

BSc/MSc-project

Title: Immune cell migration in Multiple Sclerosis (MS)

Description:

Understanding the migration of immune cells is paramount in a long range of pathological situations. Mapping of cell migration can be done longitudinally using non-invasive imaging of tagged cells.

The main focus of this project is to map the migration pattern of macrophages and T-cell subtypes in CNS inflammation in MS mice. This will be done with the use of Magnetic Resonance Imaging (MRI) using an exogenous contrast agent such as super-paramagnetic iodine oxide. SPIO.

Correlation of immune cell migration over time to the hallmarks of MS, demyelination and neural loss, as well as clinical disease, will make it possible to elucidate the impact of specific immune cell populations, with high detail and accuracy.

The experiment's running at NMR center using the Bruker BioSpec 9.4 T MR small animal scanner. The candidate student will work with already optimized MR imaging protocols and will be involved in standardization and system calibration that are crucial in quantitative methods. Understanding the connection between the MR parameters and the biology is crucial, therefore the candidate will work in a highly interdisciplinary environment and will have the opportunity to collaborate with other researchers at the University of Copenhagen and BRIC.

Required qualifications: Physics

Responsible institution: Biomedical Institute, Panum NMR Center and BRIC

Contact information:

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Allowed no of students per report: 2

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