LOCATION:

Laboratory 13 - INCYL

RESEARCH GROUP NAME/ACRONYSMS:

Neurobiology of neurotrophins

RESEARCH LINES

1- Identification of molecular mechanisms underlying neurotrophin functions

2- Role of neurotrophins in pain

3- ARMS/Kidins220 function in the nervous system

GROUP TEAM LEADER

Dr. Juan Carlos Arévalo

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

***Dr. Silvia Lisa Ferrer**

(Postdoctoral fellow)

***D.ª Laura Colina Freitas**

(PhD student; FPU fellowship)

***D. Carlos Martín Rodríguez**

(PhD student; USAL FPI fellowship)

***D.ª Julia Sánchez Sánchez**

(PhD student; JCyL FPI fellowship)

***D.ª Cristina Vicente García**

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***D. Daniel Cañada García**

(Student Master Neuroscience)

***D.ª Ana Pastor**

(Student Master Neuroscience)

ON-GOING RESEARCH PROJECTS

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

1- Spanish MINECO (grant BFU2017-82667-R) to Dr. Juan Carlos Arévalo *(PI).* "Estudio de la via NGF/TrkA/ARMS en el dolor e identificación de posibles dianas terapeúticas". Jan 2018-Dec 2020. *Amount awarded:* € 159.720,00.

2- USAL – Internal Program to Dr. Juan Carlos Arévalo (PI). "Estudio de las proteínas Adra2b y Ndfip2 en el contexto del dolor ostoartrítico y de ARMS en la nocicepción". Dec 2018 – Dec 2020. *Amount awarded:* € 31.976,00

PUBLICATIONS

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

1. López-Benito, S., Sánchez-Sánchez, J., Brito, V., Calvo, L., Lisa, S., Torres-Valle, M., Palko, M.E., Vicente-García, C., Fernández-Fernández, S., Bolaños, J.P., Ginés, S., Tessarollo, L. and Arévalo, J.C. Regulation of BDNF release by ARMS/Kidins220 through modulation of Synaptotagmin-IV levels. **J. Neurosci**. 2018; 38 (23): 5415-5428.
2. Anta, B., Martín-Rodríguez, C., Gomis-Pérez, C., Calvo, L., López-Benito, S., Calderón-García, A.A., Vicente-García, C., Villarroel, A. and Arévalo, J.C. Ubiquitin Specific Protease 36 (USP36) controls Neuronal precursor cell-Expressed Developmentally Down-regulated 4-2 (Nedd4-2) actions over the neurotrophin receptor TrkA and potassium voltage-gated channels 7.2/3 (Kv7.2/3). **J. Biol. Chem.** 2016; 291:19132-45.
3. López-Benito, S., Lillo, C., Hernández-Hernández, A., Chao, M.V. and Arévalo, J.C. ARMS/Kidins220 and Synembryn-B levels regulate NGF-mediated secretion. **J. Cell Science**. 2016; 129: 1866-77. Cover caption.
4. Calvo, L., Anta, B., López-Benito, S., Martín-Rodríguez, C., Lee, F.S., Pérez, P., Martín-Zanca, D. and Arévalo, J.C. Bex3 dimerization regulates NGF-dependent neuronal survival and differentiation by enhancing trkA gene transcription. **J. Neurosci**. 2015; 35: 7190-7202.
5. *Yu, T., *Calvo, L., Anta, B., López-Benito, S., López-Bellido, R., Vicente-Garcia, C., Tessarollo, L., Rodríguez, R.E. and Arévalo, J.C. In vivo regulation of NGF-mediated functions by Nedd4-2 ubiquitination of TrkA. **J. Neurosci**. 2014; 34: 6098-6106. *Equal contribution
6. Yu, T., Calvo, L., Anta, B., López-Benito, S., Southon, E., Chao, M.V., Tessarollo, L., Arévalo, J.C. Regulation of trafficking of activated TrkA is critical for NGF-mediated functions. **Traffic**. 2011; 12: 521-34.
7. *Arévalo, J.C.; Waite, J.; Rajagopal, R.; Beyna, M.; Chen, Z.Y.; Lee, F.S., and *Chao, MV.

Cell survival through Trk neurotrophin receptors is differentially regulated by ubiquitination. **Neuron** 2006; 50: 549-559. * Corresponding authors

8. Arévalo, J.C.; Yano, H.; Teng, K.K., and Chao, M.V. A unique pathway for sustained neurotrophin signaling through an ankyrin-rich membrane spanning protein. **EMBO J.** 2004; 23: 2358-68.
9. Arévalo, J.C.; Conde, B.; Hempstead, B.L.; Chao, M.V.; Martín-Zanca, D., and Pérez, P. A novel mutation within the extracellular domain of TrkA causes constitutive receptor activation. **Oncogene**. 2001; 20: 1229-34.
10. Arévalo, J.C.; Conde, B.; Hempstead, B.L.; Chao, M.V.; Martín-Zanca, D., and Pérez, P. TrkA immunoglobuline-like ligand binding domains inhibit spontaneous activation of the receptor. **Mol. Cell. Biol.** 2000; 20: 5908-5916.

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