Ackert Hall, Room 120
Wednesday, March 26, 2025
4:00 P.M.

Coffee and Cookies
Chalmers Hall, Room 168
3:45 P.M.

Biochemistry & Molecular Biophysics Seminar

Targeting the Heart of the Problem: When and Where?

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Heart failure with preserved ejection fraction (HFpEF) accounts for 50% of all heart failure cases and is a major challenge for cardiovascular medicine. A better understanding of the molecular mechanisms of HFpEF pathogenesis is urgently needed to identify novel therapeutic targets as there is currently a lack of effective treatments for HFpEF. The prevalence of HFpEF increases sharpy with age and HFpEF is considered a disease of older adults. However, preclinical studies on HFpEF mostly employ young animal models and the independent contribution of aging to HFpEF pathogenesis remains elusive. We combined a mouse model of cardiometabolic HFpEF with normal aging to dissect the impacts of aging on HFpEF development. This study revealed proteostasis imbalance as an age-related mechanism of HFpEF and highlighted the importance of studying HFpEF mechanisms in aged models.

NAD+ is an essential redox cofactor for cellular energy metabolism and a co-substrate for protein deacetylation by sirtuins. NAD+ boosting strategies like NAD+ precursor supplementation are gaining attention as potential therapies for cardiovascular diseases. These supplementation strategies focus on boosting cellular NAD+ levels but do not specifically target the interconnected but differentially regulated subcellular NAD+ pools. In another study, we investigate the crucial role of SLC25A51, a recently discovered mammalian mtNAD+ transporter, in the heart. This study underscores the need to consider the subcellular compartmentalization of NAD+ metabolism in therapeutic development.