

Lay Summary

BRAIN UK Ref: 23/022

Understanding Porphyromonas gingivalis Infection in Alzheimer's Disease

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Our research will investigate the relationship between bacterial infection in the brain and Alzheimer's disease associated with Down syndrome. More specifically, the research will focus on a bacterium that leads to periodontitis, a chronic oral inflammatory disease that causes tissue damage, bone deterioration, and tooth loss. There is emerging evidence that this bacterium is detected in brain samples of patients diagnosed with Alzheimer's disease and may contribute to brain pathology. However, there is lack of direct evidence connecting periodontitis with Alzheimer's disease, and moreover, Alzheimer's disease associated with Down syndrome. Our research will investigate the possibility that this bacterium infects the brain of individuals with Down syndrome and causes toxicity and cellular destruction. The results from this research are anticipated to challenge our current understanding of brain pathology in Alzheimer's disease and Down syndrome by directly determining how brain infection may compromise the health of the central nervous system.