

# SCIENTIFIC SEMINAR



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## ***Functional interaction between brain extracellular matrix and glia in health and disease***

Beyond neurons and glia, the Central Nervous System (CNS) holds a plastic scaffold known as the extracellular matrix, which in the brain consists mostly on long chains of the glycan polymer hyaluronan. The neural matrix serves a dual function of structural framework and signalling hub, communicating via both mechanical and diffusible cues that can elicit different cell responses. We have shown that in the parkinsonian brain, microglia, the brain resident macrophages, sense matrix disruption as a damage-associated molecular pattern (DAMP) while also remodelling the interstitial matrix. Whether this functional interaction, occurs in the healthy or aging brain, or in other models of brain pathology, remains unknown. Our lab employs in vivo, ex vivo, and 3D-in vitro paradigms to investigate how different brain states (health, disease, aging) influence matrix structure, and how this impacts glial physiology. We predominantly use fluorescence time-lapse imaging, such as 2-photon and widefield microscopy, to monitor cell and matrix dynamics in real time in live brain tissue under various matrix-manipulating conditions. By combining this approach with in vivo models of disease and complementary techniques such as biochemical and histological analysis, we explore how the fascinating dialog between neurons, glia and the surrounding extracellular microenvironment shapes both brain physiology and pathology.

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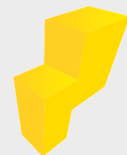
Basque Foundation for Science

**Thursday**

**May 16**

**Atrio 800**

**12.00H**



**BRTA**

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