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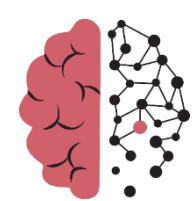
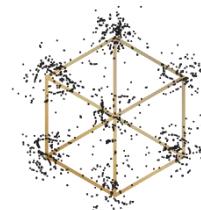
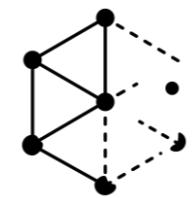
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K.G. Jebsen Centre for  
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NO-Age

NO-AD



# The NO-Age and NO-AD Seminar Series 027

Monday, 10<sup>th</sup> May 2021

14:00-15:15 (CET): 'Searching for Anti-Aging Drugs and Anti-Aging Mechanisms',  
**Prof. Richard A. Miller**, Paul Glenn Center for Biology of Aging, University of Michigan, USA

15:30-16:45 (CET): 'Late life interventions to extend health and lifespan in mice'  
**Dr. Sarah J. Mitchell**, ETH Zürich, Switzerland

Register in advance for this webinar:

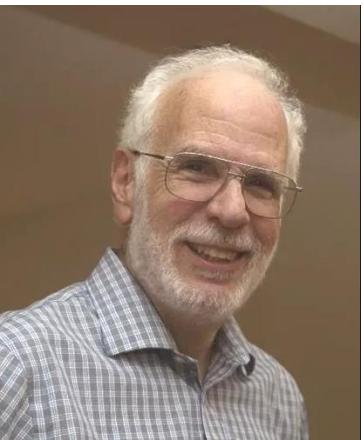
[https://uio.zoom.us/webinar/register/WN\\_4qRGzTtS4GbyuDr3MxwNw](https://uio.zoom.us/webinar/register/WN_4qRGzTtS4GbyuDr3MxwNw)

Organizers:

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

Queries: [e.f.fang@medisin.uio.no](mailto:e.f.fang@medisin.uio.no)

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



**Speaker: Prof. Richard A. Miller, Ph.D.**

**Title: Searching for Anti-Aging Drugs and Anti-Aging Mechanisms**

**Abstract:**

There is now ample evidence that aging, and consequently the diseases and disabilities that accompany aging, can be postponed in mammals by at least two diets, at least five single-gene mutants, and at least four drugs. These findings provide a rationale, and a foundation, to seek drugs that can slow aging and postpone multiple forms of disease in people, but they also provide new tools for working out the physiological and biochemical processes by which aging leads to so many synchronized deficits. Half of today's talk will provide a status report on the NIA-funded Interventions Testing Program (ITP), a multi-institutional collaboration, now in its 17th year, that tests drugs and nutraceuticals proposed to extend mouse lifespan. Among the agents tested so far, four (rapamycin, acarbose, 17 $\beta$ -estradiol, and canagliflozin) can extend median lifespan by 15% or more in one or both sexes. The ITP effort has led to several new understandings: (a) Longevity can routinely be increased in mice by drugs; (b) For some drugs, these benefits can be seen even when the drug is initiated in middle-aged animals; (c) The effects are often seen only, or predominantly, in one sex; and (d) Regulation of post-prandial glucose peaks may be a critical factor in the pace of aging, even in a species where cancer (and not diabetes or metabolic syndrome) is the most common cause of death.

The ability to delay aging by several distinct means also provides experimental tools to test molecular hypotheses about pathways, potentially shared pathways, that can retard aging. The second half of this talk will show three examples of such mechanisms: (a) changes in mTOR function, structure, and substrate specificity; (b) control of adipose tissue function by muscle-derived signals; and (c) molding of the proteome by augmented chaperone-mediated autophagy.

**Biography:**

"Richard A. Miller, M.D., Ph.D., is a Professor of Pathology at the University of Michigan. He received the BA degree in 1971 from Haverford College, and MD and PhD degrees from Yale University in 1976-1977. After postdoctoral studies at Harvard and Sloan-Kettering, he began his faculty career at Boston University in 1982 and then moved to his current position at Michigan in 1990. Dr. Miller has served in a variety of editorial and advisory positions on behalf of the American Federation for Aging Research and the National Institute on Aging, and served as one of the Editors-in-Chief of *Aging Cell*. He is the recipient of the Nathan Shock Award, the AlliedSignal Award, the Irving Wright Award, an award from the Glenn Foundation, and the Kleemeier Award for aging research. He has been a Senior Scholar of the Ellison Medical Foundation, and is a Fellow of the American Association for the Advancement of Science and a member of the American Association of Physicians. At Michigan, he directs the Paul Glenn Center for Aging Research. His research program includes ongoing studies of the mechanisms that link stress, nutrients, and hormones to delayed aging in mice, development of new approaches to slow aging and disease through drugs and targeted mutations, and studies of the ways in which cells from long-lived birds, rodents, and primates differ from those of short-lived species."

**Name:** Prof. Richard A. Miller  
**Institute:** University of Michigan  
**Email:** millerr@umich.edu  
**Web:** <http://www.richmillerlab.com/>  
**Photo:** Miller lab



**Speaker: Dr. Sarah J. Mitchell, Ph.D.**

**Title:** Late life interventions to extend health and lifespan in mice

**Abstract:**

Current strategies for extending lifespan and healthspan in rodents generally focus on a model of young onset, where 4–6-month-old animals receive an intervention for the duration of their life. This approach allows us to study how accumulation of deficits leading to aging and disease, while investigating how interventions can slow or prevent these outcomes. However, when we think about translating interventions to humans, one can understand that not every person would be agreeable to a lifelong treatment. Moreover, lifespan extending dietary interventions such as calorie restriction, face an even bigger challenge in terms of lifelong compliance in humans. Therefore, it would be of significant benefit to have a strategy, or strategies which can extend healthspan and/or lifespan when started later in life. In this talk I will discuss the current state of the literature surrounding late-life intervention studies in rodents. I will then present data from a recently completed study where we focused on three late life interventions (two dietary, one pharmacological) and their ability to extend lifespan and healthspan in a sexually dimorphic manner.

**Biography:** "Sarah J. Mitchell, Ph.D. is a senior scientist at ETH Zürich. She received her B.Med.Sci(Hons I) and Ph.D. degrees from the University of Sydney in 2007 and 2011 respectively. Following her Ph.D. Sarah was awarded a prestigious National Health and Medical Research Council of Australia Overseas Biomedical Fellowship for her postdoctoral studies at the National Institute on Aging in Baltimore, MD. In 2017 she moved to Harvard University in Boston to take up a Scientist position in the Harvard T.H. Chan School of Public Health. More recently, she moved with the lab to ETH Zürich where she is currently a Senior Scientist in the lab of the late Prof. Dr. James R. Mitchell. Sarah has won a number of awards including the ASECP Junior Investigator Award, the Paul F. Glenn Award from the American Aging Association (AGE), the NIA Women in Science Fellows Research Award and both NIH and NIA Distinguished Mentor Awards. Her research focuses on investigating and understanding the sexual dimorphism in the response of rodents to longevity interventions, as well as the development of new strategies to extend lifespan and promote increased healthspan. She also has a particular interest in the development and translation of nutritional and pharmacological strategies to mitigate frailty in older adults."

**Name:** Dr. Sarah J. Mitchell

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**Photo:** Sarah Mitchell