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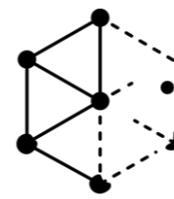
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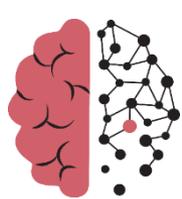
K.G. Jebsen Centre for
Alzheimer's Disease



Kavli Institute for
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NO-Age



NO-AD

The NO-Age and NO-AD Seminar Series 013

'What is ageing? Lessons from *C. elegans*'

by

Prof. David Gems

Institute of Healthy Ageing, University College London, UK

at

14:00-15:00 (CET), Monday, 22nd Feb 2021

Register in advance for this webinar:

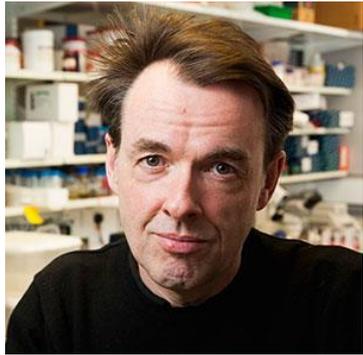
https://uio.zoom.us/webinar/register/WN_Y0RejMUATnmBkiTMqPgufA

Organizers:

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

Queries: e.f.fang@medisin.uio.no

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



Name: David Gems

Institute: UCL

Email: david.gems@ucl.ac.uk

Web: <http://www.ucl.ac.uk/~ucbtdag/>

Photo: UCL

Speaker: Prof. David Gems, Professor of Biogerontology, University College London

Title: What is ageing? Lessons from *C. elegans*

Abstract:

Ageing is really bad: it is now the main cause of chronic disease and death in the world, and yet its causes remain poorly understood. For example, ageing is the main cause of cardiovascular disease, neurodegenerative disease (e.g. Alzheimer's), chronic obstructive pulmonary disease, cancer, and many, many other diseases. It could be argued that discovering the primary causes of ageing is the greatest challenge for biomedical research. One approach to discover the causes of ageing is to study them in simple, tractable laboratory models, such as the short-lived nematode *Caenorhabditis elegans*. In this organism it has been shown that a number of signalling pathways exert powerful effects on lifespan, suggesting the presence of central mechanisms controlling the entire ageing process; however, these mechanisms have proven difficult to identify using standard genetic approaches. My lab has been taking new approaches and exploring and developing new theories to try to understand *C. elegans* ageing. From this new work new perspectives on ageing are emerging. Our working hypothesis is that the diversity of diseases of ageing across the animal kingdom result from a limited set of broad pathophysiological principles. These principles are expressed differently and to differing degrees in different organisms; thus, although diseases of ageing appear very different in *C. elegans* and humans, studying the former can help understand the principles governing the latter. In *C. elegans*, programmatic rather than stochastic damage etiologies play a particularly large role, which can take the form of futile programme run on (or quasi-programmes), or of costly programmes that support reproductive fitness. Our recent work also supports the presence of reproductive death and adaptive death in *C. elegans*, mechanisms that are not typical of animal ageing - at least, not superficially.

Biography:

David Gems is a Professor of Biogerontology (the scientific study of the biology of ageing) at the Institute of Healthy Ageing, University College London. He graduated from Sussex University and then conducted research at Glasgow University, Imperial College, and the University of Missouri-Columbia, where in 1993 he began working on the biology of ageing in *C. elegans*, with Don Riddle. He set up his own research group at UCL in 1997 with the support of a fellowship from the Royal Society. Much of his work uses the nematode worm *C. elegans* to understand the fundamental mechanisms that cause the ageing process. He has also contributed to studies of aging in other nematodes, *Drosophila*, and the mouse, and penned articles on the ethics of aging research. He is a founder member and Research Director of the UCL Institute of Healthy Ageing, and has contributed to some 140 articles. Ageing is now the main cause of serious illness worldwide, yet its underlying biology remains poorly understood. Research using animal models has shown that it is possible to intervene in ageing and slow it down, thereby increasing late-life health and extending lifespan. It is envisaged that this work will contribute to the future development of preventative approaches to diseases of human ageing, such as cardiovascular disease, late life dementias, cancer and many others, thereby achieving major gains in terms of improved late life health and well being.