

大学院特別セミナーのご案内

日時： 2026年11月19日（木） 17：00～18：30

場所： 記念会館2階 多目的ホール

講師： Robert P. Friedland, MD

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演題： Pathway Analysis of the Pathogenesis of Neurodegeneration



Despite recent research advances we remain ignorant of the causes of sporadic Alzheimer's disease (AD) as well as Parkinson's disease (PD). It has been documented that an important pathway of clearance of metabolites and toxic molecules from the brain involves the cerebral arteries and veins, the meninges, the bone marrow of the skull and the lymphatic system in the neck. We and others have shown how functional amyloid proteins made by bacteria can initiate protein folding and inflammation in the brain. The effect of bacterial factors on the clearance pathway has not been considered. Notably emerging evidence suggests that extracranial tissues and immune-lymphatic interactions may contribute to neurodegenerative processes. We have proposed that microbial factors in the scalp and the skull may have influences on clearance pathways. We used an explainable full head, 3-D deep learning framework and T1 MP rage MRI data from ADNI to see if full head MRI contains potentially relevant information beyond the brain. Explainability analysis revealed consistent saliency patterns, not only inside the skull, but also in peripheral regions, such as the scalp and skull. These s suggest that processes in the scalp and skull may contribute to Alzheimer's disease. The possibility that these results are due to microbial populations in the scalp needs to be addressed. Also, further validation from independent data sets is needed.