

UBICACIÓN/LOCATION:

Laboratorio 15- INCYL

NOMBRE DEL LABORATORIO/GRUPO; RESEARCH GROUP NAME/ACRONYMS:

Neurobioquímica/Neurobiochemistry

Our lab is a consolidated research group recognized by the University of Salamanca (GIR Neurobiochemistry) and the Junta de Castilla y León (UIC013)

BREVE DESCRIPCIÓN DE LA LÍNEA DE INVESTIGACIÓN/ RESEARCH LINE

Our work mainly focuses on the role of glial cells in health and disease.

We study the cellular and molecular bases underlying important CNS pathologies in which astrocytes play an essential role.

We are interested in gap junctions and connexins, their molecular constituents. We showed that Src is involved in the molecular mechanism by which connexin43 reduces cell proliferation and glucose uptake. Based on this mechanism we have designed a cell-penetrating peptide (TAT-Cx43₂₆₆₋₂₈₃) with important antitumor effects in glioma models, in vitro and in vivo. We are currently focussed on the translation of this knowledge into the clinic and investigating the cellular and molecular mechanism involved in the progression of malignant brain tumours.

INVESTIGADOR RESPONSABLE O PRINCIPAL DEL GRUPO/GROUP TEAM LEADER

Dr. Arantxa Tabernero

(Full Professor)

PERSONAL ADSCRITO/ GROUP MEMBERS

(indicar nombre completo y cargo o puesto que ocupa):

Dr. José M Medina Jiménez

(Emeritus Professor)

Dr. Ana Velasco Criado

(Lecturer)

Dr. Rocío Talaverón Aguilocho

(Postdoctoral Research; AECC)

Sara Gutiérrez Pelaz

(Predoctoral Research; JCYL)

Laura García Vicente

(Predoctoral Research; FPU)

Andrea Álvarez Vázquez

(Predoctoral Research; JCYL)

Raquel Flores Hernández

(Research Technician: JCYL)

Pilar Cerveró García

(Predoctoral Research; JCYL)

PUBLICACIONES/PUBLICATIONS

(indicar hasta un máximo de las 10 publicaciones más significativas):

1. Jaraíz-Rodríguez M, Talaverón R, García-Vicente L, Pelaz SG, Domínguez-Prieto M, Álvarez-Vázquez A, Flores-Hernández R, Sin WC, Bechberger J, Medina JM, Naus CC, Tabernero A. **(2020)** Connexin43 peptide, TAT-Cx43266-283, selectively targets glioma cells, impairs malignant growth, and enhances survival in mouse models in vivo. *Neuro Oncol.* Apr 15;22(4):493-504. <https://pubmed.ncbi.nlm.nih.gov/31883012/>
2. Trond Aasen, Edward Leithe, Sheila Graham, Petra Kameritsch, María Mayán, Marc Mesnil, Kristin Pogoda and Arantxa Tabernero. **(2019)** Connexins in Cancer: Bridging the Gap to the Clinic. *Oncogene.* Jun;38(23):4429-4451. <https://pubmed.ncbi.nlm.nih.gov/30814684/>
3. Domínguez-Prieto M, Velasco A, Tabernero A, Medina JM. **(2018)** Endocytosis and Transcytosis of Amyloid- β Peptides by Astrocytes: A Possible Mechanism for Amyloid- β Clearance in Alzheimer's Disease. *J Alzheimers Dis.* doi: 10.3233/JAD-180332. <https://pubmed.ncbi.nlm.nih.gov/30103329/>
4. Ester Gangoso, Rocío Talaverón, Myriam Jaraíz-Rodríguez, Marta Domínguez-Prieto, Pascal Ezan, Anette Koulakoff, Jose M Medina, Christian Giaume and Arantxa Tabernero **(2017)** A c-Src inhibitor peptide based on Connexin43 exerts neuroprotective effects through the inhibition of glial hemichannel activity. *Frontiers in Molecular Neuroscience.* 10:418. doi: 10.3389/fnmol.2017.00418. <https://pubmed.ncbi.nlm.nih.gov/29326548/>
5. Myriam Jaraíz-Rodríguez, M^a Dolores Tabernero, María González-Tablas, Alvaro Otero, Alberto Orfao, Jose M Medina and Arantxa Tabernero **(2017)** A short region of connexin43 reduces human glioma stem cell migration, invasion and survival through Src, PTEN and FAK. *Stem Cell Reports.* 9:451-463. <https://pubmed.ncbi.nlm.nih.gov/28712848/>

6. Domínguez-Prieto M, Velasco A, Vega L, Tabernero A, Medina JM. (2017) Aberrant Co-localization of Synaptic Proteins Promoted by Alzheimer's Disease Amyloid- β Peptides: Protective Effect of Human Serum Albumin. **J Alzheimers Dis.** 55:171-182.
7. Ana González-Sánchez, Myriam Jaraíz-Rodríguez, Marta Domínguez-Prieto, Sandra Herrero-González, Jose M Medina y Arantxa Tabernero. (2016) Connexin43 recruits PTEN and CSK to inhibit c-Src in glioma cells and astrocytes. **Oncotarget** 7: 49819-49833. doi: 10.18632/oncotarget.10454. <https://pubmed.ncbi.nlm.nih.gov/27391443/>
8. Arantxa Tabernero, Ester Gangoso, Myriam Jaraíz-Rodríguez and Jose M Medina. (2016) The role of connexin43-Src interaction in astrocytomas: a molecular puzzle. **Neuroscience** 323:183-94. <https://pubmed.ncbi.nlm.nih.gov/25711938/>
9. Ester Gangoso, Cécile Thirant, Hervé Chneiweiss, Jose M Medina and Arantxa Tabernero. (2014) A cell-penetrating peptide based on the interaction between c-Src and connexin43 reverses glioma stem cell phenotype. **Cell Death and Disease.** 5, e1023; doi:10.1038/cddis.2013.560. <https://pubmed.ncbi.nlm.nih.gov/24457967/>
10. Sandra Herrero-González, Ester Gangoso, Christian Giaume, Christian C. Naus, Jose M Medina and Arantxa Tabernero. (2010) "Connexin43 inhibits the oncogenic activity of c-Src in C6 glioma cells". **Oncogene.** 29: 5712–5723. <https://pubmed.ncbi.nlm.nih.gov/20676131/>

PROYECTOS VIGENTES/ON-GOING RESEARCH PROJECTS

(indicar nombre completo, referencia, Investigador principal, financiación y periodo):

1. Contribución de los astrocitos y la microglía a los efectos antitumorales de péptidos basados en la conexina43 usando modelos de glioma in vitro e in vivo. Ministerio de Ciencia, Innovación y Universidades. Ref: RTI2018-099873-B-I00. (1-1-2019/31-12-2021). P.I: A. Tabernero.
2. Research network: "Red de péptidos en biomedicina y nanociencia", convocatoria Acciones de dinamización "Redes de Investigación" (Programa Estatal de Generación de Conocimiento y Fortalecimiento Científico y Tecnológico del Sistema de I+D+I). ref: RED2018-102417-T. (1-1-2020/31-12-2021). I.P.: Eugenio Vázquez Sentis.