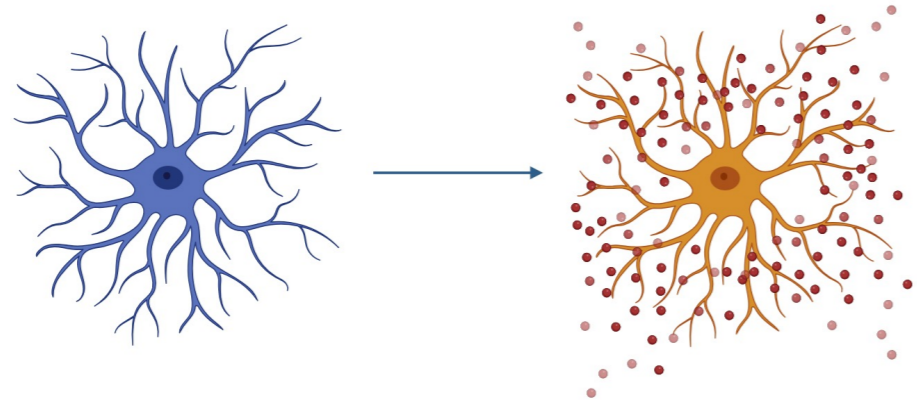


Eoin O'Connor

INTRODUCTION

Functioning Astrocyte

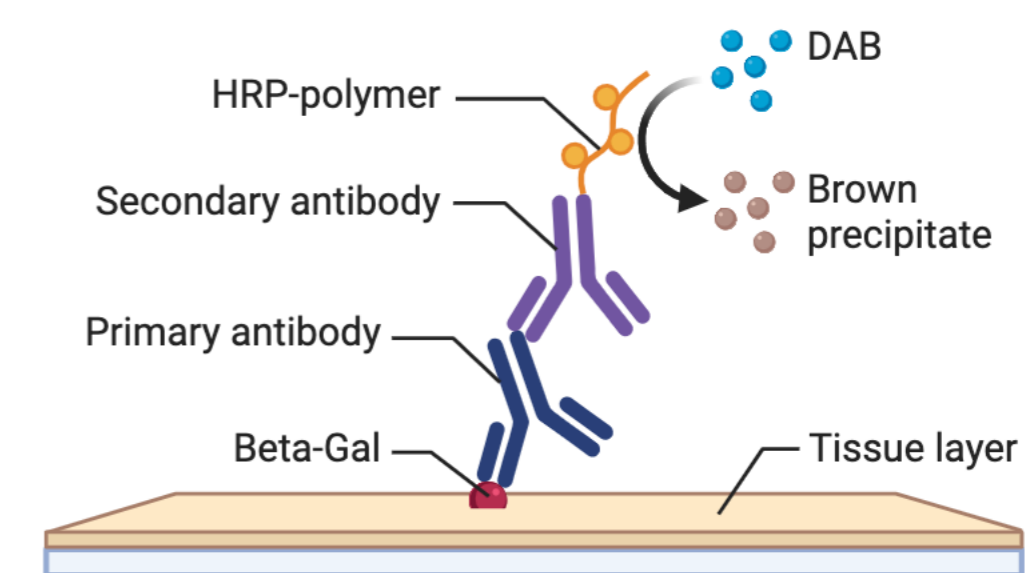
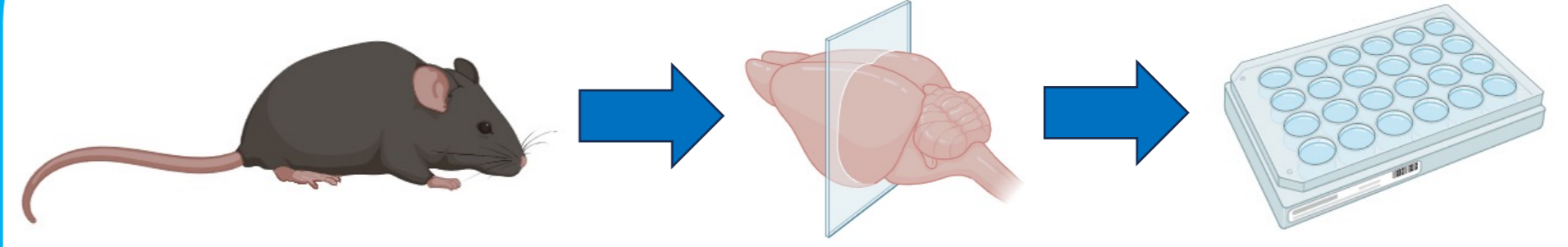


Senescent Astrocyte

SASP

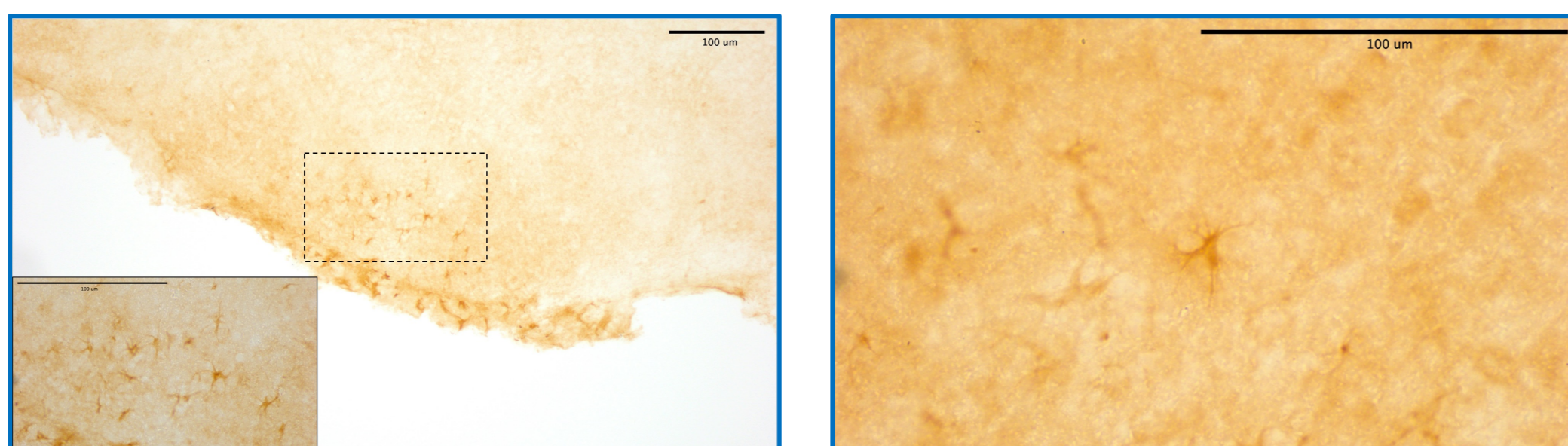
- **Dementia** is a neurodegenerative disease marked by memory loss, cognitive decline, and personality changes.
- In **Alzheimer's** mice models, activated **astrocytes** become primed to release excessive pro-inflammatory substances, potentially aligning with **cellular senescence**.
- **Astrocytes** are star-shaped glial cells in the brain and spinal cord that **support and nourish neurons** and help regulate synaptic transmission.

METHODS



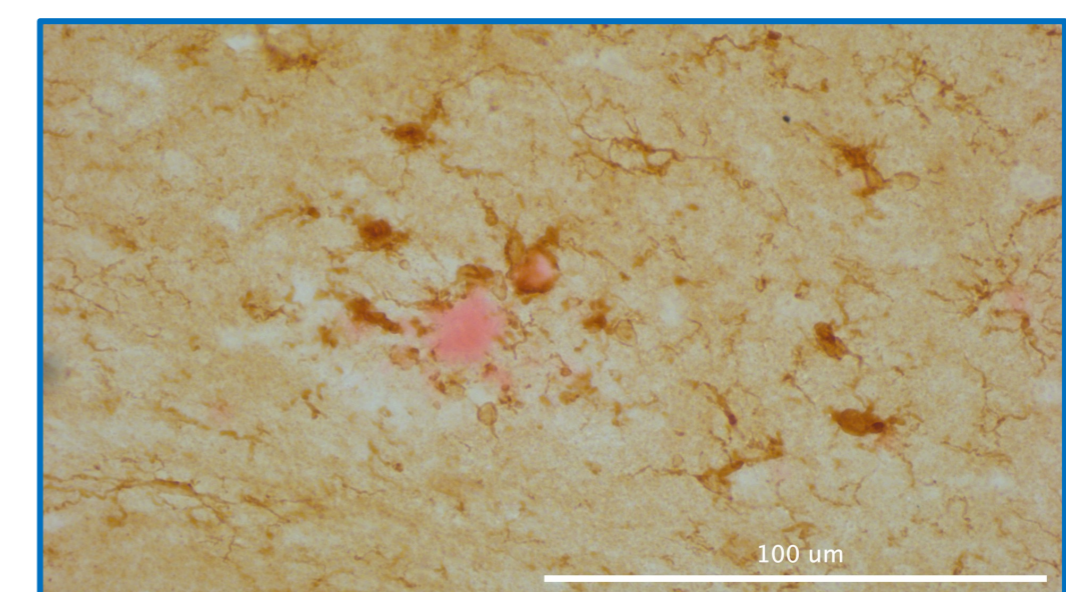
Immunohistochemical (IHC) staining is a technique used to visualise specific proteins within tissue samples.

BETA-GALACTOSIDASE STAINING OF MOUSE BRAIN SECTION



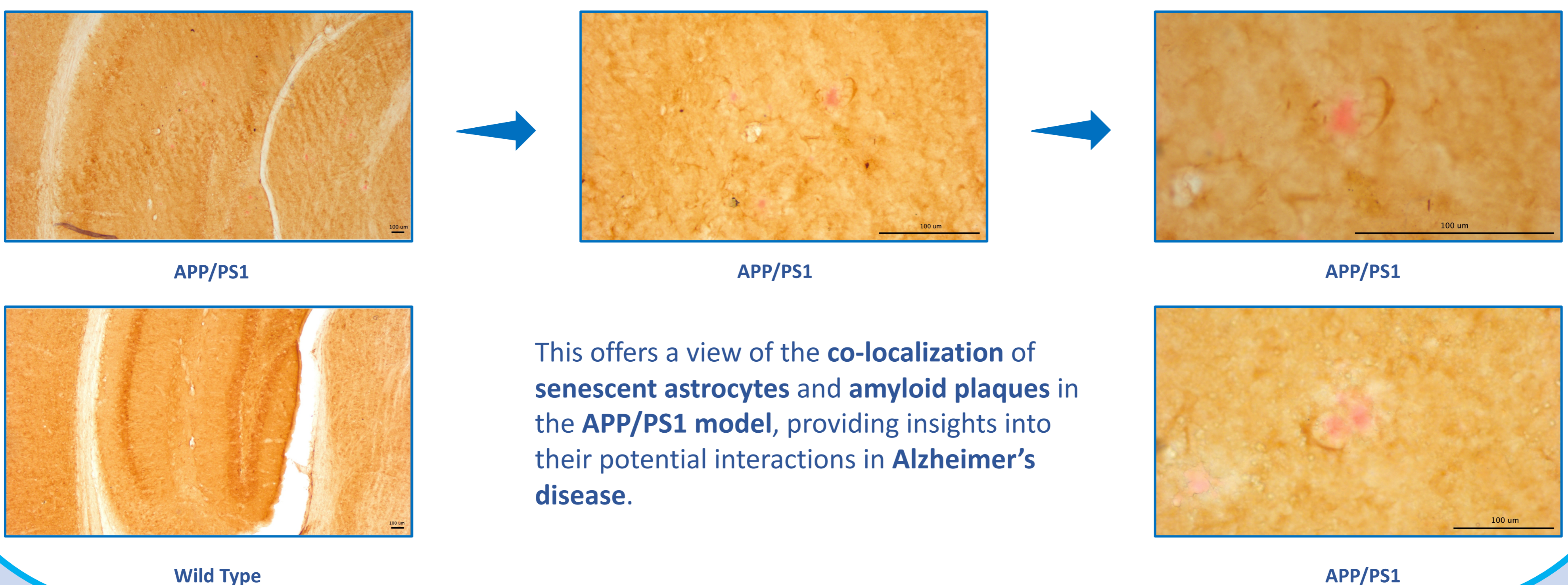
Senescent astrocytes, distinguished by their dark brown colouration and morphology, are featured. Visualised through β -Gal IHC, a marker of senescence. Highlighting their presence within the context of **APP/PS1 mice**, providing a visual insight into their specific localisation.

CONGO RED STAINING OF MOUSE BRAIN SECTION



Microglia, immune-like cells in the central nervous system, are visualised through IBA1 IHC. **Amyloid plaques** are stained using Congo Red. Showing the relationship between microglia and amyloid plaques in the context of **Alzheimer's Disease**.

DOUBLE LABELLING OF BETA-GALACTOSIDASE AND CONGO RED



This offers a view of the **co-localization** of **senescent astrocytes** and **amyloid plaques** in the **APP/PS1 model**, providing insights into their potential interactions in **Alzheimer's disease**.

CONCLUSIONS AND NEXT STEPS

- Study the co-expression of B-Gal and GFAP to confirm that observed senescent cells are astrocytes.
- Examine gene expression in senescent astrocytes by qPCR.
- Determine if removing senescent cells with a senolytic affects Alzheimer's-like pathology.

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