



SEMINARIO PRESENCIAL

Miércoles, 08 de febrero de 2023

15:30 h. Instituto Cajal (CSIC) Madrid

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Wiring and rewiring bilateral nervous circuits

Abstract

Most metazoans, including humans, are bilaterally symmetric and many features of the mature neural function, including vision, depends on the coherent communication between the two brain hemispheres. Bilateral circuits containing contra- and ipsilaterally projecting axons that respectively cross or avoid the midline to send sensory input to each hemisphere, are essential to integrate sensory information and elaborate coordinated motor responses. I will present some of the past contributions and current findings from our laboratory on the molecular mechanisms underlying the formation of bilateral circuits and explain the consequences of altering these circuits.

Affiliation and short bio

Eloisa Herrera is a full Professor and Principal Investigator at the Institute of Neuroscience in Alicante (IN, Spain) that belongs to the Spanish Research Council and the University Miguel Hernández. She did her PhD at the National Center of Biotechnology in Madrid, working in Cancer and Aging. Then, she moved to Columbia University (NY, USA) to work on Developmental Neurosciences in the group of Prof. Carol Mason. In 2005, she returned to Spain to establish her own group in Alicante. Along the years her team has largely contributed to identify many of the molecular mechanisms underlying axonal navigation during the wiring of bilateral circuits. She has been an ERC-Grant holder and has been awarded with the Career Development Award from the Human Frontier Science Program and the Alberto Sols Prize.

Related publications with the topic:

- 1.- Fernández-Nogales M, López-Cascales MT (...) **Herrera E*** (2022). Multiomic Analysis of Neurons with Divergent Projection Patterns Identifies Novel Regulators of Axon Pathfinding. *Advanced Science*. doi: 10.1002/advs.202200615.
- 2.- Vigouroux RJ, Duroure K, Voungny J, Albadri S, Kozulin P, **Herrera E**, Nguyen-Ba-Charvet K, Braasch I, Suárez R, Del Bene F, Chédotal A. (2021). Bilateral visual projections exist in non-teleost bony fish and predate the emergence of tetrapods. *Science*. 372(6538):150-156. IF: 41.8
- 3.- Morenilla-Palao C, López-Cascales MT, López-Atalaya JP, Calvo-Díaz L, Barco A and **Herrera E*** (2020). A Zic2-triggered switch in an alternative Wnt pathway converts attractive responses into repulsive. *Science Advances* 6(46): eaaz8797.
- 4.- Murcia-Belmonte V, Coca Y, Vegar C, (...), **Herrera E*** (2019). A retino-retinal projection guided by Unc5c emerged in species with retinal waves. *Current Biology*. 2019 Apr 1;29(7):1149-1160.e4.