Abstracts of papers presented
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PROTEIN HOMEOSTASIS IN HEALTH & DISEASE

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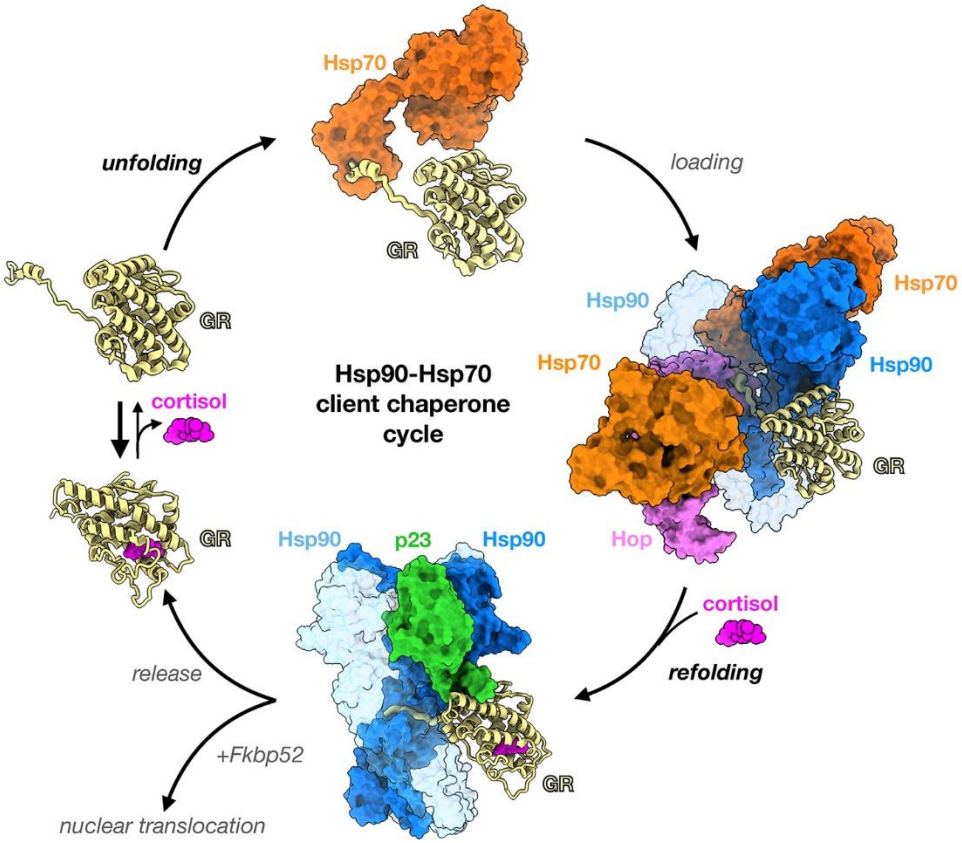

CSH Cold Spring Harbor Laboratory
MEETINGS & COURSES PROGRAM

CHARACTERIZATION OF HUMAN TAU PROTEIN IN CHRONOLOGICALLY AGED YEAST CELLS

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Age-dependent protein aggregation is a conserved phenomenon that is associated with many neurodegenerative diseases, including Alzheimer's disease (AD). AD is characterized by aggregation of Tau, a microtubule-binding protein that is normally soluble and mainly localized to neuronal axons, but which can form oligomers and higher order amyloid-like aggregates that accumulate in soma and dendrites and eventually lead to neuronal death. Although the main risk factor for the onset of AD is aging, the exact causes of Tau protein aggregation are still largely unclear.

To investigate factors that influence Tau protein aggregation, we expressed human Tau protein fused with fluorescent proteins in yeast *Saccharomyces cerevisiae*. We examined its intracellular localization in young, logarithmically growing cells, in chronologically aged cells, and under different stress conditions, such as glucose starvation, hyperosmotic stress, elevated temperature and proteotoxic stress caused by a toxic amino acid analogue.

Furthermore, to study the factors affecting Tau oligomerization, which is considered to be an early step in Tau pathology, we used luminescent reporter NanoBiT in which protein-protein interaction results in the complementation of the luciferase NanoLuc. Our results show basal levels of Tau-NanoBiT reporter signal in logarithmically growing wild-type cells, suggesting that Tau oligomerization does not occur under normal growth conditions.
Keywords: protein aggregation, protein homeostasis, aging, Alzheimer’s disease, Tau

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