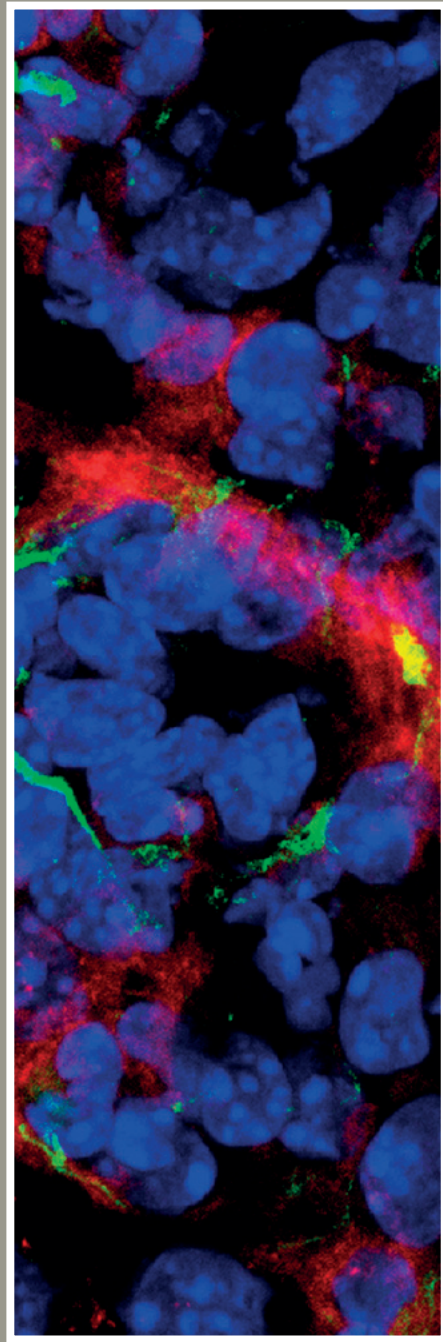


CIPF 2019

Centro de
Investigación
Príncipe
Felipe

Annual Report





Centro de Investigación Príncipe Felipe

2019_Annual Report



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Foreword by the Director



As we close out a decade and turn the page to 2020, I am pleased to share with you CIPF's achievements from 2019. This year we published more than 100 papers, 73% in Q1 journals. Dr. Luke Noon published in Plos Biology his observations regarding a novel role for insulin: regulation of paracrine crosstalk during chronic liver injury, a new mechanism which has important implications for the impact of insulin resistance on tissue repair (cover foto). I would also like to highlight the group of Dr. Vicente Felipo and their publications in high-impact journals such as FASEB Journal: this paper describes the role of the IL-1 β mediated inflammation in learning and memory. Our Bioinformatics and Biostatistics Unit led by Dr. Paco García contributed to articles in prestigious journals such as Gut and NPJ Systems Biology. Dr. Enric Esplugues and his former colleagues from Yale University published in Cell their findings regarding the role of airway CD4-TRM cells during bacterial infection, revealing novel strategies for using native immunity to create targeted vaccines. These high-level publications help to maintain the CIPF in the upper ranks of Spanish research institutes. We are on the right path to achieving the goal of our five-year strategic plan: become a Severo Ochoa Center of Excellence!

Next, our funding accomplishments. Dr. María Jesús Vicent was awarded a grant from "la Caixa" Foundation, a very competitive call for biomedical and health research. This project "NanoPanTher" aims to develop nanomedicines for treatment of pancreatic cancer, in collaboration with Ronit Satchi-Fainaro of the Tel Aviv University and Helena Florindo of Lisbon University in Portugal. Dr. Vicent also organized the 46th Edition of the CRS Meeting which was held in the Palacio de Congresos in Valencia; more than 1200 investigators from around the world attended this international forum to discuss new approaches to drug design and development.

We are proud to announce that this year we have been awarded the seal of the Human Resources Strategy for Researchers (HRS4R). The HRS4R allows the European Commission to recognize excellence in institutions that have adapted their human resources policies to EU standards. Related to this process, the CIPF has accomplished another important strategic goal: creation of a research track program to define the steps and criteria by which scientists progress from R1 doctoral students to R2 postdoctoral fellows to distinguished senior principal investigators (R4D). Many thanks to Ana Rodrigo and our HRS4R commission for coordinating this important effort.

We continue to move forward with another of our key strategic goals: recruitment of talented new group leaders. In 2019, we created two new junior research groups directed by Isabel del Pino and Regina Rodrigo. Dr. Del Pino was awarded one of the prestigious new GenT fellowships for excellence from the Generalitat Valenciana. The objective of her Neural Plasticity Lab is to study neuronal networks in Alzheimer's Disease and other neurodegenerative disorders. Dr. Rodrigo leads the Pathophysiology and Therapies for Vision Disorders Lab where focused on the development of new anti-inflammatory and antioxidant therapies to treat retinal diseases. The mission of the CIPF is to apply our discoveries in basic research to improve diagnosis and treatment

of human diseases. Thus, we strive to collaborate with clinicians and hospitals around the globe and particularly here in the Valencia region. During 2019, we created a new joint unit led by the renowned oncologist Dr. Carlos Camps of the Research Foundation of Hospital General. The Translational Research on Oncology and Immunology (TRAIL) Unit will work with our scientists to identify new biomarkers and improve treatments for lung cancer patients.

At the CIPF, we continuously demonstrate our dedication to the training of young scientists and to the dissemination of research to the public and policymakers. Yolanda Massó does a fantastic job with publicity and public outreach! Our principal communication tools are seminars, workshops, and courses. During 2019, around 6000 people attended the different events organized by the CIPF which are all free and open to the public. One of our most successful events continues to be the European Researchers Night where we open our doors to the public, particularly families, in September for an evening of scientific fun and games. Our highlight this year was a concert from our own talented musical band Dry Ice. Science rocks! We also hosted an excellent series of research seminars with outstanding speakers like Óscar Marín, Ángela Nieto, Sabine Werner, Jens Lüders and Adriana Maggi. In November, the CIPF participated in the Longevity World Forum by hosting a mini-symposium on Animals Models of Ageing with a series of international speakers. This year we have signed an agreement with our neighbor the Science Museum of Valencia to explore and develop new initiatives to engage the public with research.

Our commitment to women in science and the importance of the gender dimension in research studies is constant. Dr. Carmen Espinós organized the annual workshop for women researchers in the field of rare diseases. The CIPF has joined the Science by Women Program, organized by Mujeres por África Foundation. Our first visiting scholar from this program was Dr. Hanaa Zbakh who performed a six-month project with our immunology group. In December, we were honored to host the visit of the president of the Foundation, María Teresa Fernández de la Vega, who presented the 5th Edition of the Science by Women Program.

Both science and art are creative attempts to understand and describe the world around us. In 2019, through an institutional collaboration with CNIO and CNIO Arte, we displayed the exhibit 59+1 in our reception hall. This fantastic collection is based on the laboratory notebooks of Dr. Margarita Salas and was created by the visual artist Eva Lootz. From February to April, many students, colleagues, and visitors were able to enjoy and contemplate these colorful art pieces depicting biochemical reactions.

Dr. Salas passed away unexpectedly in November 2019 and thus, I would like to conclude with a few words of tribute to her. Margarita: thank you for inspiring so many of us with your passion and life-long dedication to science. Thank you for serving as a role model for girls and women in science. You will be remembered and loved for consistently defending basic research as essential to the pursuit of new strategies for diagnosing and treating human diseases.

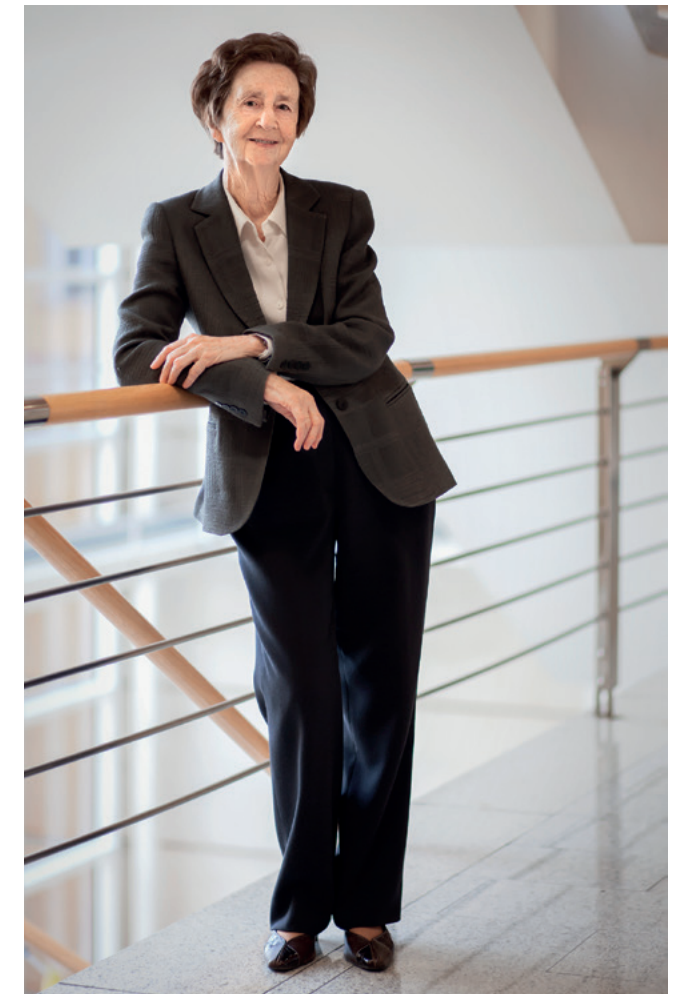
More research, better health.

Deborah J. Burks

In Memoriam Margarita Salas (1938-2019)

Recognizing the legacy of Margarita Salas in science. A pioneer for women in science and defender of the importance of basic research.

Thank you, Dr. Salas, for training and inspiring generations of scientists.



Photograph courtesy of Amparo Garrido, for the book "Excelentes": A book of portraits on ideas that drive the world.



Exhibition of 59+1 by Eva Lootz in CIPF.

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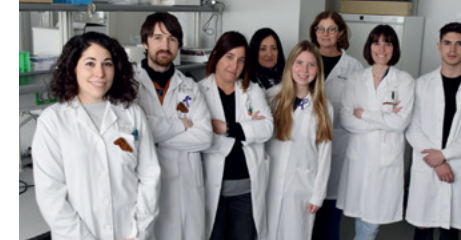
Deborah J. Burks
CIPF Director.

The Board of Trustees celebrated three meetings in 2019:
15th of May, the 29th of October and the 10th of November.

In accordance with the Spanish Transparency Legislation (Spanish Royal Decree 451/2012 of March 5) and the By- Laws of the CIPF Foundation, the Board of Trustees are not remunerated.



S C
I E N
C E



PI_ Deborah J. Burks

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
7	34.5	5.0

Overview

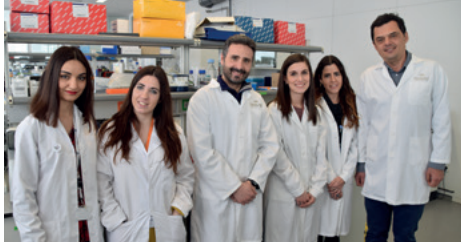
Our laboratory continues to focus on the roles of insulin receptor substrate (IRS) proteins in health and disease. IRS2 signals are key to the proper action of insulin in regulating metabolism, cell growth, and CNS functions such as learning and memory. During 2019, our efforts have centered on the validation and characterization of a new tool generated by Dr. Luke Noon: a reporter mouse model where *Irs2* expression can be monitored by GFP or luciferase activity. This new model will permit us to determine the spatial-temporal expression of *Irs2* and to explore factors and drugs which may modulate *Irs2* expression. We also published the novel observation that IRS2 promotes Fgf7 ligand and receptor (Fgfr2-IIIb) expression in the context of liver damage and repair. These new findings provide insight into the contribution of insulin resistance to the pathogenesis of chronic liver disease and suggest that IRS2 regulates communication between cell types and the transition between phases of stromal to epithelial repair.

SELECTED PUBLICATIONS

Iglesias-Osma MC, Blanco EJ, Carretero-Hernandez M, Catalano-Iniesta L, Sanchez-Robledo V, Garcia-Barrado MJ, Vicente-Garcia T, Burks DJ, Carretero J. The influence of the lack of insulin receptor substrate 2 (IRS2) on the thyroid gland. *Sci Rep.* 2019 Apr 5;9(1):5673

Manzano-Núñez F, Arámbul-Anthony MJ, Galán Albiñana A, Leal Tassias A, Acosta Umanzor C, Borreda Gascó I, Herrera A, Forteza Vila J, Burks DJ, Noon LA. Insulin resistance disrupts epithelial repair and niche-progenitor Fgf signaling during chronic liver injury. *PLoS Biol.* 2019 Jan 29;17(1):e2006972.

Herrero-Cervera A, Vinué Á, Burks DJ, González-Navarro H. Genetic inactivation of the LIGHT (TNFSF14) cytokine in mice restores glucose homeostasis and diminishes hepatic steatosis. *Diabetologia.* 2019 Nov;62(11):2143-2157.



PI_ Slaven Erceg

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
8	35.4	4.4

Overview

The focus of our group is the development of new cell therapy approaches using pluripotent stem cells such as human embryonic stem (hES) cells and induced human pluripotent stem (ihPS) cells as well as adult stem cells in the treatment of neurodegenerative diseases. Our aim is to develop clinically acceptable protocols for neural differentiation in animal-free conditions as therapeutic tool for spinal cord injury treatment, different types of ataxias and retinal dystrophies and to test them in animal models.

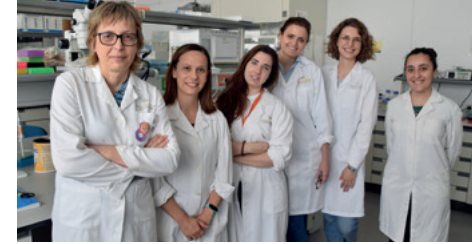
We also apply combinatorial approaches using small molecules to increase the success of cell-based therapy. In order to understand disease mechanisms we are using patient's ihPS cells to create human cellular models such as 2D cellular systems and 3D organoids.

SELECTED PUBLICATIONS

Organized Neurogenic-Niche-Like Pinwheel Structures Discovered in Spinal Cord Tissue-Derived Neurospheres. Rodriguez-Jimenez FJ, Clemente E, Moreno-Manzano V, Erceg S. Front Cell Dev Biol. 2019 Dec 20;7:334.

Deciphering retinal diseases through the generation of three dimensional stem cell-derived organoids: Concise Review. Artero Castro A, Rodríguez Jimenez FJ, Jendelova P, Erceg S. Stem Cells. 2019 Dec;37(12):1496-1504.

Short Review: Investigating ARSACS: models for understanding cerebellar degeneration. Artero Castro A, Machuca C, Rodríguez Jimenez FJ, Jendelova P, Erceg S. Neuropathol Appl Neurobiol. 2019 Oct;45(6):531-537.



PI_ Carmen Espinós

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
4	12.8	3.2

Overview

We have taken a step forward a best knowledge of the molecular mechanism of the Charcot-Marie-Tooth disease type 2Z (CMT2Z) caused by mutations in MORC2. We investigated the most common mutation, p.R252W, and the most severe change, p.S87L. Both mutations induced transcriptional changes in patient-derived fibroblasts and when expressed in rodent sensory neurons. The structural and transcriptional changes indicated that at least part of the induced defects led to altered axonal homeostasis. Our results, therefore, support the emerging concept that alterations in axonal transport, neurofilament homeostasis and architecture of cytoskeleton are common mechanisms contributing to the CMT phenotype.

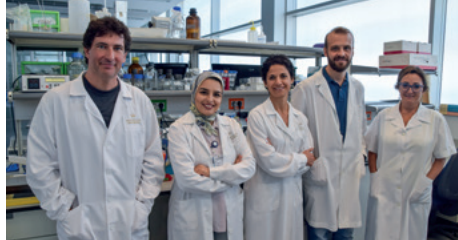
Our team has contributed to a genotype-phenotype study of a cohort of infantile and childhood onset PLAN (PLA2G6-associated neurodegeneration), the second more common form of NBIA (Neurodegeneration with Brain Iron Accumulation). And also, we have reported two new cases of CMT caused by mutations in FGD4, expanding the clinical and mutational spectrum of FGD4-related peripheral neuropathies.

SELECTED PUBLICATIONS

Sancho P, Bartesaghi L, Miossec O, García-García F, Ramírez-Jiménez L, Siddell A, Åkesson E, Hedlund E, Laššuthová P, Pascual-Pascual SI, Sevilla T, Kennerson M, Lupo V, Chrast R, Espinós C. Characterization of molecular mechanisms underlying the axonal Charcot-Marie-Tooth neuropathy caused by MORC2 mutations. Hum Mol Genet 2019; 28: 1629-44.

Darling A, Aguilera-Albesa S, Tello C, Serrano M, Tomás M, Camino-León R, Fernández-Ramos J, Jiménez-Escrig A, Poó P, O'Callaghan M, Ortez C, Nascimiento A, Candau Fernández Mesaque R, Madruga M, Arrabal L, Roldán S, Gómez-Martín H, Garrido C, Temudo T, Jou-Munoz C, Muchart J, Huisman TAGM, Poretti A, Lupo V, Espinós C, Pérez-Dueñas B. PLA2G6-associated neurodegeneration: New insights into brain abnormalities and disease progression. Parkinsonism Relat Disord 2019; 61:179-86.

Argente-Escrig H, Sánchez-Monteagudo A, Frasset M, Millet-Sancho E, Martínez-Rubio MD, Pitarch I, Tomás M, Espinós C, Lupo V, Sevilla T. A very mild phenotype of Charcot-Marie-Tooth disease type 4H caused by two novel mutations in FGD4. J Neurol Sci 2019; 402: 156-61.



PI_ Enric Esplugues

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
1	36.2	36.2

Overview

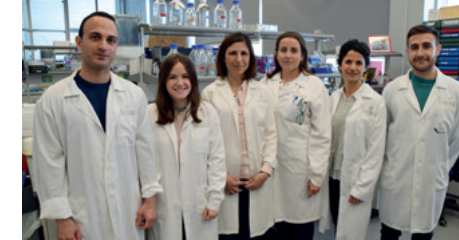
The major focus of research in our laboratory is the regulation of the immune responses in the context of infection, autoimmune disease and cancer. In all these processes inflammation plays a fundamental physiological role. We are interested in how different molecular and cellular regulatory mechanisms control inflammatory processes in pathological conditions.

Of interest are to understand the links between inflammation and cancer and inflammation and metabolism with a particular emphasis on how metabolism governs this process.

Currently, our work is focused on the role of metabolism in regulating T helper cell development and function. To address fundamental questions in immune cell metabolism and how this impacts on protective immunity to infection, autoimmunity and cancer we use a wide variety of in vivo and in vitro approaches combining advanced genetic modeling of mice and immunologic techniques.

SELECTED PUBLICATIONS

Amezcu Vesely MC, Pallis P, Bielecki P, Low JS, Zhao J, Harman CCD, Kroehling L, Jackson R, Bailis W, Licona-Limón P, Xu H, Iijima N, Pillai PS, Kaplan DH, Weaver CT, Kluger Y, Kowalczyk MS, Iwasaki A, Pereira JP, Esplugues E, Gagliani N, Flavell RA. Effector TH17 Cells Give Rise to Long-Lived TRM Cells that Are Essential for an Immediate Response against Bacterial Infection. *Cell*. 2019 Aug 22;178(5):1176-1188.



PI_ Rosa Farràs

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
4	27.96	6.99

Overview

The aim of our group is to study tumor heterogeneity and to unravel the molecular mechanisms in cell proliferation and cancer progression. In this period, we have worked on the characterization of cancer stem cells from lung cancer tumors in collaboration with the groups of Dr. Camps (FIHGU, Valencia) and Dr. Galbis-Carbajal (Hospital La Ribera, Alzira). This work was published in *Cell Death Dis.* (Herreros-Pomares A and de-Maya-Gironés JD. et al.,) and *Clin. Transl. Oncol.* (Lafuente-Sanchis A. et al.,).

While maintaining our focus on tumor biology, we are currently generating in vivo cancer experimental models (organoids and PDX) in collaboration with Hospital La Fe de Valencia. Through our expertise in protein degradation, we have contributed to deciphering new mechanisms of cell growth (Sayas et al., *FEBS Lett.*) and as a member of the core group of the European network Proteostasis, we have coauthored the publication summarizing its activities in *Trends Biochem. Sci.* (Dissmeyer N. et al.,).

SELECTED PUBLICATIONS

Herreros-Pomares A, de-Maya-Girones JD, Calabuig-Fariñas S, Lucas R, Martínez A, Pardo-Sánchez JM, Alonso S, Blasco A, Guijarro R, Martorell M, Escorihuela E, Chiara MD, Duréndez E, Gandía C, Forteza J, Sirera R, Jantus-Lewintre E, Farràs R, Camps C. Lung tumorspheres reveal cancer stem cell-like properties and a score with prognostic impact in resected non-small-cell lung cancer. *Cell Death Dis.* 2019 Sep 10;10(9):660. doi: 10.1038/s41419-019-1898-1.

Lafuente-Sanchis A, Olmo A, Carretero J, Alcacer Fernandez-Coronado J, Estors-Guerrero M, Martínez-Hernández NJ, Cremades A, Zúñiga A, Alcacer J, Farras R, Cuenca M, Galbis-Caravajal JM. Clinical significance of epithelial-mesenchymal transition-related markers expression in the micrometastatic sentinel lymph node of NSCLC. *Clin Transl Oncol.* 2020 Mar;22(3):381-391. doi: 10.1007/s12094-019-02138-3. Epub 2019 May 28.

Polyamines interfere with protein ubiquitylation and cause depletion of intracellular amino acids: a possible mechanism for cell growth inhibition. Sayas E, Pérez-Benavente B, Manzano C, Farràs R, Alejandro S, Del Pozo JC, Ferrando A, Serrano R. *FEBS Lett.* 2019 Jan;593(2):209-218. doi: 10.1002/1873-3468.13299. Epub 2018 Dec 7.



PI_ Pietro Fazzari

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
2	8.42	4.21

Overview

We found that Nrg1 intracellular signaling regulates the expression of apoptotic genes and we tested the hypothesis that Nrg1 intracellular signaling could be neuroprotective in stroke. We found that stroke triggered a strong activation of Nrg1 intracellular signaling. The activation of Nrg1 intracellular signaling by expression of the Nrg1 intracellular domain was sufficient to protect neurons. In addition, we investigated the relevance of Nrg1 intracellular signaling in stroke *in vivo*. We found that Nrg1 intracellular signaling could improve neuronal survival in the infarcted area.

Altogether, our data showed that Nrg1 intracellular signaling is neuroprotective upon stroke both *in vitro* and *in vivo*. In conclusion, our work shows that the stimulation of Nrg1 may be a promising target for the treatment of cortical ischemia.

In addition, we investigated the role of cholesterol loss in aging and we developed new models that allow us to test the regeneration of cortical circuits upon stroke *in vitro* and *in vivo*.

SELECTED PUBLICATIONS

Nrg1 Intracellular Signaling Is Neuroprotective upon Stroke. Navarro-González C, Huerga-Gómez A, Fazzari P.

Oxid Med Cell Longev. 2019 Sep 8;2019:3930186. doi: 10.1155/2019/3930186. eCollection 2019. PMID: 31583038. IF: 4.868

Aging Increases Hippocampal DUSP2 by a Membrane Cholesterol Loss-Mediated RTK/p38MAPK Activation Mechanism. Martín-Segura A, Casadomé-Perales Á, Fazzari P, Mas JM, Artigas L, Valls R, Nebreda AR, Dotli CG.

Front Neurol. 2019 Jun 25;10:675. doi: 10.3389/fneur.2019.00675. eCollection 2019. PMID: 31293510. IF: 3.552



PI_ Vicente Felipo

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
12	68.16	5.7

Overview

The Laboratory of Neurobiology performs basic and translational research on the mechanisms, diagnostic and treatment of cognitive and motor impairment in animal models of hyperammonemia and minimal hepatic encephalopathy (MHE). We study in rats models the mechanisms responsible for cognitive and motor impairment in patients with MHE. We analyze the role of peripheral inflammation, how it induces neuroinflammation, how neuroinflammation alters neurotransmission and how this leads to cognitive and motor impairment. Once we identify the mechanisms involved, we design and test new therapeutic treatments to reverse neuroinflammation and restore neurotransmission and cognitive and motor function.

In the framework of the Joint Unit with INCLIVA on Neurological Impairment we perform parallel studies in cirrhotic patients with MHE to analyze in detail the cognitive and motor alterations, the cerebral alterations (by magnetic resonance, neurophysiology and neuropathology) and the role of changes in the immune system in triggering these alterations. We look for new, early and more sensitive procedures to diagnose MHE.

SELECTED PUBLICATIONS

Cabrera-Pastor A*, Llansola M*, Montoliu C, Malaguarnera M, Balzano T, Taoro-Gonzalez L, García-García R, Mangas-Losada A, Izquierdo-Altarejos P; Arenas YM, Leone P, Felipo V. (2019) Peripheral inflammation induces neuroinflammation that alters neurotransmission and cognitive and motor function in hepatic encephalopathy: Underlying mechanisms and therapeutic implications. Acta Physiologica (Oxf) :e13270

Taoro-González L, Cabrera-Pastor A*, Sancho-Alonso M, Arenas YM, Meseguer-Estornell F, Balzano T, EIMlili N, Felipo V. (2019) Differential role of IL-1β in neuroinflammation-induced impairment of spatial and non spatial memory in hyperammonemic rats. FASEB Journal; 33(9):9913-9928

Mangas-Losada A*, García-García R*, LeoneP*, Ballester MP, Cabrera-Pastor A, Urios A, Gallego JJ, Martínez-Pretel JJ, Giménez-Garzó C, Revert F, Escudero-García D, Tosca J, Ríos MP, Montón C, Durbán L, Aparicio L, Montoliu C*, Felipo V (2019) Selective Improvement by Rifaximin of Changes in the Immunophenotype in Patients who Improve Minimal Hepatic Encephalopathy. Journal of Translational Medicine 17(1):293



HEAD OF UNIT_ Francisco García García

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
8	60.7	7.6

Overview

Bioinformatics and Biostatistics Unit aims to develop innovative methods and tools for the big data analysis from different sources in Biomedicine, which allow us a better characterization of diseases and their treatments.

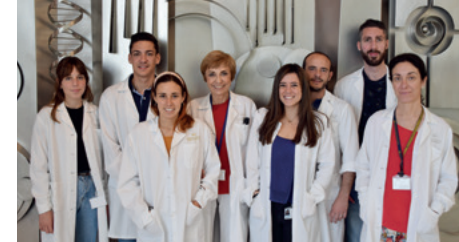
The main lines of work are focused on 1) the generation of clinical predictors based on high throughput technologies and artificial intelligence methods, 2) the detection and understanding of the molecular mechanisms associated with spinal cord injuries, 3) the identification of precision immunotherapy biomarkers and 4) the characterization of gender/sex differences in health using computational approaches based on omic data meta-analysis, that allow the detection and characterization of the specific molecular mechanisms of men and women in cardiovascular diseases (aortic stenosis and ischemic heart disease), neurodegenerative diseases (Parkinson's and Alzheimer's), liver diseases such as non-alcoholic fatty liver and different tumor groups.

SELECTED PUBLICATIONS

Martí-Rodrigo A, Alegre F, Moragrega ÁB, García-García F, Martí-Rodrigo P, Fernández-Iglesias A, Gracia-Sancho J, Apostolova N, Esplugues JV, Blas-García A. Rilpivirine attenuates liver fibrosis through selective STAT1-mediated apoptosis in hepatic stellate cells. Gut. 2019 Sep 17;. doi: 10.1136/gutjnl-2019-318372. [Epub ahead of print].

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Cubuk C, Hidalgo MR, Amadoz A, Rian K, Salavert F, Pujana MA, Mateo F, Herranz C, Carbonell-Caballero J, Dopazo J. Differential metabolic activity and discovery of therapeutic targets using summarized metabolic pathway models. NPJ Syst Biol Appl. 2019;5:7.



PI_ Consuelo Guerri Sirera

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
4	17	4.25

Overview

The aim of our group is to study the molecular and cellular actions of ethanol in the adult and developing brain. We were pioneers in demonstrating that ethanol by interacting with the membrane innate immune receptors, TLR4, in glial cells triggers neuroinflammation, brain injury and behavioral dysfunction. Considering the role of extracellular vesicles(EVs)/ exosomes in different neuropathological conditions, one objective of this year has been to evaluate the role of glial EVs in extending neuroinflammation associated with alcohol abuse.

Using astrocytes in primary culture, we show that ethanol increases the number of secreted EVs and alters their content by raising the levels of both inflammatory -related proteins (TLR4, p65, IL1R, caspase-1, NLRP3) and miRNA (mir-146, mir-182 and mir-200b). No changes were observed when we used EVs from ethanol-treated TLR4-KO astrocyte.

Notably, when cultured cortical neurons were incubated with ethanol-treated exosomes, we observed that astrocytes' EVs and their inflammatory content were able to be internalized by naïve neurons, triggering neuronal apoptosis (See Scheme).In summary, astrocyte-derived EVs could act as cellular transmitters of inflammation signaling by spreading and amplifying the neuroinflammatory response induced by ethanol through TLR4 response.

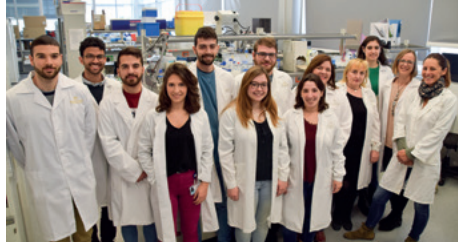
SELECTED PUBLICATIONS

Pascual M, Ibáñez F, Guerri C.Exosomes as mediators of neuron-glia communication in neuroinflammation. Neural Regen Res.15(5):796-801, 2019

Ibáñez F1, Montesinos J1,2, Ureña-Peralta JR1, Pascual M, Guerri C TLR4 participates in the transmission of ethanol-induced neuroinflammation via astrocyte-derived extracellular vesicles. J Neuroinflammation. 4;16(1):136, 2019

Guerri C, Pascual M. Impact of neuroimmune activation induced by alcohol or drug abuse on adolescent brain development.

Int J Dev Neurosci.77:89-98, 2019



PI_ Victoria Moreno Manzano

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
10	42	4.2

Overview

In the Neuronal and Tissue Regeneration laboratory we aim to tackle currently incurable spinal cord injuries (SCI) by the implementation of novel combinatorial strategies that harnesses multiple independent mechanisms for optimal functional regeneration.

We have recently shown that the implantation, after complete SCI, of a semi-tubular conduit of hyaluronic acid containing poly (lactic acid) fibers, covered with neural precursor cells, creating a bio-hybrid scaffold, significantly reduced the cavities and cyst formation, diminished the astrocytic reactivity surrounding the scar area and increased the number of preserved neuronal fibers with a horizontal directional pattern, co-expressing markers for axon growth.

Additional combinatorial approaches are accomplished in the group, focus on enhancing the poor intrinsic axonal regrowth capacity of the adult central neurons by pharmacological and/or genetic local manipulations and better modulation of the inhibitory extrinsic signals by for instance, the use of a combination of cell therapies.

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Martínez-Ramos C, Doblado LR, Mocholi EL, Alastrue-Agudo A, Petidiz MS, Giraldo E, Pradas MM, Moreno-Manzano V. Biohybrids for spinal cord injury repair. *J Tissue Eng Regen Med*. 2019 Mar;13(3):509-521.

Marcuzzo S, Isaia D, Bonanno S, Malacarne C, Cavalcante P, Zacheo A, Laquintana V, Denora N, Sanavio B, Salvati E, Andreozzi P, Stellacci F, Krol S, Mellado-López M, Mantegazza R, Moreno-Manzano V, Bernasconi P. FM19G11-Loaded Gold Nanoparticles Enhance the Proliferation and Self-Renewal of Ependymal Stem Progenitor Cells Derived from ALS Mice. *Cells*. 2019 Mar 23;8(3).



PI_ María del Mar Orzáez

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
4	44.14	11.036

Overview

The Laboratory of Protein and Peptide Chemistry works on the identification and preclinical development of new modulators for cell death and inflammation.

In cell death, our main targets are the transmembrane interactions among proteins of the Bcl-2 family. Deregulation of the Bcl-2 interactome is associated with tumor development and chemotherapy resistances. We work to unsolve the interactions inside the mitochondrial membrane that are responsible of cancer resistances and to develop new drugs to trigger cancer cell death.

In inflammation, our main goal is to develop new inflammasome modulators. The inflammasome is a main component of the pro-inflammatory signalling pathway that protects our body from injury and infections. Deregulation of this protein complex is associated with the pathophysiology of autoimmune disorders, inflammatory diseases and cancer. We work on the characterization of new inflammasome inhibitors as therapeutic agents and as chemical tools to understand the molecular mechanisms responsible for these diseases.

SELECTED PUBLICATIONS

Lozano-Torres, B; Estepa-Fernandez, A; Rovira, M; Orzaez, M*; Serrano, M*; Martinez-Manez, R*; Sancenón, F. The chemistry of senescence *Nature Reviews Chemistry*. 2019. Jul 3: 7: 426-441 DOI: 10.1038/s41570-019-0108-0

Hernández Montoto A, Llopis-Lorente A, Gorbe M, M Terrés J, Cao-Milán R, Díaz de Greñu B, Alfonso M, Ibañez J, Marcos MD, Orzáez M, Villalonga R, Martínez-Máñez R, Sancenón F. Janus Gold Nanostars-Mesoporous Silica Nanoparticles for NIR-Light-Triggered Drug Delivery. *Chemistry*. 2019 Jun 26;25(36):8471-8478. doi: 10.1002/chem.201900750. Epub 2019 May 27. PMID: 31012155.

Hernández Montoto A, Montes R, Samadi A, Gorbe M, Terrés JM, Cao-Milán R, Aznar E, Ibañez J, Masot R, Marcos MD, Orzáez M, Sancenón F, Oddershede LB, Martínez-Máñez R. Gold Nanostars Coated with Mesoporous Silica Are Effective and Nontoxic Photothermal Agents Capable of Gate Keeping and Laser-Induced Drug Release. *ACS Appl Mater Interfaces*. 2018 Aug 22;10(33):27644-27656. doi: 10.1021/acsami.8b08395. Epub 2018 Aug 8. PMID: 30040374.



PI_ María Jesús Vicent

PUBLICATIONS

TOTAL	IMPACT FACTOR	AVERAGE IF
7	49.8	7.1

Overview

The Polymer Therapeutics Lab develops novel nanopharmaceuticals as a solution for unmet clinical needs such as metastatic tumors and neurodegenerative disorders. Our interdisciplinary strategy begins with controlled polymer chemistry, supramolecular assembly, optimized conjugation, and physico-chemical characterization, but extends to in vivo evaluation in preclinical models.

Within our ERC-Co-MyNano project that aims to develop novel anticancer combination nanoconjugates, we have established and characterized metastatic triple negative breast cancer models (spheroids and organoids) from patient samples, and identified functional biomarkers for our newly developed therapeutics. We have also designed lymphotropic nanoconjugates that enhance immunomodulation in melanoma (ERC-PoC-Polymune project) and pancreatic cancer (La Caixa HR-NanoPanTher project). Furthermore, research supported by MICINN and AECC has developed poly-L-ornithine-based polypeptidic nanocarriers to overcome challenges related to stability, safety, and efficacy in gene silencing approaches within the central nervous system. These polypeptide-based nanocarriers bypass the blood-brain barrier after intravenous or non-invasive intranasal administration and provide unique treatment opportunities for neurodegenerative disorders such as Alzheimer's disease, pediatric tumors, and brain metastases.

SELECTED PUBLICATIONS

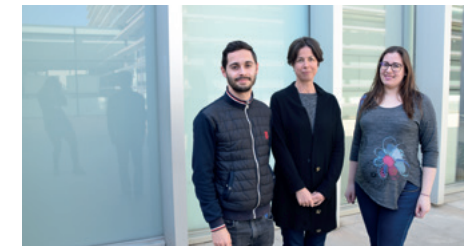
Conejos-Sánchez, I., Gallon, E., Niño-Pariente, A., Smith, J. A., De la Fuente, A. G., DiCanio, L., Pluchino, S., Franklin, R.J.M., M.J. Vicent. Polyornithine-based polyplexes to boost effective gene silencing in CNS disorders. *Nanoscale*, 2020(12):6285-6299.

Arroyo-Crespo, J. J., Armíñán, A.*, Charbonnier, D., Deladriere, C., Palomino-Schätzlein, M., Lamas-Domingo, R., Forteza, J., Pineda-Lucena, A. and Vicent, M. J.* Characterization of Triple-Negative Breast Cancer Preclinical Models Provides Functional Evidence of Metastatic Progression. *International Journal of Cancer*, 2019;145(8):2267-2281.

Moura, LIF., Malfanti, A., Peres, C., Matos, AI., Guegain, E., Sainz, W., Zloh, Vicent, MJ.*, Florindo, HF*. Functionalized Branched Polymers: Promising Immunomodulatory Tools for the Treatment of Cancer and Immune Disorders. *Materials Horizons*, 2019;6:1956-1973.

NEW JUNIOR GROUP LEADERS

PI_ Dunja Lukovic



Overview

The vision is the most important sense in humans since the majority of information of our environment is obtained through sight. Therefore, the loss of vision results in the most debilitating sensorial disorders. Approximately 25 % of vision loss is due to retinal dystrophies. The retina is light sensitive tissue that converts light into electrical signals that are sent to the brain for further processing. Retinal dystrophies are progressive disorders that end up with blindness and currently have no cure.

Our aim is to understand retinal function in homeostasis and disease. Our efforts are focused on the following aims:

1. Understand the molecular mechanism underlying hereditary retinal dystrophies
2. Develop therapeutic strategies based on human pluripotent stem cells
3. Decipher the molecular mechanism of retinogenesis, especially photoreceptor specification via pluripotent stem cells directed differentiation

SELECTED PUBLICATIONS

Transcriptome-based molecular staging of human stem cell-derived retinal organoids uncovers accelerated photoreceptor differentiation by 9-cis retinal.

Kaya KD, Chen HY, Brooks MJ, Kelley RA, Shimada H, Nagashima K, de Val N, Drinnan CT, Gieser L, Kruczek K, Erceg S, Li T, Lukovic D, Adlakhia YK, Welby E, Swaroop A.

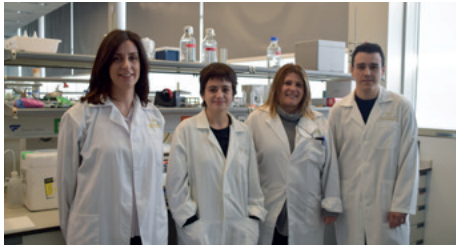
Mol Vis. 2019 Nov 11;25:663-678.

Generation of iPSC lines from a Retinitis Pigmentosa patient carrying a homozygous mutation in CERKL and a healthy sibling. Bolinches-Amorós A, León M, Del Buey Furió V, Marfany G, González-Duarte R, Erceg S, Lukovic D. *Stem Cell Res* 2019. 2019 May 4;38:101455.

Generation of gene-corrected human induced pluripotent stem cell lines derived from retinitis pigmentosa patient with Ser331Cysfs*5 mutation in MERTK. Artero Castro A, Long K, Bassett A, Machuca C, León M, Ávila-Fernandez A, Cortón M, Vidal-Puig T, Ayuso C, Lukovic D, Erceg S. *Stem Cell Res.* 2019 Jan;34:101341.

NEW JUNIOR GROUP LEADERS

PI_ Isabel del Pino



Overview

The Del Pino Lab is an interdisciplinary team with a research focus on the neural circuit basis of neurological and neurodegenerative disorders. Our main objective is to dissect neural circuit plasticity mechanisms of cognitive function in health and disease using gene targeting in animal models (rodents) and a sophisticated combination of behavioral, electrophysiological and molecular approaches.

With this interdisciplinary expertise, we have identified functional abnormalities in specific neural circuits involved in cognitive dysfunction in mouse models recapitulating phenotypes of infantile epileptic encephalopathy and schizophrenia. This knowledge is leading to the development of novel tools to manipulate neural circuit function in the living animal and, by doing so, test the potential of these manipulations to treat cognitive dysfunction.

SELECTED PUBLICATIONS

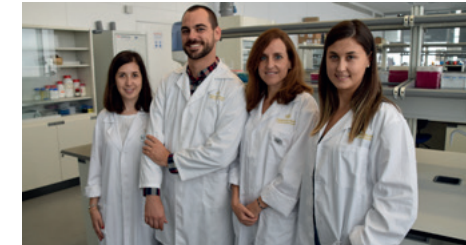
Del Pino I, Rico B, Marín O. Neural circuit dysfunction in mouse models of neurodevelopmental disorders. *Curr Opin Neurobiol*. 2018 Feb;48:174-182. doi: 10.1016/j.conb.2017.12.013. Epub 2018 Jan 10. Review. PubMed PMID: 29329089.

Del Pino I, Brotons-Mas JR, Marques-Smith A, Marighetto A, Frick A, Marín O, Rico B. Abnormal wiring of CCK(+) basket cells disrupts spatial information coding. *Nat Neurosci*. 2017 Jun;20(6):784-792. doi: 10.1038/nn.4544. Epub 2017 Apr 10. PubMed PMID: 28394324; PubMed Central PMCID: PMC5446788.

Del Pino I, García-Frigola C, Dehorter N, Brotons-Mas JR, Alvarez-Salvado E, Martínez de Lagrán M, Ciceri G, Gabaldón MV, Moratal D, Dierssen M, Canals S, Marín O, Rico B. Erbb4 deletion from fast-spiking interneurons causes schizophrenia-like phenotypes. *Neuron*. 2013 Sep 18;79(6):1152-68. doi: 10.1016/j.neuron.2013.07.010. PubMed PMID: 24050403.

NEW JUNIOR GROUP LEADERS

PI_ Regina Rodrigo



Overview

During 2019 we focused on finishing two main projects. The first one was to analyze the neuroprotective effect of a single intravitreal injection of Adalimumab in a murine model of retinitis pigmentosa. We corroborated a neuroprotective effect and we proposed alterations in different cell death mechanisms and NLRP3 inflammasome. We prepared a manuscript and sent it to FASEB Journal.

Currently, we are preparing a revised manuscript (delayed it by COVID situation). The second one was to analyze the effect of long-term intake of antioxidant nutraceutical on visual function and redox status in patients with retinitis pigmentosa.

After two years of treatment, we collected and analyzed all the data. After exhaustive statistical analysis we have found a beneficial effect of the nutraceutical mixture. We expect to write the manuscript this summer (we need some data from the hospital).

Finally, we worked with nanoparticles to implement pharmacological approaches of Adalimumab and other compounds.

SELECTED PUBLICATIONS

Unamuno Bustos B, Chaparró Aguilera N, Azorín García I, Calle Andino A, Llavador Ros M, Rodrigo R, Vitale M, González S, Botella R. Long-term efficacy of a new medical device containing Fernblock A and DNA repair enzyme complex in the treatment and prevention of cancerization field in patients with actinic keratosis. *J Clin Exp Derm Res Volumen 10, issue 4*, pp1000499(2019)

S O
C I E
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CIPF_ in the media

2019 FIGURES

PRESS
RELEASES

27

NEWS APPEARED ON
PRINTED AND ONLINE PRESS

158

RADIO AND TELEVISION
INTERVIEWS

13

WEB WWW.CIPF.ES

Users_ 26.483

Visits_ 148.460

SOCIAL MEDIA FOLLOWERS



Twitter_ 4461



Facebook_ 1973



LinkedIn_ 3902



Youtube Views_ 4600

2019 NEWS HIGHLIGHTS

We summarize here some of the most important CIPF news in 2019, both in the institutional and scientific area.

Un proyecto del CIPF sobre el abuso de alcohol en la adolescencia, seleccionado por el Plan Nacional sobre Drogas

8/1/2019_ *Europa Press*

La resistencia a la insulina podría favorecer la cicatrización del tejido hepático

31/1/2019_ *Infosalus*

Nuevas nanomedicinas abren la puerta a un tratamiento más eficaz y menos agresivo del cáncer de próstata

13/2/2019_ *La Vanguardia*

Arte y ciencia en una exposición inspirada en Margarita Salas

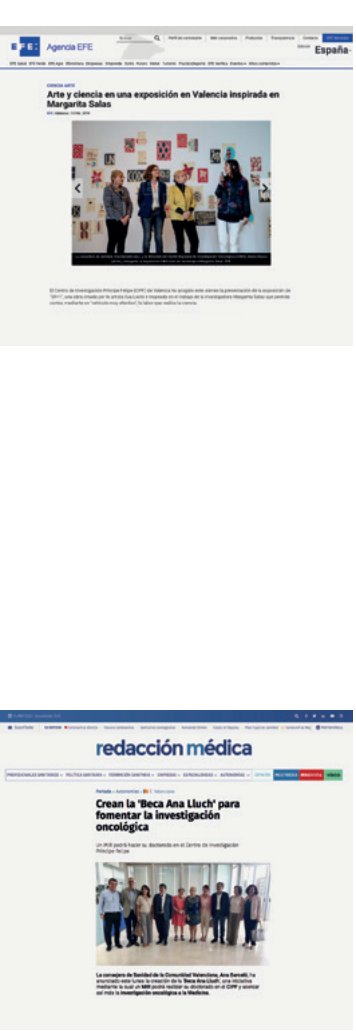
15/2/2019_ *Culturplaza*

Investigadoras en enfermedades raras se reúnen para visibilizar la labora de las mujeres en este campo

22/2/2019_ *Infosalus*

Mujeres científicas entrenan su liderazgo

3/3/2019_ *Cadena Ser*



Deborah Burks: “Es de sentido común investigar con perspectiva de género en medicina y biomedicina”

29/3/2019_ *Ciberdem*

Un Congreso de Jóvenes Investigadores promueve la carrera científica

24/4/2019_ *La Vanguardia*

Investigación en síndrome de Dravet

28/4/2019_ *Levante EMV*

Un estudio abre una vía para regenerar tejidos tras una lesión medular

29/4/2019_ *Las Provincias*

El Ministerio de Ciencia financia proyectos del CIPF sobre enfermedades autoinmunes, lesión medular y Alzheimer

5/5/2019_ *Europa Press*

Estudian el efecto en el embrión de una micotoxina presente en los cereales

10/6/2019_ *El Periódico de Aquí*

La Ciutat de les Arts i les Ciències y el CIPF colaboran para promover la divulgación científica

11/7/2019_ *El Periódico de Aquí*

Valencia reúne a un millar de expertos en liberación controlada de fármacos

20/7/2019_ *La Vanguardia*

Fundación “la Caixa” premia un proyecto de María Jesús Vicent

17/9/2019_ *20 minutos*

Noche europea de los investigadores e investigadoras 2019

20/9/2019_ *Deceroadoce*

Crean la Beca Ana Lluçà para fomentar la investigación en cáncer

23/9/2019_ *Levante EMV*

La AECC reclama un plan nacional para investigar mejor el cáncer

25/9/2019_ *El Periódico Mediterráneo*

¿Se puede tratar el cáncer de páncreas con nanofármacos?

14/10/2019_ *La Vanguardia*

Investigadores del CIPF descubren una proteína que mejora la supervivencia neuronal en la zona infartada tras un ictus

15/10/2019_ *La Vanguardia*

Investigadores valencianos descubren una proteína que palía efectos del ictus

16/10/2019_ *Las Provincias*

CIPF y FIHGUV crean una unidad mixta para investigar nuevos biomarcadores para mejorar el diagnóstico precoz del cáncer

6/11/2019_ *Europa Press*

Crean en Valencia una unidad mixta para la investigación en cáncer

7/11/2019_ *ConSalud*

Valencia se convierte en capital científica del envejecimiento saludable

13/11/2019_ *Valencia Plaza*

¿Qué es peor beber un poco a diario o mucho ocasionalmente?

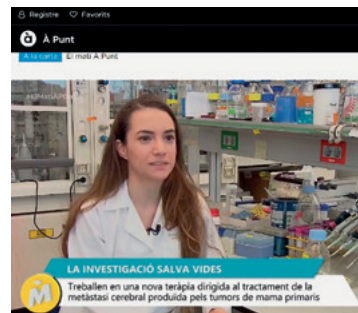
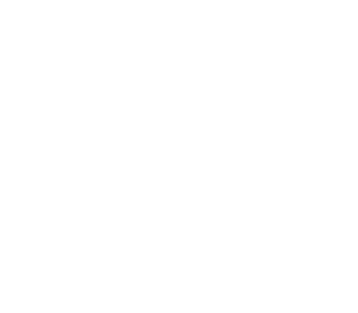
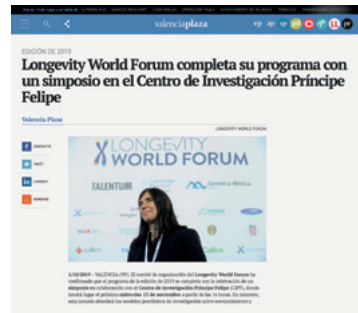
15/11/2019_ *El País*

Describen una firma génica ligada al pronóstico de supervivencia en cáncer de pulmón

27/11/2019_ *Infosalus*

Fernández de la Vega subraya el compromiso de las investigadoras africanas

17/12/2019_ *La Vanguardia*





CIPF_ events

Overview

Every year, we deliver a range of engagement activities. We engage with citizens, influencers, policymakers, potential students, the general public and our own CIPF community of staff and students.

CIPF organizes every year several Seminars, FBR Lecture Series, Labs Visits, the Women Researchers on Rare Diseases conference, the European Researchers' Night, the WODA Course, Cytometry Courses and other scientific events and training activities.

Highlights

11 SEMINARS

11 FBR LECTURE SERIES CONFERENCES

11 WORKSHOPS

4 THESIS DEFENSES

2 CONGRESSES

- 3rd National Congress of Young Biomedical Researchers
- XXV National Congress Asociación Española de Endoscopia Respiratoria y Neumología Intervencionista

1 INTERNATIONAL SYMPOSIUM

- Longevity World Forum

5 COURSES

- Advanced Course on NMR
- WODA Web-based Omics data Analysis Course
- Flow Cytometry Workshop: 5th Edition Technical
- ESCCA International School on Cytometry
- IV Wrist Arthroscopy Workshop

27 LABS AND FACILITIES VISITS

7 OTHER EVENTS

- Drawing Christmas Cards Competition
- Blood Donation (May and November)
- Toys Recollection to Peru (Fundación Colegios Siglo XXI)
- Pint of Science and Data Beers Valencia Festivals
- Hospital Optimista Ceremony
- LITMUS Project Executive Meeting

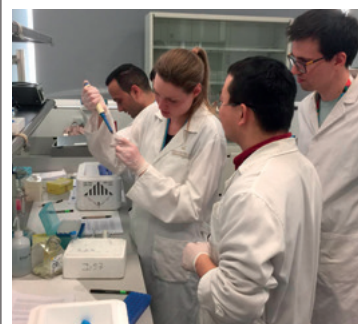
All the events are Free and Open to scientific community and general public (except specific courses)



Rosa Farràs organized the Ubicode and Ubired Workshop at CIPF on March 2019.



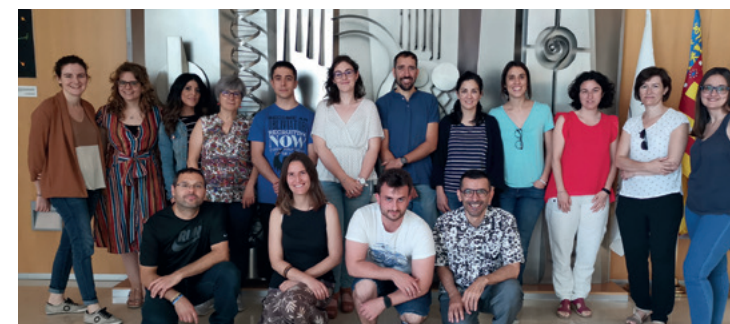
On the 15th of February, we were honored to receive at CIPF the president of the Board of Trustees and Valencia Health Minister, Ana Barceló; the CNIO director, María Blasco and the artist Eva Lootz to open the exhibition 59+1 Eva Lootz/Margarita Salas.



The Controlled Release Society (CRS) presented in the Valencia Palacio de Congresos their scientific and technological breakthroughs in controlled drug release, diagnostic strategies and the latest, most precise and safest treatments. Our Polymers Lab participated actively in this meeting.

IV Female Researchers Conference on Rare Diseases at CIPF, an event organized by Carmen Espinós and her Lab.

WODA course covers the development of a whole bioinformatics analysis pipeline using web tools. It is organized by the UBB, directed by Francisco García.



In September, to celebrate the World Cancer Research Day, the CIPF organized an event to tribute Dr. Ana Lluich. Oncologists and investigators met to discuss the latest research results.



Seminars

- Gorka Orive 8/3/2019
- Martín Valdearcos-Contreras 29/3/2019
- Regina Rodrigo 7/5/2019
- José V. Sánchez Mut 17/5/2019
- Juan M. Falcón-Pérez 14/6/2019
- Santiago Vernia 21/6/2019
- Octavio Romero 19/7/2019
- Yajaira Suárez 26/7/2019
- Juan Rodríguez-Vita 25/10/2019
- Pablo Méndez García 22/11/2019
- Michael A. Lane 12/12/2019

FBR Lecture Series Conferences

- Adriana Maggi 25/01/2019
- Ángela Nieto 15/2/2019
- Sabine Werner 22/3/2019
- John O'Neill 5/4/2019
- Judy Lieberman 10/5/2019
- Óscar Marín 7/6/2019
- Carlo Tacchetti 28/6/2019
- Jens Lüders 4/10/2019
- Pablo Pelegrín 8/11/2019
- Álex Mira 29/11/2019
- Jesús Alcázar 10/12/2019

Workshops

- Women, Science and Health Conference 11/2/19
- CNIO Arte Eva Lootz/Margarita Salas 59+1 Exhibition 15/2/19-12/4/19
- IV Women Researchers on Rare Diseases Conference 22/2/19
- Ubicode & Ubired Workshop 11/3/19
- Cancer Research in Comunitat Valenciana Meeting 23/9/19
- II Valencian Vesicles Workshop 26/9/19
- European Researchers' Night 27/9/19
- Jornada Últimos avances en la investigación de fibromialgia, SFC/EM, SQM y EHS 25/10/19
- Workshop Bruker Diagnostic Solutions 16/10/19
- III Jornada de Distrofias de Retina CV 28/11/19
- Science By Women 5th Edition Presentation 17/12/19



Michael A. Lane 12/12/2019



Juan M. Falcón-Pérez 14/6/2019



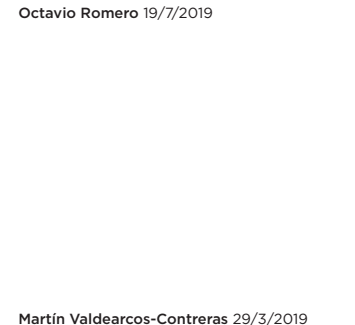
José V. Sánchez Mut 17/5/2019



Santiago Vernia 21/6/2019



Octavio Romero 19/7/2019



Martín Valdearcos-Contreras 29/3/2019



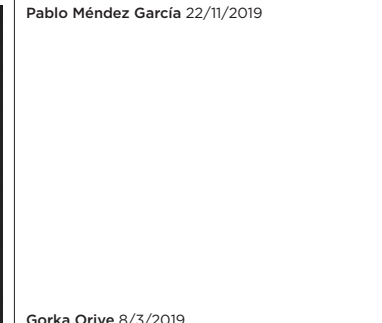
Juan Rodríguez-Vita 25/10/2019

Regina Rodrigo 7/5/2019

Yajaira Suárez 26/7/2019



Pablo Méndez García 22/11/2019



Gorka Orive 8/3/2019





Judy Lieberman 10/5/2019
Jens Lüders 4/10/2019
Ángela Nieto 15/2/2019



Adriana Maggi 25/01/2019



John O'Neill 5/4/2019



Óscar Marín 7/6/2019



Jesús Alcázar 10/12/2019
Álex Mira 29/11/2019



Pablo Pelegrín 8/11/2019

Sabine Werner 22/3/2019

Carlo Tacchetti 28/6/2019





CNIO Arte Eva Lootz/Margarita Salas

59+1

Exhibition 15/2/19-12/4/19

Valencia had during 2 months this art piece inspired in the scientific work of Margarita Salas.

168 people attended the opening event in the CIPF. More than 1.150 visitors enjoyed it during this two months.

This initiative explores common territories between scientific research and other disciplines such as art creation.

MARGARITA SALAS

Pioneering scientist of Molecular Biology in Spain and winner of the Santiago Ramon y Cajal National Research Award (1999). She has authored hundreds of papers mainly in relation to the bacterial virus Phi29. One of her greatest scientific contributions is the decoding of genetic information.

EVA LOOTZ

Renowned visual artist, recipient of the National Visual Arts Prize (1994). Her sculptural work explores the relationship between matter and language through "phenomenal" elements such as sand, mercury and dry ice, but also time and sound. On this occasion, she has created a series of drawings conceived of as thoughts or "illuminations" that reflect on the main research interests of Margarita Salas.

Short Bios from CNIO · www.cnio.es/en/cnio-and-society/cnio-arte/eva-lootz-and-margarita-salas/



Longevity World Forum

Longevity World Forum took place the 14th and 15th of November 2019 at the Palacio de Congresos in Valencia.

On the 13th of November, we organized at CIPF (Centro de Investigación Príncipe Felipe) a pre-congress Symposium:

Preclinical Models in Ageing and Metabolism Research Symposium

Short telomeres as the origin of lung and kidney fibrosis. Dr. María Blasco, CNIO.

Stress resilience and ageing in *Drosophila* intestine. Dr. Mirka Uhlirova, Cluster of Excellence for Aging Research, University of Cologne.

Rare Diseases as Tools for Understanding Ageing: Generating models of Hutchinson-Gilford progeria syndrome with Crispr/Cas technology. Dr. Vicente Andrés, CNIC.

Regulation of Muscle Regeneration during Ageing. Dr. Pura Muñoz, ICREA, Universitat Pompeu Fabra.

Epigenetic Regulation of Learning and Memory in Mouse Hippocampus. Dr. Angel Barco, Neuroscience Institute Alicante.

Role of Daily Fasting and Diet in Lifespan Extension. Dr. Rafael de Cabo, NIH, National Institute on Aging.



Testing Marker Utility in Steatohepatitis (LITMUS)

LITMUS Project Executive Meeting took place at CIPF, on Wednesday 16th October 2019.

Testing Marker Utility in Steatohepatitis (LITMUS) funded by the European Innovative Medicines Initiative 2 Joint Undertaking, brings together clinicians and scientists from prominent academic centres across Europe with companies from the European Federation of Pharmaceutical Industries and Associations (EFPIA). Their common goals are developing, validating and qualifying better biomarkers for testing NAFLD.



European Researchers' Night

This event is dedicated to bringing researchers closer to the public. As far as the EU explains "they showcase the diversity of research and highlight the impact of research on our daily lives" have a look to ec.europa.eu/research.

We also promote and motivate young people to embark on research careers. We organize experiments, workshops for children, guided visits and competitions or games.



VISITS

- Colegio La Anunciación de Valencia
- IBV-CSIC
- Ayuntamiento de Valencia, Club Lectura Exposición
- AVI Valencian Innovation Agency
- Caxton College
- Centro de Formación Profesional Santa Ana
- IES Riu Túria Quart de Poblet
- IES Tierno Galván
- CEIP El Molí, Torrent
- Apoyo Dravet
- INDACEA
- ATOS Spain
- Guillermo Chinchilla (Noa's father)
- UCV
- Colegio Jesús-María de Valencia
- IES Enric Valor de Silla
- IES Carles Salvador
- CEU San Pablo
- Complejo Preuniversitario Mas Camarena
- CIB Congress students
- Asociación Corre Per Mi, Museros
- University of Virginia
- Generalitat Vicepresident, Mónica Oltra
- Lucía Beamud, Equality, Ayto. Valencia
- La Caixa
- CACSA
- Visita M^a Teresa Fernández de la Vega and Fundación Mujeres por África team

The CIPF has cutting edge research facilities and modern, well-equipped laboratories, an excellent environment for research that well worth a visit. Every year, many students from University, High School and Vocational Training come to meet our staff and to get to know our work and equipment.



Dravet Syndrome is a rare and catastrophic form of intractable epilepsy that begins in infancy. Apoyo Dravet is an association located in San Sebastián, Spain, that supports CIPF research on this field.



Corre per Mi association, Ayuntamiento Museros, Mitsubishi Materials España, J.R. Costa and many other particular donors support a spinal cord injury research project led by Francisco García and Victoria Moreno.



The Fero Foundation team visited the CIPF to know our research on translational oncology. Piru Cantarell, the General Manager, and Rubén Ventura, the Scientific Director met Deborah Burks, Enric Esplugues, Mar Orzáez and Rosa Farrás principal investigators.

CIPF joined the Science by Women project, organized by the Women for Africa Foundation (FMxA), to promote African women's leadership in scientific research and technology transfer and to foster the capacity of the research centres in their home countries. On behalf of this agreement, in 2019 Hanaa Zbakh stay at CIPF in Dr. Esplugues Lab.



Hospital Optimista Foundation celebrates every year a Gala to recognize hospital personnel in Spain. In 2019 the Gala took place at CIPF.

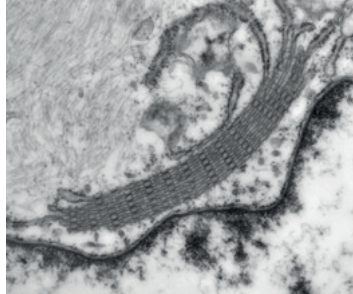


NanoPanTher is a project to create a new therapeutic option for pancreatic cancer by designing nanopharmaceuticals and a nanovaccine. It has been funded by La Caixa Foundation.

T E C
H N
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Transmission Electron Microscopy

UNIT MEMBERS_
Mario Soriano Navarro



Overview

Electron microscopy uses an accelerated electron beam which, upon impacting the sample, generates different signals that provide information about its atomic structure. In Transmission Electron Microscopy (TEM), transmitted electrons are detected to generate conventional, dark-field, high-resolution transmission images. Due to its high resolution power, TEM allows the development of useful applications in the fields of biomedical research, biotechnology and diagnostics.

The Electron Microscopy Unit at CIPF collaborates with internal and external research groups offering an invaluable tool to address some scientific questions. The Unit also provides technological support to pathology services for the diagnosis of some renal diseases. It is worth noting that during 2019 it has provided services to the global biopharmaceutical company AstraZeneca.

Highlights

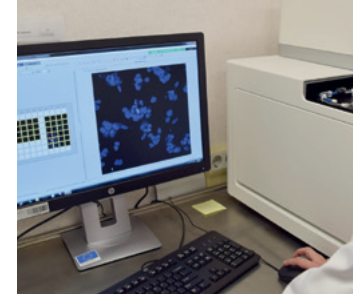
In 2019, as a result of a collaboration with the Stem Cell Department of the Andalusian Center for Molecular Biology and Regenerative Medicine (CABIMER), for the study of skeletal muscle of mice mutant (deficient) for Pax8 gene, the Unit has published a research article in the journal Aging (11-18, pp.7746-7779.13/09/2019), entitled “Inadequate control of thyroid hormones sensitive to hepatocarcinogenesis and unhealthy aging”.

In recent years there has been a significant increase in the number of studies related to the extracellular vesicles and exosomes, it's “in vogue”. Due to their size and composition, electron microscopy is one of the main tools that allow the morphological characterization of these particles. Thus, in view of the increasing demand for new techniques related to electron microscopy for the study of these particles, the Unit has been working on the development of new techniques. Thus, in 2019, it has launched new services such as immuno-gold techniques for detecting molecular markers outside the extracellular vesicles and the morphological characterization of these vesicles using cryo-electron microscopy.

In line with its history as a training and user capacitation service, the Unit has organized during 2019 multiple training sessions in TEM technology and applications for both internal and external staff. In addition, the service has hosted visits of secondary school students.

SELECTED ARTICLES

L López Noriega; V Capilla González; N Cobo Vuilleumier; E Martín Vázquez; P Isabel Lorenzo; E Martínez Forcé; M Soriano Navarro; M García Fernández; SY Romero Zerbo; FJ Bermúdez Silva; I Díaz Contreras; A Sánchez; Cuesta; C Santos Ocaña; A Hmadcha; B Soria; F Martín; B Raymond Gauthier; A Martín Montalvo. Inadequate control of thyroid hormones sensitizes to hepatocarcinogenesis and unhealthy aging. Aging. 11 - 18, pp. 7746 -7779. 13/09/2019.



Overview

The CIPF Cytomics facility provides technological solutions for high-speed polychromatic analysis, fluorescence activated cell sorting (FACS), and High Content Screening (HCS) assays. It offers high-quality experimental support applied to biomedicine, biotechnology, translational medicine, microbiology and environmental sciences.

Highlights

In 2019, the facility has participated in several different research projects related to functional characterization and immunophenotyping of stem cells, immunological studies in marine mammals, detection of extracellular vesicles in human samples and apoptosis studies in clinical samples. These collaborations have led to four scientific publications (*).

One of the most relevant scientific projects during 2019 has been a collaboration for the use of tumor organoids from lung cancer patients as a model to study the tumor biology and the drug response.

The facility organized the 5th edition of the course: “Flow Cytometry: Technical Bases” at CIPF accredited by the Comisión de Formación Continuada de las Profesiones Sanitarias. In addition, the facility participated in the 6th edition of the International Summer School on Cytometry organized by the European Society for the Clinical Cell Analysis (ESCCA).

SELECTED ARTICLES (*)

Andrea Cossarizza et al.2019. Guidelines for the use of flow cytometry and cell sorting in immunological studies. European Journal of Immunology. 49 (10), pp.1457-1973.

Alejandro Herreros-Pomares; et al. 2019. Lung tumorspheres reveal cancer stem cell-like properties and a score with prognostic impact in resected non-small-cell lung cancer. Cell Death & Disease. 10 (9), pp.660-674.

Nahuel Aquiles Garcia et al. 2019. Circulating exosomes deliver free fatty acids from the bloodstream to cardiac cells: Possible role of CD36. PLoS One.14-5.

Sánchez Llopis et al. 2019. Study of the apoptotic effect in patients with urological versus gynaecological chronic pelvic pain. Urologia Internationalis. 103-2, pp.211-217.

Flow Cytometry and Cytomics

UNIT MEMBERS_
Alicia Martínez-Romero
Domingo Gil Casanova

UNIT MEMBERS_

Viviana Bisbal Velasco · Amparo Moragon Carretero · Nerea Marín Izquierdo
Collaborator_ Begoña Lainez – Animal Models Platform



Overview

Advances in biomedical research often require the use of in vivo models, and consistency and reproducibility of data can only be achieved with high quality standardized models, facilities and procedures. At CIPF we are committed to the highest standard of animal welfare.

The Animal Facility provides CIPF scientists with high quality animal care services and facilities to improve animal research and ensure the health, well-being and humane treatment of animals used in research and teaching.

Highlights

During 2019, the Unit has been involved in multiple projects about lung and breast cancer, different PDX orthotopic models of cancer, endometriosis, regeneration of central and peripheral nervous System, among others. An animal models platform is being developed to provide scientists with high quality and efficient transgenic services.

Animal Facility personnel is member of the Spanish Society for Laboratory Animal Science (SECAL) and some of them member of diverse Ethics Committees in Valencia. They have collaborated and taught in diverse training programs or laparoscopic techniques celebrated at CIPF surgical theatres. Viviana Bisbal was professor of Anesthesiology at Veterinary Faculty UCH-CEU in Valencia and participated at Master Universitario de Biomedicina Experimental at University of Castilla La Mancha and at Master Investigación Biomédica from University of Valencia.

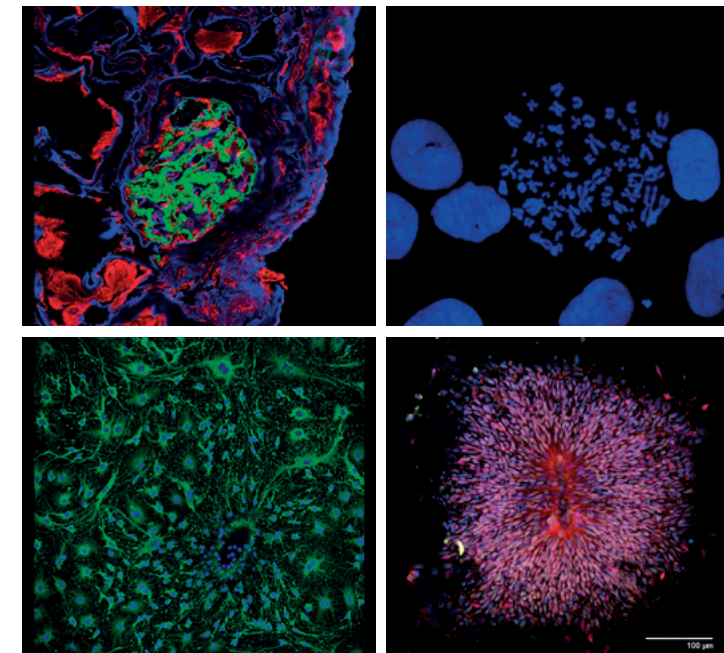
SELECTED ARTICLES

Jessica Martinez; Viviana Bisbal; Nerea Marin; Antonio Cano; Raul Gomez. Noninvasive Monitoring of Lesion Size in a Heterologous Mouse Model of Endometriosis. J Vis Exp. 144, pp. e58358. 26/02/2019

Nerea Marín Izquierdo; Viviana. Bisbal Velasco. Protocolo anestésico en modelo animal porcino de cirugía cardíaca con circulación extracorpórea. Animales de Laboratorio. 81, pp. 30 - 40. Sociedad Española para las Ciencias del Animal de Laboratorio, 04/2019

Nerea Marín; Amparo Moragon; Domingo Gil; Francisco García; Viviana Bisbal. "Influencia de la aclimatación en la obtención de muestras sanguíneas y parámetros indicativos de estrés". XV Congreso Nacional de la Sociedad Española de Ciencias del Animal de Laboratorio (SECAL), Sevilla, España, 11/2019.

Moreno-Manzano, V., Mellado-López, M., Morera-Esteve, M. J., Alastrue-Agudo, A., Bisbal-Velasco, V., Forteza-Vila, J., Serrano-Aroca, Á., & Vera-Donoso, C. D. (2020). Human adipose-derived mesenchymal stem cells accelerate decellularized neobladder regeneration. Regenerative biomaterials, 7(2), 161-169



Overview

Advanced microscopy provides users with a wide range of techniques and key tools in the field of biomedical research, but also in other scientific areas such as nanoscience and nanotechnology, new materials, QC and QA, etc. Amongst all available technologies, confocal microscopy is probably one of the most relevant to biomedical research. Not only because of its great resolution power, but also because of a greater sample penetration capacity. Confocal microscopy allows the capture of images in different focal planes that can be processed to generate three-dimensional reconstruction of structures. The CIPF Advanced Light Microscopy Unit offers a wide range of applications in microscopy techniques and data analysis, including conventional optical microscopy, fluorescence, in vivo imaging, confocal techniques, super-resolution, multiphoton, etc.

Highlights

In 2019, the Unit has worked in different research projects of CIPF laboratories and has collaborated with other research institutions such as the Institute of Chemical Technology (ITQ) and the Interuniversity Institute for Molecular Recognition and Technological Development of the Polytechnic University of Valencia. During 2019, the Unit has collaborated with the Health Research Institute IIS La Fe, of the Hospital P.U. La Fe in Valencia in a research project for the evaluation of mitochondrial activity and respiration rates of human oocytes as a marker of metabolic activity and oocyte viability. The Unit has actively received in 2019 many students from High School, Vocational Training and Universities.

UNIT MEMBERS_

Alberto Hernández Cano

UNIT MEMBERS_

Scientist in Charge_ María J. Vicent
 Technician in charge_ Esther Masiá

Also participating within ERIC-EU-OpenScreen Specialist Site at CIPF_ Mar Orzáez, David Charbonnier



Overview

The CIPF Screening Platform supports the evaluation of biological and pharmacological compound libraries, which includes in-house libraries and those from external agencies such as EU-OpenScreen when CIPF became a specialist site. We aim to identify and characterize novel bioactive agents in areas including cancer treatment, regenerative medicine and infectious diseases.

Highlights

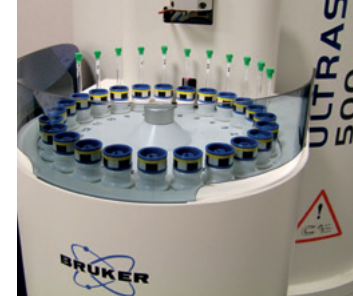
Significant advances have been implemented, including a translatable approach to the screening of exosome biogenesis/release inhibitors that avoids time-consuming techniques, improves the identification of exosome modulators with specific molecular mechanism, and facilitates translation to clinical practice and routine use. Our strategy is based on the combination of exosome quantification by AlphaScreen™ with the antibody-mediated detection of a specific exosomal lipid within the same sample. This approach provides sufficient information to understand drug treatment responses and may improve diagnostic and therapeutic approaches in cancer and other diseases, it can also be extended to other extracellular vesicles. Oncology represents an important area- in addition to the ERCCoG-MyNano project, which aims to develop personalized combination therapies for breast cancer subtypes by testing in 3D models, the service has also screened patient-derived lung spheroids as part of a lung cancer project in collaboration with Hospital General. With the Tübingen Univ, we have developed a screening assay to identify modulators of intracellular interactions in H2020-DRIVE project coordinated by the EU-OpenScreen. Other projects have used massive screening approaches for the identification of activators of caspase 9 or the identification of novel FXN-modifying genes in drosophila cell lines. The unit participates in: ERIC-EU-Openscreen, SDDN, Geivex and networks of excellence (REDEFAR, ES-OpenScreen or Tentacles).

POSTERS AND COMMUNICATIONS

1. Dolz-Pérez, et al. Polypeptide-corticosteroid conjugates as a topical treatment approach to psoriasis. J Control Rel, 2020(318):210-222.
- P. Brennecke, et al. EU-OPENSREEN: A Novel Collaborative Approach to Facilitate Chemical Biology. SLAS Discovery, 2019;7:2472555218816276.
- Z. Andreu, E. Masiá, D. Charbonnier, M.J. Vicent. High Throughput Screening (HTS) to Identify Exosome Biogenesis and Release Inhibitors. 5thGeivex Symp, 2019, Granada, Spain.
- E. Masiá, Z. Andreu, D. Charbonnier, A. Marco, M. J. Vicent. Breast Cancer Cell 3D spheroids as a Screening Platform for Combination Therapies, SLAS Europe 2019, Barcelona.
- I. Dolz Perez, et al. Rationally Designed Polymer Therapeutics for the Topical Treatment of Psoriasis, 46th Ann. Meet. & Exp. Control. Rel. Soc. 2019, Valencia, Spain.
- Z. Andreu, E. Masiá, D. Charbonnier, M.J. Vicent. High Throughput Screening (HTS) to Identify Exosome Biogenesis and Release Inhibitors. II Valencian Vesicles Workshop 2019, Valencia, Spain.

UNIT MEMBERS_

Martina Palomino
 Rubén Lamas



Overview

The Nuclear Magnetic Resonance (NMR) Unit provides advanced applications for the characterization of the chemical structure of both small molecules and macromolecules and tools used to elucidate the molecular mechanisms underlying their biological activity. The Unit offers access to three NMR spectrometers with different field strength (300, 500 and 600 MHz) equipped with a variety of probes and automation systems, including a probe for intact tissue analysis (HRMAS) and a cold probe with enhanced sensitivity. In support to the users, the Unit offers its solid experience in the interpretation of NMR spectra and the characterization and structural analysis of different chemical compounds and macromolecules.

Closely related to biomedical research, an increasingly demanded application is the characterization of the metabolomic profile in biofluid and tissue samples from patients, animal and cellular models. NMR technology has been applied for the elucidation of the metabolomic profiles associated with different biochemical, pharmacological or pathological process, related with diseases such as cancer, diabetes and Alzheimer. In these projects, the Unit has worked in close partnership with research groups and hospital.

The NMR Unit also designs and carries out applications and experimental designs for the development of drugs, being this one of its main expertise areas. For instance, a screening of drug libraries to search hits for a specific protein target can be carried out, as well as characterization studies of the specific geometry of the interaction between drug molecules and protein or RNA macromolecules.

Highlights

This robust and wide background translates into numerous scientific collaborations. Throughout 2019 the NMR Unit has participated in a diverse range of projects and activities.

It is worth mentioning as well the dedication of the NMR Unit to the organization of training and educational activities (such as the advanced course of NMR and the training of undergraduate and master students).

SELECTED ARTICLES

- Arroyo-Crespo JJ, Armíñán A, Charbonnier D, et al. Characterization of triple-negative breast cancer preclinical models provides functional evidence of metastatic progression. Int J Cancer. 2019;145(8):2267-2281. doi:10.1002/ijc.32270
- Neira JL, Palomino-Schätzlein M, Ricci C, Ortore MG, Rizzuti B, Iovanna JL. Dynamics of the intrinsically disordered protein NUPR1 in isolation and in its fuzzy complexes with DNA and prothymosin α . Biochim Biophys Acta Proteins Proteom. 2019;1867(11):140252. doi:10.1016/j.bbapap.2019.07.005
- Palomino-Schätzlein M, Mayneris-Perxachs J, Caballano-Infantes E, et al. Combining metabolic profiling of plasma and faeces as a fingerprint of insulin resistance in obesity [published online ahead of print, 2019 Oct 25]. Clin Nutr. 2019;S0261-5614(19)33109-7. doi:10.1016/j.clnu.2019.10.022

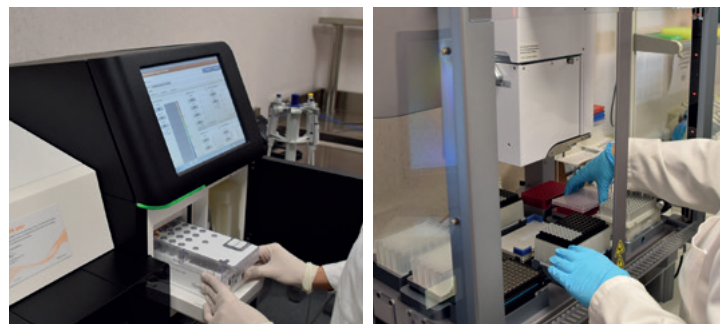
Genomics and Translational Genetics

UNIT MEMBERS_

Scientist in Charge_ Carmen Espinós

Genomics Unit Members_ Laura Ramírez, Eloísa Barber

Translational Genetics Unit Members_ Vincenzo Luppo, Virginia Rejas



Overview

The Genomics and Translational Genetics Service offers advanced genetic analysis and genomics applications. To achieve its main goal, the service integrates CIPF scientific advances in the field of human genetics, genomics and bioinformatics, with the knowledge generated through different collaboration projects and the experience in genetic diagnosis. This goal is to provide genetic information and tools to health professionals interested in the diagnosis and prognosis of hereditary pathologies.

In particular, at CIPF we focus on the study of hereditary peripheral neuropathies, hereditary ataxia/spastic paraparesis, neurodegenerative diseases related to iron accumulation in the brain, among other motion disorders. Using our growing scientific know-how and in collaboration with clinicians we have designed custom gene panels for the diagnosis of some of these neurological disorders.

Highlights

In the area of genomics, we focus on supporting users in their microarray, qPCR, Sanger and NGS experiments. Some of the most commonly used applications are: aCGH, differential expression, miRNAs identification and analysis, inter-individual genetic variation, epigenetic profiling, among others.

During 2019, the unit has reinforced and expanded its service portfolio. New diagnostic panels for peripheral hereditary neuropathies, in particular for distal spinal atrophy (AED), spinal muscular atrophy (SMA), Charcot-Marie-Tooth (CMT) and amyotrophic lateral sclerosis (ALS) have been designed and validated.

The acquisition of Illumina's NGS MiSeq equipment has allowed us to conduct targeted resequencing, small genome sequencing, metagenomics, targeted gene expression profiling, miRNAs and more. MiSeq reagents allow up to 15 Gb of output with 25 million sequence readings. The Covaris S220 Focused-ultrasonicator also completes the equipment of the Service.



Proteomics

UNIT MEMBERS_

Virginia Rejas

Highlights

The Proteomics Unit manages a number technologies and equipment with the main goal of providing the CIPF scientific community, collaborators and other partners with the instrumental support and the scientific advice needed to carry out their proteomics projects.

The fundamental activity of the Proteomics Unit focuses on the support provided to researchers, both with technical aspects of sample analysis and providing experimental design or methodological advice on more general aspects related to proteomics and protein chemistry.

F A C
T S &
F I G
U R E S

CIPF_ Publications

116 Papers
73% Q1
Average IF 5.44

CIPF_ Human Resources

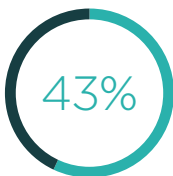
In 2019 CIPF implements the Human Resources Strategy for Researchers (HRS4R) of the European Commission.

CIPF_ Staff

STAFF	164 people
AVERAGE AGE OF THE STAFF	37,59 years



- Men_ 55
- Women_ 109



- Permanent Staff_ 70



- Staff_ 164
- Students_ 115
- Collaborators_ 110



- Management Staff_ 31
- Researchers Staff_ 133

CIPF_ Economic Figures

FUNDS WITH A COMPETITIVE ORIGIN

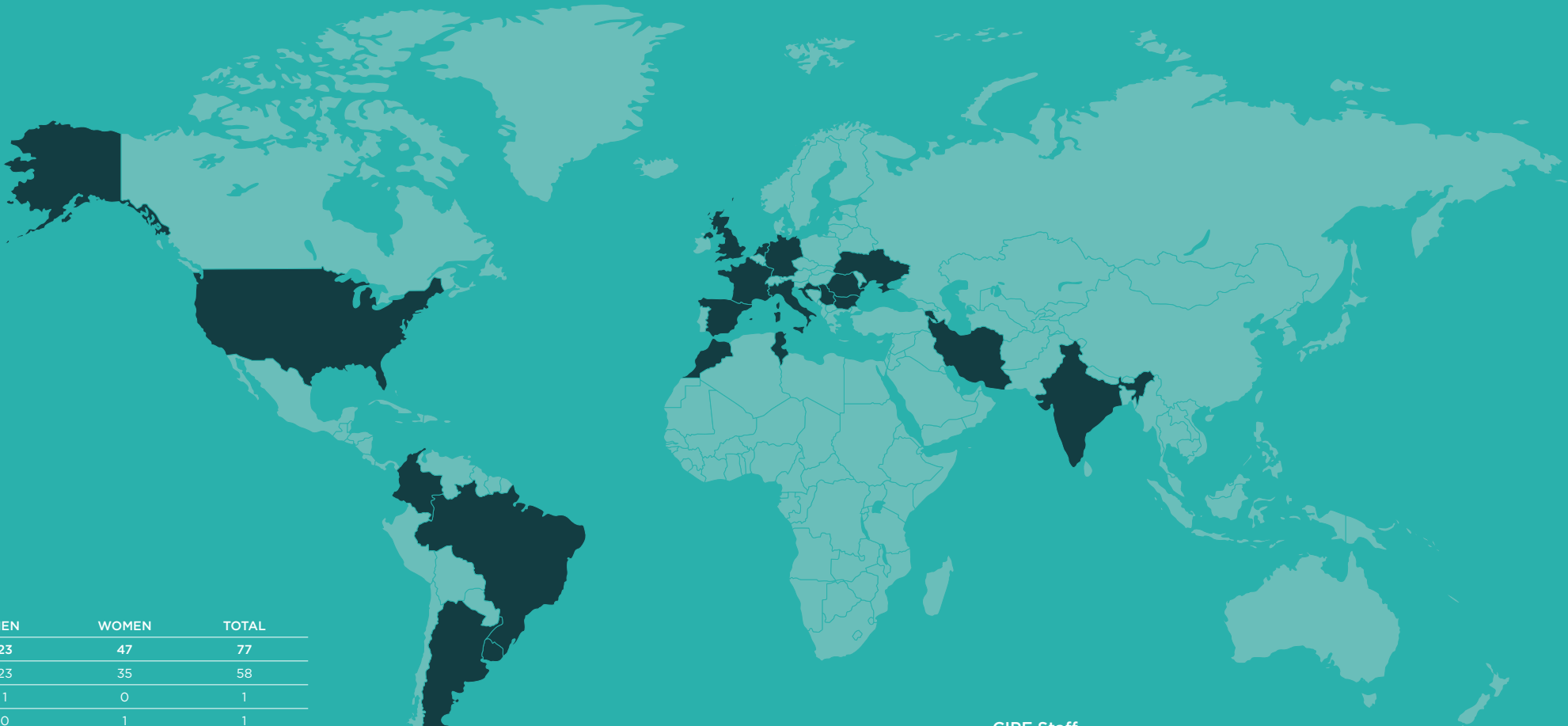
1.464.683 €

FUNDS WITH A NON-COMPETITIVE ORIGIN

590.128 €

DIRECT FUNDS FROM GENERALITAT VALENCIANA

4.714.000 €



CIPF Collaborators

NATIONALITIES	MEN	WOMEN	TOTAL
RESEARCHERS	23	47	77
SPANISH	23	35	58
GERMAN	1	0	1
BULGARIAN	0	1	1
DUTCH	0	1	1
TUNISIAN	1	0	1
MOROCCAN	0	2	2
ARGENTINIAN	0	1	1
BRAZILIAN	0	2	2
COLOMBIAN	2	0	2
BRITISH	1	1	2
IRANIAN	1	4	5
TECHNICAL	6	27	33
SPANISH	5	25	30
GERMAN	0	1	1
ROMANIAN	1	0	1
ITALIAN	0	1	1

	MEN	WOMEN	TOTAL
STUDENTS	44	71	115
SPANISH UNIVERSITIES	39	55	94
EUROPEAN UNIVERSITIES	3	2	5
VOCATIONAL TRAINING	2	14	16

CIPF Staff

NATIONALITIES	MEN	WOMEN	TOTAL
RESEARCHERS	21	55	76
SPANISH	13	47	60
BULGARIAN	0	1	1
INDIAN	0	1	1
SERBIAN	0	1	1
URUGUAYAN	0	1	1
CROATIAN	1	0	1
NORTH AMERICAN	0	1	1
ITALIAN	5	2	7
UCRANIAN	1	1	2
BRITISH	1	0	1
TECHNICAL	21	38	57
SPANISH	17	38	55
ARMENIAN	0	1	1
FRENCH	1	0	1
MANAGEMENT	16	15	31
SPANISH	16	15	31



- AMPER GRANT HAS SERVED TO COVER MOBILITY ACTIONS OF RESEARCH ACTIVITY, MAINLY BY PREDOCTORAL RESEARCHERS.**
- Fernanda Rodríguez Otormín at the Bionics Molecular Laboratory of Prof. Giuseppe Battaglia of the Department of Chemistry of University College London, UK.
 - Francesc Ibañez Cabanes in the Laboratory of Dr. Estela Area Gómez of the Department of Neurology of Columbia University, New York, USA.
 - Andrea Tapia González in Neural Development in *Drosophila melanogaster* Laboratory of Dr. Richard Baines at the University of Manchester, UK.
 - M^a José Arámbul Anthony in the “Tissue Repair and Cancer Group” led by Prof. Dr. Sabine Werner at the Institute of Molecular Health Science (ETH, Zurich), Switzerland.
 - Candela Machuca Arellano in the Department of Neurology, F.M. Kirby Center for Neurobiology, Boston Children’s Hospital, Harvard Medical School, Boston, MA, USA.
 - Marina Sánchez Petidier in the Regeneration Group led by Professor Elizabeth Bradbury at the Institute of Psychiatry, psychology and Neuroscience, Wolfson Center of Age-Related Diseases of King’s College of London, UK.

P R O
J E
C T S

Horizon 2020 - EU EU Framework Programme for Research and Innovation

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
H2020-MSCA-ITN-2019	Molecular Machines Functioning in Cells. BIOMOLMACS	Mª Jesús Vicent
H2020-INFRADEV-03-2018-2019	Ensuring long-term sustainability of excellence in chemical biology within Europe and beyond. EU-OPENSSCREEN-DRIVE	Mª Jesús Vicent
H2020-ERC-Proof of Concept	Off the self polipeptide based immunotherapy for Advanced Melanoma Treatment. POLYMMUNE	Mª Jesús Vicent
H2020-ERC-2014-Consolidator Grant	MyNano: Towards the design of Personalised Polymer-based Combianition Nanomedicines for Advanced Stage Breast Cancer Patients. MyNano	Mª Jesús Vicent
H2020-MSCA-RISE-2015	Exploiting Protein Complexes that induce Cell-death.EPIC	Mar Orzáez

ISCIII - ES Instituto de Salud Carlos III

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
Research Platform	Plataforma de Proteómica, genotipado y líneas celulares	Slaven Erceg
Research Platform	Plataforma de Bioinformática	Ana Conesa
FIS Project	Avanzar en el diagnóstico, la prognosis y la terapia de enfermedades neurodegenerativas raras	Carmen Espinós
FIS Project	3D retinas derivadas de células iPS como herramienta para encontrar terapias eficaces para enfermedades hereditarias de la retina	Dunja Lukovic
FIS Project	Estudios clínicos, bases genéticas y biomarcadores pronósticos en enfermedades raras neurodegenerativas	Carmen Espinós
FIS Project	Estudio preclínico de potencias regenerativo de astrocitos derivados de células madre en tratamiento de lesión medular en ratón	Slaven Erceg
FIS Project	Desarrollo de nanoterapias anti-inflamatorias en retinosis pigmentaria	Regina Rodrigo
FIS Project	Caracterización de nuevos genes y biomarcadores proteicos para avanzar en el diagnóstico, prognosis y terapia de la neuropatía axonal hereditaria (CMT2)	Vincenzo Lupo
FIS Project	Caracterización molecular de células propagadoras de cáncer de pulmón como herramienta predictiva y para el diseño de terapias personalizadas	Rosa Farràs
RETICS	Red de Transtornos Adictivos	Consuelo Guerri
CIBER	CIBER de Diabetes y Enfermedades Metabólicas Asociadas (Ciberdem)	Deborah J. Burks
Miguel Servet Programme	Contratación de doctores de acreditada trayectoria investigadora en centros del ámbito del SNS	Slaven Erceg
Miguel Servet Programme	Contratación de doctores de acreditada trayectoria investigadora en centros del ámbito del SNS	Dunja Lukovic
Miguel Servet Programme	Contratación de doctores de acreditada trayectoria investigadora en centros del ámbito del SNS	Alfonso Benítez

MSCBS - ES Ministry of Health, Consumer Affairs and Social Welfare

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
National Drug Plan	Neuroinflamación y alteraciones en la plasticidad cerebral en adolescentes con abuso de alcohol: Diferencias de género, biomarcadores y terapias.	Consuelo Guerri

MINECO - ES Ministry of Economic Affairs and Digital Transformation

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
Research Projects	Nuevo biomaterial bio-activo para la regeneración de lesiones medulares	Victoria Moreno
Research Projects	Targeting Nuclear Receptor REV-ERV-alpha in Inflammatory Bowel Disease	Enric Esplugues
Research Projects	Chanelopatias subyacentes a la disfunción de la corteza prefrontal en la enfermedad de Alzheimer	Isabel del Pino
Research Projects	MicroRNAs como biomarcadores en la neuroinflamación asociada al abuso de alchohol: implicaciones diagnósticas y terapéuticas	Consuelo Guerri
Research Projects	Polímeros Terapéuticos diseñados para cruzar la Barrera Hematoencefálica para el tratamiento de desórdenes neurodegenerativos-Explorando la Ruta Intranasal.	Mª Jesús Vicent
Research Projects	Bases moleculares de las alteraciones neurológicas (cognitivas y motoras) en hiperamonemia y encefalopatía hepática. Implicaciones terapéuticas	Vicente Felipo
Research Projects	Descifrando y modulando el interactoma transmembrana de las proteínas Bcl-2 como diana antitumoral	Mar Orzáez
Research Projects	Regulación de la adaptación y proliferación de células Beta por el Sustrato del Receptor de Insulina 2	Deborah Burks
Research Projects	Señalización de NRG1 en circuitos corticales: información sobre las bases moleculares de la esquizofrenia	Pietro Fazzari
Retos Collaboration Grant	Desarrollo de una plataforma de terapia génica para enfermedades genéticas renales	Mª Jesús Vicent
Retos Collaboration Grant	Desarrollo de terapias tópicas basadas en sistemas de transporte polipeptídicos	Mª Jesús Vicent
Research Networks	Red española en canales iónicos	Victoria Moreno
Excellence Networks	Papel de las proteínas de la familia ubiquitina en señalización, proliferación y cáncer	Rosa Farràs
Europa Research	Portador polipeptidico intranasal para el tratamiento de patologías del SNC	Mª Jesús Vicent
Researchers Training	Sonia Vicent - Polímeros terapéuticos como agentes simples y en combinación para el tratamiento de cáncer y neurodegeneración	Mª Jesús Vicent
Researchers Training	Angeles Arzalluz Luque - Nuevos métodos para los retos emergentes en el análisis de datos de secuenciación masiva	Ana Conesa
Researchers Training	Yaiza Arenas- Bases moleculares de las alteraciones neurológicas (cognitivas y motoras) en hiperamonemia y encefalopatía hepática. Implicaciones terapéuticas	Vicente Felipo

Researchers Training	Ángela Rodríguez- Señalización de NRG1 en circuitos corticales: información sobre las bases moleculares de la esquizofrenia	Pietro Fazzari
Juan de la Cierva Programme	Incorporación de doctores para completar su formación investigadora postdoctoral	Rocío Jurado
Ramón y Cajal Programme	Incorporación de investigadores nacionales y extranjeros con una trayectoria destacada en centros de I+D	Pietro Fazzari
Ramón y Cajal Programme	Incorporación de investigadores nacionales y extranjeros con una trayectoria destacada en centros de I+D	Martín Valdearcos

MECD - ES Ministry of Education and Vocational Training

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
FPU	Gergan Yvaylova- Mecanismos moleculares de las alteraciones cognitivas y motoras en encefalopatía hepática. Implicaciones terapéuticas	Vicente Felipo
FPU	Paz Boix- Desarrollo de Terapia de Combinación Polimérica para el Tratamiento de Tumores de Mama Metastásicos Triple Negativo	Mª Jesús Vicent
FPU	Jose Miguel Pardo - Caracterización molecular de rutas de señalización oncogénicas en células madre tumorales de cáncer de pulmón no microcítico. Implicación en el desarrollo de nuevas estrategias terapéuticas.	Rosa Farràs
FPU	Paula Sancho - Complejidad Genética y fisiopatología de neuropatías hereditarias sensitivo y/o motoras	Carmen Espinós
FPU	Paula Izquierdo - Mecanismos moleculares de las alteraciones cognitivas y motoras en hiperamonemia y encefalopatía hepática. Implicaciones terapéuticas	Vicente Felipo

CEICE - GVA Valencia Regional Education, Research, Culture and Sports Ministry

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
PROMETEO Programme	Mecanismos moleculares y cerebrales de las alteraciones cognitivas y motoras en hiperamonemia y encefalopatía hepática. Implicaciones terapéuticas y diagnósticas.	Vicente Felipo
Plan GenT	Chanelopatias subyacentes a la disfunción de la corteza prefrontal y los déficits cognitivos en la enfermedad de Alzheimer	Isabel del Pino
Emerging Groups - GV	Identificación de nuevas causas genéticas en pacientes con neuropatías periféricas hereditarias y difícil diagnóstico genético	Vincenzo Lupo
Emerging Groups - GV	Estudio del papel de la GTPasa RAB11 en cáncer de próstata para su uso como biomarcador	Ana Armiñan
Emerging Groups - GV	Organoides tumorales de cáncer de pulmón como modelo personalizado para estudiar la biología del tumor y la respuesta a fármaco	Carolina Gandia
International Projects - APE	Hyperbolic metamaterials for Nanomedicine	Mª Jesús Vicent
Postdoctoral - APOSTD	Tiziano Balzano- Papel de la neuroinflamación en el deterioro cognitivo y motor en encefalopatía hepática y enfermedad de Parkinson. Mecanismos moleculares. Implicaciones terapéuticas	Vicente Felipo

GRISOLIA Programme	Sonia Prakash- Neural stem cells from inducible-pluripotent stem-cells and PA-Curcumin combinatory treatment for spinal cord injury regeneration	Victoria Moreno
GRISOLIA Programme	Paola Leone - Papel de la inflamacion periferica y neuroinflamacion en el deterioro cognitivo y motor en encefalopatía hepática	Vicente Felipo
Predoctoral - ACIF	Antonio Serrano- Identificación de nuevos biomarcadores y desarrollo conjugados poliméricos de combinación en cáncer de próstata metastásico	Mª Jesús Vicent
Predoctoral - ACIF	Ana González- Nrg1: protección neuronal y recuperación del accidente cerebrovascular en nuernas corticales	Pietro Fazzari
Predoctoral - ACIF	Beatriz Martínez- Estimulación optogénetica y farmacológica de células madre neurales para el tratamiento de lesiones medulares	Victoria Moreno
Predoctoral - ACIF	Irene Dolz Pérez - Desarrollo de Polímeros Terapéuticos para el tratamiento de la Piel	Mª Jesús Vicent
Predoctoral - ACIF	Estefania Lucendo - El interactoma de los dominios transmembrana de las proteínas BCL-2 como diana antitumoral	Mar Orzáez
Predoctoral - ACIF	Fátima Manzano - El papel del substrato receptor de insulina 2 (IRS”) en cáncer hepatocelular y su implicación en la heterogenidad intra tumoral.	Luke Noon
Predoctoral - ACIF	Jose Pardo Palacios- Desarrollo de métodos bioinformáticos y experimentales para el estudio del impacto funcional de las isoformas alternativas.	Ana Conesa
Predoctoral - ACIF	Maria Sancho Alonso- Mecanismos por los que el GMP ciclico y la neuroinflamación modulan la neurotransmisión y la función cognitiva y motora	Vicente Felipo
Predoctoral - ACIF	Mª José Arámbul- Control reversible de la autofagia por la señalización Insulina/IGF1 y su implicación en hepatogénesis	Luke Noon
Stays Predoctoral - BEFPJ	Estefanía Lucendo- Estancia en el laboratorio del Dr. Thomas Kaufmann en Berna	Mª Jesús Vicent
Stays Predoctoral - BEFPI	Paola Leone- Estancia en el laboratorio de la Dra. Ana Mª Cuervo en Nueva York.	Vicente Felipo
Stays-Postdoctoral- BEST	Dunja Lukovic- Estancia en Institute Metabolic Science en Cambridge.	Dunja Lukovic

CSUiSP - GVA Valencia Regional Health Ministry

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
Plan GenT	Local insulin-induced paracrine signalling (“LiIPS”) in regenerative medicine and cancer	Luke Noon
Internationalization - AFI	Acciones dirigidas a impulsar y gestionar la participación en los programas de investigación internacionales en materia de biomedicina, sanidad y salud pública	

AVI - GVA Innovation Agency for the Valencian Region

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
Results Transfer to Business- INNVAL	Validación farmacológica in vivo de nanofármacos inhibidores de ROCK2 en cáncer de mama metastásico y lesión medular	Mª Jesús Vicent Victoria Moreno

Foundations & Other Private Entities

GRANT TYPE	TITLE	PRINCIPAL INVESTIGATOR
La Caixa Foundation	Sensitizing pancreatic cancer to immunotherapy with multimodal precision nanomedicines	Mª Jesús Vicent
ASEICA - Award	Identificación de nuevos biomarcadores y desarrollo conjugados poliméricos de combinación en cáncer de próstata metastásico	Mª Jesús Vicent
La Marató de TV3	Transplant of combined cell therapy form clinical grade iPSC-derived cells with neuroprotective small chemicals in a SCI rat model for central regeneration of spinal pathways	Victoria Moreno
La Marató de TV3	Combinatory treatment of Neural precursor cells and a new nanoconjugate of Fasudil for the clinical application in Acute Spinal Cord Injury	Mª Jesús Vicent Victoria Moreno
Ataxia Charlevoix-Saguenay Foundation	Cerebellar cells derived from induced pluripotent stem cells in 3D culture generated from ARSACS patients as faithful disease model	Slaven Erceg
Muscular Dystrophy Association	An integrative approach to develop cellular models and characterize disease mechanisms implicated in CMT2Z, a newly described axonal form of neuropathy	Carmen Espinós
INDACEA	Medicina de precisión en síndrome de Dravet	Ibo Galindo
PROYECTO DRAVET	Generación de modelos en Drosophila melanogaster mediante knock-in de mutaciones de pacientes	Ibo Galindo
FPAW-Wilson	Avanzar en el diagnóstico, la prognosis de la enfermedad de Wilson	Carmen Espinós
AECC - Predoctoral	Design of novel targeted Polymer Therapeutics as combination therapy for the treatment of Brain Metastasis- Overcoming the Blood Brain Barrier	Mª Jesús Vicent
AECC - Predoctoral	Brain Drug Delivery using polymer therapeutics as intranasal platform towards paediatric glioma treatment	Mª Jesús Vicent
AECC - Predoctoral	Nuevas estrategias terapéuticas contra el cáncer de pulmón basadas en el control de la síntesis de proteínas mediada por pliaminas	Rosa Farràs

Research Contracts

ENTITY	TITLE	PRINCIPAL INVESTIGATOR
IMEGEN	Nueva herramienta integral para la identificación de biomarcadores de inmunoterapia de precisión	Francisco García
POPLIPEPTIDE THERAPEUTIC SOLUTIONS	Proof of Concept for Liver-targeted Gene Delivery	Mª Jesús Vicent
IIS LA FE	Generación de sondas de reconocimiento de miRNAs	Mª Jesús Vicent
LAB. ESTEVE	Biohíbridos para la promoción del crecimiento axonal y la regeneración en el sistema nervioso central y periférico	Victoria Moreno
BIOMAR	Asesoramiento y Apoyo Tecnológico	Ibo Galindo
VIVANTA	Regeneración de tejido periodontal con células madre, factores de crecimiento y biomateriales	Victoria Moreno
SPIRAL THERAPEUTICS	Characterization of Apoptosome Inhibitors	Mar Orzáez



CIPF
CENTRO DE INVESTIGACIÓN
PRÍNCIPE FELIPE

C/ Eduardo Primo Yúfera 3
46012 Valencia · Spain
Tel. +34 963 289 680
Fax. +34 963 289 701
www.cipf.es



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CENTRO DE INVESTIGACION