Protest-70

Protecting protein homeostasis in synucleinopathies and tauopathies by modulating the Hsp70/co-chaperone network

The gradual accumulation of misfolded a-Synuclein (a-Syn) and Tau is characteristic of many neurodegenerative diseases commonly referred to as synucleinopathies or tauopathies. The frequent co-occurrence of aggregates of both proteins in multiple forms of neurodegenerative diseases blurs the boundaries between these two disease classes and indicates common denominators. The natural function of molecular chaperones is to maintain the integrity of cellular proteins. Sophisticated chaperone networks continuously monitor and maintain the native fold and function of proteins. However, the capacity of this protein quality control network seems to decrease as we age, which favours the outbreak of neurodegenerative diseases.

This project aims to discover and investigate components of the Hsp70/co-chaperone network that are involved in the i) prevention of aggregation, ii) disaggregation of aggregates, iii) suppression of seeding of soluble proteins by aggregates, and iv) suppression of intercellular spreading of pathological a-Syn and Tau. This consortium uses an integrative approach combining innovative methods and model systems to identify chaperone networks, characterise their mechanism of action and test their therapeutic potential. This study aims to advance our understanding of how the cellular protein quality control system combats misfolded proteins and to identify new druggable targets for the treatment of neurodegenerative diseases.

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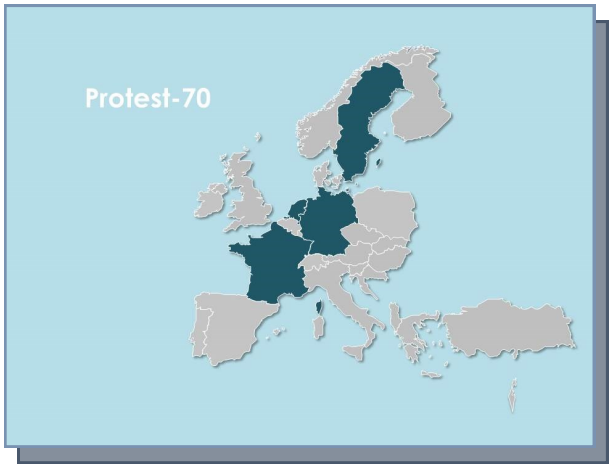

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