

# The Nordic Centre Biennial Meeting on Global ageing and related healthcare challenges

24-25 October 2022

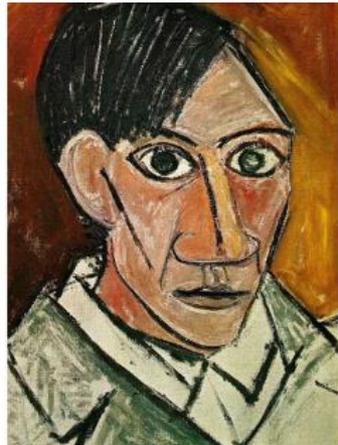
Venue: Domus Medica, Auditorium L-200 (Address: Sognsvannsveien 9, 0372 Oslo)  
University of Oslo, Norway (on-site)  
and  
([zoom registration](#))

Organizers: Evandro F. Fang, (Oslo), Lene J. Rasmussen (Copenhagen), and Na HE (Fudan)

[Free Registration here](#)



**Age 15**



**Age 25**



**Age 90**

**Day 1 (24 Oct. 2022)** **2022 The Nordic Centre Biennial Meeting: Programme**

08:10-08:15 Opening: Per Morten Sandset (vice-rector/vice president, University of Oslo, Norway)  
Prof. Evandro Fang (University of Oslo, Norway), Na He (Fu-dan, China), and Lene Juel Rasmussen (Copenhagen University, Denmark)

**PART 1: Mechanisms of ageing (Chair: Jon Storm-Mathisen)**

08:15-09:00	Sandy Chang (Yale U., USA)	Telomeres and aging
09:00-09:45	Per Nilsson (Karolinska, Sweden)	Autophagy and Alzheimer's disease
09:45-10:30	Lene Juel Rasmussen (CU, Denmark)	DNA damage in ageing and related disease
10:30-10:45	Coffee break	
10:45-11:30	Linda Hildegard Bergersen (UiO, Norway)	Exercise, DNA repair, and the healthy ageing brain
11:30-12:00	Sofie Lautrup (UiO, Norway)	DNA damage-induced NAD+-mitophagy axis inhibition in ageing and neurodegeneration
12:00-12:30	Frank Pun (Insilico Medicine, Hong Kong)	PandaOmics: a multi-omics approach for the study of ageing mechanisms
12:30-13:30	Lunch	

**PART 2: Targeting ageing at population and societal levels (Chair: Lene Juel Rasmussen )**

13:30-14:15 Oslo time	Na He (Fudan, China)-zoom	HIV infection induces accelerated ageing
14:15-15:00 Oslo time	Lin Kang (PUMC, China)-zoom	Clinical treatment of sarcopenia
15:00-15:15 Oslo time	Coffee break	
15:15-15:45 Oslo time	Chenkai Wu (Duke Kun-shan University, China)-zoom	Quantification and determinants of healthy aging and longevity
15:45-16:15 Oslo time	Jing Wu (University of Gothenburg, Sweden)	Eldercare in Europe and China: What can we learn from?
16:15-16:45 Oslo time	Mirre Simons (Sheffield, UK)	An evolutionary perspective on ageing: concerning reproductive effort and sexual signalling
16:45-17:30 Oslo time	Sean Xiao Leng (Johns Hopkins U, USA)	ImmunoAgeing and COVID-19 in the elder human population
19:15	Dinner (invitation only: Restaurant name is Brasserie France (Øvre Slottsgate 16. 0157 Oslo. <a href="https://brasseriefrance.no/">https://brasseriefrance.no/</a> )	

**Day 2 (25 Oct. 2022):****PART 3: Neurodegeneration and anti-ageing drug development (Chair Sandy Chang)**

08:00-08:45	Yie Liu (NIA, USA)	NAD+ alleviates telomere shortening-induced ageing
08:45-09:30	Anne Simonsen (UiO, Norway)	Mechanisms of mitophagy
09:30-10:00	Konstantinos Palikaras (Athens, Greece)	Mitophagy in neuronal development and protection
10:00-10:30	Shu-qin Cao (UiO, Norway)	Identification of novel mitophagy inducers for ageing and Alzheimer's disease
10:30-10:45	Coffee break	
10:45-11:30	Morten Scheibye-Knudsen (CU, Denmark)	Using artificial intelligence and big data for the development of anti-ageing strategies
11:30-12:00	Guang Yang (Imperial, UK)	AI for medical applications including COVID-19 and ageing
12:00-12:30	Sarah Mitchell (ETH, Switzerland)	Experience in the use of mice for healthy longevity studies
12:30-13:15 (Keynote)	Lynne Cox (Oxford, UK)	Anti-senescence drug development
13:15-	Lunch and departure	

# The Nordic Centre Biennial Meeting

## Global ageing and related healthcare challenges

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On-site and zoom ([zoom registration](#))

Venue: Domus Medica, Auditorium L-200 (Address: Sognsvannsveien 9, 0372 Oslo), University of Oslo, Norway

Organizers: Evandro F. Fang, (Oslo), Lene J. Rasmussen (Copenhagen), and Na HE (Fudan)

All welcome, registration free and mandatory ([here](#))



Sandy Chang  
Yale, USA



Per Nilsson  
Karolinska, Sweden



Lene J. Rasmussen  
CU, Denmark



Linda H. Bergersen  
UiO, Norway



Sofie Laurrup  
UiO, Norway



Frank Pun  
Insilico M, Hong Kong



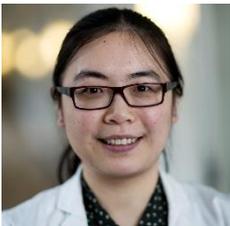
Na He  
Fudan, China



Lin Kang  
PUMC, China



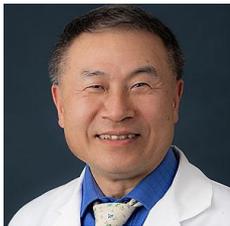
Chenkai Wu  
Duke Kun-shan, China



Jing Wu  
Gothenburg, Sweden



Mirre Simons  
Sheffield, UK



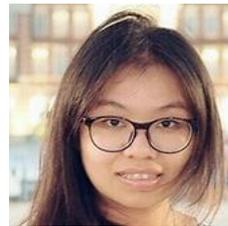
Sean Xiao Leng  
Johns Hopkins, USA



Anne Simonsen  
UiO, Norway



Konstantinos Palikaras  
Athens, Greece



Shu-qin Cao  
UiO, Norway



Yie Liu  
NIA, USA



M. Scheibye-Knudsen  
CU, Denmark



Guang Yang  
Imperial, UK



Sarah Mitchell  
ETH, Switzerland



Lynne Cox  
Oxford, UK



Jon Storm-Mathisen  
UiO, Norway



Evandro F. Fang  
UiO/Ahus, Norway





Sandy Chang  
Yale, USA

Dr. Chang has a strong track record in implementing tools and techniques, including the use of mouse genetics and cell biology approaches, to address the questions in telomere biology. Dr. Chang has been an active contributor for over a decade in how telomeres, which are the repetitive sequences that cap the ends of eukaryotic chromosomes, protect chromosomal ends from being recognized as damaged DNA. Using mouse knockout technology and cellular/biochemical studies, his laboratory has previously demonstrated that single-strand telomere binding proteins protect chromosome ends from initiating a DNA damage response (DDR). In particular, his lab discovered that the Protection of Telomere 1a (Pot1a) protein plays an important role in protecting telomeres from engaging an ATR-dependent DDR, which initiates p53 dependent apoptosis and/or cellular senescence. His lab also discovered that Pot1b, the second Pot1 ortholog in the mouse genome, is required for stem cell proliferation. The Pot1b conditional knockout mouse recapitulates many salient features of human bone marrow (BM) failure syndromes, and will be used to understand what roles dysfunctional telomeres play in the pathogenesis of BM failure.



Per Nilsson  
Karolinska, Sweden

Per Nilsson's group focuses on the role of autophagy in A $\beta$  metabolism and neurodegeneration in Alzheimer's disease. We are analyzing the mechanism of autophagy in the metabolism of A $\beta$  using state of the art AD mouse models. Using genetic tools, we inhibit autophagy in different neuronal cells. Intriguingly, we have found that when autophagy is deleted in the nerve cells, the extracellular A $\beta$  plaques decrease and A $\beta$  instead accumulates intracellularly. This activates neurodegenerative processes which could be linked to the neurodegeneration taking place in the AD brain. This neurodegeneration is currently being investigated using different genetic and omics approaches.



Lene J. Rasmussen  
CU, Denmark

Dr. Rasmussen's research focuses on understanding a central challenge of modern biomedicine; namely the genetic origins of complex diseases and the contribution of environmental factors. Her particular research interests include: • The role of deoxynucleoside kinases in maintaining genomic integrity; • Interaction between dNTP pools and mitochondrial function: basic research and aging; • The molecular mechanisms underlying mitochondrial-mediated mutagenesis; and • Identification of proteins involved in maintaining integrity of the mitochondrial genome.



Linda H. Bergersen  
UiO, Norway

The research group of Dr. Linda Bergersen investigates the role of lactate in pathogenic brain as we age. Dr. Bergersen obtained her PhD from the University of Oslo, and she is now a professor at the University of Oslo, holding multiple roles, including

- 2015- Head of Electron Microscopy Laboratory, Institute of Oral Biology (IOB), UiO, Norway
- 2013- Professor in Physiology at the Faculty of Dentistry
- 2013- Leader of the Brain and Muscle Energy Group at the IOB, Department of Oral Biology, University of Oslo, Norway
- 2011- Professor of Neurobiology of Aging at the Center of Healthy Aging (CEHA), University of Copenhagen, Denmark



Sofie Lautrup  
UiO, Norway

Dr. Sofie Lautrup studied the connections between the DNA repair pathway base excision repair (BER) and cognitive capacity during aging and disease, under the supervision of Associate Professor Tinna Stevnsner at Aarhus University, Denmark. In addition, she has worked with premature aging by characterising two Danish patients suffering from Cockayne Syndrome (MAD 2018). Dr. Lautrup also worked in the laboratory of Dr. Vilhelm A. Bohr at the National Institute on Aging (NIA), Baltimore, USA during her PhD. At the NIH her work on focused on the NAD<sup>+</sup> precursor Nicotinamide Riboside (NR) as an Alzheimer's Disease (AD) therapeutic in different AD mouse models, including a DNA repair deficient AD mouse model (PNAS, 2018). She also she worked on elucidating the effects of treatments with mitophagy-inducing compounds on an AD mouse model. In the Fang laboratory, she is very interested in studying how NAD<sup>+</sup> supplementation affects features seen during both normal aging and premature aging including reduced stem cell proliferation and premature senescence. Dr. Lautrup utilises fly-models (*Drosophila Melanogaster*) of the premature aging disorder Werner Syndrome (WS), in addition to *C. elegans* and human iPSCs, to elucidate how WS patients show reductions of stem cells and how this is related to compromised mitophagy.



Frank Pun  
Insilico M, Hong Kong

Dr. Frank Pun is the Head of the Hong Kong Office of Insilico Medicine. He is leading a team of application scientists in Hong Kong working on the AI-enabled biological target discovery platform - PandaOmics. His goal is to deliver the latest AI technology to scientists, medical doctors, biotechnology, and pharmaceutical companies around the world to help find actionable therapeutic targets, and accelerate drug discovery and development. Before joining Insilico, Frank was the CEO of PharmacoGenetics Ltd., a biotechnology company in Hong Kong focusing on genomic sequencing and diagnostic product development. Frank received his Ph.D. in biochemistry from the Hong Kong University of Science and Technology (HKUST) in 2010. Upon graduation, Frank served as a visiting scholar, leading a team to study human CNS diseases and cancer for years. Afterward, he received his MBA from Rutgers Business School in the US.



Na He  
Fudan, China

Dr. He is a Professor of Epidemiology and Dean of School of Public Health, Fudan University, China. His group currently focuses on the epidemiology and intervention of comorbidities including aging-related NCDs among people with HIV (PWH). Dr. He is PI of the CHART Cohort, an ongoing prospective cohort of HIV and Aging in China, which employs systems epidemiological methods to investigate associates, biomarkers, mechanisms and interventions of aging and aging-related chronic comorbidities in PWH. Dr. He holds key positions in a number of national academic and scientific societies in China, including as a Member of Disciplinary Evaluation Group of National Academic Committee of State Council, Vice Director of Public Health Branch of Chinese Medical Association, Vice President of Chinese Epidemiological Association, and President of Chinese Public Health Education Association.



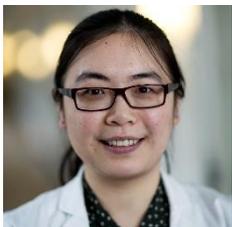
Lin Kang  
PUMC, China

Dr. Lin Kang is associate director of Geriatric department of PUMCH & PUMC  
Chairman of Youth Committee of Geriatric Specialist Branch of Beijing Medical Doctor Association  
Deputy chairman of Youth Committee of Geriatric Specialist Branch of Chinese Medical Association  
Deputy chairman of Youth Committee of Parenteral and Enteral Nutrition Society of Beijing Medical Association  
Member of World Association of Chinese Doctors  
Member of Asian Working Group for Sarcopenia  
Reviewer of Archives of Gerontology and Geriatrics, Frontiers in Medicine, Aging Clinical and Experimental Research  
Editorial board member of Aging Medicine journal



Chenkai Wu  
Duke Kun-shan, China

Dr. Wu's main research interests include theory, measurement, epidemiology, and clinical implications of frailty, promotion of healthy aging and longevity, and implications of machine learning and big data in clinical practice. Since 2016, he has written two book chapters and published nearly 40 peer-reviewed papers in the fields of epidemiology, gerontology, and cardiovascular disease. He has led or participated in research projects funded by external sources, such as Ministry of Science and Technology of China, Bill & Melinda Gates Foundation, National Institute of Health, and World Heart Federation. His work has been featured in over 100 major national and international media, including the Wall Street Journal, the Guardian, the National Public Radio, and Harvard Business Review.



Jing Wu  
Gothenburg, Sweden

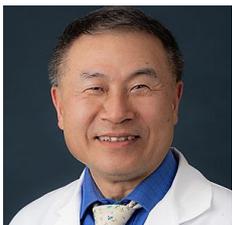
Jing Wu is Program Director of International Master's Program in Strategic Human Resource Management and Labour Relations (SHRM & LR) since Summer 2020. Her main research interests include subjective and objective well-being of older people and welfare state; social in/exclusion and social protection of older people; care provision for older people; active and healthy ageing; comparative ageing research, suicide/depression prevention, and mental health promotion. Currently, Jing Wu is engaged in research issues and activities (including workshops, seminars and conferences) within the framework of AgeCap – Center for Ageing and Health, GU.



Mirre Simons  
Sheffield, UK

Dr. Simons' group focuses of on the mechanisms of ageing and modulation by diet. His team studies fundamental aspects of the aging process including cancer and dementia, and how these are modulated by diet using an evolutionary perspective. To do this they utilize the fruit fly, a functional genetics powerhouse. They use a combination of transcriptomics, proteomics and metabolomics to identify candidate mechanisms underlying these findings.

Please refer to his lab web pages for more information and/or contact him. There are always opportunities to collaborate or come work in his lab at the University of Sheffield.



Sean Xiao Leng  
Johns Hopkins, USA

Dr. Sean Xiao Leng is a professor of medicine at Johns Hopkins University. His research interests include the international collaborative development of geriatrics and aging research programs, the assessment of chronic cytomegalovirus infection and its contribution to chronic inflammation and immunosenescence in older adults; Immune response to and protection from influenza immunization in frail elderly; cytokinology: IL-6 and other cytokine dysregulations in frail older adults; Chronic inflammation, immune activation, and their role in the pathogenesis of frailty; Aging of the innate and adaptive immune system.



Anne Simonsen  
UiO, Norway

Dr. Simonsen's group focuses on the identification of novel lipid-binding proteins involved in different types of autophagy and the elucidation of their function in autophagy and links to disease. To address these challenges, Her team use a combination of cell biological, biochemical, imaging, genomic and computational approaches, as well as disease-related model systems.



Konstantinos Palikaras  
Athens, Greece

Konstantinos Palikaras is an Assistant Professor of Experimental Physiology at the Medical School of the National and Kapodistrian University of Athens, in Athens, Greece. He is a molecular biologist with experience in energy metabolism, autophagy and ageing. His research focuses on studies of autophagy, mitophagy and cellular homeostasis investigating the role of energy metabolism in neuronal physiology and survival. His main interests are the molecular mechanisms of necrotic and mitophagic cell death and their interplay between cellular metabolism and ageing, and the development of novel genetic tools for biomedical research.



Shu-qin Cao  
UiO, Norway

Dr. Cao works on the identification of potential anti-AD drug candidates using natural molecules isolated from traditional Thai medicine, and indepth characterization of novel mitophagy inducers. In the Fang laboratory, she is also working on NAD<sup>+</sup> supplementation and TFEB, a master gene involved in autophagy regulation, in the context of AD. To do this she utilizes multiple AD models including cells, *C. elegans*, mice, as well as post mortem tissue from human donors.



Yie Liu  
NIA, USA

Dr. Liu's work focuses on telomeres, which are chromosome end capping structures that prevent chromosome termini from being recognized as broken DNA ends. Telomere shortening is a hallmark of aging and associated with a number of age-related pathologies. Dr. Liu's laboratory investigates the hypothesis that oxidative lesions and inadequate DNA structural resolution would impact telomere maintenance and function and explores alternative mechanisms for how telomere loss contributes to short telomere syndromes and age-associated organ decline and pathologies. Using a combination of molecular, genetic, and biochemical approaches, Dr. Liu is interested in probing (1) the key genes that modulate oxidative DNA lesions and unique DNA secondary structures at telomeres; (2) the effect of telomere maintenance deficiency on human diseases of accelerated aging and cancers; and 3) the molecular pathways that underlie the role of mitochondrial impairment upon telomere dysfunction, and its relevance to the telomere loss/dysfunction-mediated pathophysiology (or telomeropathy). These studies will enhance our understanding of how DNA lesions and structure resolution deficiencies and alternative mechanisms affect telomere maintenance and thus aging and related human diseases.



M. Scheibye-Knudsen  
CU, Denmark

Dr. Scheibye-Knudsen's lab focuses on trying to understand the cellular and organismal consequences of DNA damage in ageing with the aim of developing interventions to treat this damage, and thus ageing. His team have discovered that DNA damage leads to changes in certain metabolites and that replenishment of these molecules may alter the rate of ageing in model organisms. These findings suggest that normal ageing and age-associated diseases may be malleable to similar interventions. The hope is to develop interventions that will allow everyone to live healthier, happier and more productive lives.



Guang Yang  
Imperial, UK

Dr Guang Yang is a Future Leaders Fellow (Tenured Advanced Research Fellow) in the National Heart and Lung Institute at Imperial College London. He is also an Honorary Senior Lecturer in the School of Biomedical Engineering & Imaging Sciences at King's College London. His research group is interested in developing novel and translational techniques for imaging and biomedical data analysis. His group focuses on the research and development of data-driven fast imaging, data harmonisation, image segmentation, image synthesis, federated learning, explainable AI etc. He is currently working on a wide range of clinical applications in cardiovascular disease, lung disease and oncology. Read more information about Yang's Lab at: <https://www.yanglab.fyi/>



Sarah Mitchell  
ETH, Switzerland

Dr. Sarah Mitchell is a senior scientist at ETH Zurich in the Healthy Ageing group. The Healthy Ageing group is interested in developing late-life dietary and pharmacological interventions for improving health and reducing frailty, with an ultimate goal of translation to humans. To do this they utilize mouse and rat models of ageing with a systems biology approach. They use longitudinal high dimensional phenotyping coupled with multi-omic methods and machine learning approaches to identify novel molecular and physiological signatures of ageing and frailty. Dr. Mitchell is also passionate about training the next generation of geroscientists. The Healthy Ageing group will be moving to the Lewis-Sigler Institute of Integrative Genomics and Ludwig Cancer Center at Princeton University in 2023.



Lynne Cox  
Oxford, UK

Dr. Cox's group focuses on the molecular and cellular basis of ageing to identify specific biochemical processes and pathways that change as cells and organisms age. Her team is particularly interested in cellular senescence, a process which may underpin serious age-related diseases including arthritis, cardiovascular disease, lung fibrosis, neurodegeneration, retinopathy and some cancers. By combining traditional target-based studies with broader phenotypic and systems biology approaches, her group can identify new ways to control the damaging aspects of cell senescence, with the aim of discovering novel drugs (and their targets) to treat or even prevent multiple diseases associated with later life.



Jon Storm-Mathisen  
UiO, Norway

Jon Storm-Mathisen is a Norwegian brain researcher. He is professor emeritus of medicine at the University of Oslo. Storm-Mathisen was previously deputy head of the Center for Molecular Biology and Neuroscience. He retired in 2011. He received the Anders Jahres medical prize in 2006 for his pioneering research on signaling substances in the brain. In the justification for the award, it was stated that Jon Storm-Mathisen has shown that nerve cells in the brain communicate using the amino acid glutamate as a signaling substance, which was surprising. He also received the University of Oslo's research prize in 2004, on the grounds that he was fundamental to the now flourishing community in neurobiology. [2] He has been awarded the Nansen Medal, the Lundbeck Prize, the Anders Jahres Medical Prize and is a member of the Norwegian Academy of Sciences. He has also chaired the Kavli Prize Committee for Neuroscience. He is one of Norway's most cited researchers and has published 290 research articles. Already in 2010, he was one of fourteen researchers at Norwegian institutions ranked as highly cited in the ISI index



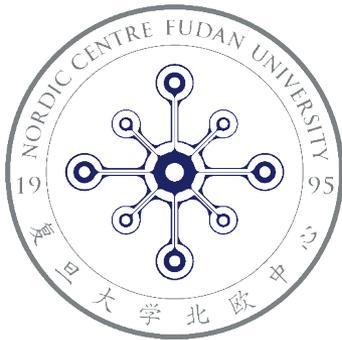
Evandro F. Fang  
UiO/Ahus, Norway

Dr. Evandro Fei Fang is a molecular gerontologist whose research lab is aimed at understanding the molecular mechanisms of human aging and age-related diseases. His team uses bench-top knowledge to guide the development of novel interventional strategies towards human aging, with a final goal of improving the quality of life in all older people. In addition to his science, he is passionate about teaching and training junior scientists and leads an extremely collaborative and highly productive lab at the University of Oslo.

# Acknowledgements



## The Hong Kong-Nordic Research Network



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



U. of Oslo



U. of Copenhagen



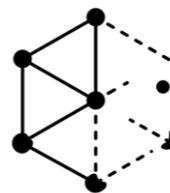
香港中文大學

Chinese U. of Hong Kong



NTNU

Norwegian U. of Science and Technology



K.G. Jebsen Centre for Alzheimer's Disease



Kavli Institute for Systems Neuroscience



NO-Age



NO-AD



MIT-AD