

Lay Summary

BRAIN UK Ref: 15/008

Study title: Investigating the role of Astrocytes and Microglia in the development of Alzheimer's Disease in Down Syndrome

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The research to be conducted aims to determine how non-neuronal cells in the brain contribute to the detrimental events in Alzheimer's Disease (AD) and Down syndrome (DS)-associated AD. A common feature in AD is the recruitment of non-neuronal cells, known as astrocytes and microglia, to areas of neuropathology. Studies are needed to resolve the role of these cells during early, intermediate, and late stages of AD. Using postmortem human tissue of Down syndrome patients, known to develop AD after the age of 45, our preliminary results show the involvement of glial cells in AD-related pathology. This next step of the research will be to determine how glial cells are altered during different phases of AD and DS-related AD using postmortem human tissue. From a therapeutic perspective, this proposal will provide new insight into how regulation of glial cells in the brain may provide an effective target for reducing AD-related pathology in DS.