**6th Edition**

# AGING & GERONTOLOGY

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**Venue Address:**

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## Excelling in Excellence

**6th Edition**

# AGING & GERONTOLOGY

June 12-13, 2023 | Budapest, Hungary (Hybrid Event)

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# KEYNOTE

## PRESENTATIONS

6th Edition

# AGING & GERONTOLOGY

June 12-13, 2023

Budapest, Hungary

AGING &
GERONTOLOGY
2023

## Designing and implementing decentralized longevity-focused clinical trials

### Sajad Zalzala

AgelessRx, USA

AgelessRx is the first of its kind telemedicine platform dedicated to providing therapies that have the potential to help humans live longer and healthier. The Medical Director and co-Founder of AgelessRx, Dr Sajad Zalzala, will discuss his company's experience with decentralized clinical trials focused on longevity. Desinging and implementing of such trials will be discussed, along with challenges and opportunities when it comes to recruitment, data collection, biobanking samples and sample collection. Other topics discussed will be the limitations of decentralization trials and a discussion on how to determine when a trial can be safely conducted in a decentralized manner.

### Biography

Sajad Zalzala, MD is a physician and entrepreneur, co-founder and Medical Director of AgelessRx. He completed us Medical Degree from Wayne State University in Detroit, Michigan and is licensed to practice medicine in all 50 States. He is the PI and author of several past and upcoming research projects, including the much anticipated PEARL rapamycin trial – the largest to date trial of rapamycin for longevity.

## Taking Rejuvenation to Longevity escape velocity

## Aubrey De Grey

LEV Foundation, USA

### Biography

Dr. Aubrey de Grey is internationally recognised as the visionary biomedical gerontologist who devised the Strategies for Engineered Negligible Senescence: a comprehensive set of methods to rejuvenate the human body, thereby preventing age-related ill health and mortality. He has co-founded multiple non-profit organizations – including Methuselah Foundation, SENS Research Foundation, and LEV Foundation – to enable and accelerate its development and clinical translation.

He received his BA in Computer Science and Ph.D. in Biology from the University of Cambridge in 1985 and 2000, respectively. He is the author of The Mitochondrial Free Radical Theory of Aging (1999), Ending Aging (2007), and a large number of academic papers.

Dr. de Grey is a Fellow of both the Gerontological Society of America and the American Aging Association, and sits on the advisory boards of numerous scientific journals and research organizations. He is a prolific speaker who regularly presents at conferences and events world-wide.

# ORAL

## PRESENTATIONS

6th Edition

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## Effects of tuna meet on the expression of Nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylase, longevity gene-associated sirtuin 2, in human peripheral blood mononuclear cells.

**Kazuo Yudoh**

Institute of Medical Science, St. Marianna University School of Medicine, Japan

The longevity gene-associated protein sirtuin 2, which encods for a NAD-dependent deacetylation enzyme activity, plays important roles in a broad range of mammalian development such as caloric restriction, metabolic regulation, genomic stability, cellular antioxidant potential, DNA repair and the regulation of cellular aging. We have previously reported that the level of sirtuin 2 in human peripheral blood mononuclear cells (PBMCs) decreases with aging in healthy volunteers, suggesting that sirtuin 2 level in PBMCs may have a potential as a useful surrogate-biomarker monitoring a health condition and an aging.

In the present study, 107 healthy volunteers took edible fish meat (tuna) three times a week for three weeks and, collected peripheral blood before the intake and at the end of the study. The levels of sirtuin 2 in PBMCs were analyzed by an enzyme linked immunosorbent assay. Although no significant differences in the sirtuin 2 level in PBMCs were observed during the study period, the sirtuin 2 levels in the group given 80-120 g of tuna meat increased after 3 weeks (about 1.3-fold in comparison with the initial phase). When the volunteers were divided into 2 groups (responder, non-responder), the sirtuin 2 level significantly increased in the responder group (about 2-fold after 3-week intake of tuna meat). Although further studies are needed to clarify the mechanism of inducible effect of tuna meat on sirtuin 2 expression in PBMCs, we conclude that tuna may have a potential to increase the longevity gene-associated protein, sirtuin 2 activity.

### Biography

Kazuo Yudoh has completed his MD at the age of 25 years from Kagoshima University and postdoctoral studies from Toyama University School of Medicine. He is the director of Institute of Medical Science, St. Marianna University School of Medicine, Japan. He has published more than 120 papers in reputed journals and has been serving as an editorial board member of International Journal of Molecular Science.

## The association of specific cognitive domains and frailty status among older Taiwanese adults

**Lalu Suprawesta**
Taipei Medical University, Taiwan

The association of specific cognitive domains and frailty status among older Taiwanese adults: This study aimed to investigate the associations of specific cognitive functions and other putative predictors with the frailty status among older Taiwanese adults. The participant of community-dwelling older adults were recruited from Taipei Medical University Hospital's outpatient clinic from August 2017-December 2018. Phenotype criteria were used to defined frailty status. The Mini-Mental State Examination (MMSE) was used to assessed global cognition. Six cognitive domains of attention, initiation/perseveration, construction, conceptualization, memory, and processing speed were evaluated using the Mattis Dementia Rating Scale (MDRS) and Digit Symbol Substitution Test. The proportional odds regression was used to examine the relationships of specific cognitive functions with frailty status. 730 older adults were recruited with the mean age of participants was 71.3±5.6 years old (249 men and 481 women). Of them, 202 (27.7%) were nonfrail, 449 (61.0%) were prefrail and 83 (11.4%) were frail. The results of the study indicated that a higher score on the DSST score (OR = 0.98; 95% CI = 0.97-0.99) was significantly associated with lower odds of higher frailty status, after controlling for age, sex, global cognition, regular exercise habit, balance confidence, Tinetti balance score, body mass index, depression, and number of comorbidities. The MMSE score was found to have no significant association with frailty status. Assessing specific cognitive functions, such as processing speed, rather than overall cognitive function may be more useful for adjusting interventions and treatments for frailty, which can help prevent the progression to adverse health outcomes and potentially reverse the frailty status of at-risk older adults. The study results suggest that older adults with frailty may experience declines in cognitive function, particularly processing speed, rather than global cognitive function. Prospective studies are needed to observe the role of specific cognitive function among older adults, which may serve as an early predictor for frailty in at-risk older adults.

### Biography

Lalu Suprawesta is a Ph.D. student of Graduate Institute of Injury Prevention and Control, College of Public Health, Taipei Medical University. His current research focus on the physical and cognitive function among older Taiwanese adults. He is a physiotherapist in private clinic of Klinik Kamboja Mataram with the 10-years experience in clincal practice. He is also a lecturer in Department of Sport and Health Education, Faculty of Sport Science and Public Health, Universitas Pendidikan Mandalika, West Nusa Tenggara, Indonesia. He has published some papers in reputed journals and has been serving as an editorial board member of journal related to physiotherapy that got national accreditation.

## Aging clocks, entropy, maximum human lifespan, and the challenge of age-reversal

**Peter Fedichev**
Gero PTE. LTD, Singapore

Age is the leading risk factor for prevalent diseases and death. However, the relation between age-related physiological changes and lifespan is poorly understood. We combine analytical and machine learning tools to investigate aging as a macroscopic manifestation of underlying dynamic instability of the organism state in large biomedical data. In mice, the leading aging signature ("dynamic frailty indicator", dFI) increases exponentially and predicts the remaining lifespan. The dynamics of dFI is consistent with the late-life mortality deceleration. dFI changed along with hallmarks of aging, including frailty index, molecular markers of inflammation, senescent cell accumulation, and responded to life-shortening (high-fat diet) and life-extending (rapamycin) treatments. In human data, the analysis paints a more sophisticated picture. We analyzed aging signatures of DNA methylation and longitudinal electronic medical records from the UK Biobank datasets. We observed that aging is driven by a large number of independent and infrequent transitions between metastable states in a vast configuration space. The compound effect of configuration changes can be captured by a single stochastic variable, thermodynamic biological age (tBA), tracking entropy produced, and hence information lost during aging. We show that tBA increases with age, causes the linear and irreversible drift of physiological state variables, reduces resilience, and drives the exponential acceleration of chronic disease incidence and death risks. The reduction of resilience sets the maximum human lifespan limit, whereas the entropic character of aging drift sets severe constraints on the possibilities of age reversal. However, we highlight the universal features of configuration transitions, suggest practical ways of suppressing the rate of aging in humans, and speculate on the possibility of achieving negligible senescence.

### Biography

Ph.D. from the University of Amsterdam. Co-founder of Gero, a data-driven longevitybiotech company, that develops new drugs against aging and other complex diseases using AI-platform. An author of 75+ published papers in multiple domain areas, including publications in Science and Nature Communications.

## Trigonelline is a novel NAD+ precursor with muscle longevity benefits across species

**Vincenzo Sorrentino**
National University of Singapore, Singapore

Declining cellular NAD+ is a molecular hallmark of aging and sarcopenia, both also characterized by impaired mitochondrial function. However, how systemic metabolic changes reflect tissue adaptation and the observed muscle deficits during sarcopenia, is still uncharacterized. Using a multi-species approach from nematodes to humans, we have uncovered a functional link between NAD+ levels, muscle health and trigonelline, a natural plant derived alkaloid and endogenous metabolite structurally related to nicotinic acid. In humans, serum trigonelline levels decrease during sarcopenia, and correlate positively with muscle strength and mitochondrial oxidative phosphorylation gene expression in muscle biopsies. Using natural or heavy-isotope labeled trigonelline, we demonstrate that trigonelline incorporates in the NAD+ pool and increases NAD+ levels in primary human myotubes, liver and skeletal muscle via the Preiss-Handler pathway. In the nematode C. elegans, trigonelline supplementation extends lifespan in a sirtuin and nprt-1-dependent manner, and reduces aging-dependent mitochondrial dysfunction, muscle alterations and mobility decline. Finally, we demonstrate that trigonelline treatment increases mitochondrial function in vitro during NAD+ depletion, and in vivo in muscle, and that chronic supplementation during aging supports muscle strength and performance. Collectively, our cross-species approach identifies trigonelline as a bona fide NAD+ precursor able to improve age-associated muscle decline.

### Biography

Vincenzo Sorrentino is an Italian-born scientist in the fields of aging, mitochondrial biology and neuromuscular degeneration. He obtained his PhD Cum Laude at the University of Amsterdam, in the lab of Prof. Noam Zelcer, on LDL-cholesterol regulation by the ubiquitin-proteasome system, with publications including in European Heart Journal and Circulation Research. Subsequently, he moved to Lausanne, Switzerland, for his postdoctoral research in Prof. Johan Auwerx's lab at the EPFL. His work there focused on the understanding of mitochondria and NAD+ metabolism in neurodegenerationand muscle aging, with his research discoveries on Alzheimer's disease and muscle aging published in Nature (2017) and Cell Reports (2021). He then obtained a position as Group Leader at the Nestlé Institute of Health Sciences in Lausanne, to lead research focused on integrating basic discoveries on nutraceuticals and their effects on mitochondria and protein homeostasis with their translation into novel clinical applications. Since December 2022, he is an Assistant Professor at the NUSwith the Dept. of Biochemistry and the Healthy Longevity TRP, Yong Loo Lin School of Medicine, to continue to develop his research on how metabolism, nutrition and proteostasis are linked and impact on health and aging.

## Efficacy of intravenous pulse methylprednisolone (IVMP) in treating dysthyroid optic neuropathy (DON) and to identify factors predicting poor response to the treatment

**Parinee Kemchoknatee**
Rajavithi Hospital, Rangsit University, Thailand

**Background:** Dysthyroid optic neuropathy (DON) is a serious threatening vision loss in Graves' ophthalmopathy (GO). Although the European Group on Graves' Ophthalmopathy (EUGOGO) recommend intravenous methylprednisolone therapy for first line treatment, some characteristics predicting the response are still inconclusive.

**Aim:** To study the efficacy of intravenous pulse methylprednisolone (IVMP) in treating dysthyroid optic neuropathy (DON) and to identify factors predicting poor response to the treatment.

**Methods:** All patients diagnosed with DON between January 2010 and December 2021 at Rajavithi Hospital, Thailand, receiving IVMP 1 gm/ day for 3 consecutive days were analyzed. The efficacy at 1 week and 3, 6, 12-months in terms of improvement of best corrected visual acuity (BCVA) and proptosis were compiled.

**Results:** Of the entire 57 DON cases that received IVMP, 50.9 % gained at least 0.2 Logarithm of the Minimum Angle of Resolution (logMAR) at 1 week, and the improvement from initial to 1-week BCVA was $0.63\pm0.63$ logMAR ($p<0.001$) and the decrease in proptosis was $1.8\pm1.36$ mm ($p<0.001$). The remaining 23 orbits underwent orbital decompression and were excluded from the long-term efficacy analysis. In the last 12-months' follow-up time, there was an improvement of BCVA ($0.53\pm0.47$ logMAR) and proptosis ($0.59\pm0.66$ mm) (both $p<0.001$). At last visit, there was an improvement of BCVA (0.2 logMAR) and proptosis (2mm) in 76.5%, and 5.9% respectively. Significant predictive factors of poor treatment response were age ≥55 years (odds ratio [OR]: 8.28, 95% confidence interval [CI]: 1.368–50.121, p=0.021); longer onset duration before treatment (OR: 5.10, 95%CI: 1.061–24.501, p=0.042); and proptosis at baseline (OR: 9.31, 95%CI: 1.872–46.280, p=0.006). The strongest risk factor for predicting poor response to IVMP was poor initial visual acuity (OR: 10.26, 95%CI: 1.363–77.234, p=0.024).

**Conclusions:** IVMP is effective for both short- and long-term treatment to improve visual acuity greater than proptosis. Older age, longer disease duration, poor initial visual acuity, and proptotic orbits were identified as risk factors for predicting poor response to IVMP treatment in Thai population. DON patients having those risk factors should be suspected, and treated early with IVMP to preserve their future vision.

**Key words:** Dysthyroid optic neuropathy; Graves orbitopathy; Thyroid eye disease; Intravenous glucocorticoids. Intravenous methylprednisolone.

### Biography

Parinee Kemchoknatee , M.D. Dr. Kemchoknatee is a lecturer and ophthalmologist at Ophthalmology Department, Rajavithi Hospital, Rangsit University, Thailand. She is certified the medical degree and residency in Ophthalmology at Mahidol University ,Ramathibodi Hospital . She is a member of The Royal College of Ophthalmologists of Thailand Since the year of 2020, she is an active international researcher in Neuro-Ophthalmology field . Her previous publications included optic nerve diseases (such as examining predictors of visual prognosis in Non-arteric ischemic optic neuropathy ,or evaluating visual outcome in 3 types of optic neuritis-related with Neuromyelitis optica spectrum disorder, multiple sclerosis ,or double seronegative optic neuritis) , the natural disease of myasthenia gravis in terms of progression to generalized myasthenia gravis or determination of treatment outcome in ocular myasthenia gravis, thyroid eye disease, and dysthyroid optic neuropathy in the aspects of either the diagnostic ability of MDCT or the determination of the efficacy of intravenous methyprednisolonesin a Thai population. She also was selected as a speaker to provide a speech in her published research in many conferences.

## The Cognitive demapping of words with age: An expoloratory study through lexical decision task

**Girija P C**
AWH Special College, Kerala, India

Cognitive word mapping is the inherent ability of an individual to access words from the lexical system and facilitate his/her cognitive skills for the retrieval of these words on need basis. Word recognition through lexical decision is the process in which person judges the lexicality of a presented stimulus and identifies it as real word or non word. It involves many complex cognitive linguistic processes including attention, working memory, semantic judgement etc.Naturally, with aging as these cognitive processes deteriorates, we may find cognitive demapping of words where in the individual loses the ability to identify and retrive words with good efficiency. Our study aims to document these ebbings through quantitave evaluation. For this purpose, we selected 150 neurotypical participants within the age group of 31-80 years. The participants were grouped into five ranging from 31-40, 41-50, 51-60, 61-70 and 71-80 years with 30 participants in each group. DMDX software was used to present the stimuli and participants were tasked to press "right cursor" if the presented stimulus was idenified as word or press "left cursor" if the presented stimulus was identified as non word. In total, 20 words were presented with increasing syllable length with five words in each syllable-length category. The scores for task completion of each response was collected and tabulated. MANOVA and corelation analysis was carried out to find the level significance between age groups as well as increasing complexity. Our results revealed that there was a significant difference (<0.005) observed from the age of 51-60 years for all the syllable-lengths. The significance is highly pronounced in the uppermost age group (71-80 years). It is stipulated that with age the effciency to recognize word becomes poorer. However, the confounding result from our study is that the age related deterioration commenses from 51 to 60 years. There is a significant lack in performance of the individuals of this age group in comparison to their younger counterparts. This is surprising as the individuals in this age group do not differ much from their immediate younger counterparts with respect to lifestyle changes. So their poor performance can be solely attributed to the neurobiological changes occuring in the nervous system after the half centuary of age. These changes include reduction in brain volume, loss of white matter integrity, shrinking of dentritic tree, thining of mini-column arrays of cortex, accmulation of lipofuscin and changes in blood brain barrier due to increasing amount of detectable iron in brain. Eventhough, these changes are subtle at the age of 50 years, the results from study proves that impact of these variations impact the efficiency in performing lexical decision. Yet another findings is the increase in severity of deterioration after 70 years. Evidently, all the changes mentioned above escalates, at the same time the innate sponateous recovery ability decreases with increasing age. Thence, the performance of our uppermost group was the poorest. Conclusively, we state that as age increases the cognitive demapping also increases although the initial decline starts at 51-60 years.

### Biography

Mrs Girija P C is one of the experienced academicians in the field of Audiology and Speech Language Pathology. She is holding the position of departmental Head at AWH Special College, Kozhikode for the past two decades. She is also a proliferate researchers whose area of interest is mainly Adult Language Disorder. Lately, for the past couple of years she has focused her studies in the various aspects of normal and pathological ageing. The main aim in conducting these studies is to tackle the neuro-cognitive changes with age for the purpose of maintain quality of communication in geriatrics while rehabilitating the declines.

## Characterization of epigenetic features of developing oocytes across female aging

**Michael Klutstein**

The Hebrew University of Jerusalem, Israel

Mammalian oocyte quality and meiosis efficiency changes with age. While it is optimal in middle reproductive age, it deteriorates later in life, and is also sub-optimal before puberty. We have characterized epigenetic features of developing oocytes in all three age categories. We show that prior to the occurrence of significant aneuploidy heterochromatin histone marks are lost, and oocyte maturation is impaired. This loss occurs in heterochromatin marks but not in euchromatic active marks. Moreover, heterochromatin loss is accompanied by an increase in RNA processing and associated with an elevation in retrotransposon expression and DNA damage. Artificial inhibition of the heterochromatin machinery through Chaetocin or TSA treatment in young oocytes mimics epigenetic aging, causes an elevation in retrotransposon expression and oocyte maturation defects. Inhibiting retrotransposon reverse-transcriptase through Azidothymidine (AZT) treatment in older oocytes partially rescues their maturation defects and activity of the DNA repair machinery. Moreover, activating the heterochromatin machinery via treatment with the SIRT1 activating molecule SRT-1720 or overexpression of Sirt1 or Ezh2 via plasmid electroporation into older oocytes causes an upregulation in constitutive heterochromatin, downregulation of retrotransposon expression and elevated maturation rates. For pre-pubertal oocytes, we show that the methylation status of histones (both euchromatic and heterochromatic marks) is reduced, and acetylation is high. This state is resistant to manipulation by drugs or gene overexpression, suggesting an active mechanism preserving this chromatin state. However, treatment of pre-pubertal oocytes (mouse or human) with FSH in-vitro, elevates histone methylation levels and partially rescues oocyte maturation. This may be achieved partly through the presence of FSH receptor molecules on the oocyte surface itself. Collectively, our work demonstrates significant epigenetic processes occurring in oocytes across different ages, which may have a significant impact on the potential for embryonic development and reproduction.

### Biography

Michael Klutstein is the head of the Chromatin and aging research lab at the Hebrew University of Jerusalem, Israel. The Klutstein lab investigates the concept of epigenetic changes during aging and the consequences if these changes. The lab is specifically interested in female reproductive aging, and epigenetic changes in aging oocytes. The lab uses mouse models as well as human clinical samples for their research. Research in the lab has led to the writing of a patent, and to the opening of a start-up company: ForEve- aiming to develop compounds to rejuvenate oocytes in the IVF clinic. Dr Klutstein has completed his PhD from the Hebrew University in 2009. He has completed his postdoctoral training at CRUK London and at the NIH, Bethesda, MD, before returning to the Hebrew University to establish his own lab in 2015.

## Should the limits of the exercise of people with osteoporosis?

**Slavica Jankovic**

Polytechnic Lavoslav Ružička Vukovar, Croatia

**Introduction:** Osteoporosis is a condition of decreased bone density and changes of bone structure that may predispose to recurrent fractures.

**Aim:** To show the positive effect of Tae Bo exercise on bone mineral density in people with osteoporosis.

**Methods and Materials:** The study involved 92 respondents from Vukovar and persons which are randomly distributed in two equal groups. One group ( A ) of the 46 respondents comprised people who spent the Tae Bo exercise three times a week for 45 minutes of 01. 09. 2021. – 01.09.2022. The second group ( B ) accounted for 46 respondents who have three times a week carried out a medica exercise for persons with osteoporosis, in the same time period as the respondent group A. All of them at the beginning and end of the study made laboratory blood calcium, calcium urine, densitometry, and filled in the Fracture Risk Assessment Tool ( FRAX) and Osteoporosis Quality of Life Questionnaire (QUALEFFO-31).

**Results:** The study showed a statistically significant differences between the groups A and women in the group B. Patients in group A have a lower FRAX score of the baseline and compared with respondents in group B, while results QUALEFFO-31 questionnaire did not show a statistically significant the difference in response between subjects.

**Conclusion:** People with osteoporosis should be a lifelong practice in order to maintain their bone mass and in prevention of fractures. According to previous research very small sample of medical practice accepted as daily " ritual ". This research has shown that the Tae Bo workout  and adjusted for people with osteoporosis, can make a positive development and the enhancement of the skeletal system and the motivation to exercise.

**Key words:** osteoporosis, medical exersise,Tae Bo exercise

### Biography

I'm Slavica Janković. I was born and still live in Vukovar, Croatia. I studied physiotherapy at the University of Health Studies in Zagreb and Sarajevo and defended my doctoral dissertation on the topic "Assessment of the effectiveness of Tae Bo exercises on the quality of life of people with osteoporosis" in 2017. I am currently in a teaching and research position as a tenured professor of physical therapy at the College of Health Studies in Vukovar and the College of Physiotherapy in Ivanić-Grad. I have published 43 professional and scientific papers in the field of rheumatology and I co-authored 4 teaching manuals and monographs and one university textbook in the field of rheumatology. I actively participant in research conferences related to physiotherapy in Croatia and the broader region. I am a big fan of sports activities, and I practice kickboxing recreationally and lead a specialized type of Tae Bo exercise program that is geared toward general population and aimed at treating and preventing osteoporosis. I am a proud mother of son Jakov.

## Successful aging, self-neglect level and factors affecting older people

**AYŞEGÜL ILGAZ**

Akdeniz University Faculty of Nursing, Turkey

**Objective:** It is aimed to reveal the factors affecting successful aging by determining the successful aging and self-neglect levels of older people.

**Methods:** This descriptive study was conducted with 316 individuals aged 60 years and older appling to a Family Health Center. The data was collected by using the questionnaire form, Successful Aging Scale and Self-Neglect Scale. The questionnaire form includes sociodemographic characteristics, independence (Katz Daily Life Activities Scale) and well-being status (WHO-5 Well-being Index), psychosocial support (Multidimensional Perceived Social Support Scale) and depression.

**Results:** The successful aging score was 43.06±8.52 and the self-neglect score was 6.64±1.99. A strong positive correlation was detected between successful aging score and self–neglect score (r = 0.741, p <.001). Factors affecting successful aging were age, working status, education level, body mass index, physical activity, subjective health perception of the individual, health screening status, self-neglect level, risk of depression, independence in activities, well-being status, psychosocial support. Gender, income, chronic disease presence, cigarette and alcohol use, living alone, family type did not affect it. According to multiple linear regression, the factors affecting successful aging were age, psychosocial support presence and self -neglect level (p <.05).

**Conclusion:** Older people have low successful aging and self-neglect scores. Successful aging is better at a young age, in the presence of psychosocial support and if there is no self-neglect or less. It is recommended to increase the existence of psychosocial support of them and to plan interventions to reduce self-neglect.

### Biography

Ayşegül ILGAZ has completed her PhD at the age of 31 years from Akdeniz University and postdoctoral studies from Akdeniz University Faculty of Nursing. She has published more than 15 papers in reputed journals and has been serving as an editorial board member of repute.

## Diabetes and Ageing

**Georgios Mitrou**

Integrated Health Systems (IHS), Greece

Ageing and Diabetes mellitus are two well-known risk factors for cardiovascular disease (CVD). Ageing alone is associated with decline in physiological function leading to chronic diseases, such as diabetes mellitus, CVD, cognitive impairment, and physical disability. Diabetes mellitus is a recognized cause of accelerated aging, and there is evidence that aging and diabetes mellitus share common pathophysiological pathways. The mechanisms linking advancing age to metabolic dysregulation, are multifactorial and complex. Furthermore the management of older adults with diabetes is clearly more complicated, given the observation that they commonly have multiple coexisting medical conditions that can impact clinical management. The heterogeneity in the health status of older adults with frailty and multiple comorbid conditions and the paucity of evidence from clinical trials, represent another point of scientific discussion and future potential research. Under these circumstances the establishment of the best practice protocols and the implementation of the up-to-date evidence-based individualized therapeutic regimens, in order to control diabetes, aiming simultaneously at the aging process, still remains a real challenge, in every day's clinical practice, in order to warrant the best outcomes.

### Biography

Georgios Mitrou is an experienced Managing Director PhD, with a demonstrated history of working in the hospital & health care industry. Skilled in Diabetes, Clinical Research, Medical Education, Hypertension, and Medicine. Strong research professional focused in Internal Medicine, Geriatrics and Gerontology, Longevity and Anti-Aging Medicine..

## Positive Ageing for a positive future

**Matthew Freeman**
Viva Positiva Ltd, UK

What makes for a healthy & happy older age? Concepts of eating sensibly, staying physically & mentally active, not smoking, moderation in other things, are familiar. But is there more to it than that? Positive Ageing involves understanding & harnessing the psyche to foster a healthier, happier, more productive older age. Enjoying, not just enduring older age should be a goal for everyone - we should be 'investing' in our flourishing older age now - after all, aren't we all just 'apprentice' older adults?

Thanks to modern science and the work of global experts, we are living longer. We're getting less sick, and when we do get old, or sick, there is generally support available. We can survive to an old age undreamed of by previous generations. But how sustainable is this for worlds' economies and resources? Many cultures dismiss ageing populations as irrelevant & burdensome - certainly not called upon to boost nations' resources. They are not expected to contribute much, and can remain unnoticed (until sick or needing care).

What if the impressions and expectations of older age changed? Could older populations with positive mindsets, and healthier physical bodies, hold the key to unlocking their potential value? Nurturing confidence, strengths, resilience, positive mindset & motivation can transform wellbeing & mental health. Perhaps the wisdom, perspective & experience of older adults could be utilised to balance the enthusiasm, energy & courage of the young. What could their contributions then add to the societies, organisations, and nations of the future?

### Biography

Matt C Freeman came from a 20+ year corporate brand strategy career spanning sectors, continents & cultures. Returning to the UK to support his father battling advanced Parkinson's disease, he observed the challenges of the ageing population and those around them. Inspired by his father's psychological resilience & strength, he strives to discover the ingredients of a healthy and happy older age. His mission: to empower those touched by Ageing - carers of the ageing & ailing, partners & families, nations & organisations. All 'apprentice' older adults should be intrigued by the potential of an optimally functioning, flourishing, older population.

## SARCOPENIA AND COGNITIVE FUNCTION: ROLE OF CYTOKINES IN ADIPOSE TISSUE, MUSCLE AND, BRAIN CROSS-TALK

**Lucia Scisciola**
University of Campania Luigi Vanvitelli, Italy

Sarcopenia is a geriatric syndrome characterized by the progressive degeneration of muscle mass and function, and it is associated with severe complications, which are falls, functional decline, frailty, and mortality. Moreover, sarcopenia is correlated to cognitive impairment, a decline in one or more cognitive domains such as language, memory, reasoning, social cognition, and decision-making. It is known the existence of a crosstalk between adipose tissue, skeletal muscle, and the brain. Adipose tissue produces adipokines that regulate anabolic and catabolic responses in skeletal muscle, and they are deleteriously altered with age-associated muscle atrophy. Skeletal muscle produces and secrete myokines, that regulate brain functions, including mood, learning, locomotor activity, and neuronal injury protection. The existence of such crosstalk is supported by physical activity, which is a nonpharmacological intervention that ameliorates brain function. Indeed, exercise increases the volume and intensifies the prefrontal cortex and hippocampus function, two neuronal regions related to memory and cognition. Specifically, physical exercise, changing circulating levels of myokines, contributes to autocrine regulation of metabolism in the muscle and to paracrine/endocrine regulation of other adjacent/remote organs, exerting beneficial effects on the brain. On the contrary, sarcopenia being linked to a reduction in the regenerative capacity of skeletal muscle and an altered rate of cellular regenerative and differentiation, given to an adverse effect of adipokines, results in a compromised production and secretion of myokines with a deleterious consequence on brain function. Therefore, understanding the crosstalk between adipose tissue, muscle, and brain could open new ways to reduce sarcopenia complications.

### Biography

Lucia scisciola completed her PhD at the age of 28 years from University of Campania Luigi Vanvitelli and postdoctoral studies from University of Campania Luigi Vanvitelli. Now, she is an Assistant Professor at "The University of Campania Luigi Vanvitelli". She collaborated with international institutions, as Lund University Diabetes Centre (LUDC), Epigenetics and Diabetes Unit, Sweden. She is Inventor of Patent ACTIVATORS OF SIRTUINS AND USES THERE OF - in collaboration with Epi-C, Spin-Off of Department of Precision Medicine – University of Campania" Luigi Vanvitelli". She has published 35 papers in reputed journals and H-Index of 15.

## Oral Hygiene among Elderly in Europe and Asia: A Narrative Review by a Dental Hygienist

**Nguyen Ha Thu Tra**
European University of Applied Science, Germany

Oral hygiene among the elderly is often neglected because of the numerous comorbidities in this population, such as alzheimer, diabetes or cardiovascular diseases. Aging impairs senses, mastication, oral health, causing nutritient-deficiency. Neglected professional care and self care have led to reduced oral health care utilization. The proportion of elderly people in Europe and Asia has increased during the last few decades and is expected to increase further in the next few decades. This demographic shift will have important implications for health care services such as hospitals or clinics. This review reports the consequences of having a poor oral health status and its impact on general health of the elderly and gives an overview of the importance of dental hygiene to older people in Europe and Asia. Dental hygiene influences general health and quality of life by impacting both the general health and the psychological state of the individual. The author has researched of the relevant literature and selected the scientific publications addressing dental health pathology among elderly. The PubMed, Cochrane Library, Web of Science were searched for relevant information related to this on the topic. In addition, there are practical experiences and reviews of the author in treating elderly patients in hospitals and clinics in Germany and Vietnam. The article makes conclusions about the oral hygiene necessary for the elderly to ensure their quality of life.

### Biography

Ha Thu Tra Nguyen has completed her Bachelor of Science in Dental Hygiene and Prevention Management and Master of Science in interdisciplinary pain therapy from European University of Applied Science, Cologne, Germany. She worked in University Hospital Bonn in Germany as a dental hygienist (B.Sc). Now she works in a dental clinic of Prof. Dr. Lehmann (University of Mainz). In addition to her work as a dental hygienist, she is also a speaker at many conferences in Germany.

## How do young people learn about being old? Preliminary findings from intergenerational research in Poland

**Magdalena Romanowska**
SWPS University of Social Sciences and Humanities, Poland

The aim of this presentation is to share selected, preliminary results from a qualitative intergenerational research study, which concerns learning about old age. The project is carried out within the frames of a doctoral dissertation on intergenerational learning in Warsaw, Poland.

It should be noted that population aging exacerbates the tensions between generations, especially in terms of social polarization of young people, on the one hand, and seniors in the society, on the other (e.g.,Vanhuysse & Perek-Białas 2021). This phenomenon is associated with the weakening of the traditional, intergenerational ties in families (e.g. due to urbanisation, migration; see e.g. Wrzesień 2003), which has taken away opportunities for the younger generation to understand what old age through interpersonal relationships, which was how previous intergenerational transfer facilitated preparation and learning about old age.

This research focuses on harnessing the potential for building intergenerational dialogue through educational programs for youth and seniors, centered explicitly on ageing. Practical in nature, this study relies on multiple qualitative approaches to understand, first, the typical ways in which young people simplify their visions of old age. Ethnographic experience from projects implemented at the Intergenerational Activity Center in Warsaw, with the dedicated dataset from individual in-depth interviews with youth and elderly participants of the study, are being analyzed for this paper.

The paper discusses the possibilities of learning for old age outside the family environment. It explains how, thanks to the intergenerational exchange, both old people and younger generations gain access to more diverse knowledge about generational identities.

### Biography

Magdalena Romanowska is the postgraduate student of the SWPS University of Social Sciences and Humanities. She also works as a specialist of integenerational integration at Integenerational Activity Center in Warsaw.

## Health Management of Malnourished Elderly in Primary Health Care: a scoping review

**Adriana Taveira**
University of Minho, Portugal

Health Management of Malnourished Elderly in Primary Health Care: a scoping review, is the first review directed at Primary Health Care. As the research aim, we proposed to identify the screening practices and health outcomes related to the care provided by Family Health Teams to the malnourished elderly. Following PRISMA and PICO strategies, searches were conducted in four electronic databases (PubMed, Web of Science, Scopus & EMBASE) on observational, qualitative, quantitative, or mixed studies, written in Portuguese, Spanish and English language, with participants of 65 years old or older at a community setting. The literature selected for this study ranges from the period 2011 to 2021; additional articles were included through reference lists. Results - From the 483 studies identified, 16 were considered eligible to use in this work. The Mini Nutritional Assessment (MNA) score appears as the main criterion of choice, however, a standardized practice in the health systems regarding the use of screening methods has not been demonstrated. Studies are more oriented toward the analysis of the relationship between mortality/morbidity and malnutrition than toward the relationship between the cost and quality of life and malnutrition of the elderly. Malnutrition is one of the modifiable risk factors which contributes to the vulnerable condition of the elderly, with serious effects, especially when related to other comorbidities. Yet, several authors argue that Primary Health Care intervention can minimize the negative impacts and improve health outcomes.

### Biography

Adriana Taveira has a degree in nursing, with an academic specialization title in nurse. She holds a master's degree in Health Management. She is a Ph.D. student in Health Sciences Applied, at the School of Medicine, University of Minho. She works as a Family Nurse, and she has collaborated with different Nursing Schools, supervising clinical internships. She integrated a technical group responsible for the SNS+ application, under the seal of the Health Ministery, winner of three prizes related to good practices and sustainability. Her research interests are linked to health management, elderly malnutrition, and Family Health.

## Cellular senescence as a therapeutic target

**Ana Guerrero**

Institute of Neurosciences of the University of Barcelona (UBneuro), Spain

Cellular senescence is a key mechanism to prevent the expansion of old, damaged or cancerous cells. Senescent cells undergo an irreversible cell growth arrest and secrete immunomodulatory cytokines that activate immune surveillance. In that way, senescence helps preserve tissue homeostasis and acts as a natural barrier against tumorigenesis. Paradoxically, the aberrant accumulation of senescent cells, observed in aging and agerelated diseases, comes together with multiple negative consequences. The discovery that eliminating these lingering senescent cells improves many age-related phenotypes, has led the aging field into a relentless search for strategies to therapeutically target senescence. While senolytic drugs hold huge promise, recent work has shown that eliminating certain senescent cells such as liver sinusoidal endothelial cells (LSECs) can be detrimental. Therefore, it is important to explore alternative approaches to mitigate the negative effects of senescence. Here, I will showcase our recent data showing how treatment with 3- deazaadenosine (3DA) alleviates replicative and oncogene-induced senescence. Importantly, 3DA treatment increased the proliferative and regenerative potential of muscle stem cells from very old mice in vitro and in vivo, and was sufficient to enhance the engraftment of human umbilical cord blood cells in immunocompromised mice. Therefore, 3DA is a promising candidate to enhance the efficiency of cellular therapies by restraining senescence.

### Biography

Dr. Guerrero is a Ramón y Cajal Research Fellow at the University of Barcelona. She held postdoctoral positions at the MRC LMS (Imperial College London) and the UK DRI at UCL (The Francis Crick Institute). Her postdoctoral research explored the potential of cellular senescence as a therapeutic target, leading to the identification of novel pharmacological modulators of senescence, including senolytics (Nature Metabolism, 2019; Aging Cell, 2020) and drugs alleviating senescence (Nature Aging, 2022). Her current research programme explores the contribution of cellular senescence and ageing to neurodegeneration, with a particular focus on Alzheimer´s Disease.

## Decolonizing Methodology in Aging Vitalities Research Creation: Partnership, Dissonance, Refusals, Renewals, Systems Change

**Nadine Changfoot**
Trent University, Canada

This paper begins with the premise that decolonizing of aging & gerontology is to be taken seriously especially in the Canadian context of governments and society making good on the 94 Calls to Action from the 2015 reporting from the Truth and Reconciliation Commission. From the 94 Calls to Action, decolonizing of research is taking place. This paper discusses the decolonizing processes pursued and the generative lessons learned around Indigenous and settler research relationships in the research creation project "Aging Vitalities" which aims to bring new cultural representations of aging that address ageism into the public. Short multimedia documentaries were directed by Anishnaabekwewag e/Elders and older settler women with the support of diverse artist-facilitator-researchers from Re•Vision: The Centre for Art and Social Justice. Committed to enacting decolonizing (Eve Tuck (Unangax̂), and Wayne Yang) and cultivating relationships with Anishaabekwewag based in respect and reciprocity (Margaret Kovach, Sakewew p'sim iskwew) and relational accountability (Shawn Wilson, Opaskwayak Cree), the research carefully considered bringing older Anishnaabe and settler women together into a shared studio space for three days. Focussing on the stories created by Anishnaabekwewag, they illustrate 1) "Dissonance" with settler experiences of aging, especially those associated with white privilege, 2) "Anishnaabe Refusals" which were refusals of immediate settler access to Indigenous Knowledge such as Anishnaabe language represented in their stories, 3) through the research partnership, knowledge dissemination partnership has and continues to occur which enacts renewals, and 4) systems change which begins to decolonize settler research institutional processes for strengthening partnership with Indigenous peoples. Generative tensions arise within the partnership that unsettle settler relationships to create possibilities for deeper understanding of the conditions needed for ongoing meaningful relationship and reconciliation in Canada.

### Biography

Dr. Nadine Changfoot is Full Professor in Political Studies, Executive Member of the Trent Centre for Aging & Society and Teaching Fellow at Trent University, Senior Research Associate with ReVision: The Centre of Art and Social Justice at the University of Guelph, Research lead of Aging Vitalities, Management Team Member of the research partnership Bodies in Translation: Activist Art, Technology and Access to Life (SSHRC funded 2016-2023), and Executive Member of EC3, the City of Peterborough Arts & Culture Council). She engages in feminist, participatory and arts-based research, partnering with arts, environmental, disability, aging, healthcare, and Nishinaabeg communities for influence, capacity-building, and new possibilities. She has received awards for research, teaching and leadership and published widely in journals of aging studies, philosophy, political science, disability, aging, health, engaged scholarship, methodology, community development, and social justice. An activist artist-scholar, she creates for self-expression and to make space for brave conversations, reimagining disability and aging with a decolonizing lens. She has guest edited with the Michigan Journal of Community Service Learning, the Journal of Aging Studies, and currently doing so with Social Sciences.

## Cognitive Performance differentially moderates the association between gait velocity and fall risk

**Sandra R. Hundza**
University of Victoria, B.C., Canada

Cognitive-walking dual-task paradigms are an established mechanism to assess fall risk. To date, the moderating effects of cognitive performance on the association between gait velocity(GV) and fall risk have not been explored. The present investigation examines if interactions between cognitive performance and GV during a dual-task paradigm enhances fall risk classification and whether cognitive performance moderates the relationship between GV and fall risk. Communitydwelling older adults (76 years ±3.44) were classified as fallers (n=17) and non-fallers (n=15) based on self-report (at least one fall in the past 12 months). GV was indexed using a computerized walkway while counting backwards by serial 7s. Cognitive performance was indexed using Adobe Audition for number of counts (NC) and percentage of true counts (PTC) from recorded audio files. Logistic regression of an interaction model (GV and each of NC and PTC(GCI model)), evaluating the likelihood of fall risk classification, yielded significance for GV as well as for the interaction variable. The sensitivity of the GCI model (88%) was 17% improved over a GV model. There was a significant moderating effect of PTC on the GV-fall risk association for individuals with PTC scores ≥-2.41 units (Johnson-Neyman analysis); within the significant distribution, low GV had increased likelihood of falling compared to those with high GV. This relationship was magnified and more sigmoidal as PTC scores increased. This is the first to demonstrate the importance of interactions between gait and cognition measures in fall risk modelling and that the moderating effect of cognition occurred with above average cognitive performance.

### Biography

Dr. Hundza, is the Director of School of Exercise Science, Associate Professor (Kinesiology) and Adjunct Professor (Medicine) at University of Victoria, British Columbia, Canada. She has an extensive clinical background in physiotherapy in geriatrics, neurology and orthopaedics. This clinical background along with her academic background in neuroscience, underpins Dr. Hundza's research of neuromotor aging and sensor-based gait measurement in older adults to advance fall risk prevention..

## High-intensity interval or circuit-based strength training effects on physical and cognitive functioning for community-dwelling older adults: A systematic review

**Ashley Morgan**
McMaster University, Canada

Despite recognized benefits, many older adults do not achieve recommended amounts of aerobic or strengthening exercise. High-intensity interval or circuit-based strengthening may offer a time-efficient solution. High-intensity interval or circuit-based strength training involves performing strengthening exercises at a high-intensity (relative to ability) interspersed with periods of recovery (rest or light activity) and may offer both cardiovascular and strengthening benefits. This systematic review (PROSPERO registration: CRD42021284010) sought to determine the effects of high-intensity interval/circuit strengthening on physical and cognitive functioning for community-dwelling older adults, and its' associated adherence, retention, and adverse events. Six databases were search to June 2022 and 15 studies (10 for effectiveness) were included. Qualitative and quantitative methods were used to synthesize the results and the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) was utilized to rate the certainty of evidence. The current certainty of evidence is low to very low; upper body focused physical functioning measures demonstrated small to large benefits and lower body focused, self report, and cardiovascular measures had mixed results. There was insufficient evidence (1 study) to determine cognitive effects. Mean adherence rates ranged from 73.5 to 95.8%, overall retention across all studies (n=812) was 86%, and no serious adverse events were reported; suggesting that this type of exercise is feasible for communitydwelling older adults.

### Biography

Ashley Morgan is a doctoral candidate in her final year of study at the School of Rehabilitation Science at McMaster University. Her research interests including aging, mobility and cognition, exercise prescription and adherence, and the prevention of functional decline. Ashley's thesis investigates the impact of a home-based high-intensity functional strength training program in older adults who have preclinical mobility limitations following an injury from a slip, trip, or fall. She is a Registered Physiotherapist (PT) with a clinical background in orthopaedics and has been involved as an instructor in the Master's of Physiotherapy program at McMaster University for several years.

## The Integrated Aging Studies Data Bank and Repository - a web-based data management system

**Xiaoyan 'Iris' Leng**

Wake Forest University School of Medicine, USA

The Integrated Aging Studies Data Bank and Repository (IASDR) is a web-based data management system that houses data from studies at the Claude Pepper Older Amerians Independence Center at Wake Forest University School of Medicine (WF OAIC) in a common structured format, readily allowing the integration of summary statistics and data across multiple studies. The IASDR also provides information on availability of activity monitoring, imaging data and WF OAIC Biospecimens Repository. The IASDR has 3 components: (1) a publicly accessible registry to query metadata that indicates the availability of components of the common assessment battery, activity monitoring, imaging data (e.g. DEXA, CT and MRI), and biospecimens (e.g. serum, plasma, muscle, adipose, urine and DNA) across studies; (2) a search engine of descriptive statistics providing more granular details for selected common assessment battery based on filtering criteria (e.g., study, age, gender/sex, etc.), to which WF OAIC investigators can request a password to access; and (3) a quality-controlled, analysis ready participant-level dataset comprising the common assessment battery that is updated quarterly. Available data in the common assessment battery include: demographics, body composition, physical performance, disability measures, cognitive measures, depression and blook biomarkers. As of January, 2023 the IASDR has a total of 50 completed studies and more than 5,000 unique participant records with 64% women and 22% underrepresented race and ethnicity groups.

### Biography

Xiaoyan Iris Leng obtained her PhD of Statistics from University of Califorina at Davis, CA. She is an Associate Professor at the Department of Biostatistics and Data Science, Wake Forest University School of Medicine (WFUSOM). She is the Leader of Biostatistics and Research Information Systems Core of the Claude Pepper Older Amerians Independence Center at WFUSOM and Co-Leader of the Data Managemetn and Statistical Core of the Wake Forest Alzheimer's Disease Research Center. She has published more than 90 peer-reviewed papers in various journals.

## Loss of beta-arrestin 1 leads to cardio-renal dysfunction with aging

**Claudio de Lucia**

Lewis Katz School of Medicine, Temple University, USA

**Introduction:** Life expectancy has significantly increased although functional decline with age affects multiple organs including heart and kidney. Beta-arrestins (Barr) are ubiquitously expressed and regulate G-protein coupled receptor signaling. Barr1 has been previously shown as a modulator of both cardiac function and renal fibrosis during pathology. We hypothesize that Barr1 signaling might be also important during aging.

**Methods:** We studied Barr1 KO mice alongside wild-type (WT) controls in a model of physiological aging.

**Results:** At young age, Barr1KO mice did not show any alterations in cardiac and kidney function/hypertrophy compared with WT mice. However, aged (20-month-old) Barr1KO mice displayed decreased left ventricular (LV) ejection fraction/longitudinal strain and augmented LV diameters. Heart weight-to-body weight or -to-tibia length ratios as well as mRNA expression of major adverse remodeling (ANF, BNP, β-MHC) and hypertrophy biomarkers (ACTA1 and ANKRD1) were increased in 24-month-old Barr1KO mice compared to age-matched WT mice. Barr1KO-old mice also showed an increase in kidney hypertrophy compared to WT-old mice. Moreover, Barr1KO-old mice demonstrated a dramatic impairment in kidney function as indicated by increased mRNA expression of NGAL-Kim1 (biomarkers of kidney injury) and decreased expression of Nephrin-Podocin (markers of glomerular blood filtration barrier). Interestingly, Barr1KO-old mice also showed augmented mRNA levels of cytokines/chemokines (IL1beta, CCL2 and CCL5) in the kidney compared with WT-old mice. No difference was found in survival rate between KO and WT mice.

**Conclusions:** Our study provides novel insights into a role for Barr1 as an important regulator of cardiac and kidney function during aging.

### Biography

Dr. Claudio de Lucia has received his Medical Degree, Medical Residency in Geriatrics and Ph.D. at the University of Naples Federico II. Dr. de Lucia performed his post-doctoral studies at the Center for Translational Medicine, Lewis Katz School of Medicine, Temple University under the mentorship of Dr. Walter J. Koch. He has published more than 45 papers in international peer-reviewed journals, won outstanding young scientist awards and serves as a Editorial Board member of several peer-reviewed journals.

## Nuclear receptor corepressors in autism and intellectual disability

**Zheng Sun**

Baylor College of Medicine, USA

Intellectual disability and autism spectrum disorders (ASD) have broad genetic bases. Nuclear receptor corepressor NCOR1/2 forms protein complexes with common ASD-causing genes and is a key regulator in hormonal actions or xenobiotics-induced responses. We found several pathogenic genetic variants in NCOR1/2 in sporadic ASD patients. NCOR1/2 recruit and activate histone deacetylase 3 (HDAC3) for epigenome modification. We found that abolishing NCOR1/2-HDAC3 interactions in mice led to social avoidance and memory deficits. Specific depletion of NCOR1/2 in GABAergic neurons caused cognitive dysfunction and downregulated gene expression of several GABAA receptor subunits in the hypothalamus, leading to hyperexcitation of GABAergic neurons. The excitatory-inhibitory (E/I) imbalance impaired long-term potentiation (LTP) formation in the hippocampal CA3 region through a hypothalamic-hippocampal circuit. Chemogenetic and optogenetic repression of the circuit rescued hippocampal synaptic plasticity and cognitive functions in mice with NCOR loss-of-function. We constructed a humanized NCOR1 knock-in mouse model (nKI+) containing the heterozygous NCOR1 c.2182+2T>G mutation identified from an autistic patient. nKI+ mice show ASD-like behaviors and memory deficits. snRNA-seq analysis of the hypothalamus from hnKI+ showed dysregulation of multiple genes related to neurotransmission, including neuregulins and GABAA receptor subunits. Pharmaceutical targeting of neuregulin or GABAA signaling with FDA-approved drugs rescued the memory defects. These results delineate molecular mechanisms underlying NCOR-mediated regulation of cognitive functions and lay the intellectual foundation for treating NCOR-related neurological disorders through drug repurposing.

### Biography

Zheng Sun has completed his PhD at the University of Arizona and postdoctoral studies at the University of Pennsylvania School of Medicine. He is currently an Associate Professor at Baylor College of Medicine.

## New Biomarkers in Alzheimer's disease

**Gustavo Alves Andrade dos Santos**
University of Sao Paulo, Brazil

### Biography

Gustavo Alves Andrade dos Santos Pharmacist-Biochemist, graduated from Universidade Paulista, Sao Paulo, Brazil; PhD in Biotechnology, Universidade Anhanguera, Brazil; Master in Pharmacy, Universidade Bandeirante, Brazil; Post Doctorate in Anatomy and Surgery at the Faculty of Medicine of the University of São Paulo, USP-Ribeirão Preto, Brazil. Studied Neurobiology, University of Chicago; Clinical Pharmacy, University of Central Florida, USA; Hospital Pharmacy, Necker Hospital, Paris, France; Postgraduate degree in Hospital Pharmacy, Faculdades Oswaldo Cruz, Brazil; Professor at São Leopoldo Mandic School of Medicine Araras, and Faculdades Oswaldo Cruz, SP, Brazil; Coordinator of the Technical Group for Pharmaceutical Care for the Elderly and the Technical Group for Hospital Pharmacy of the Regional Pharmacy Council of the State of São Paulo. Member of Alzheimer's Association International(ISTAART) and Member of the American Society of Health-System Pharmacists (ASHP). Director/Scientist at Gusfarma Health, Brain and Life. Researcher in Alzheimer´s disease (biomarkers and Bioactive natural compounds). Reviewer for national and international journals. Author of books in the fields of Pharmacy and Alzheimer's. Book Author by Springer NATURE "Pharmacological Treatment of Alzheimer´s Disease: Scientific and Clinical.

## The healing effect of the dance for the elderly ( The dance is for everyone)

**Sara Tóth**
Dance Therapist, Hungary

## Aging is selected for, adaptive and programmed: The eco-evo-devo theory of aging

**Kurt Heininger**

Department of Neurology, Heinrich Heine University Düsseldorf, Germany

Immortal, infinitely reproducing organisms, aka Darwinian demons, would severely undermine the fitness of offspring. Evolution co-selected fertility and longevity, linking births to deaths and creating various trait correlations, e.g., the fast-slow continuum of life history strategies. Importantly, these correlations and trade-offs are modulated by resource availability and acquisition. The ecological conditions-dependent semelparity-iteroparity plasticity and continuum highlights the programmed nature of both reproductive modes and reproduction-related death pathways. Parental effects as transgenerational indirect genetic effects and eco-evolutionary feedbacks underlie the aging-related action of multilevel selection. Axes of aging trajectories are determined by energy budgets, reproductive activity and stress reponses. Evolution "appointed" the germline cells, the prospective individuals of the next generation, as guardians of limited resources and mediators of population regulation. In this capacity, beginning at reproductive maturity, signals of germline cells more or less gradually degenerate parental immune competence, undermine stress response pathways and proteostasis, and derange mitochondrial energy homeostasis. Moreover, the reproductive activity of organisms limits itself. The soma is not defenseless. Longevity is correlated and co-selected with somatic stress response capacity. Aging is a survival program of the soma, resisting germline-imposed death. Throughout phylogeny, metabolically stressed organisms downregulate metabolic rate by means of insulin resistance and store rather than use nutrients. In this legacy, aging organisms activate the metabolic stress program and inflammatory defense. However, the survival factors are incapacitated during the course of aging so that the soma is caught in a dead-end trap.

### Biography

Study of medicine, chemistry and biochemistry. Board-certified neurologist. Scientific work in neuroimmunology, evolutionary biology and ecology.

## I want something else! - even for the elderly! Application of the BM Montessori method among people with dementia

**Béres Mária**
Montessori special educator, Hungary

Aging and gerontology! Great theme! After having children, my mother's condition deteriorated to a great extent, which opened up a new path for my professionalism. In 2022, I adapted everything I achieved during my research to elderly dementia patients. A high degree of decline was experienced during the functioning of cognitive abilities. I felt I had to do something! I consciously began to make minor neuropsychological observations. I brought tools to mom and was curious to see what she was going to do with them. Does he reach for it? Will you catch it? Will you pick it up? Or is he consciously putting two on top of each other? I took notes and took photos! After months, there was a minimal improvement in my mother's condition. However, in order to achieve a significant result, I had to take a huge step back and build from the ground up! When applying my BMMontessori method, it became clear to me that I have to focus on those developable skills that can be revived and relearned through a lot of practice. The results I have achieved so far allow me to conclude that it is worthwhile to start creating task sets with tool designations that could be the basis for developing a more focused neuropsychological therapy. In my personal experience, it can be established that in order to maintain and improve the quality of life of older people, it is necessary to develop prevention programs. This will be presented in my lecture.

### Biography

I've been a teacher for 45 years, during this time I've always winked at innovation, I've always "wanted something else". Based on Maria Montessori's method, I developed my own method, which was registered at the National Office of Intellectual Property. I did pioneering work in Hungary with my action research! My method was developed during the observation of intellectually disabled and injured children, the presentation of which made me known both within and outside the country. I held training courses for teachers, and even then I tried to change the Hungarian education situation. Then I achieved enormous results among 1-7-year-old, sane children.

## HMGB1 promotes senescence and calcification of vascular smooth muscle cells

**Angela Raucci**

Centro Cardiologico Monzino, Italy

Vascular aging is the gradual degeneration of vascular cell functions that predispose the vascular system to cardiovascular diseases (CVD) onset including vascular calcification (VC). The main cellular event in VC is the trans-differentiation of vascular smooth muscle cells (VSMCs) from a contractile to an osteogenic phenotype leading to an accumulation of calcium in the arterial wall. Senescence facilitates VSMCs osteogenic transition. HMGB1 is a chromatin-binding protein involved in senescence and the acquisition of the senescence-associated secretory phenotype (SASP). We investigated HMGB1 contribution to VSMCs senescence and osteogenic trans-differentiation.

HMGB1 expression decreases in the aorta of old mice and during replicative senescence and calcification of human aortic smooth muscle cell (HASMCs). HMGB1 silencing in HASMCs inhibits proliferation, blocks the cell cycle in the G0/G1 phase and increases p21 expression and SA-β-gal activity. HMGB1 downregulation alters the HASMCs SASP by influencing levels of pro-inflammatory and calcification SASP molecules. Furthermore, HMGB1 silencing in HASMCs modulates the abundance of some extracellular matrix (ECM) proteins associated with tissue mineralization such as Biglycan and Tenascin B, and increases the expression of the osteoblastic transcription factors Runt-related transcription factor 2 (RUNX2) and the pro-calcification enzyme Alkaline phosphatase (ALP). Accordingly, silencing of HMGB1 enhances the calcification of HASMCs cultured under hyperphosphatemic conditions. Finally, in vivo, aortas of Hmgb1+/- mice show higher calcium deposition, compared to Hmgb1+/+ animals.

These results indicate that HMGB1 downregulation during aging induces senescence and the osteogenic trans-differentiation of VSMCs by influencing the basal expression of SASP factors, ECM components, and protein regulators of calcification.

### Biography

Dr. Raucci is Group Leader of the Cardiovascular Aging Unit at Centro Cardiologico Monzino, Italy (2014-Present). She got the B-Sc in Biology (1999) and PhD in "Biological Processes and Biomolecules" (2002) at Second University of Naples, Italy. She spent part of the PhD and Post-doc at New York University (2001-2004) studying the role of Fibroblast Growth Factors in bone development. Then, she was Post-doc at San Raffaele Institute (2005-2010), studying the role of RAGE and HMGB1 in inflammation and, later, became Staff Scientist in the Laboratory of Regenerative Medicine at CCM (2011-2014). The focus of her research is the molecular and cellular mechanisms controlling cardiovascular aging and associated dysfunctions.

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**Registration**

**Aubrey De Grey**

President & CSO, LEV Foundation, USA

**Title:** Taking Rejuvenation to Longevity escape velocity

**Matthew Freeman**

Viva Positiva Ltd, UK

**Title:** Positive Psychology for a positive future

### Claudio De Lucia

Lewis Katz School of Medicine, Temple University, USA

**Title:** Loss of beta-arrestin 1 leads to cardio-renal dysfunction with aging

### Slavica Jankovic

Polytechnic Lavoslav Ružička Vukovar, Croatia

**Title:** Should the limits of the exercise of people with osteoporosis?

### Sara Tóth

Dance Therapist, Hungary

**Title:** The healing effect of the dance for the elderly ( The dance is for everyone)

### Girija P C

AWH Special College, Kerala, India

**Title:** The Cognitive demapping of words with age: An expoloratory study through lexical decision task

### Nadine Changfoot

Trent University, Canada

**Title:** Decolonizing Methodology in Aging Vitalities Research Creation: Partnership, Dissonance, Refusals, Renewals, Systems Change

### Carmen Mendoza Griego

Walden University, USA

**Title:** Effects of Acculturative Stress on Mental/Physical Health of Immigrant Mexican Women

### Beres Maria

Montessori special educator, Hungary

**Title:** I want something else! - even for the elderly! Application of the BM Montessori method among people with dementia

### Sandra Hundza

University of Victoria, B.C., Canada

**Title:** Cognitive Performance differentially moderates the association between gait velocity and fall risk

### Ashley Morgan

McMaster University, Canada

**Title:** High-intensity interval or circuit-based strength training effects on physical and cognitive functioning for community-dwelling older adults: A systematic review

### Georgios Mitrou

Integrated Health Systems (IHS), Greece

**Title:** Diabetes and Ageing

### John Seidler

Non-Profit work for Orbis International, United Nations Association of the U.S.A. and AARP as U.N. representative, USA

**Title:** Personal life experience of living to 86 years so far

### Xiaoyan Iris Leng

Wake Forest University School of Medicine, USA

**Title:** IASDR - The Integrated Aging Studies Data Bank and Repository - a web-based data management system

### Klutstein Michael

The Hebrew University of Jerusalem, Israel

**Title:** Characterization of epigenetic features of developing oocytes across female aging

### Parinee Kemchoknatee

Rajavithi Hospital, Rangsit University, Thailand

**Title:** Efficacy of intravenous pulse methylprednisolone (IVMP) in treating dysthyroid optic neuropathy (DON) and to identify factors predicting poor response to the treatment

### Adriana Sofia Veiga Taveira

University of Minho, Portugal

**Title:** Health Management of Malnourished Elderly in Primary Health Care: a scoping review

### Sajad Zalzala

AgelessRx, USA

**Title:** Designing and implementing decentralized longevity-focused clinical trials

Registration

### Lucia Scisciola

University of Campania Luigi Vanvitelli, Italy

**Title:** Sarcopenia and Cognitive Function: Role of Cytokines in Adipose Tissue, Muscle and, Brain Cross-Talk

### Magdalena Romanowska

SWPS University of Social Sciences and Humanities, Poland

**Title:** How do young people learn about being old? Preliminary findings from intergenerational research in Poland

### Ha Thu Tra Nguyen

European University of Applied Science, Germany

**Title:** Oral Hygiene among Elderly in Europe and Asia: A Narrative Review by a Dental Hygienist (B.Sc)

### Zheng Sun

Baylor College of Medicine, USA

**Title:** Nuclear receptor corepressors in autism and intellectual disability

### Vincenzo Sorrentino

National University of Singapore, Singapore

**Title:** Trigonelline is a novel NAD+ precursor with muscle longevity benefits across species

### Kurt Heininger

Heinrich Heine University Düsseldorf, Germany

**Title:** Aging is selected for, adaptive and programmed: The eco-evo-devo theory of aging

### Ayşegül ILGAZ

Akdeniz University Faculty of Nursing, Turkey

**Title:** Successful aging, self-neglect level and factors affecting older people

### Ana Guerrero

Institute of Neurosciences of the University of Barcelona (UBneuro), Spain

**Title:** Cellular senescence as a therapeutic target

### Lalu Suprawesta

Taipei Medical university, Taiwan

**Title:** The association of specific cognitive domains and frailty status among older Taiwanese adults

### Gustavo Alves

University of Sao Paulo, Brazil

**Title:** Alzheimer's has no cure but it has treatment

### Kazuo Yudoh

Institute of Medical Science, St. Marianna University School of Medicine

**Title:** Effects of tuna meet on the expression of Nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylase, longevity gene-associated sirtuin 2, in human peripheral blood mononuclear cells.

### Peter Fedichev

Gero LLC PTE, Singapore

**Title:** Aging clocks, entropy, maximum human lifespan, and the challenge of age-reversal

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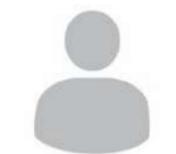
### Angela Raucci

Centro Cardiologico Monzino, Italy

**Title:** HMGB1 promotes senescence and calcification of vascular smooth muscle cells

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