UNIVERSITAT DE BARCELONA

Institut de Neurociències

MASTER DEGREE FINAL PROJECTS

Cellular and molecular basis of vestibular disorders

Our laboratory is open to students to carry out their Final Project for the Masters in Neuroscience, Biomedicine or similar degrees. ***Up to one year of salary may be available for one student at the end of the Master's project.***

Candidates:

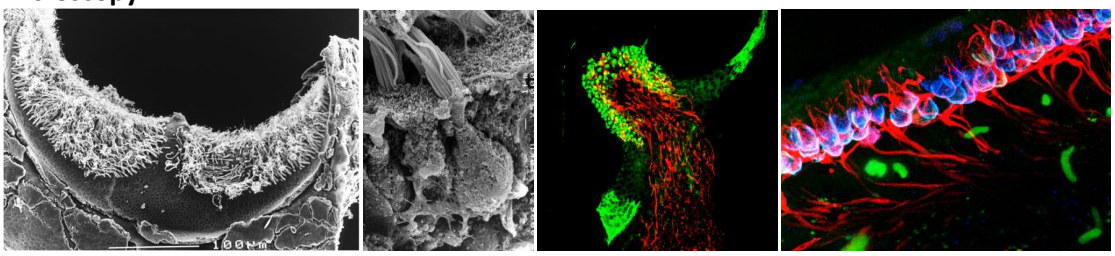
- We are looking for highly motivated students interested in sensory neuroscience.
- Individuals with good academic records looking for a PhD after the Master are particularly welcome.

Project:

Impaired function of the vestibular system in the inner ear results in disequilibrium and loss of gaze control. One possible cause is exposure to ototoxic chemicals. While acute high dose ototoxicity is well known to induce apoptosis (sometimes necrosis) of the vestibular sensory hair cells, our laboratory has recently discovered in animal models that other phenomena are involved in chronic low dose ototoxicity. The earliest loss of vestibular function is reversible, and associates with detachment of the sensory hair cells from the afferent neuron terminals (Sedó-Cabezón et al., 2015). Afterwards, the hair cells are eliminated by extrusion from the sensory epithelium, then causing permanent dysfunction.

Identifying the cellular and molecular basis of these phenomena and their relationship to the functional outcomes at the organism level will provide a new framework to understand vestibular dysfunction, vertigo and age-related loss of equilibrium, and hopefully lead to new therapeutic approaches of vestibular pathologies. The project is funded by MINECO and The Ménière's Society.

Vestibular sensory epithelia by scanning electron microscopy and confocal fluorescence microscopy.



Related publications:

Sedó-Cabezón L., Jedynak P., Boadas-Vaello P., Llorens J.Transient alteration of the vestibular calyceal junction and synapse in response to chronic ototoxic insult in rats. **Disease Models and Mechanisms** 8: 1323-1337 (2015).

Saldaña-Ruíz S., Boadas-Vaello P., Sedó-Cabezón L., Llorens J. Reduced systemic toxicity and preserved vestibular toxicity following co-treatment with nitriles and CYP2E1 inhibitors: a mouse model for hair cell loss. **Journal of the Association for Research in Otolaryngology** 14: 661-671 (2013)

Rúa F., Buffard M., Sedó-Cabezón L., Hernández-Mir G, de la Torre A, Saldaña-Ruíz S, Chabbert C, Bayona J.M., Messeguer A., Llorens J. Vestibulotoxic properties of potential metabolites of allylnitrile. **Toxicological Sciences** 135: 182-192 (2013)

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