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Oral Sessions

Development of tau propagation mice model

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The spread of abnormal protein in neurodegenerative diseases has been shown to be strongly correlated with clinical phenotypes, and it has been pointed out that close relationship with disease progression. Recently, abnormal proteins caused by neurological diseases have the same properties as "prion" of prion diseases. Prion or prion-like proteins may convert normal molecules into abnormal forms, proliferate and propagate between cells. Abnormal proteins such as tau or α -synuclein that accumulate in brains with dementia have been shown to propagate like prion proteins. However, the expression patterns of tau in the mouse brain are different from those in humans, and the pathogenesis in the animal model of abnormal tau propagation remains incomplete. To overcome this problem, a novel mouse showing tau expression patterns similar to those of humans was developed using genome editing techniques. We inoculated the brain of this mouse with a sarkosyl-insoluble fraction containing abnormal tau derived from tauopathy patients and examined the accumulation of tau pathologies. We also performed a detailed analysis of the relationship between the inoculation site and sites where tau accumulates abnormally by histochemical and neuronal circuitry, and elucidated the propagation mechanism of the abnormally accumulated protein. This research is expected to lead to the development of novel drugs for dementia using the novel approach of "inhibition of abnormal protein propagation".