interdisziplinäres Zentrum für Klinische Forschung

Clinician Scientist Programme - Biosketch Module Step 2

Title/ First Name/ Last Name

Dr. Patrick Süß

Clinic

Molecular Neurology

CV (Current position, academic career, achievements and extracurricular activities, languages)

Professional Experience
Since 2020 Resident, Department of Neurology (Prof. S. Schwab)
Since 2019 Resident and postdoctoral fellow, Department of Molecular Neurology
(Prof. J. Winkler)
2018 - 2019 Resident, Department of Psychiatry and Psychotherapy
(Prof. K. Domschke)
2017 - 2018 Resident and postdoctoral fellow, Department of Neuropathology
(Prof. M. Prinz)

Academic Activities
Since 2021 Junior project grant, intramural funding by the Interdisciplinary Center for Clinical Research Erlangen (IZKF Erlangen)
Since 2020 ELAN grant, intramural funding by the Universitätsklinikum Erlangen
Since 2019 Member of the Clinician Scientist Program, IZKF Erlangen
2019 MD rotation position within the Research Training Group 2162 (DFG-GRK2162)

Languages
English, German

Research Area

Neurosciences

Neuroimmunology

CSP Project Outline

Although long considered an immune-priviledged organ, the brain is vulnerable to peripheral inflammatory conditions as present in rheumatoid arthritis or inflammatory bowel disease, leading to substantial neuropsychiatric comorbidity in affected patients. My research project aims to identify mechanisms by which peripheral inflammation reaches the CNS, causes an inflammatory microenvironment and impairs neuronal function. I further aim to dissect regional differences of CNS immune susceptibility and target microglia, the brain parenchymal myeloid cells, as mediators of immune-to-brain communication and corresponding neuropsychiatric disease.

Methods, Skills and Know-How

- Tracing and gene targeting of microglia using specific mouse lines
- Gene expression analysis, transcriptomics
- Histology on human post mortem brain tissue
- Confocal microscopy
- Routes of interaction and barriers between the peripheral immune system and the brain
- Neuroanatomy

Current Funding

IZKF Junior Project

Intended Funding Applications

Extramural, e.g. DFG

Most important publications (3)

1. Süß P*, Hoffmann A*, Rothe T*, Ouyang Z, Baum W, Staszewski O, Schett G, Prinz M, Krönke G, Glass CK, Winkler J, Schlachetzki JCM (2020). Chronic peripheral inflammation causes a region-specific myeloid response in the central nervous system. Cell Rep 30(12): 4082-4095. *shared first authorship
2. Süß P, Kalinichenko L, Baum W, Reichel M, Kornhuber J, Loskarn S, Ettle B, Distler JH, Schett G, Winkler J, Müller CP, Schlachetzki JC (2015). Hippocampal structure and function are maintained despite severe innate peripheral inflammation. Brain Behav Immun 49, 156-170.
3. Shemer A, Grozovski J, Tay TL, Tao J, Volaski A, Süß P, Ardura-Fabregat A, Gross-Vered M, Kim JS, David E, Chappell-Maor L, Thielecke L, Glass CK, Cornils K, Prinz M, Jung S (2018). Engrafted parenchymal brain macrophages differ from microglia in transcriptome, chromatin landscape and response to challenge. Nat Commun 9, 5206.