Alpha-synuclein mRNA expression profile: clues from the normal brain

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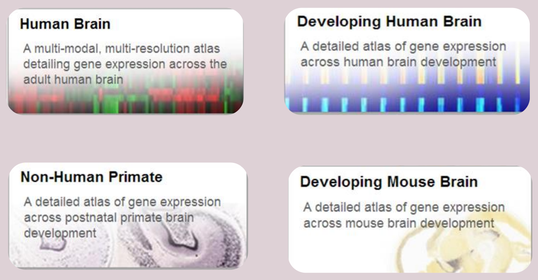
Introduction

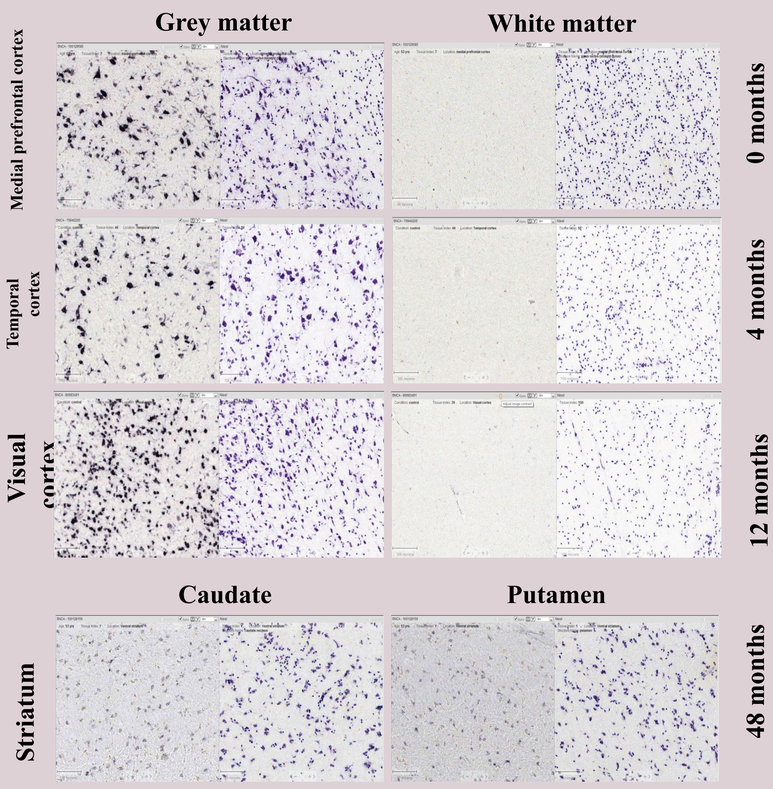
- Alpha-synuclein is a predominantly CNS protein, expressed in neurons and vascular endothelial. Its expression in glial cells is inconclusive.
- Alpha-synuclein is implicated in the pathogenesis of many neurodegenerative diseases, such as Parkinson's disease (PD) and multiple system atrophy (MSA).
- Alpha-synuclein found in oligodendrocytes as glial cytoplasmic inclusions (GCIs) is the pathological hallmark of MSA.
- It is important to understand the regional and cellular expression pattern of alpha-synuclein gene (SNCA) in the normal brain so that alterations in disease may be identified.

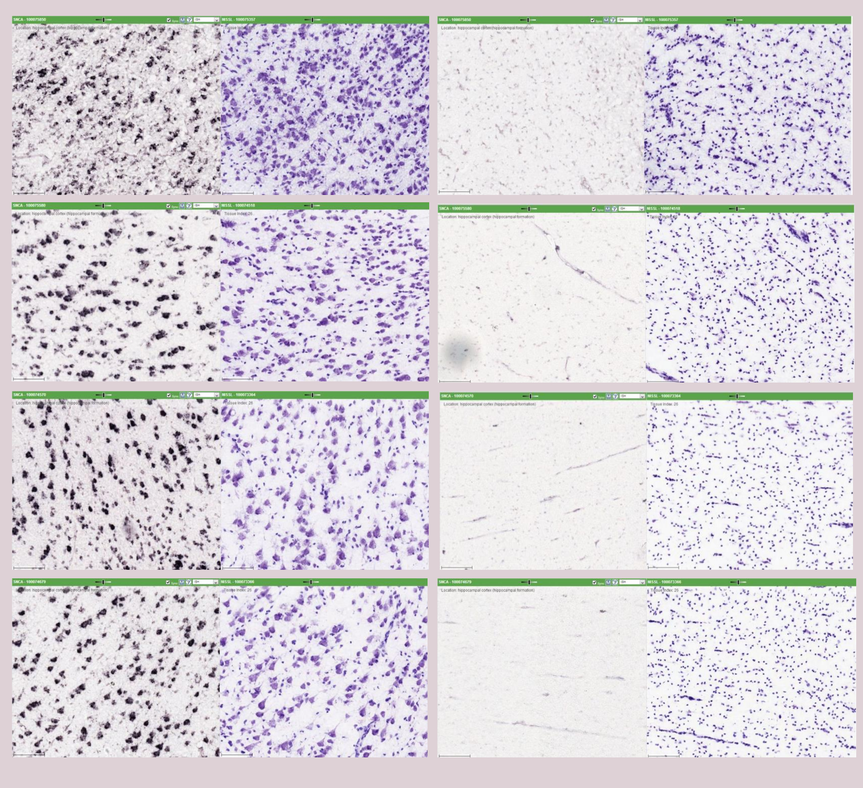
Methods

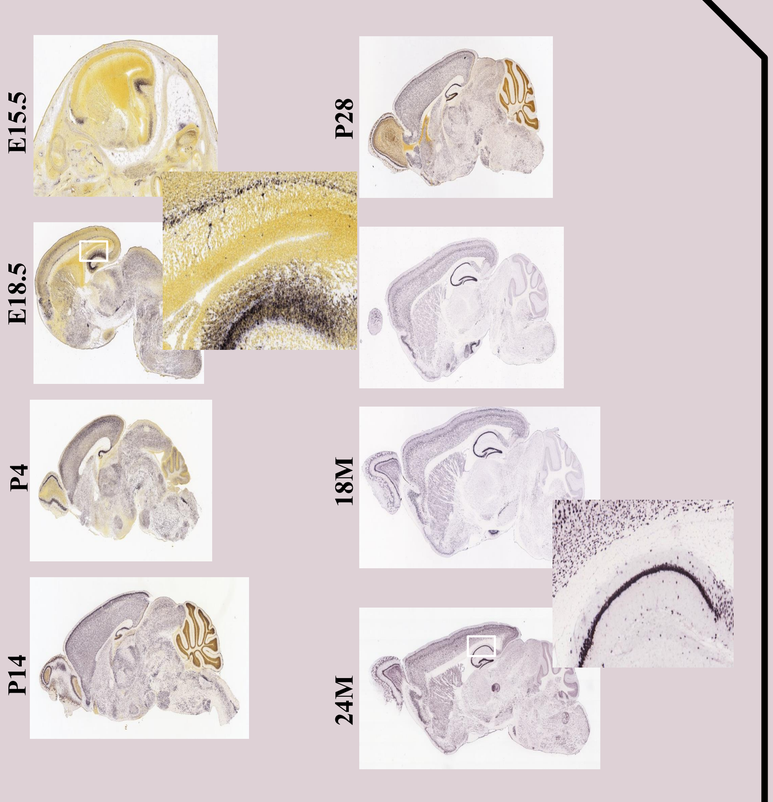
- *In situ* hybridization (ISH) , microarray and RNA sequencing data from the human brain atlases.
- ISH data from the non-human primate and developing mouse atlases.



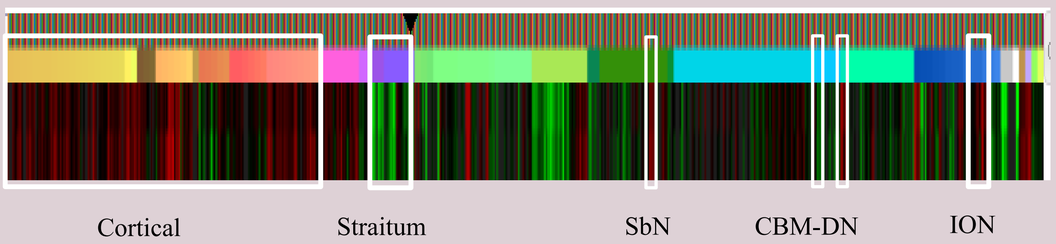
Results





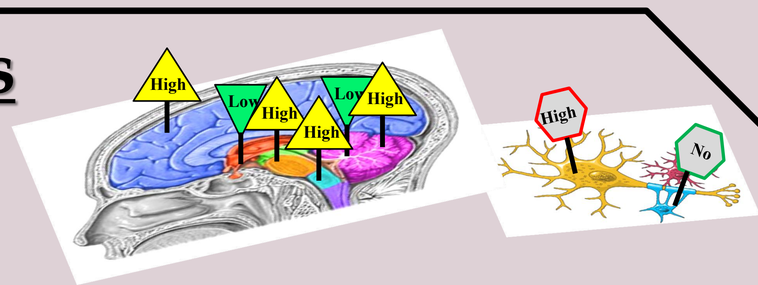


HBA microarray



RNA sequencing

Conclusions



- ISH results show that SNCA is not expressed oligodendrocytes in the normal human brain and developing mouse brain. There seems to be low expression early in development in the rhesus macaque brain.
- Exons 2, 3, 4, 5 of SNCA seem to be expressed at similar levels which may indicate that the different SNCA isoforms have similar expression pattern.

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