

Liver Research Unit

“Molecular mechanisms of hepatocarcinoma and its therapeutic strategies”



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Laboratory members

Researchers (Basic profile, Institute of Biomedicine of Seville)

Jordi Muntané (PI)

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Maria Teresa Ferrer Ríos (Gastroenterology)

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Juan Manuel Pascasio-Acevedo (Gastroenterology)
José Manuel Sousa-Martín (Gastroenterology)
Francisco Javier Castell-Monsalve (Radiology)

Scientific objectives

- 1) Mechanisms of survival and cell death in hepatocarcinoma and current treatments
- 2) Relevance of oxidative/nitrosative stress and related post-translational protein modifications in survival and cell death signals in tumor cells
- 3) Implications of liquid biopsy in the prognosis and response to treatments in liver cancer: circulating tumor cells, extracellular vesicles and circulating DNA
- 4) Impact of resistance to insulin, alcohol and/or hepatitis in a pro-inflammatory context in hepatocarcinoma, and its relevance in the therapeutic response
- 5) New therapeutic strategies based on the functionalization of drugs with activity in hepatocarcinoma through nanotechnology.

On-going research granted projects

Title: Development of a new hemostatic patch and implementation in the hospital routine (DTS19/00089)

Founding Institution: Instituto de Salud Carlos III

Involved Entities: Hospital University Virgen del Rocío, Institute of Biomedicine of Seville, University of Granada, Cellular Production and Reprogramming Unit (UPRC) (Red Andaluza de Diseño y Traslación de Terapias Avanzadas)

Duration: 2020-2021

Funding: 94.600,00 Euros

Title Functional impact of epigenetic regulation in hepatocarcinoma: Development of combined nanovectorization of miRNAs/lncRNAs and drugs useful in experimental liver cancer model (PI19/01266)

Founding Institution: Instituto de Salud Carlos III

Involved Entities: Hospital Universitario Virgen del Rocío

Duration: 2020-2022

Funding: 165.770,00 Euros

Title: Biology and Redox Medicine (RED2018-102576-T)

Founding Institution: National Plan Network

Involved Entities: University of Valencia, University Pablo de Olavide, Institute of Biomedical Research "Alberto Sols"-CSIC, University of Salamanca, National Center for Cardiovascular Research, University Pompeu Fabra, Institute of Biomedical Research of Bellvitge (IDIBELL), Center of Biological Research-CSIC, University of Lleida, University of Barcelona, Institut of Biomedical Research Hospital University La Princesa.

Duration: 2020-2021

Funding: 20.500 Euros

Title: Isolation and cryopreservation of human hepatocytes useful for the validation of the activity of tyrosine kinase inhibitors in cell metabolism and in the mechanisms of survival and cell death (PIP-0215-2020)

Founding Institution: Ministry of Health and Families, Call for research and innovation projects public-private collaboration

Involved Entities: Institute of Biomedicine of Seville, Hospital University Virgen del Rocío, Hospital Puerto Real, University of Córdoba

Duration: 2021-2023

Funding: 243.788,50 Euros

Title: Identification of the role of miRNA and lncRNA in circulating tumor cells in the progression and response to treatment in patients with intermediate and advanced stage hepatocellular carcinoma. Development of a new experimental Therapy (PI-0216-2020)

Founding Institution: Ministry of Health and Families, Call for Health Research Projects

Involved Entities: Institute of Biomedicine of Seville, Hospital University Virgen del Rocío, Hospital Clínico University of Granada, Hospital University Virgen de las Nieves, Hospital University Carlos Haya, Institute of Chemical Research

Duration: 2021-2023

Funding: 149.508,05 Euros

Publications

Navarro-Pando JM, Alcocer-Gómez E, Castejón-Vega B, Navarro-Villarán E, Condés-Hervás M, Mundi-Roldan M, **Muntané J**, Pérez-Pulido AJ, Bullon P, Wang Ch, Hoffman HM, Sanz A, Mbalaviele G, Ryffel B, Cordero MD. Inhibition of the NLRP3 inflammasome prevents ovarian aging. *Sci Adv* 2021 Jan 1;7(1):eabc7409.

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properties by Tacrolimus and mTOR inhibitors in liver cancer cells. *Cell Physiol Biochem*. 2020 May 6;54(3):457-473.

López-Grueso MJ, González-Ojeda R, Requejo-Aguilar R, McDonagh B, Fuentes-Almagro CA, **Muntané J**, Bárcena JA, Padilla CA. Thioredoxin and glutaredoxin regulate metabolism through different multiplex thiol switches. *Redox Biol*. 2019 Feb;21:101049.

Banales JM, Iñarrairaegui M, Arbelaiz A, Milkiewicz P, **Muntane J**, Muñoz-Bellvis L, La Casta A, Gonzalez LM, Arretxe E, Alonso C, Martínez-Arranz I, Lapitz A, Santos-Laso A, Avila MA, Martínez-Chantar ML, Bujanda L, Marin JGG, Sangro B, Macias RIR. Serum metabolites as diagnostic biomarkers for cholangiocarcinoma, hepatocellular carcinoma and primary sclerosing cholangitis. *Hepatology* 2019 Aug;70(2):547-562.

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