JAPAN

SORBONNE UNIVERSITY ALLIANCE

SYMPOSIUM
PARIS

8-9 DEC
2025

Global Health and Aging

Toward a bio-psycho-social age, a metrics to foster Brain, Mind & Physical Healthy Aging

National Center for Geriatrics and Gerontology

Tokyo Metropolitan Institute for Geriatrics and Gerontology

University of Tokyo Hospital

Japan Geriatrics Society

Under the theme “Global Health and Aging : Toward a Bio-Psycho-Social Age”, this two-day event will bring together experts in geriatrics, biology, public health, technology, and social sciences to share innovative research, policies, and metrics for fostering brain, mind, and physical well-being in aging populations.

From frailty and biological resilience to nutrition, muscle health, and end-of-life care, discover how interdisciplinary collaboration can shape healthier, more inclusive aging societies.

ASU-GHI
Global Health Institute
ALLIANCE SORBONNE UNIVERSITÉ

National Center for
Geriatrics and Gerontology
National Research and Development Agency

東大病院
The University of Tokyo Hospital

TMIG
Tokyo Metropolitan Institute for Geriatrics and Gerontology

THE JAPAN GERIATRICS SOCIETY

Conference Schedule

DAY 1 - Monday 8 December

Sorbonne University - Pierre et Marie Curie Campus, 4 pl. Jussieu, 75005 Paris | Amphi 25 (see access information page 46)

8.30 - 9.05am | **Opening**

Sorbonne University & Japan collaboration

Guillaume Fiquet

Presentation of Global Health Institute

Juan Fernando Ramirez & Jean Michel Oppert

Presentation of National Center for Geriatrics and Gerontology & their expectations

Hidenori Arai

Presentation of Tokyo Metropolitan Institute for Geriatrics and Gerontology & their expectations

Masahiro Akishita

Current state of our exchanges, objectives of the seminar - Agenda and presentation of the participants

Kiyoka Kinugawa

9.10 - 9.40am | **How to measure Healthy Aging, a Global Health approach**

Kiyoka Kinugawa

9.40 - 10.10am | **Japan's Medical Research Strategy with Focus on Geriatric Medicine**

Yumi Kameyama

10.10 - 10.40am | **Aging and health nutrition in Africa : the case of South Africa and Cameroon**

Emmanuel Cohen

10.40 - 11.10am | **Healthy diet for better well-being : Applying preventive Insights from Japanese cohort studies to community health**

Rei Otsuka

10-MINUTE BREAK

11.20 - 11.50pm | **Long-term health effects of working conditions and unemployment**

Pierre Meneton

11.50 - 12.20pm | **Mental, Physical, psycho-social things after Covid-19 pandemic in Japan**

Koichi Kozaki

12.20 - 12.50pm | **Can the right to assisted dying be justified ? End of life in France between ethics and law**

Jean Cassien-Billier

12.50 - 1.20pm | **End of Life care in Japan and Korea**

Yoshihiro Kitamura

1.20 - 2.30pm | *LUNCH*

Afternoon programme

by invitation only

2.30 - 4.30pm | **Workshops between Alliance Sorbonne University & Japan**

Salle Panoramique 2402, Tour Zamansky

6.00 - 7.30pm | **Cocktail**

Salle Panoramique 2400, Tour Zamansky

DAY 2 - Tuesday 9 December

Pitié-Salpêtrière Hospital, 83 bd. de l'Hôpital, 75013 Paris | Amphi Charcot
(see access information page 47)

8.30 - 9am | **Implementation and research of the concept of frailty**

Shosuke Satake

9 - 9.30am | **Immune resilience in elderly facing an acute clinical event**

Delphine Sauce

9.30 - 10am | **Mitochondrial Respiratory Chain Supercomplex and Healthy Aging**

Satoshi Inoue

10 - 10.30am | **Healthcare system in Japan : Hospitalization costs of Hospital-acquired complications among adults aged 75 years or older with dementia**

Seigo Mitsutake

20-MINUTE BREAK

10.50 - 11.20am | **On evaluating Muscle Aging using HD-sEMG technique**

Sofiane Boudaoud

11.20 - 11.50am | **Asian Working Group for Sarcopenia 2025 Consensus : Promoting muscle health for healthy aging**

Hidenori Arai

11.50 - 12.20am | **Spatial Navigation to evaluate motor and cognitive Ageing**

Laure Rondi-Reig

12.20am - 12.50pm | **Development of Non-Pharmacological Interventions for Dementia Prevention in Japan: The J-MINT Trial and Its Social Implementation**

Takashi Sakurai

12.50 - 2pm | *LUNCH*

Afternoon programme

by invitation only

2 - 2.45pm | **Transfer to Charles Foix Hospital**

3 - 5pm | **Visit of Charles Foix Hospital, UMS Autonomie living lab**

Hidenori **ARAI**

MD, PhD
President, National Center for Geriatrics and Gerontology (NCGG), Japan

Biography, research expertise, interests :

Hidenori Arai is a geriatrician and the President of the National Center for Geriatrics and Gerontology (NCGG), Japan. He is also the President of the Japanese Association on Sarcopenia and Frailty.

After graduating from Kyoto University School of Medicine in 1984, he became a Professor in the Department of Human Health Science at Kyoto University School of Medicine in 2009. Then, he moved to NCGG as the Deputy Director in 2015. He became the Director in 2018 and the President of NCGG in 2019. He is a co-chairman of the Asian Working Group for Sarcopenia and the Asian Working Group for Cachexia and is President-elect of the IAGG-Asia Oceania Region.

His primary research interest is frailty, sarcopenia, and dementia prevention for healthy aging.

Presentation of National Center for Geriatrics and Gerontology & their expectations

The National Center for Geriatrics and Gerontology (NCGG) is a leading institution in Japan dedicated to addressing the challenges of a rapidly aging society. Established in 2004, the NCGG serves as a national think tank and research center, with a core mission to promote the physical and mental independence of older adults and contribute to a society of healthy longevity. The institution's multifaceted approach combines advanced medical care with comprehensive research, aiming to create a seamless system from medical treatment to long-term care.

NCGG's expectations are shaped by Japan's demographic realities, where the proportion of people aged 65 and over is projected to exceed 40% by mid-century. This has led the center to prioritize a paradigm shift from conventional «cure-seeking» care to «cure- and support-seeking» care. NCGG expects to make significant strides in several key areas. Dementia and Cognitive Decline : The center is actively involved in large-scale intervention trials for dementia prevention, including the J-MINT study. It also operates one of the world's largest memory clinics, with a focus on advanced trials and elucidating the biological mechanisms of Alzheimer's disease. Frailty and Locomotive Syndrome : NCGG is at the forefront of research into frailty, sarcopenia, and locomotive syndrome. It aims to develop and standardize treatment strategies for these conditions, which are a major cause of reduced independence in older adults. NCGG conducts extensive epidemiological studies, such as the NILS-LSA, to systematically observe and describe the process of normal aging in Japanese people. This research aims to identify factors associated with longevity and inform public health policies. Beyond its clinical and research work, the NCGG plays a vital role in policy development and social implementation.

The NCGG aims to contribute to community-based care by disseminating its research findings and knowledge. This includes training for geriatric and home care professionals and promoting the concept of a seamless system of preventive, medical, and long-term care within communities. NCGG anticipates an increased use of assistive technologies, such as robotics, to support older adults and their carers. The Assistive Robot Center is a key part of this strategy, aiming to develop and implement solutions that enhance daily living functions and quality of life. As a global leader in aging research, NCGG expects to share its findings and collaborate with international research institutions to address the universal challenges of population aging.
Thus, NCGG's expectations are to lead a national effort to ensure that Japan's long life expectancy is accompanied by a high quality of life, independence, and dignity for its older population. This is to be achieved through a combination of cutting-edge research, advanced clinical care, and the practical application of knowledge to society.

Masahiro **AKISHITA**

MD, PhD
CEO & President, Tokyo Metropolitan Institute for Geriatrics and Gerontology

Biography, research expertise, interests :

Masahiro Akishita graduated from The University of Tokyo School of Medicine in 1985, and got a PhD in Medicine at The University of Tokyo Graduate School of Medicine in 1995.

After working as a PosDoc at Stanford University and Harvard Medical School, and Associate Professor at Kyorin University and The University of Tokyo, he became Professor and Chief at Department of Geriatric Medicine, Graduate School of Medicine, The University of Tokyo in 2013.

In 2024, he moved to Tokyo Metropolitan Institute for Geriatrics and Gerontology as President, and became CEO in 2025.

He is a board-certified geriatrician. His research interest includes frailty, dementia, and geriatric syndrome such as polypharmacy. He is the former president of the Japan Geriatrics Society.

Presentation of Tokyo Metropolitan Institute for Geriatrics and Gerontology & their expectations

Tokyo Metropolitan Institute for Geriatrics and Gerontology (TMIG) serves as a leading center integrating advanced clinical care, cutting-edge research, and community health for older adults.

With a mission of providing « patient and family friendly care », the hospital specializes in treating cardiovascular diseases, cancer, dementia, and diabetes—conditions frequently encountered in older adults. The hospital also addresses common geriatric conditions such as frailty, sarcopenia, and sensory disorders, while offering minimally invasive treatments, and plays a central role in geriatric emergency care and long-term health promotion in the region. The research institute focuses on the mechanisms of aging and the prevention and management of age-related diseases, conducting cohort studies to support next-generation medical and care models. TMIG aims to bridge research and practice, creating scalable systems for super-aged societies.

With a legacy dating back to 1872, TMIG continues to pioneer innovations for healthy and dignified aging. Through international collaboration, including with Sorbonne University, we seek to develop solutions for global aging challenges and share best practices for a sustainable and inclusive future.

Kiyoka **KINUGAWA-BOURRON**

MD, PhD
Executive Committee of the Alliance Sorbonne University Global Health Institute and leader of the axis Aging-Vulnerability-Autonomy

Biography, research expertise, interests :

Kiyoka Kinugawa is a neuro-geriatrician at Sorbonne University. She heads the Functional Investigation Unit of the Older Person at Charles Foix Hospital/AP-HP, a geriatric university hospital. She is a member of the Executive Committee of the Alliance Sorbonne University Global Health Institute, leading the Aging-Vulnerability-Autonomy axis.

Member of the scientific committee of the French Geriatrics & Gerontology Society and French national teaching committees for Geriatrics and Sleep Medicine. Her research focuses on :

- Clinical research: Neurodegenerative and sleep disorders in older adults; developing diagnosis/monitoring tools for sarcopenia and muscle aging ; developping metric for healthy aging.
- Basic research (INSERM/Sorbonne, UMRS1158): Impact of sleep intermittent hypoxia on neurodegenerative pathology and cellular senescence (molecular to neurobehavioral levels).

How to measure Healthy Aging, a Global Health approach

The process of human ageing is complex and varies from person to person across biological, psychological, and social dimensions.

The World Health Organization (WHO) has declared a Decade of Healthy Ageing (2021–2030), representing ten years of collaborative international efforts. Healthy ageing involves developing and maintaining the functional abilities that enable well-being in later life.
Functional ability comprises the intrinsic capacity of the individual, relevant environmental characteristics, and the interactions between them. However, current tools for assessing healthy ageing remain fragmented. They are often limited to biological or functional dimensions and do not fully integrate psychosocial, contextual, or cultural aspects.

There is a need to develop a global, holistic, and comprehensive measure of bio-psycho-social age for healthy ageing. This measure should combine multiple objective indicators (such as intrinsic capacity, socio-economic environment, and biological factors) and subjective indicators (such as perception of health and well-being) to accurately reflect healthy ageing.

We will start to study using the French cohort (CONSTANCES), and the idea is to foster international collaboration for comparison/validation in cohorts froms other countries.

Yumi
UMEDA-KAMEYAMA

MD, PhD
Department of Geriatric Medicine,
The University of Tokyo Hospital
Deputy Director National Healthcare Policy
Secretariat Cabinet Office, Government of Japan

Biography, research expertise, interests :

Yumi Umeda-Kameyama earned her MD from Tokyo Women's Medical College in 1998 and completed her PhD at the University of Tokyo School of Medicine in 2006. She trained in Neurology at the University of Strasbourg, France (1998–1999). She served as Assistant Professor and then Lecturer in Geriatric Medicine at the University of Tokyo (2014–2022), and as Vice Director of the Dementia Center at the University of Tokyo (2022–2024).

She is an active council member of several medical societies, including geriatrics and gender-specific medicine.

Her research focuses on olfactory function and dementia, perceived age, and the development of AI-based methods to detect dementia from facial images.

Japan's Medical Research Strategy with Focus on Geriatric Medicine

Japan has developed a comprehensive research funding system to promote medical and health innovation, involving key organizations such as the Japan Agency for Medical Research and Development (AMED), the Grants-in-Aid for Scientific Research (KAKENHI), the Ministry of Health, Labor and Welfare (MHLW), and the Japan Science and Technology Agency (JST). Each plays a distinct role in supporting various stages of research, from basic science to clinical application and public health policy.

AMED, established in 2015, coordinates medical R&D funding across ministries and promotes translational and goal-oriented research in areas like cancer, regenerative medicine, infectious diseases, and digital health. It connects academia, industry, and government to accelerate innovation.

KAKENHI is the country's main competitive grant system for basic, investigator-driven research. It supports a wide range of medical and life science studies, encouraging academic freedom and long-term exploration.

MHLW's Health and Labor Sciences Research Grants focus on applied research that informs health policies, clinical guidelines, disease prevention, and welfare systems.

When it comes to geriatric medicine, researchers in Japan are focusing on a variety of key areas. These include studying age-related chronic diseases such as Alzheimer's disease, osteoporosis, cardiovascular diseases, and diabetes. In addition, AI and robotics are key technologies being leveraged to support aging populations and improve healthcare delivery.
MOONSHOT is a project/initiative to extend healthy life expectancy to 100 years by the year 2050. I would like to present an overview of the project.
By investing in research funding and fostering collaboration between academia, industry, and government, Japan is at the forefront of advancing geriatric medicine and improving healthcare outcomes for older adults.

Emmanuel **COHEN**

UMR 7206 "Eco-anthropologie",
Musée de l'Homme, Paris, France
(Alliance Sorbonne Université)

Biography, research expertise, interests :

Emmanuel Cohen is a biocultural anthropologist and tenured researcher at the French National Centre for Scientific Research (CNRS), based at the National Museum of Natural History in Paris, France, within the 7206 "Eco-anthropology" Mixed Research Unit.

He works on both the biological adaptations of the human body and the variable sociocultural conceptions of the body among populations undergoing ongoing lifestyle transitions due to urbanization.

He adopts a holistic approach, focusing on the impact of the urban transition—particularly the combined demographic, nutritional, and epidemiological transitions—on the health of African and Western populations experiencing these lifestyle changes, with particular attention to at-risk subgroups such as elders.

Aging and health nutrition in Africa : the case of South Africa and Cameroon

The African continent is experiencing a rapid urbanization process leading to a nutrition transition exposing to emerging cardiometabolic diseases (Type 2 diabetes, hypertension, etc.).

However, these rising non-communicable diseases (NCD) coexist with persisting communicable diseases (CD) as infectious and under-nutrition diseases stemming from the residual influence of the preindustrial lifestyle. Such an epidemiological transitional dynamic is called double burden.

Consequently, the syndemic has become the most common public health context to be addressed by public authorities in Africa. Indeed, the combined effects of NCD and CD affect people at an individual scale, as obesity and HIV in South Africa or obesity and malaria in Cameroon.

This communication will present, through two case studies in both countries, how syndemics are actually a real public health challenge in the continent, especially among elders for which the double burden of NCD and CD is the highest.

Rei **OTSUKA**

PhD
Researcher, National Center for Geriatrics and Gerontology, Japan

Biography, research expertise, interests :

Rei Otsuka is a researcher at the National Center for Geriatrics and Gerontology in Japan, where she is actively involved in the NILS-LSA study.

After earning her graduate degree from Nagoya University, she has focused her research on nutritional epidemiology and public health.

Her current interests include investigating dietary and nutritional factors that support health from midlife into older age, as well as conducting epidemiological studies on aging.

Healthy diet for better well-being : Applying preventive Insights from Japanese cohort studies to community health

To prevent and mitigate the progression of dementia through diet, the results of Japanese cohort studies, including the NILS-LSA (National Institute for Longevity Sciences - Longitudinal Study of Aging) cohort study, suggest that rather than a single food or nutrient, a nutritionally balanced diet that integrates a variety of foods and nutrients can contribute to the maintenance of brain function and be effective in preventing dementia (Otsuka R, Geriatr Gerontol Int. 2022).

Additionally, Japan-Multimodal Intervention Trial for the Prevention of Dementia: A randomized controlled trial (J-MINT study) has demonstrated the effectiveness of multidomain intervention, including increased dietary diversity, in preventing cognitive decline among Japanese older adults with mild cognitive impairment (Sakurai T, Arai H, et al., Alzheimer's Dement. 2024). Then, how can we deliver a healthy diet for better well-being to the community?

In this symposium, I will introduce our efforts related to social implementation and discuss how we can further promote the social implementation of proper dietary intervention for older people in the Japanese community.

Pierre **MENETON**

PhD
Senior researcher at the Institut national de la santé et de la recherche médicale (Inserm) in Paris, France

Biography, research expertise, interests :

Pierre Meneton's expertise is in the study of the relationships of working conditions, social position and unemployment exposure with the prevalence and incidence of common unhealthy behaviors and clinical disorders, cardiovascular diseases, cancers and mortality.

Long-term health effects of working conditions and unemployment

Professional life is characterized by working conditions and, sometimes, unemployment episodes, both of which have profound effects on workers' health.

Using data from two French cohorts — one population-based (Constances) and the other worker-based (Gazel) — we analyzed the respective health effects of harsh working conditions and exposure to unemployment. Although the two are strongly correlated, they independently increase the prevalence/incidence of common behavioral (e.g., smoking, high alcohol consumption, and a sedentary lifestyle) and clinical (e.g., obesity, hypertension, diabetes, and depression) risk factors.

These risk factors partially explain the increased prevalence/incidence of cardiovascular diseases and cancers, as well as higher mortality rates. These detrimental health effects are observed not only in workers, but also in retirees, despite them no longer being exposed to harsh working conditions or unemployment.

Thus, improving working conditions and limiting periods of unemployment are paramount to improving the lifetime health of people in high-income countries, such as France.

Koichi **KOZAKI**

Professor
Department of Geriatric Medicine,
Kyorin University School of Medicine, Japan

Biography, research expertise, interests :

Koichi Kozaki graduated from the University of Tokyo in 1986 with an MD and earned his PhD in 1995. He was a research fellow at the University of Washington and became Professor at Kyorin University in 2010, also serving as Director of the Center for Comprehensive Care for Dementia.

In 2023, he was appointed President of The Japan Geriatrics Society.

His research focuses on dementia, frailty, and sarcopenia, integrating clinical care and academic research to advance geriatrics.

Mental, Physical, psycho-social things after Covid-19 pandemic in Japan

The COVID-19 pandemic, which started in 2020, inflicted significant harm on aging societies.

Its impact extended beyond the direct threat to the lives of older adults, affecting cognitive function, mood, and the progression of frailty from confinement. This holds true not only among individuals infected with COVID-19, but is true to those who were not.

This is supposedly due to all too drastic changes in lifestyle brought about by the pandemic.

In this talk, I would like to look back and discuss about the total health threats to older adults, including cognitive, mental and psychosocial things, which COVID-19 pandemic brought about in Japan, and in the whole world.

Jean-Cassien **BILLIER**

Senior Lecturer in Philosophy, Department of Philosophy, Sorbonne University, member of the Sciences Normes Démocratie (SND- UMR 8011) laboratory

Biography, research expertise, interests :

Jean-Cassien Billier is a Senior Lecturer at Sorbonne University in the Master's programme in political philosophy and ethics, and also teaches public ethics at Sciences Po Paris within the Master's programme at the School of Public Affairs.

His research areas include contemporary moral philosophy, bioethics, biomedical humanities, and ethics of war.

Can the right to assisted dying be justified ? End of life in France between ethics and law

The right to access deep and continuous sedation until death was introduced by the Claeys-Leonetti law of 2 February 2016, aimed at relieving any refractory suffering of a patient with a serious and incurable condition and whose prognosis is life-threatening in the short term, or, if they are unable to express their wishes, whose life depends on treatments that are considered unreasonable obstinacy. The core of this doctrine is the relief of suffering and the refusal to cause death.

Bill No. 661, passed on 27 May 2025 by the National Assembly, marks a clear break with the Claeys-Leonetti law, as it proposes to establish a right to assisted dying for adult patients suffering from a serious and incurable condition, subject to various strict conditions. The patient must self-administer the lethal substance ; however, if they are physically incapable of doing so, the law allows a doctor, nurse, or even a person of their choice (a relative or volunteer) to assist them.

The purpose of this presentation at the conference is to examine some of the fundamental aspects of the ethical controversy underlying the French legislative debates.

Yoshihiro **KITAMURA**

Professor
Nippon Medical School, Tokyo, Japan
President
Japan Society for Dying with Dignity

Biography, research expertise, interests :

Yoshihiro Kitamura served as a Professor at the Chinese Academy of Sciences in Beijing from 2006 to 2011, and at the International University of Health and Welfare, Japan, from 2011 to 2017. Since 2020, he has been a Professor at Nippon Medical School, and in 2021, he became President of the Japan Society for Dying with Dignity.

His work focuses on end-of-life care, thanatology and he is interested in individualized education for medical students with poor academic performance.

End of Life Care in Japan and Korea

Voluntary assisted dying (VAD), not uncommon in Western countries, is based on respecting the patient's right to self-determination in end-of-life care. VAD is not legal at all in Asian countries.

Nevertheless, the legalization of advance directives for end-of-life care has been achieved in South Korea, Taiwan, Shenzhen (China), and Singapore. The laws in Shenzhen and Singapore are based on respecting the right to self-determination, similar to the Western approach. In contrast, in South Korea and Taiwan, the opinions of family members are respected equally alongside the patient's own wishes.

The legalization of advance directives in Japan is currently underway. Its content is also expected to strongly reflect the wishes of family members. Both the government and the medical association recommend Advance Care Planning (ACP).

In Western countries, ACP is a collaborative process among the patients themselves, their family members, and healthcare providers to achieve patient's wishes regarding end-of-life care. In contrast, in Japan it has become a process for the patient to understand the family's wishes. This is likely because Japan has a high volume of end-of-life care for the elderly patients with dementia. I intend to discuss the cultural background that influences the reflection of family intentions.

Shosuke **SATAKE**

MD, PhD
Department of Frailty Research, National Center for Geriatrics and Gerontology (NCGG), Japan

Biography, research expertise, interests :

Shosuke Satake earned his MD from Kochi Medical School in 1990 and a PhD from Nagoya University Graduate School of Medicine in 1998.

In 2021, he became Director of the Department of Geriatric Medicine at NCGG. In 2022, he then became Director of the Department of Frailty Research at NCGG.

His research focuses on frailty and aging, and he has received awards for contributions to geriatrics research, including best oral presentation and best article recognitions.

Implementation and research of the concept of frailty

As developed countries face aging societies, the impact of medical and nursing care issues on society has grown significantly. Until now, advances in medicine have focused on promoting longevity, but now that we have entered an era where people can live to their full biological lifespan, there is a need for medical care that aims to extend independent healthy life expectancy. In this sense, we believe that the concept of frailty is key to managing health in old age.

Although there is still no consensus on the concept, it is considered to be a state in which minor stressors can lead to unexpected health problems. A life course approach is desirable for the prevention, treatment, and management of such conditions, and the WHO has proposed the concept of intrinsic capacity.

In Japan, the long-term care insurance system was established before the concept of frailty was introduced, and preventive care was incorporated into the system. At that time, a self-administered questionnaire called the Kihon Checklist was used to identify people at high risk of needing long-term care in the near future, and a system was established to intervene with those people. The NCGG established a frailty clinic to conduct assessments on the risk of dependency to support healthy longevity, and has conducted registry studies of patients in conjunction with its biobank project.

At this symposium, I plan to report on initiatives that have implemented the concept of frailty in healthcare and medical treatment, as well as related results.

Delphine **SAUCE**

Research Director in immunology at Inserm
Head of the team "Microbiota & Immune Trajectories" at Faculty of Health, Sorbonne University

Biography, research expertise, interests :

Delphine Sauce's main research interest relies on the interplay between chronic infections, inflammation and immune aging. She focuses on immune signatures and biomarkers that can predict vulnerability in elderly populations, particularly in the context of chronic infections and acute stress.

To do so, she is developing translational research initiatives that bridge fundamental immunology with clinical applications. Her team employs comparative studies to elucidate the cellular and molecular changes underlying immune aging & frailty, with the goal of improving clinical interventions for age-related diseases and immune resilience.

Notably, her research led to the identification of biomarkers released by activated macrophages that predicts patient outcomes following acute stress in elderly patients (hip fracture surgery or Covid-19).

Immune resilience in elderly facing an acute clinical event

Our society faces a major challenge with the management of the health and socio-economic burden caused by aging of the population (older than 75 years). As society ages, the incidence of physical limitations is dramatically increasing, which reduces the quality of life and increases healthcare expe ditures. In western society, ~20% of the population over 60 years is confronted with moderate or severe physical limitations. This fragility results in a higher morbidity and mortality where the deleterious role of inflammation is often debated. In this context, we used hip fracture (HF) as an acute stress model that accelerates the progressive course of aging. Nowadays, this trauma, which affects around 1.6 M patients worldwide, is still associated with poor clinical outcomes in the elderly (20-30% one-year mortality; 50% inability to walk). This emphasizes the value of assessing biological factors that may predict clinical outcome after HF.

Our aim is to decipher mechanisms taking place during this medical situation, by comparing immunity from patients with different clinical outcomes (autonomy or death) in order to decrypt the respective pathways involved. We analyze longitudinally immunological parameters evocating of the Immune Risk Phenotype in sequential pre- and post-surgical samples collected from HF patients over 75 years of age. Clinical outcomes (death and capacity to walk) were collected retrospectively. The different markers, such as white blood cells counts, circulating T- B- & NK-cells (naïve/ memory/activation status), CMV responsiveness, and inflammatory moleculeswere screened by flow cytometry and Luminex to determine the immune status of such patients.

The study revealed that HF is associated with a profound impairment of immunity. Comparing healthy elderly individuals and HF elderly patients, we found a transient T-cell leucopenia and an acute hyper-inflammationearly post fracture. Among this signature, we pinpoint a central role of neopterin (an immune activationmarker) which predicts the loss of autonomy and death. Both innate and adaptive immunity are affected transitory during this medical event which leads to different immune trajectories. The identification of these pathways could result in the development of new therapeutic stratgies for better care of the geriatric population.

Satoshi **INOUE**

MD, PhD
Director, Department of Systems Aging Science and Medicine, Tokyo Metropolitan Institute for Geriatrics and Gerontology

Biography, research expertise, interests :

Satoshi Inoue has more than thirty years of experience in the field of endocrinology and metabolism.

He has a long-standing interest in the role of hormone signaling in health and diseases. He has made important contributions to our understanding of how the estrogen and androgen receptors, their cofactors, and downstream factors influence physiological processes and diseases.

He and his colleagues have authored over 400 publications focusing on nuclear receptors, long non-coding RNAs, RNA-binding proteins, ubiquitin ligases, vitamins, aging, age-related diseases, cancers, human genetics and mitochondrial respiratory supercomplexes.

Mitochondrial Respiratory Chain Supercomplex and Healthy Aging

Mitochondria play important roles in physiological and pathophysiological functions as the energy source. Mitochondrial respiratory chain (MRC) complexes (I, II, III, and IV) are essential for ATP synthesis and the higher-order MRC supercomplexes is assumed to be involved in efficient ATP generation and metabolic adaptation.Therefore, roles and regulation of these supercomplexes should be clarified in health and diseases. Interestingly, we have discovered that COX7RP is the key assembly factor of MRC supercomplex formation, which promotes exercise performance in mice. Notably, the phenotypes of COX7RP transgenic mice are related to healthy aging. COX7RP is transcriptionally regulated by estrogen receptor, as well as estrogen-related receptors.

Meanwhile, we developed a method to visualize and quantify the supercomplex formation using the FRET phenomenon. By this method, we identified multiple candidate compounds that promote the supercomplex formation and mitochondrial respiration in myoblastic cells.

Then, we demonstrated that the administration of these compounds improves exercise performance in mice.

Thus, we will discuss about roles of MRC supercomplex formation in healthy aging.

Seigo **MITSUTAKE**

Principal Researcher
Human Care Research Team, Tokyo Metropolitan Institute for Geriatrics and Gerontology

Biography, research expertise, interests :

With a background in physiotherapy, Seigo Mitsutake conducts epidemiological studies using hospital administrative and population-level data to optimize hospital care, long-term care, and transitional care interventions for older adults.

As a Visiting Research Fellow at the Australian Institute of Health Innovation at Macquarie University, he has examined hip fracture health outcomes among older adults in Australia. He has led projects examining risk predictors for potentially preventable readmissions within 30 days after hospital discharge and hospital-associated complications of older patients using medical big data in Japan and Australia.

Healthcare system in Japan : Hospital length of stay and cost of Hospital-acquired complications among older adults aged 75 years or older with dementia

In Japan, older adults aged 75 or older account for about half of the total inpatient medical care costs. Also, hospitalization can impose a heavy physical and psychological burden on older adults with dementia, leading to hospital-acquired complications (HACs) such as delirium, which may add burden on patients, healthcare providers, and the health system. It is estimated that approximately 15% of the total hospital care costs reportedly resulted from HACs in the Organization of Economic Cooperation and Development's countries.

The prior study showed that for older adults following a hip fracture who had HACs, hospital LOS and costs were over 40% higher compared to those without HACs in New South Wales, Australia (Mitsutake et al., Osteoporos Int, 2025). However, there is a lack of population-based studies examining the effects of HACs on hospital length of stay (LOS) and care costs among older adults in Japan. I have examined two questions using a retrospective cohort study using medical insurance claim data from Hokkaido, Japan : (1) By how much do HACs increase hospital LOS and costs ? (2) Does dementia amplify the association between HACs and these outcomes ? Estimating the impact of HACs on hospital LOS and costs is essential to inform decisions regarding the allocation of healthcare resources.

Sofiane **BOUDAOUD**

Biomechanics and Bioengineering Lab
(UMR 7338 CNRS)
Director of the Biological Department
University of Technology of Compiègne France
Adjunct Professor at Waterloo University

Biography, research expertise, interests :

Sofiane Boudaoud is full professor in signal processing and modelling related to biomedical applications at BMBI lab, University of Technology of Compiègne. He co-leaded until recently the C2MUST team.

His main research interests are centered on biomedical signal processing and modelling related to the neuromuscular system using HD-sEMG technology. The main clinical application is muscle aging evaluation in the context of sarcopenia.

He is interested in developing AI-powered tools for prediction purposes.

On evaluating Muscle Aging using HD-sEMG technique

The aging of the population is a major public health problem with its multifactorial impact on the quality of life and maintaining autonomy. Recent studies aimed to monitor muscle aging, impacting both physiological and functional properties, in a preventive approach, and its effects on motor abilities in order to predict a risk of early loss of autonomy. Some of these studies, based on the use of the High-Density surface electromyography (HD-sEMG), a non-invasive and ambulatory technique for collecting electrical muscle activity maps, have demonstrated changes in the neuromuscular system with aging. This technique outperformed imaging and clinical scores in detecting early muscle aging with sedentary lifestyle that can lead to an early loss of autonomy linked to the onset of sarcopenia, a chronic deficiency of the neuromuscular system.

Then, it becomes interesting in a personalized prevention approach, to have a noninvasive tool for monitoring and helping to diagnose early muscle aging related to sarcopenia risk. This tool should incorporate signal processing and artificial intelligence.

In this presentation, several recent works in collaboration with AP-HP Hospital network (Prof. K Kinugawa) and Waterloo University (Prof. N. Jiang and Prof. J. McPhee), will be presented and discussed under the scope of muscle aging evaluation.

Hidenori **ARAI**

MD, PhD
President, National Center for Geriatrics and Gerontology (NCGG), Japan

Biography, research expertise, interests :

Hidenori Arai is a geriatrician and the President of the National Center for Geriatrics and Gerontology (NCGG), Japan. He is also the President of the Japanese Association on Sarcopenia and Frailty.

After graduating from Kyoto University School of Medicine in 1984, he became a Professor in the Department of Human Health Science at Kyoto University School of Medicine in 2009. Then, he moved to NCGG as the Deputy Director in 2015. He became the Director in 2018 and the President of NCGG in 2019. He is a co-chairman of the Asian Working Group for Sarcopenia and the Asian Working Group for Cachexia and is President-elect of the IAGG-Asia Oceania Region.

His primary research interest is frailty, sarcopenia, and dementia prevention for healthy aging.

Asian Working Group for Sarcopenia 2025 Consensus : Promoting muscle health for healthy aging

The Asian Working Group for Sarcopenia (AWGS) updated the 2025 consensus, which reframed sarcopenia management through a life-course approach to muscle health promotion. First, we expanded the scope of sarcopenia diagnosis and management to include middle-aged adults, with validated diagnostic thresholds for muscle mass and handgrip strength. Second, congruent with the Global Leadership Initiative in Sarcopenia (GLIS) criteria, we simplified the diagnostic algorithm to require only concurrent low muscle mass and low muscle strength. Third, we introduced a comprehensive muscle health framework that extends beyond the conventional role of skeletal muscle in mobility, recognizing it as a vital organ for healthy longevity and emphasizing its complex crosstalk with multiple organ systems throughout the aging process. This conceptual framework can be implemented within the WHO Integrated Care for Older People program, enabling systematic assessment and promotion of muscle health through existing care pathways. Thus, we provide evidence-based recommendations for multimodal interventions that combine resistance exercise with targeted nutritional supplementation.

This approach constitutes a paradigm shift toward proactive muscle health promotion from middle age onward and establishes a framework for reducing age-related functional decline and enhancing healthy longevity in Asian people.

Laure **RONDI-REIG**

PhD
Sorbonne Université, CNRS, Inserm, Center for Neuroscience (NeuroSU), F-75005 Paris, France
Sorbonne Université, CNRS, Inserm, Institut de Biologie Paris-Seine (IBPS), F-75005 Paris, France

Biography, research expertise, interests :

Laure Rondi-Reig is a CNRS Research Director and the Director of the Neuroscience Center at Sorbonne University, NeuroSU. She earned her PhD in Neuroscience from Université Pierre et Marie Curie, followed by a postdoctoral fellowship at MIT in Susumu Tonegawa's lab. She joined CNRS at Collège de France and later established a research group on the cerebellum, navigation, and memory at Sorbonne University.

She studies animal and human behavior to understand navigation in real and virtual environments, developing tools such as the Starmaze and the Navigation Analysis Tool. Her work includes behavioral electrophysiology and evaluation of spatial memory across the lifespan. She also studies cognitive aging and Alzheimer's disease, and co-founded iNAV, an interdisciplinary biennial conference on navigation.

She explores the functional link between sensory-motor processing and cognition, aiming to develop tools to assess and train memory for successful aging and cognitive health.

Spatial Navigation to evaluate motor and cognitive Ageing

Adopting a translational and cross-species approach, my lab develops behavioral paradigms for humans that are directly inspired by, or compatible with, those used in animal models. This strategy enables the identification of conserved cognitive mechanisms and therapeutic targets, particularly in domains such as spatial cognition, which remain underexplored in humans due to the predominance of language-based assessments.

To overcome this limitation, I invented the Starmaze, a language-minimized virtual navigation task assessing spatial learning and strategy use across the lifespan. This tool has revealed both developmental trajectories and age-related alterations in spatial memory and environmental encoding. These changes provide potential biomarkers of cognitive decline.

Notably, impairments in route learning in novel environments appear to be specific to Alzheimer's disease and distinguish it from both fronto-temporal dementia and healthy aging. Moreover, a decline in spatial flexibility may serve as an early indicator of pathological aging.

While current virtual navigation tasks offer a motivating and ecological way to assess spatial and episodic-like memory, the ongoing work of my lab aims to enrich these environments with measures of cognitive flexibility and executive function. This dual objective will pave the way for both diagnostic refinement and the development of targeted cognitive training interventions.

Takashi **SAKURAI**

MD, PhD
Director, Research Institute, National Center for Geriatrics and Gerontology, Japan

Biography, research expertise, interests :

Takashi Sakurai graduated with an MD from Kobe University School of Medicine in 1985 and earned his PhD from the Graduate School of Medicine, Kobe University in 1992.

He was a Research Fellow at the Department of Pharmacology, University of Washington in 1993 and subsequently held academic positions at Kobe University, including Assistant Professor and Lecturer.

He became Director of the Memory Clinic at the National Center for Geriatrics and Gerontology in 2010 and later Professor at Nagoya University.

Since 2022, he serves as Director of the Research Institute at NCGG.

Development of Non-Pharmacological Interventions for Dementia Prevention in Japan : The J-MINT Trial and Its Social Implementation

To prevent and mitigate the progression of dementia through diet, the results of Japanese cohort studies, including the NILS-LSA (National Institute for Longevity Sciences - Longitudinal Study of Aging) cohort study, suggest that rather than a single food or nutrient, a nutritionally balanced diet that integrates a variety of foods and nutrients can contribute to the maintenance of brain function and be effective in preventing dementia (Otsuka R, Geriatr Gerontol Int. 2022).

Additionally, Japan-Multimodal Intervention Trial for the Prevention of Dementia: A randomized controlled trial (J-MINT study) has demonstrated the effectiveness of multidomain intervention, including increased dietary diversity, in preventing cognitive decline among Japanese older adults with mild cognitive impairment (Sakurai T, Arai H, et al., Alzheimer's Dement. 2024). Then, how can we deliver a healthy diet for better well-being to the community?

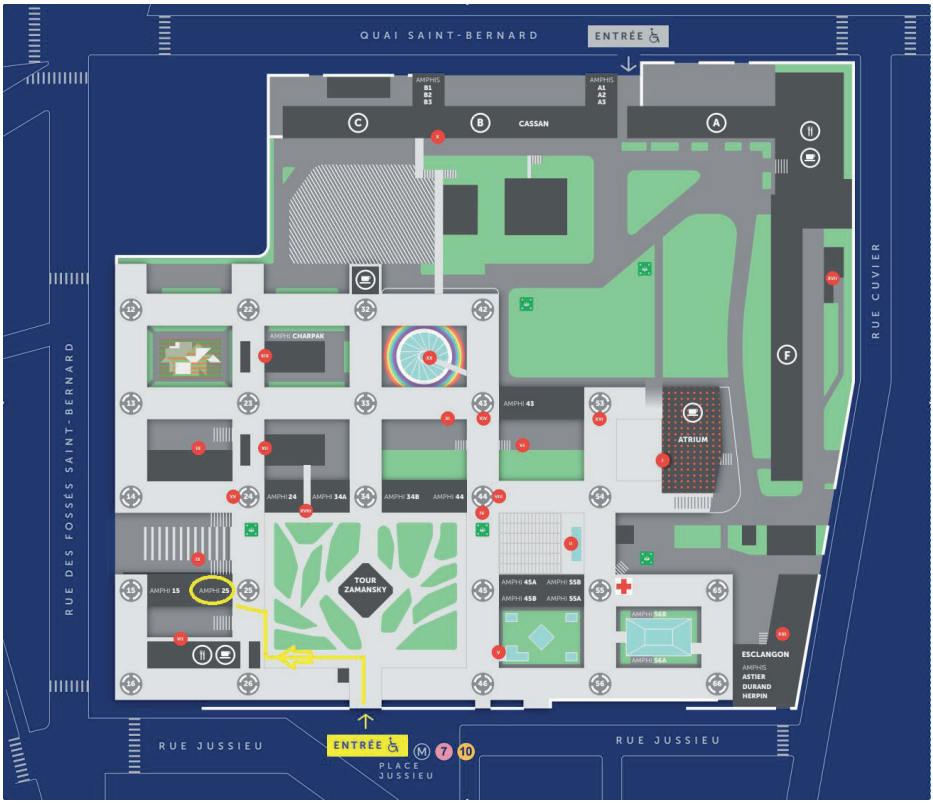
In this symposium, I will introduce our efforts related to social implementation and discuss how we can further promote the social implementation of proper dietary intervention for older people in the Japanese community.

Venue access

Please follow the yellow path to reach the corresponding amphitheatres

DAY 1 - Monday 8 December

Sorbonne University - Pierre et Marie Curie Campus, 4 pl. Jussieu, 75005 Paris | Amphi 25



DAY 2 - Tuesday 9 December

Pitié-Salpêtrière Hospital, 83 bd. de l'Hôpital, 75013 Paris | Amphi Charcot

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