ORGANISMAL
PROTEOSTASIS
REGULATION
FOR 5762

SEMINAR SERIES **Feb 26, 2:00 pm**

PROF. RICK MORIMOTO

'Cell Non-Autonomous Regulation of Organismal Proteostasis'

Department of Molecular Biosciences, Rice Institute for Biomedical Research,
Northwestern University

I will discuss experimental results that led us to propose the cell non-autonomous control of proteostasis. These observations benefitted from the model system C. elegans and the use of genetic approaches to show that the organismal heat shock response is regulated by neuronal signaling through the activity of the neurotransmitter serotonin. Moreover, that proteostasis function is regulated by transcellular signaling between sending tissues to promote proteostasis in distal tissues. Perhaps the most striking example how tissue communication regulates organismal proteostasis is in biological aging. In early adulthood, metastable proteins misfold and aggregate, and this is associated with the dramatic decline in the HSR and UPR at reproductive maturity by germline signaling which alters the balance of H3K27me3 repressive chromatin marks at HS gene loci thus inhibiting these cell stress responses in the adult animal. The persistence of repression of somatic tissue health is regulated by the health of the progeny in that damage to the extracellular vitelline layer of the fertilized embryo triggers a transgenerational protective response dependent upon DAF-16 and HSF-1 to confer persistent stress resilience in the adult. I will close with discussion on the potential implications of cell non-autonomous control of proteostasis in human diseases associated with protein misfolding.

HOST
Prof. David Vilchez
Institute for Integrated Stress Signaling
University of Cologne

WHEN
Thursday,
February 26, 2026
2:00 pm (CET)

WHERE
Auditorium, MPI Age
Joseph-Stelzmann-Str. 9b
50931 Köln

UNIVERSITY OF COLOGNE
UNIKLINIK KÖLN
Max Planck Institute for Metabolism Research
Universität Konstanz
Funded by DFG Deutsche Forschungsgemeinschaft German Research Foundation