In this study, we present the utility of translational nuclear imaging applications to study neuroinflammation in preclinical rodent models of neurodegenerative diseases. In TSPO imaging 1.6-fold accumulation of 123I-CLINDE on day 4 (D) post induction was seen on the operated hind leg. In naive and cuprizone induced mouse in coronal, horizontal and sagittal view. Example FDG-PET images of brain nevritis model in rat. In rats stable inflammation (ca. 5-fold) was seen 7D and 21D post induction using FDG-PET. PET/CT imaging was performed on day 7. Prior the PET scan, mice were fasted over night. FDG was dosed (i.v., ca. 20 MBq 30 min prior to the PET scan). Neuroinflammation was studied in cuprizone mouse model of multiple sclerosis. Example images of in vivo studies. A powerful research tool allowing comprehensive evaluation of disease progression and treatment interventions in vivo studies.

CONCLUSIONS
In this study, we present the utility of translational nuclear imaging applications to study neuroinflammation in preclinical rodent models. PET/CT imaging with 18F-FEPPA has shown to effectively detect neuroinflammation e.g. in LPS related inflammation and neuropsychiatric pain models. Further, metabolic alterations associated with neuroinflammation were also quantified using FDG-PET. As a summary, nuclear imaging of inflammation is a powerful research tool allowing comprehensive evaluation of disease progression and treatment interventions in vivo studies.