Celdran, M., Serrat, R., Faba, J., Genover, M., & Martinez, T. (2019). Sexual Situations in Spanish Long-Term Care Facilities: Which Ones Cause the Most Discomfort to Staff? *SEXUALITY RESEARCH AND SOCIAL POLICY*, *16*(4), 446–454. https://doi.org/10.1007/s13178-018-0346-9
- Villar, F., Faba, J., Serrat, R., Celdran, M., & Martinez, T. (2020). Sexual harassment from older residents at long-term care facilities: is it really part of the job? *INTERNATIONAL PSYCHOGERIATRICS*, *32*(3, SI), 325–333. https://doi.org/10.1017/S1041610219001431



Mental Health

Clinic Schizophrenia (GEC)

MIQUEL BERNARDO

Members

Rosa Catalan Campos, Eduardo Parellada Rodon, Rafael Penades Rubio, Merce Torra Santamaria, Silvia Amoretti Guadall, Miquel Bioque Alcazar, Clemente Garcia Rizo, Gisela Mezquida Mateos

Selected projects

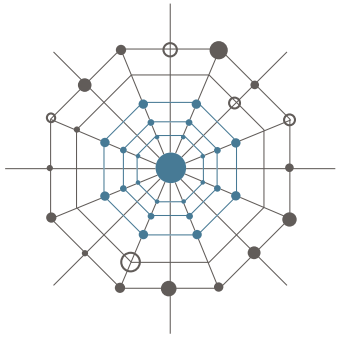
- **Identificación y caracterización del valor predictivo de la reserva cognitiva en el curso evolutivo y respuesta en terapéutica en personas con un primer episodio psicótico.** SLT006/17/00345. Departament de Salut. Generalitat de Catalunya. Miquel Bernardo.
- **Estudio de aplicabilidad clínica de un modelo predictivo de recaídas en primeros episodios de esquizofrenia.** PI14/00612. FIS. Instituto de Salud Carlos III. Ministerio de Economía y comeptitividad. Miquel Bernardo.
- **La permeabilidad intestinal como causa de inflamación crónica de bajo grado en pacientes con esquizofrenia: relación con la dieta, el síndrome metabólico y la gravedad de la enfermedad**. PI17/00246 FIS. Instituto de Salud Carlos III. Ministerio de Economía y comeptitividad. Belen Arranz.
- **Rehabilitación cognitiva en la esquizofrènia: variación genètica en los genes BDNF (Val66Met) y COMT (Val158Met) como posible modulador de la respuesta al tratamiento.** PI17/00872 FIS. Instituto de Salud Carlos III. Ministerio de Economía y comeptitividad. Rafael Penades.
- **Cellular, molecular, genetic and cognitive-behavioral characterization of the antiapoptotic effect of clozapine and glutamate inhibitors in a postnatal ketamine animal model of schizophrenia**. FCRB_PB2_2018. Fundació Clínic per a la recerca Biomèdica. Eduardo Parellada

Patents

Method for predicting the onset of extrapyramidal symptoms (EPS) induced by an antipsicotic-based treatment. AVCRI196

Selected publications

- Nuñez, C., Stephan-Otto, C.*, Usall, J., Bioque, M., Lobo, A., Gonzalez-Pinto, A., Pina-Camacho, L., Vieta, E., Castro-Fornieles, J., Rodriguez-Jimenez, R., Butjosa, A., Janssen, J., Cabrera, B., Parellada, M., Bernardo, M., Mezquida, G., Amoretti, S., Rodriguez-Toscano, E., Aleman, Y., … Grp, Pep. (2019). Neutrophil Count Is Associated With Reduced Gray Matter and Enlarged Ventricles in First-Episode Psychosis. *SCHIZOPHRENIA BULLETIN*, *45*(4), 846–858. https://doi.org/10.1093/schbul/sby113
- Bioque, M., Mas, S., Costanzo, M. C., Cabrera, B., Lobo, A., Gonzalez-Pinto, A., Rodriguez-Toscano, E., Corripio, I., Vieta, E., Baeza, I., Ibanez, A., Gutierrez Fraile, M., Cuesta, M. J., Mezquida, G., Lafuente, A., Bernardo, M., Amoretti, S., Meseguer, A., Lopez, G., … GRP, Pep. (2019). Gene-environment interaction between an endocannabinoid system genetic polymorphism and cannabis use in first episode of psychosis. *EUROPEAN NEUROPSYCHOPHARMACOLOGY*, *29*(6), 786–794. https://doi.org/10.1016/j.euroneuro.2019.04.005
- Guloksuz, S., Pries, L.-K., Delespaul, P., Kenis, G., Luykx, J. J., Lin, B. D., Richards, A. L., Akdede, B., Binbay, T., Altinyazar, V., Yalincetin, B., Gumus-Akay, G., Cihan, B., Soygur, H., Ulas, H., Cankurtaran, E. S., Kaymak, S. U., Mihaljevic, M. M., Petrovic, S. A., … Psychosis, G. R. O. (2019). Examining the independent and joint effects of molecular genetic liability and environmental exposures in schizophrenia: results from the EUGEI study. *WORLD PSYCHIATRY*, *18*(2), 173–182. https://doi.org/10.1002/wps.20629
- Amoretti, S., Cabrera, B., Torrent, C., Bonnín, C., Mezquida, G., Garriga, M., Jiménez, E., Martínez-Arán, A., Solé, B., Reinares, M., Varo, C., Penadés, R., Grande, I., Salagre, E., Parellada, E., Bioque, M., Garcia-Rizo, C., Meseguer, A., Anmella, G., Rosa, A. R., … Bernardo, M. (2019). Cognitive Reserve Assessment Scale in Health (CRASH): Its Validity and Reliability. *JOURNAL OF CLINICAL MEDICINE*, *8*(5), 586. https://doi.org/10.3390/jcm8050586
- Di Forti, M., Quattrone, D., Freeman, T. P., Tripoli, G., Gayer-Anderson, C., Quigley, H., Rodriguez, V., Jongsma, H. E., Ferraro, L., La Cascia, C., La Barbera, D., Tarricone, I., Berardi, D., Szöke, A., Arango, C., Tortelli, A., Velthorst, E., Bernardo, M., Del-Ben, C. M., … Ven, E. van der. (2019). The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe (EU-GEI): a multicentre case-control study. *THE LANCET. PSYCHIATRY*, *6*(5), 427–436. https://doi.org/10.1016/S2215-0366(19)30048-3



Mental Health

Child and adolescent psychiatry and psychology research group

JOSEFINA CASTRO-FORNIELES

Members

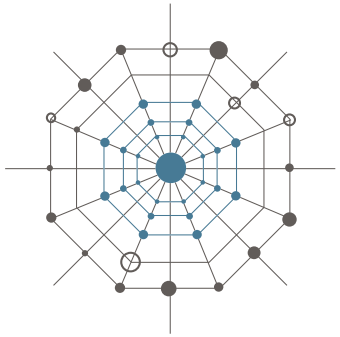
Maria Luisa Lazaro Garcia, Susana Andres Perpiña, Gisela Sugranyes Ernes, Inmaculada Baeza Pertegaz, Astrid Morer Liñan, Rosa Calvo Escalona, Soledad Romero Cela, Olga Puig Navarro, Sara Lera Miguel, Elena de la Serna Gomez, Itziar Flamarique Valencia, Ana Blazquez Hinojosa, Ana Encarnacion Ortiz Garcia, Mireia Rosa Justicia, Ana Perez Vigil, Pilar Santamarina Perez, Patricia Camprodon Boadas, Blanca Garcia Delgar, Daniel Ilzarbe Simorte, Maria Teresa Plana

Selected projects

- **A translational model of autoimmune synaptopathy: symptoms, brain networks, and the link to human memory.** PIE16/00014. Instituto de Salud Carlos III. Ministerio de Economia y Competitividad. Josefa Castro-Fornieles.
- **Autism innovative medicine studies-2-trials.** H2020-BBI-JTI-2016-777394. European Union. Rosa Maria Calvo.
- **Estudio longitudinal sobre marcadores nutricionales y de estrés en niños y adolescentes con síndrome de riesgo de psicosis y su capacidad predictiva de la transición a psicosis.** PI18/00242. Ministerio de Economia y Competitividad. Inmaculada Baeza.
- **Influencia de la genética y la epigenética en la eficacia del tratamiento del Trastorno Obsesivo-Compulsivo con terapia cognitivo-conductual o tratamiento farmacológico.** PI16/01086. Ministerio de Economia y Competitividad. Maria Luisa Lazaro.
- **From the synapse to brain structure and function: a comparative study between youth with early stage psychosis and patients with NMDA receptor encephalitis.** Brain & Behaviour Research foundation. Gisela Sugranyes.

Selected publications

- Castro-Fornieles, J., de la Serna, E., Calvo, A., Pariente, J., Andrés-Perpiña, S., Plana, M. T., Romero, S., Flamarique, I., Gárriz, M., & Bargalló, N. (2019). Cortical thickness 20 years after diagnosis of anorexia nervosa during adolescence. *European archives of psychiatry and clinical neuroscience*, 10.1007/s00406-019-00992-4. Advance online publication. https://doi.org/10.1007/s00406-019-00992-4
- Ilzarbe, D., de la Serna, E., Baeza, I., Rosa, M., Puig, O., Calvo, A., Masias, M., Borras, R., Pariente, J. C., Castro-Fornieles, J., & Sugranyes, G. (2019). The relationship between performance in a theory of mind task and intrinsic functional connectivity in youth with early onset psychosis. *DEVELOPMENTAL COGNITIVE NEUROSCIENCE*, *40*. https://doi.org/10.1016/j.dcn.2019.100726
- Rodriguez, N., Morer, A., Gonzalez-Navarro, E. A., Serra-Pages, C., Boloc, D., Torres, T., Martinez-Pinteno, A., Mas, S., Lafuente, A., Gasso, P., & Lazaro, L. (2019). Altered frequencies of Th17 and Treg cells in children and adolescents with obsessive-compulsive disorder. *BRAIN BEHAVIOR AND IMMUNITY*, *81*, 608–616. https://doi.org/10.1016/j.bbi.2019.07.022
- de Zwarte, S. M. C., Brouwer, R. M., Agartz, I., Alda, M., Aleman, A., Alpert, K. I., Bearden, C. E., Bertolino, A., Bois, C., Bonvino, A., Bramon, E., Buimer, E. E. L., Cahn, W., Cannon, D. M., Cannon, T. D., Caseras, X., Castro-Fornieles, J., Chen, Q., Chung, Y., … van Haren, N. E. M. (2019). The Association Between Familial Risk and Brain Abnormalities Is Disease Specific: An ENIGMA-Relatives Study of Schizophrenia and Bipolar Disorder. *BIOLOGICAL PSYCHIATRY*, *86*(7), 545–556. https://doi.org/10.1016/j.biopsych.2019.03.985
- Rodriguez, N., Morer, A., Azucena Gonzalez-Navarro, E., Gasso, P., Boloc, D., Serra-Pages, C., Lafuente, A., Lazaro, L., & Mas, S. (2019). Human-leukocyte antigen class II genes in early-onset obsessive-compulsive disorder. *WORLD JOURNAL OF BIOLOGICAL PSYCHIATRY*, *20*(5), 352–358. https://doi.org/10.1080/15622975.2017.1327669



Mental Health

Child and adolescent victimization research group (GREVIA)

NOEMI PEREDA

Members

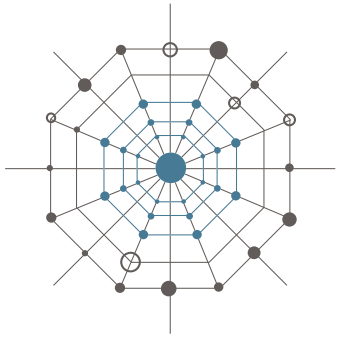
Ana Martina Greco, Diego Arias Diaz-Faes, Laura Sicilia Matas, Marta Codina Cobo, Jaume Hombrado trenado

Selected projects

- **Ajut per incentivar i consolidar la recerca d'excel·lència ja existent a les universitats públiques de Catalunya.**
- **Percepción de apoyo social y malestar físico y emocional en víctimas de abuso sexual por parte de representantes de la Iglesia Católica.** DER2017-85269-C3-2-P. Ministerio de Economia y Competitividad. Noemi Pereda.
- **Confidential. 310171.** Save the Children. Noemi Pereda.
- **Schools Against Victimisation from an Early age.** 2018-1-ES01-KA201-050287. Education, Audiovisual and Culture Executive Agency (EACEA). Noemi Pereda.

Selected publications

- Vila, R., Greco, A., Loinaz, I., & Pereda, N. (2019). El profesorado español ante el maltrato infantil. Estudio piloto sobre variables que influyen en la detección de menores en riesgo. *REVISTA ESPAÑOLA DE INVESTIGACIÓN CRIMINOLÓGICA*, *17*, 1-25. https://reic.criminologia.net/index.php/journal/article/view/153
- Mendez-Lopez, C., & Pereda, N. (2019). Victimization and poly-victimization in a community sample of Mexican adolescents. *CHILD ABUSE & NEGLECT*, *96*. https://doi.org/10.1016/j.chiabu.2019.104100
- Pinto-Cortez, C., Flores-Jara, J., Pereda, N., & Guerra, C. (2019). VICTIMIZATION AND POLY-VICTIMIZATION IN CHILEAN CHILD AND ADOLESCENT AYMARA: RELATIONSHIP WITH POST-TRAUMATIC SYMPTOMS. *INTERCIENCIA*, *44*(4), 229–235.
- Suarez-Soto, E., Pereda, N., & Guilera, G. (2019). Poly-victimization, resilience, and suicidality among adolescents in child and youth-serving systems. *CHILDREN AND YOUTH SERVICES REVIEW*, *106*. https://doi.org/10.1016/j.childyouth.2019.104500



Mental Health

Bipolar and depressive disorder

EDUARD VIETA

Members

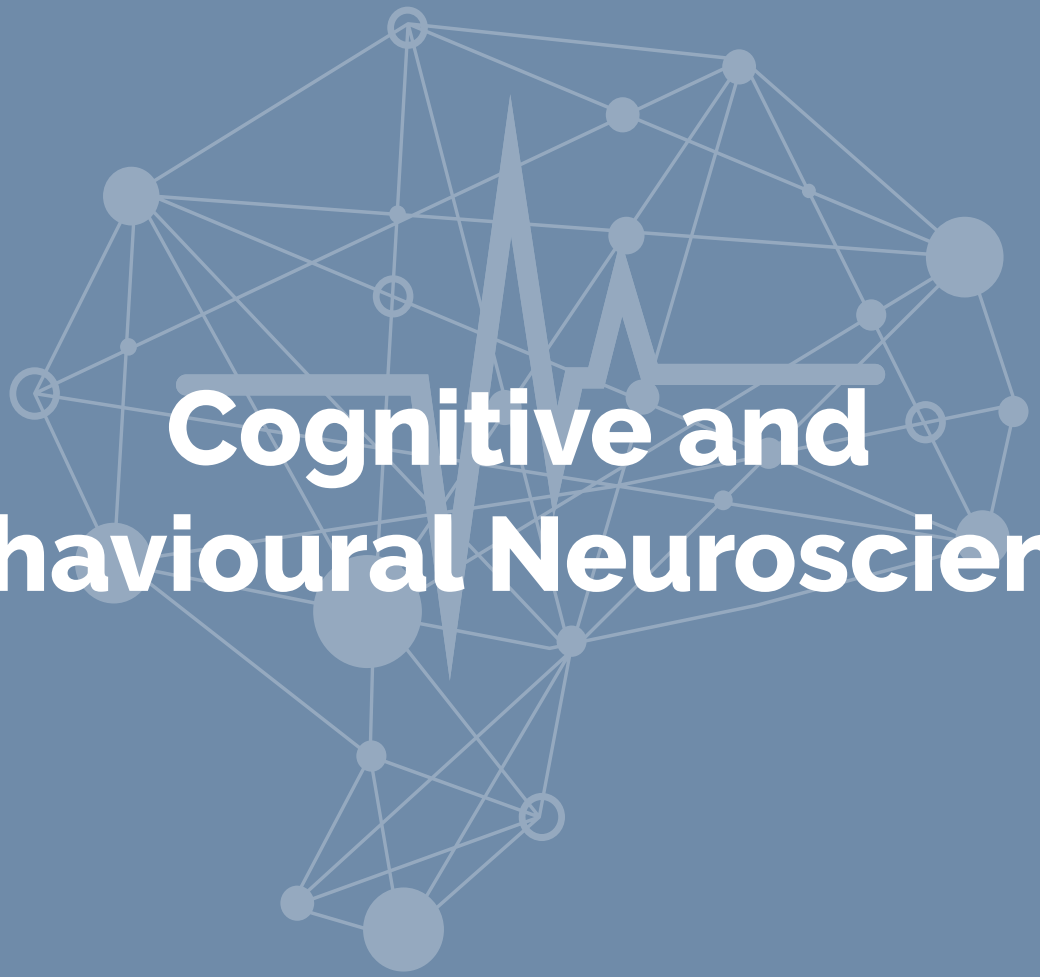
Ana Isabel Martinez Aran, Caterina del Mar Bonning Roig, Diego Hidalgo Mazzei, Marina Garriga Carrizosa, Iria Grande Fullana, Ester Jimenez Martinez, Andrea Murru, Isabella Pacchiarotti, Maria Reinares Gagneten, Estela Salagre Muñoz, Jose Sanchez Moreno, Brisa Sole Cabezuelo, Carla Torrent Font, Imma Torres Vilamajo, Marc Valenti Ribas, Elias Valls Roig, Jose Manuel Goikolea Alberdi, Antoni Benabarre Hernandez, Laura Mintejo Egido, Cristina Varo Martin, Norma Verdolini

Selected projects

- **Optimizing response to Li treatment through personalized evaluation of individuals with bipolar I disorder: the R-LiNK initiative.** 754907-1. European Union. Eduard Vieta.
- **Caracterització dels pròdroms i detecció de factors predictors pronòstics en una mostra de pacients bipolars amb un primer episodi maniac.** SLT006/17/00357. Departament de Salut de la Generalitat de Catalunya. Eduard Vieta.
- **Eficacia de la Rehabilitación Funcional adaptada a pacientes con primeros episodios psicóticos coadyuvante al tratamiento farmacológico versus tratamiento farmacológico habitual (FROzEN).** PI18/00789. Ministerio de Economia y Competitividad. Ana Isabel Martinez.
- **Estudio sobre la eficacia de un abordaje psicológico para la potenciación de la reserva cognitiva en población bipolar con un primer episodio reciente.** PI18/00805. Ministerio de Economia y Competitividad. Eduard Vieta.
- **Identificación de variables biológicas asociadas a la conducta suicida en el trastorno bipolar**. PI17/01122. Ministerio de Economia y Competitividad. Antonio Benabarre.

Selected publications

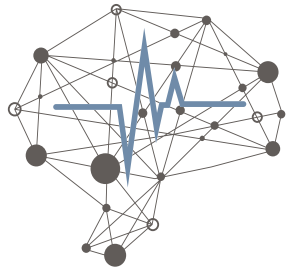
- Dragioti, E., Solmi, M., Favaro, A., Fusar-Poli, P., Dazzan, P., Thompson, T., Stubbs, B., Firth, J., Fornaro, M., Tsartsalis, D., Carvalho, A. F., Vieta, E., McGuire, P., Young, A. H., Shin, J. I., Correll, C. U., & Evangelou, E. (2019). Association of Antidepressant Use With Adverse Health Outcomes: A Systematic Umbrella Review. *JAMA PSYCHIATRY*, *76*(12), 1241–1255. Advance online publication. https://doi.org/10.1001/jamapsychiatry.2019.2859
- Popova, V., Daly, E. J., Trivedi, M., Cooper, K., Lane, R., Lim, P., Mazzucco, C., Hough, D., Thase, M. E., Shelton, R. C., Molero, P., Vieta, E., Bajbouj, M., Manji, H., Drevets, W. C., & Singh, J. B. (2019). Efficacy and Safety of Flexibly Dosed Esketamine Nasal Spray Combined With a Newly Initiated Oral Antidepressant in Treatment-Resistant Depression: A Randomized Double-Blind Active-Controlled Study. *AMERICAN JOURNAL OF PSYCHIATRY*, *176*(6), 428–438. https://doi.org/10.1176/appi.ajp.2019.19020172
- Stahl, E. A., Breen, G., Forstner, A. J., McQuillin, A., Ripke, S., Trubetskoy, V., Mattheisen, M., Wang, Y., Coleman, J. R. I., Gaspar, H. A., de Leeuw, C. A., Steinberg, S., Pavlides, J. M. W., Trzaskowski, M., Byrne, E. M., Pers, T. H., Holmans, P. A., Richards, A. L., Abbott, L., … Psych, B. D. W. G. (2019). Genome-wide association study identifies 30 loci associated with bipolar disorder. *NATURE GENETICS*, *51*(5), 793+. https://doi.org/10.1038/s41588-019-0397-8
- Goikolea, J. M., Dima, D., Landin-Romero, R., Torres, I., DelVecchio, G., Valenti, M., Amann, B. L., Bonnin, C. M., McKenna, P. J., Pomarol-Clotet, E., Frangou, S., & Vieta, E. (2019). Multimodal Brain Changes in First-Episode Mania: A Voxel-Based Morphometry, Functional Magnetic Resonance Imaging, and Connectivity Study. *SCHIZOPHRENIA BULLETIN*, *45*(2), 464–473. https://doi.org/10.1093/schbul/sby047
- Hidalgo-Mazzei, D., Berk, M., Cipriani, A., Cleare, A. J., Di Florio, A., Dietch, D., Geddes, J. R., Goodwin, G. M., Grunze, H., Hayes, J. F., Jones, I., Kasper, S., Macritchie, K., McAllister-Williams, R. H., Morriss, R., Nayrouz, S., Pappa, S., Soares, J. C., Smith, D. J., … Stokes, P. R. A. (2019). Treatment-resistant and multi-therapy-resistant criteria for bipolar depression: consensus definition. *BRITISH JOURNAL OF PSYCHIATRY*, *214*(1), 27–35. https://doi.org/10.1192/bjp.2018.257



Cognitive and Behavioural Neuroscience

Annual Report
2019

Cognitive and Behavioural Neuroscience



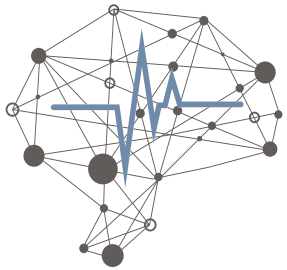
This focus area addresses the cerebral circuits, networks, processes and computational mechanisms that underpin a plethora of functions, such as perception, attention, memory, language, decision making, emotion and the control of action, to name a few.

These functions are at the essence of cognition and give rise to the uniqueness of our human nature, a rich mental activity that can even generate the subjective phenomenon of consciousness.

Research at the Institute of Neurosciences pushes boundaries of existing knowledge in areas such as language, music, auditory perception, sensorimotor and cognitive decision-making, and neuropsychology. The Institute has contributed important findings regarding in the genetic determinants of speech sounds encoding, language acquisition and musical anhedonia, the brain connectivity in the preterm born baby and neurobehavioural plasticity after early brain injury, addictions, and the abnormal control of reward in obesity.

PROJECTS

- **Moments in Time in Immersive Virtual Environments (mottive)**. ERC-2016-ADG- 742989. European Union. Mel Slater. 2,199,318€
- **Healthy minds from 0-100 years: Optimising the use of European brain imaging cohorts (Lifebrain).** H2020-SC1-2016-2017- 732592. European Union. David Bartrés-Faz. 435.028€
- **The sound of special places: exploring rock art soundscapes and the sacred (ARTSOUNDSCAPES)**. ERC-2017-ADG- 787842. European Union. Coordinator: Margarita Díaz-Andreu Garcia. Partner: Carles Escera. 320.000€
- **Perception and Action in Complex Environments (PACE).** H2020-MSCA-ITN-2014- 642961. European Union. Joan López-Moliner. 234.272€
- **Estudio de los cambios cerebrales inducidos por estimulación cerebral no invasiva, como predictores del estado de salud cerebral futuro en personas de edad avanzada.** RTI2018-095181-B-C21. Ministerio de Ciencia, Innovación y Universidades. David Bartres-Faz. 223,850€
- **Executive function training in childhood obesity: food choice, quality of life and brain connectivity (TOuCH).** 201616-10. Fundació La Marató de TV3. M. Àngels Jurado Luque. 186.216€



Cognitive
and Behavioural
Neuroscience

Cognitive neuroscience research group (BRAINLAB)

CARLES ESCERA (Cognitive neuroscience research group); MARIA ISABEL NUNEZ-PENA (Numerical cognition and math anxiety); IRIA SANMIGUEL (Predictive processes in motor-sensory interactions); MARC VIA (Genetic modulators of brain potentials)

Members

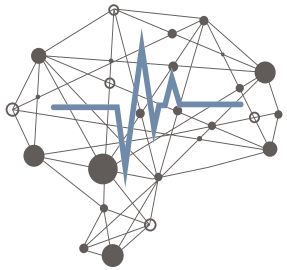
Concepcion Clemente Lapena, Maria Jose Corral Lopez, Jordi Costa Faidella, Jose Valenzuela Ruiz, Natalia Gorina Careta, Fran Lopez Caballero, Teresa Ribas Prats, Belen Gonzalez Gomez, Vittoria Spinosa, Konstantina Paraskevoudi, Sonia Arenillas Alcon, Marta Font, Giannina Puddu Gallardo

Selected projects

- **The sound of special places: exploring rock art soundscapes and the sacred (ARTSOUNDSCAPES)**. ERC-2017-ADG. 787842. Margarita Díaz-Andreu Garcia; Carles Escera.
- **Ajut per incentivar i consolidar la recerca d'excel·lència ja existent a les universitats públiques de Catalunya.** Programa ICREA Academia 2015. Fundació Institució Catalana de Recerca i Estudis Avançats. Carles Escera.
- **Caracterización de la respuesta de seguimiento de frecuencia (RSF) en recién nacidos como posible biomarcador de desarrollo neurocognitive.** PGC2018-094765-B-I00. Ministerio de Ciencia, Innovación y Universidades. Carles Escera.
- **Codificación de estímulos referenciados a uno mismo versus estímulos referenciados a entes externos: Consecuencias a corto y largo plazo.** PSI2017-85600-P. Ministerio de Economia y Competitividad. Iria SanMiguel
- **Papel de los genes y de factores epigenéticos en la modulación de potenciales cerebrales asociados al procesamiento del lenguaje y de la música.** PGC2018-099013-A-I00. Ministerio de Ciencia, Innovación y Universidades. Marc Via.

Selected publications

- Isabel Nunez-Pena, M., Gonzalez-Gomez, B., & Colome, A. (2019). Spatial processing in a mental rotation task: Differences between high and low math-anxiety individuals. *BIOLOGICAL PSYCHOLOGY*, *146*. https://doi.org/10.1016/j.biopsycho.2019.107727
- Alho, K., Zarnowiec, K., Gorina-Careta, N., & Escera, C. (2019). Phonological Task Enhances the Frequency-Following Response to Deviant Task-Irrelevant Speech Sounds. *FRONTIERS IN HUMAN NEUROSCIENCE*, *13*. https://doi.org/10.3389/fnhum.2019.00245
- Cacciaglia, R., Costa-Faidella, J., Zarnowiec, K., Grimm, S., & Escera, C. (2019). Auditory predictions shape the neural responses to stimulus repetition and sensory change. *NEUROIMAGE*, *186*, 200–210. https://doi.org/10.1016/j.neuroimage.2018.11.007
- Nunez-Pena, M. I., Colome, A., & Aguilar-Lleyda, D. (2019). Number line estimation in highly math-anxious individuals. *BRITISH JOURNAL OF PSYCHOLOGY*, *110*(1), 40–59. https://doi.org/10.1111/bjop.12335
- Ribas-Prats, T., Almeida, L., Costa-Faidella, J., Plana, M., Corral, M. J., Dolores Gomez-Roig, M., & Escera, C. (2019). The frequency-following response (FFR) to speech stimuli: A normative dataset in healthy newborns. *HEARING RESEARCH*, *371*, 28–39. https://doi.org/10.1016/j.heares.2018.11.001



Cognitive
and Behavioural
Neuroscience

Neuropsychology group

ANA ADAN (Addiction and dual disorders); DAVID BARTRES-FAZ (Barcelona brain stimulation lab [BBSLab]); MARIA ANGELES JURADO (Obesity and neuroimaging); MARIA MATARO (Healthy aging and cerebrovascular disease); ROSER PUEYO (Cerebral palsy and neuroimaging); JOSEP M SERRA-GRABULOSA (Neurodevelopmental disorders)

Members

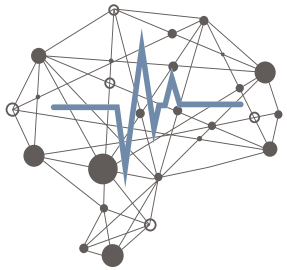
Laura Rio Martinez, Kilian Amadeus Abellaneda Perez, Lidia Vaque Alcazar, Juan Pablo Martin Trias, Cristina Sanchez Castañeda, Sandra Luis Ruiz, Jonatan Emanuel Ottino Gonzalez, Xavier Prats Soteras, Juan Jose Soriano Raya, Alba Castells Sanchez, Noemi Lamonja Vicente, Julia Miralbell Blanch, Julia Ballester Plane, Olga Laporta Hoyos, Xavier Caldu, Ruben Perellon Alonso, Montse Blasco Sierra, Maria Garcia Galant, Mar Ariza, Francesca Roig, Adria Bermudo

Selected projects

- **Healthy minds from 0-100 years: Optimising the use of European brain imaging cohorts (Lifebrain).** 732592. European Union. David Bartres-Faz.
- **Ajut per incentivar i consolidar la recerca d'excel·lència ja existent a les universitats públiques de Catalunya.** Programa ICREA Academia 2018. Fundació Institució Catalana de Recerca i Estudis Avançats. Maria Mataro.
- **Executive function training in childhood obesity: food choice, quality of life and brain connectivity (TOuCH).** 201616-10. Fundació La Marató de TV3. Maria Angeles Jurado Luque.
- **Entrenamiento ejecutivo en parálisis cerebral: participación, calidad de vida y conectividad cerebral.** PSI2016-75979-R. Ministerio de Economia y Competitividad. Roser Pueyo.
- **Psicobiología de la patología dual**. PSI2015-65026-P. Ministerio de Economia y Competitividad. Ana Adan.

Selected publications

- Bartrés-Faz, D., González-Escamilla, G., Vaqué-Alcázar, L., Abellaneda-Pérez, K., Valls-Pedret, C., Ros, E., & Grothe, M. J. (2019). Characterizing the Molecular Architecture of Cortical Regions Associated with High Educational Attainment in Older Individuals. *THE JOURNAL OF NEUROSCIENCE, 39*(23), 4566 LP – 4575. https://doi.org/10.1523/JNEUROSCI.2370-18.2019
- Ottino-González, J., Jurado, M. A., García-García, I., Caldú, X., Prats-Soteras, X., Tor, E., Sender-Palacios, M. J., & Garolera, M. (2019). Allostatic load and executive functions in overweight adults. *PSYCHONEUROENDOCRINOLOGY, 106,* 165–170. https://doi.org/https://doi.org/10.1016/j.psyneuen.2019.04.009
- de Lange, S. C., Scholtens, L. H., van den Berg, L. H., Boks, M. P., Bozzali, M., Cahn, W., Dannlowski, U., Durston, S., Geuze, E., van Haren, N. E. M., Hillegers, M. H. J., Koch, K., Jurado, M. Á., Mancini, M., Marqués-Iturria, I., Meinert, S., Ophoff, R. A., Reess, T. J., Repple, J., … Initiative, A. D. N. (2019). Shared vulnerability for connectome alterations across psychiatric and neurological brain disorders. *NATURE HUMAN BEHAVIOUR, 3*(9), 988–998. https://doi.org/10.1038/s41562-019-0659-6
- Abellaneda-Pérez, K., Vaqué-Alcázar, L., Vidal-Piñeiro, D., Jannati, A., Solana, E., Bargalló, N., Santarnecchi, E., Pascual-Leone, A., & Bartrés-Faz, D. (2019). Age-related differences in default-mode network connectivity in response to intermittent theta-burst stimulation and its relationships with maintained cognition and brain integrity in healthy aging. NEUROIMAGE, 188, 794–806. https://doi.org/10.1016/j.neuroimage.2018.11.036
- Marquez-Arrico, J., Río-Martínez, L., Navarro, J., Prat, G., Forero, D., & Adan, A. (2019). Coping Strategies in Male Patients under Treatment for Substance Use Disorders and/or Severe Mental Illness: Influence in Clinical Course at One-Year Follow-Up. *JOURNAL OF CLINICAL MEDICINE*, *8*(11), 1972. doi:10.3390/jcm8111972



Cognitive and Behavioural Neuroscience

Cognition and brain plasticity unit (BRAINVITGE)

RUTH DE DIEGO-BALAGUER (Brain mechanisms of language learning); LLUIS FUENTEMILLA (Dynamics of memory formation); JOSEP MARCO-PALLARES (Learning from reward); ANTONIO RODRIGUEZ-FORNELLS (Brain plasticity)

Members

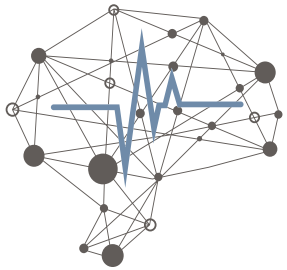
Estela Camara Mancha, Toni Cunillera Llorente, Xiongbo Wu, Mireia Hernandez Pardo, Paula Lopez-Gamundi, Marta Marques de Almeido e Silva, Ludovico Saint-Amour di Chanaz, Alba Gomez Andres, Alberto Ara Romero, Alexis Perez Bellido, Berta Nicolas Berenguer, David Cucurell Vega, Elena Kulagina, Emma Segura Gonzalez, Francesco Giannelli, Gemma Cardona Caballero, Guillem Olive Cadena, Helena Alicart Bonafont, Italo Ali Diez, Jeison Parra Tijaro, Jennifer Grau Sanchez, Joan Rodriguez Ruiz, Joan Tarrida Vidal, Julia Miro Llado, Marta Simo Parra, Neus Ramos Escobar, Patricia Leon Cabrera, Xavier Rifa i Ros

Selected projects

- **Playing and Singing for the Recovering Brain: Efficacy of Enriched Social-Motivational Musical Interventions in Stroke Rehabilitation.** 201729.30. Fundació La Marató de TV3. Antonio Rodriguez-Fornells.
- **Motivación y recompensa intrinsica asociada a la acquisición del conocimiento: evidencias neuronales.** PGC2018-099859-B-I00. Ministerio de Ciencia, Innovación y Universidades. Antonio Rodriguez-Fornells.
- **Atendiendo al ritmo: predicción temporal y atención selectivaen el aprendizaje del lenguaje.** BFU2017-87109-P. Ministerio de Economia y Competitividad. Ruth de Diego-Balaguer.
- **La influencia de la información probabilística sobre estructura argumental en el procesamiento de verbos y comprensión de oraciones.** PGC2018-094891-A-I00. Ministerio de Ciencia, Innovación y Universidades. Mireia Hernandez Pardo
- **Información y Curiosidad como fuentes de recompensa en humanos: Mecanismos oscilatorios y neuronales.** PGC2018-098032-B-I00. Ministerio de Ciencia, Innovación y Universidades. Josep Marco-Pallares.

Selected publications

- Silva, M., Baldassano, C., & Fuentemilla, L. (2019). Rapid Memory Reactivation at Movie Event Boundaries Promotes Episodic Encoding. *JOURNAL OF NEUROSCIENCE*, *39*(43), 8538–8548. https://doi.org/10.1523/JNEUROSCI.0360-19.2019
- Martinez-Molina, N., Mas-Herrero, E., Rodriguez-Fornells, A., Zatorre, R. J., & Marco-Pallares, J. (2019). White Matter Microstructure Reflects Individual Differences in Music Reward Sensitivity. *JOURNAL OF NEUROSCIENCE*, *39*(25), 5018–5027. https://doi.org/10.1523/JNEUROSCI.2020-18.2019
- 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+. https://doi.org/10.1038/s41593-019-0353-z
- Ferreri, L., Mas-Herrero, E., Zatorre, R. J., Ripolles, P., Gomez-Andres, A., Alicart, H., Olive, G., Marco-Pallares, J., Antonijoan, R. M., Valle, M., Riba, J., & Rodriguez-Fornells, A. (2019). Dopamine modulates the reward experiences elicited by music. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*, *116*(9), 3793–3798. https://doi.org/10.1073/pnas.1811878116
- Garcia-Gorro, C., Llera, A., Martinez-Horta, S., Perez-Perez, J., Kulisevsky, J., Rodriguez-Dechicha, N., Vaquer, I., Subira, S., Calopa, M., Munoz, E., Santacruz, P., Ruiz-Idiago, J., Mareca, C., Beckmann, C. F., De Diego-Balaguer, R., & Camara, E. (2019). Specific patterns of brain alterations underlie distinct clinical profiles in Huntington's disease. *NEUROIMAGE-CLINICAL*, *23*. https://doi.org/10.1016/j.nicl.2019.101900



Cognitive
and Behavioural
Neuroscience

Attention, perception and acquisition of language (APAL)

LAURA BOSCH; FERRAN PONS

Members

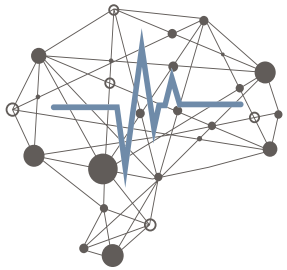
Joan Birules Muntane, Carlota Saumell Andreu, Marta Ramon-Casas, Jessica Sanchez-Galan Frauca

Selected projects

- **Variabilidad en el procesamiento audiovisual del habla en la infancia: rol de la experiencia lingüística, maduración neurológica y capacidad sensorial.** PGC2018-097487-B-I00. Ministerio de Ciencia, Innovación y Universidades. Ferran Pons.

Selected publications

- Ramon-Casas, M., Nuno, N., Pons, F., & Cunillera, T. (2019). The different impact of a structured peer-assessment task in relation to university undergraduates' initial writing skills. *ASSESSMENT & EVALUATION IN HIGHER EDUCATION*, *44*(5), 653–663. https://doi.org/10.1080/02602938.2018.1525337
- Birules, J., Bosch, L., Brieke, R., Pons, F., & Lewkowicz, D. J. (2019). Inside bilingualism: Language background modulates selective attention to a talker's mouth. *DEVELOPMENTAL SCIENCE*, *22*(3). https://doi.org/10.1111/desc.12755
- Bulgarelli, F., Bosch, L., & Weiss, D. J. (2019). Multi-Pattern Visual Statistical Learning in Monolinguals and Bilinguals. *FRONTIERS IN PSYCHOLOGY*, *10*. https://doi.org/10.3389/fpsyg.2019.00204
- Pons, F., Bosch, L., & Lewkowicz, D. J. (2019). Twelve-month-old infants' attention to the eyes of a talking face is associated with communication and social skills. *INFANT BEHAVIOR & DEVELOPMENT*, *54*, 80–84. https://doi.org/10.1016/j.infbeh.2018.12.003



Cognitive
and Behavioural
Neuroscience

Research in primatology

MONTSERRAT COLELL

Members

Alvaro Lopez Caicoya, Jordi Galbany Casals, Mercedes Mayo Aleson

Selected projects

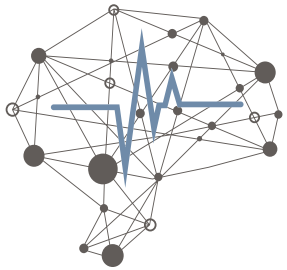
- **Confidential.** 3RE061. Fundació Barcelona Zoo. Montserrat Colell.
- **Cognición, conservación y bienestar en ungulados en peligro: Gacela dorcas, gacela dama y órix cimitarra.** 62002_2. Fundació Barcelona Zoo. Montserrat Colell.

Selected publications

- Bueno-Guerra, N., Voelter, C. J., de las Heras, A., Colell, M., & Call, J. (2019). Bargaining in Chimpanzees (Pan troglodytes): The Effect of Cost, Amount of Gift, Reciprocity, and Communication. *JOURNAL OF COMPARATIVE PSYCHOLOGY*, *133*(4), 542–550. https://doi.org/10.1037/com0000189
- Caicoya, A. L., Amici, F., Ensenyat, C., & Colell, M. (2019). Object Permanence in Giraffa camelopardalis: First Steps in Giraffes' Physical Cognition. *JOURNAL OF COMPARATIVE PSYCHOLOGY*, *133*(2), 207–214. https://doi.org/10.1037/com0000142
- Chaves Molina, A. B., Masuet Cullell, T., & Colell Mimo, M. (2019). String-pulling in African grey parrots (Psittacus erithacus): performance in discrimination tasks. *BEHAVIOUR*, *156*(5–8, SI), 847–857. https://doi.org/10.1163/1568539X-00003511

Research and innovation group on designs (GRID)

MA. TERESA ANGUERA ARGILAGA



Cognitive
and Behavioural
Neuroscience

Members

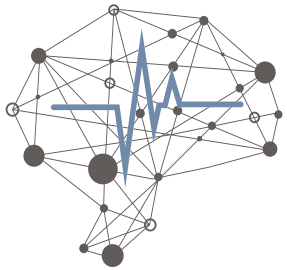
Angel Blanco Villaseñor, Jose Luis Losada Lopez, Pedro Sanchez Algarra, Miguel Angel Torralba Jordan, Luca del Giacco, Monica Maria Preciado Mora, Oleguer Camerino, Marta Castañer Balcells, Jorge Campaniço, Javier Arana, Barbara Diana, Elena Escolano Pérez, Abraham García Fariña, Gudberg K. Jonsson, Daniel Lapresa Ajamil, Anthony Onwuegbuzie, Mariona Portell, Silvia Puigarnau Coma, Carlos Santoyo Velasco, Carmen Rosa Sánchez López, Hugo Sarmento, Anna M. Señé Mir, Marisa Herrero Nivela, Valentino Zurloni, Miriam Crespillo

Selected projects

- **Nuevo enfoque de investigación en actividad física y deporte desde la perspectiva mixed methods.** PGC2018-098742-B-C31. Ministerio de Ciencia, Innovación y Universidades. Ma. Teresa Anguera.
- **Research Group and innovation in designs (GRID). Tecnology and multimedia and digital application to observational designs.** 2017SGR1405. Agència de Gestió d'Ajuts Universitaris i de Recerca. Ma. Teresa Anguera.
- **Confidential**. Universitat Rovira i Virgili; Universidad de la Rioja; University of Iceland; Université de Lausanne (UNIL); Lunds Universitet; Université Paris Descartes - Paris V. Ma. Teresa Anguera.

Selected publications

- Chacon-Moscoso, S., Anguera, M. T., Sanduvete-Chaves, S., Losada, J. L., Lozano-Lozano, J. A., & Portell, M. (2019). Methodological quality checklist for studies based on observational methodology (MQCOM). *PSICOTHEMA*, *31*(4), 458–464. https://doi.org/10.7334/psicothema2019.116
- Preciado, M., Teresa Anguera, M., Olarte, M., & Lapresa, D. (2019). Observational Studies in Male Elite Football: A Systematic Mixed Study Review. *FRONTIERS IN PSYCHOLOGY*, *10*. https://doi.org/10.3389/fpsyg.2019.02077
- Portell, M., Sene-Mir, A. M., Anguera, M. T., Jonsson, G. K., & Losada, J. L. (2019). Support System for the Assessment and Intervention During the Manual Material Handling Training at the Workplace: Contributions From the Systematic Observation. *FRONTIERS IN PSYCHOLOGY*, *10*. https://doi.org/10.3389/fpsyg.2019.01247
- Alcover, C., Angeles Mairena, M., Mezzatesta, M., Elias, N., Diez-Juan, M., Balana, G., Gonzalez-Rodriguez, M., Rodriguez-Medina, J., Teresa Anguera, M., & Arias-Pujol, E. (2019). Mixed Methods Approach to Describe Social Interaction During a Group Intervention for Adolescents With Autism Spectrum Disorders. *FRONTIERS IN PSYCHOLOGY*, *10*. https://doi.org/10.3389/fpsyg.2019.01158
- Del Giacco, L., Salcuni, S., & Teresa Anguera, M. (2019). The Communicative Modes Analysis System in Psychotherapy From Mixed Methods Framework: Introducing a New Observation System for Classifying Verbal and Non-verbal Communication. *FRONTIERS IN PSYCHOLOGY*, *10*. https://doi.org/10.3389/fpsyg.2019.00782



Cognitive
and Behavioural
Neuroscience

Vision and control of action group (VISCA)

JOAN LOPEZ-MOLINER (Active perception and sensorimotor integration); HANS SUPER (Functional organization and cognitive processing of the brain); MATTHIAS SVEN KEIL (Perceptual computations and dynamical systems)

Members

Angels Colome Gonzalez, Elisabet Tubau Sala, J. Antonio Aznar, Cristina de la Malla, Clara Camara Lopez, Elisabeth Knelange, Bjorn Jorges, Borja Aguado, Aniol Peracaula Moner

Selected projects

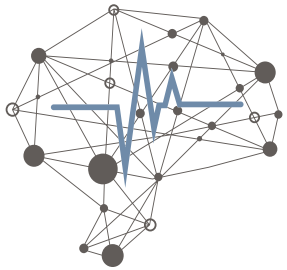
- **Perception and Action in Complex Environments (PACE).** H2020-MSCA-ITN-2014-642961. European Union. Joan López-Moliner.
- **Sincronización de movimientos oculares y sincronización de las neuronas.** PGC2018-096074-B-I00. Ministerio de Ciencia, Innovación y Universidades. Hans Super.
- **Muestreo activo del movimiento 3D y flujo óptico**. PSI2017-83493-R. Ministerio de Economia y Competitividad. Joan López-Moliner.
- **Un Estudio Computacional de mecanismos de codificación predictiva para la percepción visual del movimiento.** PGC2018-099506-B-I00. Ministerio de Ciencia, Innovación y Universidades. Matthias Sven Keil.
- **Visió i Control de l'Acció (VISCA).** 2017SGR48. Agència de Gestió d'Ajuts Universitaris i de Recerca. Joan López-Moliner.

Patents

Method of measuring attention. AVCRI147

Selected publications

- Linares, D., Aguilar-Lleyda, D. y López-Moliner, J. (2019). Desacoplamiento sensorial de sesgos de decisión decisivos en la toma de decisiones perceptivas. *eLIFE* , *8* , e43994. https://doi.org/10.7554/eLife.43994
- Lopez-Moliner, J., Vullings, C., Madelain, L., & van Beers, R. J. (2019). Prediction and final temporal errors are used for trial-to-trial motor corrections. *SCIENTIFIC REPORTS*, *9*. https://doi.org/10.1038/s41598-019-55560-6
- Tubau, E., Rodriguez-Ferreiro, J., Barberia, I., & Colome, A. (2019). From reading numbers to seeing ratios: a benefit of icons for risk comprehension. *PSYCHOLOGICAL RESEARCH-PSYCHOLOGISCHE FORSCHUNG*, *83*(8), 1808–1816. https://doi.org/10.1007/s00426-018-1041-4
- Lerer, A., Super, H., & Keil, M. S. (2019). Luminance gradients and non-gradients as a cue for distinguishing reflectance and illumination in achromatic images: A computational approach. *NEURAL NETWORKS*, *110*, 66–81. https://doi.org/10.1016/j.neunet.2018.11.001
- de la Malla, C., Brenner, E., de Haan, E. H. F., & Smeets, J. B. J. (2019). A visual illusion that influences perception and action through the dorsal pathway. *COMMUNICATIONS BIOLOGY*, *2*. https://doi.org/10.1038/s42003-019-0293-x



Cognitive
and Behavioural
Neuroscience

Experimental virtual environments for neuroscience and technology (Event lab)

MEL SLATER

Members

Mavi Sanchez-Vives, Domna Banakou, Gizem Senel, Tania Jonhson, Alejandro Beacco, Ramon Oliva, Solene Neyret, Jaume Gallego, Joan Llobera, Zhihan Lv, Geoffrey Gaston Rene Gorisse, Carlos Cabreira, Miriam Trumpus

Selected projects

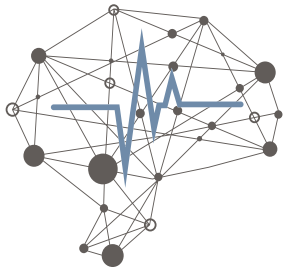
- **Moments in Time in Immersive Virtual Environments (MoTIVE).** ERC-2016-ADG- 742989. European Union. Mel Slater.
- **Immersive Virtual Reality Cognitive Treatment (VRCT) for persecutory delusions**. HQR00930 (MR/PO2629X/1). Medical Research Council. Mel Slater.
- **Confidential.** 308571. Virtual Bodyworks, SL. Mel Slater.

Patents

- **Motor training** AVCRI263-E
- **Physiological response** AVCRI264-E
- **Methods and systems for gradual exposure to a fear.** UBTT0345

Selected publications

- Martens, M. A. G., Antley, A., Freeman, D., Slater, M., Harrison, P. J., & Tunbridge, E. M. (2019). It feels real: physiological responses to a stressful virtual reality environment and its impact on working memory. *JOURNAL OF PSYCHOPHARMACOLOGY*, *33*(10), 1264–1273. https://doi.org/10.1177/0269881119860156
- Slater, M., Neyret, S., Johnston, T., Iruretagoyena, G., de la Campa Crespo, M. A., Alabernia-Segura, M., Spanlang, B., & Feixas, G. (2019). An experimental study of a virtual reality counselling paradigm using embodied self-dialogue. *SCIENTIFIC REPORTS*, *9*. https://doi.org/10.1038/s41598-019-46877-3
- Matamala-Gomez, M., Diaz Gonzalez, A. M., Slater, M., & Sanchez-Vives, M. V. (2019). Decreasing Pain Ratings in Chronic Arm Pain Through Changing a Virtual Body: Different Strategies for Different Pain Types. *JOURNAL OF PAIN*, *20*(6), 685–697. https://doi.org/10.1016/j.jpain.2018.12.001
- Burin, D., Kilteni, K., Rabuffetti, M., Slater, M., & Pia, L. (2019). Body ownership increases the interference between observed and executed movements. *PLOS ONE*, *14*(1). https://doi.org/10.1371/journal.pone.0209899
- Bedder, R. L., Bush, D., Banakou, D., Peck, T., Slater, M., & Burgess, N. (2019). A mechanistic account of bodily resonance and implicit bias. *COGNITION*, *184*, 1–10. https://doi.org/10.1016/j.cognition.2018.11.010



Cognitive
and Behavioural
Neuroscience

Quantitative psychology

JOAN GUARDIA-OLMOS

Members

Maribel Pero Cebollero, Nuria Mancho Fora, Laia Farras Permanyer, Maria Carbo Carrete, Sonia Benitez Borrego, Marc Montala, Cristina Cañete Masse, Vicenç Quera, Antonio Solanas Perez, Francesc Salvador Beltran, David Leiva Ureña, Rumen Rumenov Manolov, Ruth Dolado Guivernau, Elisabet Gimeno Rosell

Selected projects

- **Indicadores estadísticos para el estudio de redes de conectividad cerebral en registros de resonancia magnética funcional (FMRI) y su aplicación para el diagnostico del deterioro cognitivo.** PGC2018-095829-B-I00. Ministerio de Ciencia, Innovación y Universidades. Joan Guàrdia-Olmos.
- **Impact of diet and physical activity on cognitive reserve and quality of life in persons with down syndrome.** EIN2019-103265. Ministerio de Economia y Competitividad. Joan Guàrdia-Olmos.
- **Confidential.** 309917. Fundació Blanquerna de la Universitat Ramon Llull. Joan Guàrdia-Olmos.
- **Confidential.** 310314. Fundació Blanquerna de la Universitat Ramon Llull. Joan Guàrdia-Olmos.
- **Confidential.** 309845. Euskal Telebista. Joan Guàrdia-Olmos.

Selected publications

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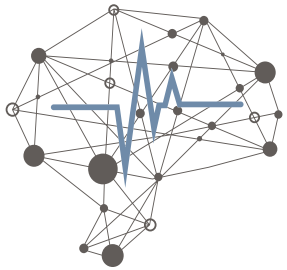

Cognitive
and Behavioural
Neuroscience

Virtual reality applications for clinical and health psychology (VR-PSY lab)

JOSE GUTIERREZ-MALDONADO

Members

Maria Carmen Saldaña Garcia, Marta Ferrer-Garcia, Adela Fuste-Escolano, Jose Ruiz-Rodriguez, Bruno Porras-Garcia, Joana Margarita Pla Sanjuanelo, Ileana Alexandra Ghita, Ferran Vilalta-Abella, Joan Ribas-Sabate, Alexis Andreu Gracia

Selected projects

- **Desarrollo de tècnicas de exposición mediante realidad virtual para la mejora del tratamiento de la anorexia nerviosa**. PSI2015-70389-R. Ministerio de Economía y Competitividad. Jose Gutierrez-Maldonado.
- **ALCO-VR: Protocolo basado en realidad virtual para el tratamiento de pacientes con trastorno por uso de alcohol severo**. 2016I078 Ministerio de Sanidad, Servicios Sociales e Igualdad. Jose Gutierrez-Maldonado.
- **Grup d'investigació sobre aplicaciones de realitat virtual i altres noves tecnologies en psicologia clínica i de la salut (VR-PSY Lab).** 2017SGR1693. Agència de Gestió d'Ajuts Universitaris i de Recerca. Jose Gutierrez-Maldonado.

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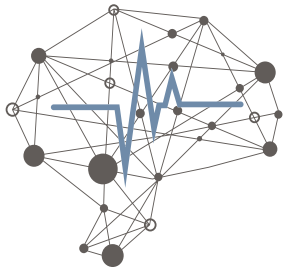
- Ferrer-Garcia, M., Pla-Sanjuanelo, J., Dakanalis, A., Vilalta-Abella, F., Riva, G., Fernandez-Aranda, F., Forcano, L., Riesco, N., Sanchez, I., Clerici, M., Ribas-Sabate, J., Andreu-Gracia, A., Escandon-Nagel, N., Gomez-Tricio, O., Tena, V., & Gutierrez-Maldonado, J. (2019). A Randomized Trial of Virtual Reality-Based Cue Exposure Second-Level Therapy and Cognitive Behavior Second-Level Therapy for Bulimia Nervosa and Binge-Eating Disorder: Outcome at Six-Month Followup. *CYBERPSYCHOLOGY BEHAVIOR AND SOCIAL NETWORKING*, *22*(1, SI), 60–68. https://doi.org/10.1089/cyber.2017.0675



Cognitive
and Behavioural
Neuroscience

Cognition and language research group-cognition (GRECIL-C)

JAVIER ROGRIGUEZ-FERREIRO

Members

Itxaso Barberia, Mari Aguilera, Marta N. Torres Dominguez

Selected projects

- **Diferencias individuales en el procesamiento lingüístico: memoria semántica, personalidad esquizotípica y pensamiento creative**. PSI2016-80061-R. Ministerio de Economia y Competitividad. Javier Rodríguez-Ferreiro.

Selected publications

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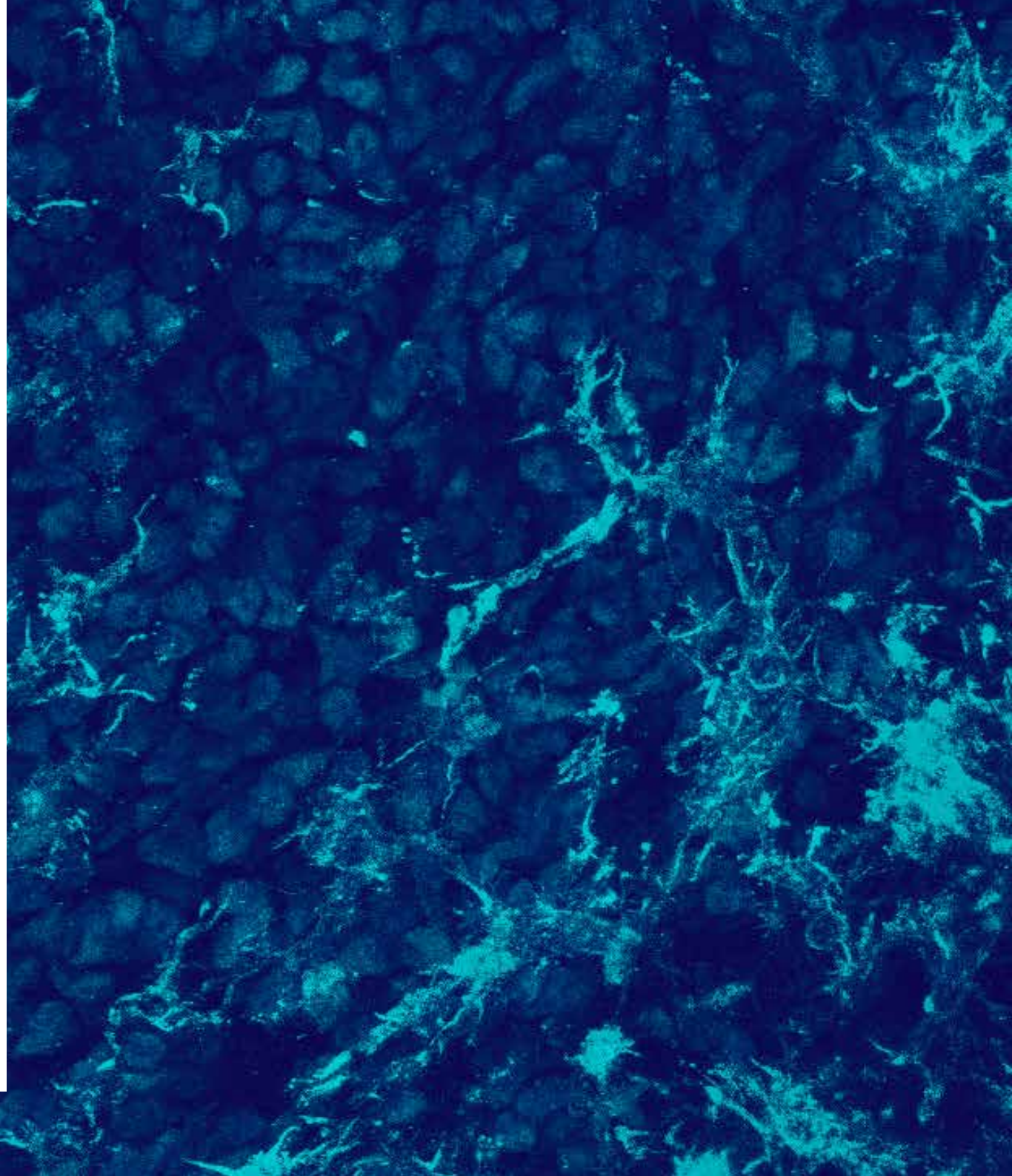
Activities and Outreach



Annual Report
2019

Activities and Outreach

The year 2019 has been full of events and news, building upon of the strategic plan implemented the year before after receiving the **Maria de Maeztu Excellence Award.**

The new research areas have facilitated interdisciplinary research and the flourishing of new synergies. Overall, the Institute keeps working to push the frontiers of Neuroscience and contribute to society. This year we have celebrated the second Scientific Advisory Board and implemented new initiatives to keep being at the forefront of excellent research. We have built new collaborations and partnerships, both internally and externally, to increase the impact of our contributions.

Below we briefly describe the most relevant events and activities of 2019.

Activities and Outreach

Scientific Advisory Board

During the dates of 16-17 October, we hosted 4 of the 5 members of the Scientific Advisory Board Mercedes Atienza Ruiz, Alho Kimmo, Carmen Sandi and Fred Saudou. After the two days of presentations and discussions, together with additional SAB member Ernest Arenas, they created a scientific assessment where they offered their reflections and insights into the institute. These insights have been considered to further strengthen the strategy of the Institute. The Scientific Advisory Board meeting will take place once a year.

Activities and Outreach

International Congresses Grants

In 2019, the Institute of Neurosciences of the University of Barcelona awarded 23 grants to early stage researchers to attend International Congresses, with a total funding of 12,500€.

The aim of these grants are to promote the internationalisation of research and to support the career of young researchers, strengthening the international presence of the research groups from the Institute of Neurosciences of the University of Barcelona.

INPhINIT Program

A total of four PhD students were awarded the prestigious INPhINIT doctoral fellowship. Making the Institute the María de Maeztu Unit with the most INPhINIT fellowships in Spain and Portugal.

The awardees were:

- Marta Silva joined Dynamics Of Memory Formation group under the supervision of Lluis Fuentemilla, to research autobiographical memories.
- Paula Lopez joined Learning From Reward group under the supervision of Josep Marco-Pallarès to research studying human motivation.
- Ruben Perellón joined Barcelona Brain Stimulation Lab group under the supervision of David Bartrés-Faz, to research human biology.
- Gizem Senel joined Event Lab under the supervison of Mel Slater.

4th PhD Workshop

On the 29th of November 2019, the Institute of Neurosciences of the University of Barcelona hosted the IV annual PhD Workshop at the Faculty of Medicine and Health Sciences at Campus Bellvitge. In addition to our own members, we proudly welcomed guests from our partner organization, the Achucarro Basque Center for Neuroscience

The day started with an opening ceremony by Dr. José Luis Rosa López, Research Vice-Dean of the Faculty, and Dr. Raúl Estévez Povedano, member of the Board of Directors of the Institute of Neurosciences. The opening ceremony was followed by oral presentations:

- Jon Landa Medrano – "Immunological findings of the anti-IgLON5 disease".
- Laura Bayón Cordero – "Analysis of the role of GABAB receptor in oligodendrocytedifferentiation and myelination in vivo".
- Diana C. Díaz Cruz – "Differences in reported rates of mind wandering are associated with divergent exploitation of environmental information in creative problem solving".
- Helena Vall Roqué – "The relationship between appearance-focused social network sites use and body image concerns".
- Marina Bartolomé Valenzuela – "An invisible reality or an ignored minority? Victimization and poly-victimization experiences among people with mental illness in Spain".

- Nadia Paraskevoudi – "Effects of actions on encoding and retrieval of sounds: Physiological mechanisms".
- Anna Sancho Balsells – "Identification of altered specific neuronal subpopulations in stress- induced major depression".
- Sara Conde Berriozabal – "Repeated optogenetic stimulation of corticostriatal pathway ameliorates Huntington's disease symptoms: from synaptic efficacy to network"

The day also included two sessions of poster presentations where all students could showcase their work and network with fellow students.

Activities and Outreach

The plenary lecture was given by Dr. Jimena Baleriola from the Achucarro Basque Center for Neuroscience. Dr. Baleriola conducted a session named "Local translation: the whats and whys of decentralized regulation of gene expression…. and what-nots". The afternoon started with Jordi Naval, CEO of BioCat presenting a session named "Life Beyond Post-Graduate". This session was followed by a workshop on Body Language for Scientists conducted by executive coach Brian McCarthy.

The workshop was concluded with an **award ceremony** that honored two PhD students for the best oral and poster presentations. We congratulate Nadia Paraskevoudi for the presentation "Effects of actions on encoding and retrieval of sounds: Physiological mechanisms" , awarded "Best Oral Presentation," and Marc Lopez for the poster "Improving opioid pain treatment: light-activated morphine", awarded "Best Poster Presentation."

After the workshop PhD students enjoyed a concert with The Rayberis.

We thank organizers from the Institute of Neurosciences: Jordi Alberch, Cristina Pulido, Marta Turró, and members of the PhD Committee Oriol Busquets, Marta Riba Baques, Lidia Vaque Alcazar, Carla Castany Pladevall, Alicia Georghiades, Esther García García, Josep Argerich and Ana Martina Greco, for their dedication to making this year's PhD workshop a success, and invite PhD students interested in serving on the PhD Committee of next year's edition to get in touch with us by contacting ubneuro@ub.edu.

Activities and Outreach

Neuroscience Conference Series 2019

These open conferences offer a great opportunity for investigators and students to meet international distinguished neuroscientists, who present the latest advancements in their respective field of research. Below you can find an overview of the programme for the Neuroscience Conference Series 2019.

NCS 2019 "Estimation of functional connectivity with fMRI"

08/10/2019 - Caterina Pedersini, PhD

Universitá di Verona

NCS 2019 "Physical activities and exercise for healthy cognitive aging "

16/09/2019 - Louis Bherer, PhD

University of Montréal

NCS 2019 "Las células de cajal-retzius y el desarrollo de la fisura del hipocampo humano"

20/06/2019 - Miriam González Gómez, PhD

Universidad de La Laguna

NCS 2019 "Itch Neurons and their Receptors"

10/05/2019 - Mark A. Hoon, PhD

National Institutes of Health (NIH), USA

NCS 2019 "The Importance of Signaling Pathway Downregulation for Central Nervous System Development and Homeostasis"

09/05/2019 - Sergi Simó, PhD

University California Davis

NCS 2019 "Citizenship and Mental Health"

25/4/2019 - Michael Rowe, PhD

Yale Department of Psychiatry

NCS 2019 "Person-environment transactions"

01/03/2019 - Jaap Denissen, PhD

Tilburg University

NCS 2019 "Environmental enrichment modifies growth signals to promote axon regeneration in the young and aged"

30/01/2019 - Simone di Giovanni, PhD

Imperial College London

Activities and Outreach

100xCiencia.4 - Building bridges between Science and Society: "What is science doing for you?"

Last November, we participated in a science dissemination event organised by the "Severo Ochoa Centres of Excellence" and "María de Maeztu Units of Excellence" programmes alliance (SOMMa) to bring science closer to society. We organised a Virtual Reality workshop to show how this technology can be used to treat psychologic disorders.

Activities and Outreach

NeuroArt

On March 2019, in the framework of the Brain Awareness week, we celebrated the Award Gala for the second edition of the NeuroArt project, which aims to bridge the gap between science and art.

See the video of the project here
www.neurociencies.ub.edu/neuroart/

NeuroArt invites schools from all over Catalonia to explore different neuroscientific concepts through works of art. At the beginning of the project, several neuroscientists from the Institute of Neurosciences go to the schools to talk about their lifes as researchers and about neuroscience. Now more than ever we need to overcome the gap between disciplines to innovate and advance as a society. More than 1500 high school students from all over Catalonia participated in the project.

In addition, this year we counted with the collaboration of the Centre for Contemporary Culture of Barcelona, and the Award Gala was celebrated in the Museum. At the Gala, a group of representatives from each school exposed their works of art inspired by the nervous system. Participants also enjoyed several talks about art and science and participated in a cineforum organised in collaboration with the Brain Film Fest.

All the artwork was exhibited at the University of Barcelona's Historic Building during the Science Festival of the University of Barcelona.

Activities and Outreach

The awarded works of art were:

In your mind: award to the best presentation.

The award to the best presentation was given to In your mind, with which the students of Jesús María Claudina school (Barcelona) show Zelig Syndrome, a disorder in which mirror neurons, whose cognitive function is linked to social behaviour and empathy, make people copy other people's behaviour.

La caixa dels sentits: award to themost creative and original piece.

The piece *La caixa dels sentits*, by Institut de l'Alt Foix (Sant Martí Sarroca, Barcelona) won the award to the most creative and original piece. Through lights representing nervous impulses, this work shows what happens in the brain when people touch, smell, hear, see or taste something.

Mirant pel microscopi: de Ramón y Cajal a l'actualitat: award to the best artistic representation of neurosciences for 1st and 2nd grade of secondary education.

The award to the best artistic representation of neurosciences for 1st and 2nd grade of secondary education was given to the students of the Institut Ferran Casablancas (Sanadell) for their work *Mirant pel microscopi: de Ramón y Cajal a l'actualitat*, formed by two pieces that represent the before and after of microscope imaging techniques.

Reacciona!: award to the best artistic representation of neurosciences for 3rd and 4th grade of secondary education.

Escola Cooperativa El Puig (Esparreguera) won the award to the best artistic representation of neurosciences for 3rd and 4th grade of secondary education for the work *Reacciona!*, a video explaining the reactions of human beings to stimuli we receive when listening to different kinds of music (high and low).

Activities and Outreach

Other outreach activities

In addition to the activities directly coordinated by the Institute, we have joined several science dissemination initiatives. We joined the **International Day of Women and Girls in Science** initiative, the **European Researchers' night** and the **World Brain Awareness Week** and offered a dozen talks at the schools of Barcelona. We also organised several workshops within the framework of the **Escolab** initiative, opening our labs to high school students and participated in the **Pint of Science Festival** with several talks in Barcelona bars to disseminate different topics of neuroscience. Furthermore, our researchers participated in the 4th edition of the **UB Science Festival**, offering different workshops, including "Optical perceptions", "El cerebro engaña" and "De la realidad virtual en el mundo 'real'" and the NeuroArt exhibition. Also, we have sponsored several events such as the **Interdisciplinary Meeting of Predoctoral Researchers (JIPI),** the **Virtual and Robotic Embodiment - from Neuroscience to Virtual Reality and Robotics Symposium** and the **NeuroWinter Conference 2019**.

Institute of Neurociencies of the University of Barcelona

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Medicine Campus- Hospital Clínic August Pi i Sunyer
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Bellvitge Health Sciences Campus
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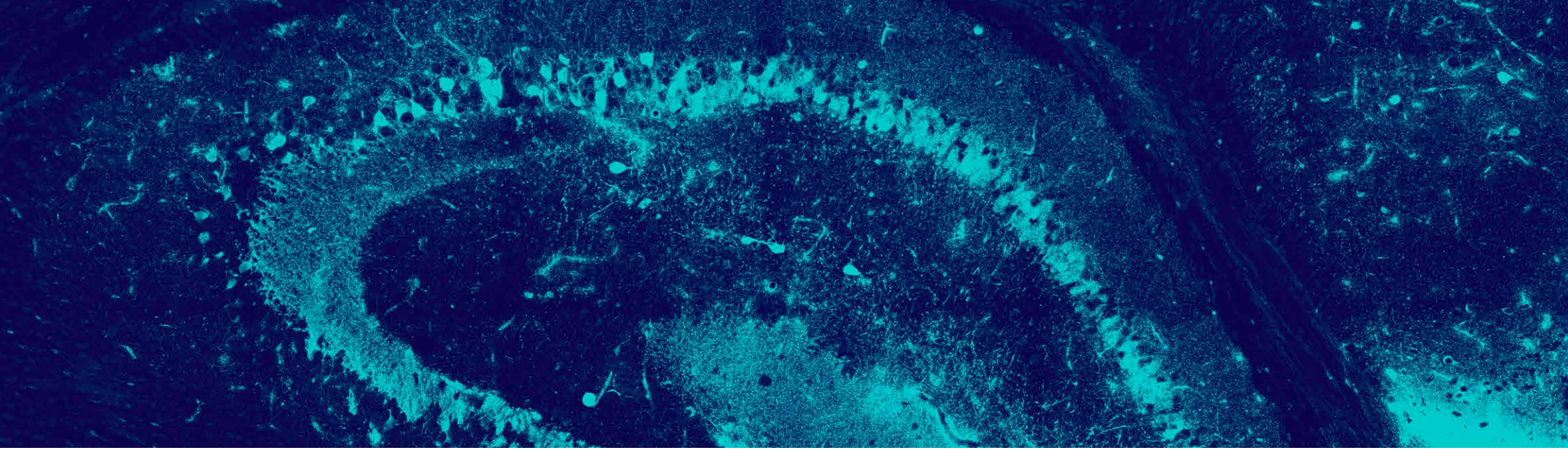
08907 L'Hospitalet
de Llobregat

Images

All images are courtesy of Artur Llobet from the Cellular and Molecular Neurobiology – Synaptic Transmission group, Albert Giralt from the Hippocampal Function In Health and Disease group, and Esther Gratacos from the Neurophysiology group.



ANNUAL REPORT
2019

Institute of Neurosciences of
the University of Barcelona
www.neurociencies.ub.edu