AND

YALE CLAUDE D. PEPPER OLDER AMERICANS INDEPENDENCE CENTER

BIOLOGY OF AGING SEMINAR

"Leveraging drug-drug interactions for pharmacological control of aging"

Jan Gruber, PhD
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Starting in the early 1980s, a series of seminal studies in the round worm *Caenorhabditis elegans* (*C. elegans*) led to the discovery that single-gene mutations in the insulin/IGF-1 pathway can dramatically extend lifespan. Since then, a growing number of pharmacological intervention have been developed to target these pathways. However, the lifespan benefits of most drugs, especially when drug treatment is initiated from adulthood, are significantly smaller than those of ageing mutations. This is true even for drugs thought to target the same conserved ageing pathways. To address these questions, Jan Gruber's group explored interactions between drugs believed to target distinct ageing pathways, primarily in *C. elegans*. They have identified two synergistic drug combinations that resulted in lifespan benefits beyond those seen with any known single drug, with the most successful intervention doubling healthy lifespan (healthspan) in *C. elegans*, even when treatment is only initiated from adulthood. The mechanism involves synergistic interactions between ageing pathways, suggesting that targeting distinct subsets of the longevity-assurance network may be a promising strategy for repurposing drugs with the aim of engineering interventions for synergistic lifespan and healthspan benefits.

Monday, November 18th, 2019 | **12:00 – 1:00 pm**

Boyer Center for Molecular Medicine | **BCMM Room 206/208**

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Lunch will be provided