Symposium 23: The APOE paradox - Pathway to Alzheimer's disease

Theme: Neurodegenerative disorders and ageing

Wednesday 12th April, 9:00 – 10:40

Carrying the E4 variant of the Apolipoprotein E (APOE) gene is the greatest risk factor for sporadic Alzheimer's disease aside from age. The E4 variant (carried by 30% of the population) differs from the more common E3 variant by a single amino acid in the protein structure. Research across disciplines is establishing how this simple change manifests the risk for Alzheimer's disease and its suitability as a target for preventing or reversing dementia. Paradoxically, APOE4 may confer cognitive benefits at a younger age and Sarah King will explore whether there is a definable tipping point between beneficial and deleterious effects of the genotype. Continuing the topic of age-specific effects of APOE, Sana Suri will present human neuroimaging data showing how APOE4 differentially modulates brain function and cerebrovascular health across the lifespan. Daniel Michaelson will then discuss his use of targeted replacement mice to study APOE function, and the symposia will conclude with Louise Serpell presenting structural and neurobiological data exploring differences in APOE3 and APOE4 function that may suggest new targets for therapeutic treatment. Targeting APOE4 for treatment of Alzheimer's disease in affected individuals could lead to a large reduction in the number of sufferers. The symposium presents data that will hopefully suggest time windows and mechanisms by which this could be achieved.

Chair: Dr Sarah King (University of Sussex)

Speaker 1: Dr Sarah King (Sussex)

'APOE4 from man to mouse'

Speaker 2: Dr Sana Suri (University of Oxford)

'APOE4 across the ages: what changes when? MRI signatures of brain function in humans'

Speaker 3: Professor Daniel Michaelson (Tel Aviv University, Israel)

'Using APOE targeted replacement mice to probe APOE4 function'

Speaker 4: Professor Louise Serpell (University of Sussex)

'Structural and cellular studies to elucidate the mechanisms of ApoE isoform action and provide targets for therapy'