HEROES

The locus coeruleus: at the crossroad of dementia syndromes

Noradrenergic neurons in the locus coeruleus (LC) mediate attention, memory, and arousal. Based on previous data, we suggest that LC degeneration is a new common mechanism in the early onset and/or progression of neurodegeneration and dementia in Alzheimer's disease (AD), Down syndrome (DS) and Parkinson's disease (PD). The goal of our project is to uncover the common mechanisms among these three conditions to more rapidly find causes, develop cures and identify better ways to care for people with neurodegenerative disease. To achieve this aim we need first to understand the common mechanisms of AD, DS and PD noradrenergic neurodegeneration, using post-mortem brains, cellular and mouse models. We will also investigate the clinical phenotypes of noradrenergic degeneration in patients, using biomarkers and PET studies. This combined analysis will generate new knowledge about molecular and cellular mechanisms which could help to identify new treatment strategies and bio-repositories to boost future research. Moreover, a deeper understanding of the relationship between LC degeneration and dementia biomarkers and dementia status across diseases will be valuable for diagnosis, prognosis and future clinical studies.

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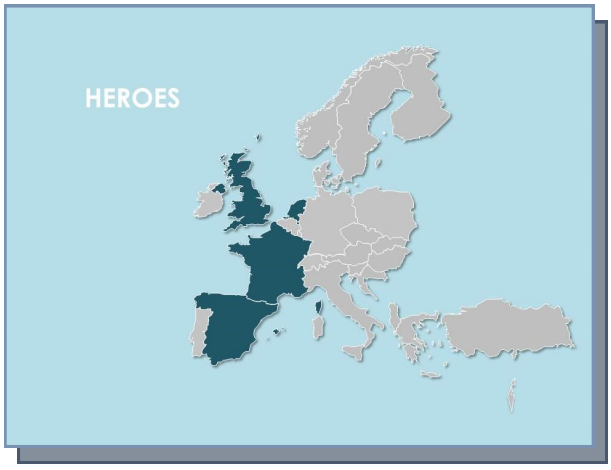

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