

FOR 1336

Visualizing the Role of Myeloid Cells During CNS Autoimmunity



**Funding Period:
from 2010 to 2016**

Project Leader

Professor Dr. Alexander Flügel
Georg-August-Universität Göttingen
Center for Biostructural Imaging of Neurodegeneration (BIN)

Project Description:

In this project we will study the function of myeloid cells during the initiation of experimental autoimmune encephalomyelitis (EAE), an animal model for multiple sclerosis. The following questions will be followed: 1. What are the migratory steps of myeloid cells into the CNS during incipient EAE? 2. What are the molecular cues that mediate their transmigration of the blood brain barrier (BBB)? 3. What role do myeloid cells play in opening the BBB? 4. Which myeloid cells mediate the initial antigen presentation to autoaggressive encephalitogenic T cells? The methodic focus of this project lies in the combination of 2-photon laser scanning microscopy with functional/molecular analyses. Myeloid cells will be made visible by staining them with fluorescence dyes or by use of genetically encoded fluorescence proteins. The migratory behavior of the cells at the BBB and in the different CNS milieus and EAE phases will be visualized by live 2-PM. The analyses of the interactions of myeloid cells with autoaggressive T cells in acute and chronic EAE models will be performed using functional markers which will be introduced into the T cells. These markers will make possible the visualization of the binding between T cells and myeloid APCs and the consecutive activation of the effector T cells.

Reference: <https://gepris.dfg.de/gepris/projekt/165173437>