We are currently seeking a highly motivated student (f/m/d) for a project on

“Mechanobiology of Retinal Epithelial Spheroids”

Epithelial structure and functions are not defined by biochemical processes alone but are also highly dependent on their physical characteristics. These have been shown to be emerging proprieties of cell collectives and their intrinsic heterogeneity, not predictable from single-cell biomechanics. The extracellular matrix (ECM) underlying epithelia is a pivotal player in the signalling of biochemical information to the cells and in controlling mechanical properties. Retinal pigment epithelium (RPE) is localized at the base of the retinal neuroepithelium, and it is critical for its metabolic support and function as a light detector. As in all epithelia, the mechanical properties are regulated not only by the rigidity of the ECM but also by biochemical cues. Because adhesion mechanics cannot be decoupled from biochemical cues in 2D cultures, we establish a 3D cell culture model to study “mechanical-free” ECM-receptor engagement. The use of a pipette aspiration assay allows us to measure the viscoelasticity of the RPE monolayer in different conditions.

Your Tasks
- Generation of 3D RPE culture.
- Pipette aspiration assay of spheroids upon stimulation with ECM cues.
- Calculation of spheroids viscoelasticity and yield stress.

We offer
We offer a highly interdisciplinary, creative and active research group. The successful candidate will be closely supervised in order to let her/him maturate in technical and analytical skills.

Your skills and qualifications

“Must have”
- Background in (bio)physics, biology or related disciplines
- Motivation to get the best out of this experience
- Wish to work in an interdisciplinary environment
- Focused and team-oriented

“Nice to have”
- Experience with microscopy
- Familiarity with Matlab and ImageJ

If you are interested, please contact
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