Project: Initial Training Network for Neurological Disorders orchestrated by cytokines (NeuroKine)

Research Topic: Impact of inflammation on neural stem cells and tissue repair

Neural stem/precursor cells (NPCs) of the adult central nervous system (CNS) have more complex roles than previously expected. In addition to their well-documented neurogenic functions (the production of new cells of the CNS), recent evidence indicates that NPCs exert also non-neurogenic functions (the production of protective factors such as growth factors) that contribute to the regulation and preservation of tissue homeostasis under both physiological and pathological conditions.

This project focuses on the role of neural stem cells in protecting the CNS from injury during acute inflammatory conditions. In particular the cross-talk between NPCs and CNS-resident inflammatory cells (e.g. microglia) will be analyzed. We base our approach on genetically modified mouse models, which will enable us to selectively identify or ablate each cell type involved in the process, namely NPCs, CNS-resident inflammatory cells and infiltrating immune cells (e.g. monocyte-derived macrophages).

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