

## Postdoctoral position in Stem Cells – Organoids – Inner ear LBN - University of Montpellier



Hearing impairment is the most frequent human neurosensory deficit. It is mainly caused by the degeneration of neurosensory cells in the cochlea, the auditory portion of the inner ear. The neurosensory cells including the hair cells and the primary auditory neurons can be destroyed by exposure to noise, ototoxic drugs, infection, autoimmune disease, or aging. In mammals including human, these neurosensory cells do not regenerate resulting in a profound and irreversible sensorineural hearing loss. The lack of human otic cell models represents a significant roadblock that has hampered the development of emerging therapeutics for the treatment of hearing loss. Addressing these limitations will serve for the development of novel human inner ear protective and regenerative strategies (*Zine et al., Stem Cells 2021 for a recent review*).

We are looking for a motivated and creative post-doctoral fellow to join the inner ear stem cell biology Research Lab (<https://lbn.umontpellier.fr/azel-zine/>) and study normal and pathological development of the human inner ear using stem cell-derived organoids as a model system.

We recently developed 2D and 3D-based *in vitro* differentiation systems to generate an enriched population of inner ear sensory cells from human induced pluripotent stem cells via controlled induction and stepwise guidance that mimics the otic *in vivo* microenvironment. By optimizing this novel model system, we aim at elucidating the mechanisms underlying inner ear sensory cell differentiation and identifying means to promote hair cell protection and regeneration in the human cochlea and opens the door for developing new strategies to cure hearing loss.

The Zine lab is a highly collaborative group with diverse research backgrounds ranging from stem cell biology, neuroscience, and molecular biology. The experimental approaches we are currently using include 2D and 3D-organoid culture systems of human pluripotent stem cells, bioengineering, cochlear explants, RNA-seq, 3D imaging/microscopy.

Applicants should have a Ph.D. degree in a relevant discipline and hands on experience with induced pluripotent stem cells and 3D stem cell biology is required. Computational skills for RNA-seq and/or single cell data analysis would be an advantage. Effective written/verbal English communication skills are required.

Funding is available for supporting this position for one year renewable up to three years. The application is open until the position is filled. The starting date is flexible.

If interested, please send: **curriculum vita, a description of research accomplishments and names of two references** to Dr. Azel Zine ([azel.zine@umontpellier.fr](mailto:azel.zine@umontpellier.fr)), Vice Chair for Laboratory of Bioengineering and Nanoscience at the University of Montpellier, France.