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The NO-Age and NO-AD Seminar Series # 47

'Why a little bit of stress is good for you: Understanding how early-life interventions promote protein homeostasis and healthy tissue function later in life'

by

Dr. Johnathan Labbadia,

At

Institute of Healthy Ageing, University College London, UK

14:00-15:15 (CET), Monday, 09th May 2022

Registration ahead

https://uio.zoom.us/webinar/register/WN_iM5KINTfRvqGGEuOjMPN2Q

Organizers:

Evandro F. Fang (UiO), Jon Storm-Mathisen (UiO), Lene Juel Rasmussen (KU), W.Y. Chan (CUHK)

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Previous recorded talks are available here: <https://noad100.com/videos-previous-events/>



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Speaker: Dr. Johnathan Labbadia

Title: Why a little bit of stress is good for you: Understanding how early-life interventions promote protein homeostasis and healthy tissue function later in life

Abstract:

The age-related accumulation of misfolded, mislocalised and aggregated proteins underlies a wide range of human diseases. Therefore, finding ways to maintain proteome integrity with age is an attractive strategy for promoting long-term health. Recent studies in model organisms have revealed that age-related protein aggregation is not a completely random process, but instead emerges, at least in part, from programmed events early in life that are coupled with development and reproduction. In this seminar, I will discuss our recent findings that, in the nematode worm *Caenorhabditis elegans*, transient fasting or mild mitochondrial stress during development can elicit distinct protective responses that suppress protein aggregation in adulthood and promote longevity. Furthermore, I will present evidence that these responses are conserved in human cells and can be leveraged to safeguard the ageing proteome.

Biography:

Dr. John Labbadia is a BBSRC David Phillips Fellow within the Department of Genetics, Evolution and Environment, at University College London. John has dedicated his research career to understanding how cells maintain protein homeostasis, first as a PHD student working on the molecular basis of Huntington's Disease with Prof. Gillian Bates' at Kings College London, and then as an ALS Association Postdoctoral Fellow in Prof. Rick Morimoto's laboratory at Northwestern University, USA, where he began using the roundworm *Caenorhabditis elegans* to investigate the origins of age-related protein homeostasis collapse. Following this, John was awarded a prestigious BBSRC David Phillips Fellowship to establish his own lab within the Institute of Healthy Ageing at UCL. John's work has revealed that stochastic and programmed changes in the activity of protein quality control pathways, can leave cells vulnerable to the build-up of toxic proteins with age, thereby resulting in disorders such as Huntington's, Parkinson's and Alzheimer's disease. Thanks to funding from the BBSRC, the Academy of Medical Sciences and the Wellcome Trust, his group are continuing to focus on understanding how cells prevent toxic proteins from accumulating, and how these mechanisms can be exploited to suppress the occurrence of age-associated diseases throughout the population.