



THE LONGEVITY

F O R U M

Thursday 14th November

The Royal Institution
21 Albemarle Street, Mayfair
London



LONGEVITY
WEEK

2019

Private
Bank



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JUVENESCENCE



LONGEVITY 2030

The Next Ten Years

Welcome to The Longevity Forum 2019, our second annual Forum and the closing event of our first Longevity Week.



Jim Mellon, Dafina Grapci-Penney and Andrew Scott
Founders, The Longevity Forum

When we set up the Forum, just over a year ago, our main objective was to facilitate the exchange of ideas between experts from the fields of science and social science to explore the opportunities presented by increases in human longevity.

Our vision was to create a forum where cutting edge ideas would be generated, debated and critiqued, thus paving the

way for their implementation through our network of partners across diverse sectors and countries. This approach remains core to our mission – which is to promote happier, healthier and more fulfilled lives for as many people as possible.

To achieve this mission, the Forum aims to make these ideas accessible to all. This is why raising awareness of the opportunities

presented by longevity, beyond the audiences of this Forum and the promotion of a positive agenda around longevity, is critical.

We believe that in the next decade there is the potential for a step change in both the policy and attitudes which are required for societies to reap a significant longevity dividend and maximise the return on longevity.

This is why the theme of this year's Forum and Longevity Week is Longevity 2030 – a deeper dive into the ideas and innovations that will shape humanity in the next 10 years. Our agenda is ambitious, but it matches the level of change that we expect to see over the next decade. Already we can see how the longevity agenda is advancing in the UK on many fronts.

This year's Forum will explore the ever-expanding boundaries of science and technology; the economic opportunities presented by longevity and implications for governments and individuals; the policy agenda supporting our educational, healthcare and social care systems to ensure they are fit for the future; a look at what is happening internationally; and, lastly, the relationship between humans and machines and the governance framework needed to ensure that this growing interdependence can help humans achieve their full potential.

As ever, the quality of the speakers and the audience we have attracted this year reflects the convening power of the Forum across the worlds of government, business, finance, research, academia and of NGOs. It is this growing network of individuals and organisations whose interests are fully aligned with the goals of our mission that

have the power to effect change. This is also the reason why the Forum decided to host its first Longevity Week as an extension of the mission of the Forum, and we thank all the global strategic partners and supporters who made this possible.

The Global Agenda, one of the Forum's flagship initiatives developed in conjunction with the Stanford Center on Longevity and launched at a Longevity Week event in Singapore earlier this week, embodies the global nature of the opportunities at hand. It follows a high-level meeting of experts co-hosted by The Longevity Forum earlier this year around the concept of 'A New Map of Life'. This initiative outlined the principles which make longevity distinct from ageing and set high level objectives which governments around the world need to achieve in the next 10 years to support the longevity agenda.

Following last year's Forum, we also decided, with your help, to launch two key initiatives related to the mission of the Forum. These were supporting research into scleroderma, a rare autoimmune disease, by leveraging Insilico Medicine's next generation artificial intelligence, and launching the Encore Fellows Scheme in the UK to mentor retirees into new roles. We are excited about the progress made in both areas and look forward to reporting this back to you as well as announce our 2020 projects.

As Longevity 2030, the theme of this year's events attests, we are committed to this mission for the long term and we are excited about the opportunity to amplify the mission of the Forum through new ideas and partnerships. We look forward to building on the foundations of this week's events and continuing to foster such collaboration.

PROGRAMME OF EVENTS

08.30 –09.00	Registration & Coffee	The Grand Entrance
09.00 –09.15	Longevity 2030 –The Next Ten Years Jim Mellon Co-Founder, The Longevity Forum Professor Andrew Scott Co-Founder, The Longevity Forum	Auditorium
09.15 –09.20	Beyond 100 (video) Barclays Private Bank	Auditorium
09.20 –09.35	Keynote: Scientists, check. Investors, check. Next up, policy-makers Aubrey de Grey Chief Science Officer of the SENS Research Foundation	Auditorium
09.35 –09.50	Keynote: Investing in Human Longevity Laura Deming Founder, The Longevity Fund	Auditorium
09.50 –09.55	The Longevity Forum Projects: Scleroderma & Raynaud's UK Polina Mamoshina Head of Biomarker Development, Insilico Medicine	Auditorium
09.55 –10.25	Keynote: How to Die Young at a Very Old Age Dr Nir Barzilai Founding Director, Institute for Aging at The Albert Einstein College of Medicine	Auditorium

10.25 –10.50	Age Before Beauty? Examining the False Dichotomy of Lifespan Versus Healthspan Dr Nir Barzilai Founding Director, Institute for Aging at The Albert Einstein College of Medicine Aubrey de Grey Chief Science Officer of the SENS Research Foundation Laura Deming Founder, The Longevity Fund	Auditorium
10.50 –11.20	Coffee Break	The Library and Georgian Room
11.20 –12.05	Panel: How Can the UK Add Five Years of Healthy Lifespan by 2030? Dr Charles Alessi Chief Clinical Officer, HIMSS International Professor Lynne Cox Professor of Biochemistry, Oxford University Tina Woods CEO and Co-Founder, Longevity International Moderated by Greg Bailey, MD CEO, Juvenescence Limited	Auditorium
12.05 –13.00	Panel: Technologies shaping the future of humanity over the next decade Camilla Cavendish, Baroness Cavendish of Little Venice Author of "Extra Time: Ten Lessons for an Ageing World" Professor Stephen Emmott Founder and CEO, Scientific James Lawford Davies Partner, Hill Dickinson LLP Dr Ali Parsa Founder and CEO, Babylon Health Anders Sandberg Senior Research Fellow, Future of Humanity Institute, University of Oxford Moderated by: Dafina Grapci-Penney Co-Founder, The Longevity Forum	Auditorium

13:00 – 14:00	Lunch	The Library/Georgian Room
14:00 – 14:30	Keynote: Realising the Opportunities of Longer Lives Dr Linda P. Fried Dean, Mailman School of Public Health, Columbia University	Auditorium
14:30 – 14:35	The Longevity Forum Projects: Encore Fellows UK Julia Randell-Khan Senior Fellow, Encore.org	Auditorium
14:35 – 14:40	Presentation: The Global Initiative Joseph F. Coughlin Director, the Massachusetts Institute of Technology AgeLab	Auditorium
14:40 – 15:40	The Longevity Dividend Panel Cynthia Brown Vice President, Operations & Finance, AARP Professor David Miles, CBE Imperial College, London Gerald Moser Chief Market Strategist, Barclays Private Bank Yvonne Sonsino Partner and Innovation Leader, Mercer Moderated by: Professor Andrew Scott Co-Founder, The Longevity Forum	Auditorium
15:40 – 16:10	Afternoon Break	The Library/Georgian Room
16:10 – 16:20	Report: The Global Longevity Agenda Professor Andrew Scott Co-Founder, The Longevity Forum	Auditorium

16:20 – 16:35	Presentation: Bloomberg 2019 Healthiest Country Index Scott Johnson Economist, Bloomberg Economics	Auditorium
16:35 – 16:55	Presentation: Working Together as We Work Longer: A Framework for Collaboration to Benefit from Longevity Cynthia Brown Vice President, Operations & Finance, AARP	Auditorium
16:55 – 17:15	Presentation: Age –the Grand Challenge Andy Briggs Co-Chair, UK Longevity Council	Auditorium
17:15 – 17:30	Closing Remarks: The Longevity Forum and Longevity Week Professor Andrew Scott, Dafina Grapci-Penney, Jim Mellon	Auditorium
17:30	Drinks Reception	The Library

Slido

Today, we will be using Slido to collect questions and allow you to express your opinion in live polls.

To register, go to [slido.com](https://www.slido.com) on your phone or download the app and type in code [#longevity](https://www.slido.com/joincode/longevity) or use the QR Code below.

Join at
slido.com
#longevity





FOUNDERS OF THE LONGEVITY FORUM

Andrew Scott



Andrew Scott is Professor of Economics at London Business School and a Fellow of All Souls, Oxford University and the Centre for Economic Policy Research. He previously held lecturing positions at Harvard University, London School of Economics and University of Oxford.

Andrew's research focuses on the economics of longevity and how individuals, corporates and governments need to adapt to seize the opportunities of long and healthier lives. Andrew's 2016 book "The 100 Year Life" on this theme was an award winning global best seller, translated into 15 languages. His next book, "A New Long Life", is out in May 2020 and will look at how the twin forces of technology and longevity are set to change

our lives. He is currently investigating an economic longevity dividend with the support of a £1mnESRC grant.

He is a member of the advisory board of the UK's Office for Budget Responsibility and the Cabinet Office Honours Committee (Science and Technology) having previously served as Non-Executive Director of the UK's Financial Services Authority 2009-13.



Jim Mellon



Jim is a British entrepreneur and investor with a wide range of interests. Through his private investment company, Burnbrae Group, he has substantial real estate holdings in Germany and the Isle of Man, as well as holdings in public and private companies.

Jim's investment philosophy is underpinned by his ability to recognise emerging trends that give rise to new industries or major shifts in markets. This includes the global financial crisis of 2008–2009, as foreseen in the first book Jim co-authored entitled *Wake Up!*, and subsequently in the new science and technologies detailed in *Cracking the Code and Fast Forward*.

More recently Jim has established himself as a thoughtleader in the nascent field of ageing research and longevity. His groundwork into the field is summarised in the book *Juvenescence* which he also co-authored.

Jim and his partners have now set up *Juvenescence Limited*, a company developing therapies for ageing and the diseases of ageing.

Jim sits on the Board of Trustees of the Buck Institute for Research on Aging, and the American Federation for Aging Research (AFAR). He is also a trustee of Biogerontology Research Foundation and Lifeboat Foundation, is an Honorary Fellow of Oriel College at the University of Oxford and sits on the Advisory Board of the Milken Institute's Centre for the Future of Aging. Jim has been honoured by AFAR with the George E. and Marie J. Doty Award for his support of ageing research.



Dafina Grapci-Penney



Dafina Grapci-Penney is a Trustee of The Longevity Forum. She is also a Managing Director at Greentarget, a communications consultancy advising global financial institutions and corporates.

Dafina works with firms operating at the cutting edge of finance and technology on their communications strategies with a wide range of stakeholders. She has a deep understanding of global drivers and macro trends that influence how businesses operate and prepare for the future.

Dafina is particularly interested in the trends shaping the future of humanity and the role that technology, businesses and policy can play to influence positive outcomes for individuals and the society.

On behalf of the Longevity Forum, Dafina works to develop partnerships with a wide range of external stakeholders, including financial institutions and corporates, governments, public policy bodies and foundations with a view to helping shape the agenda of the Forum and amplifying its mission.

Dafina began her career in communications with NATO's peacekeeping operation in the Balkans, followed by roles in the financial practice of Weber Shandwick, a global public relations firm.

KEYNOTE SPEAKERS



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Nir Barzilai



Dr Barzilai is a chaired Professor of Medicine and Genetics and Director of the biggest Centre in the world to study the Biology of Ageing, Institute for Aging at The Albert Einstein College of Medicine. He is the recipient of an NIH Merit Award aiming to extend the healthy life span of rodents by biological interventions.

He also studies families of centenarians that have provided genetic/biological insights on the protection against ageing. Several drugs are developed and based, in part, on these paradigm-changing studies. He is a recipient of numerous prestigious awards, including the 2010 Irving S Wright Award of Distinction in Aging Research and is the 2018 recipient of the IPSEN Longevity Award. He is leading the TAME (Targeting/Tamingaging with Metformin) multicentral study to prove the concept that multi morbidities of ageing can be delayed in humans and to change the FDA indications to allow for next generation interventions.

He is a founder of CohBar Inc (now a public company) and Medical Advisor for Life Biosciences. He is the Co-Scientific Director of the American Federation of Aging Research as well as being on the board of AFAR and CohBar. He has been featured in major papers, TV programmes and documentaries (TEDx and TEDMED) and has presented the promise for targeting ageing at The Singapore Prime Minister Office, several International Banks, The Vatican, Pepsico, Milken Institute, the Economist and Wired Magazine.



Laura Deming



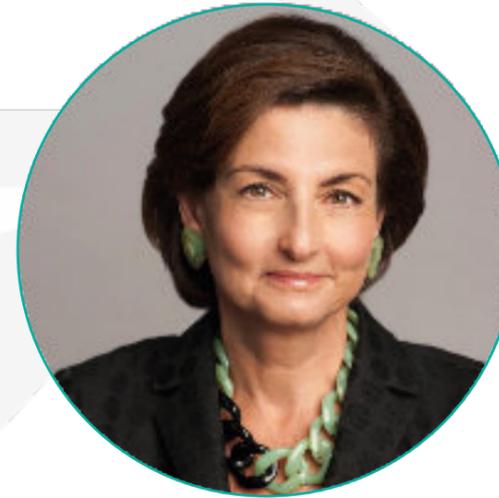
Laura Deming is the founder and full-time partner at The Longevity Fund, an early stage venture capital fund backing companies which target the ageing process to treat disease, with investments in gene editing, small molecule therapeutics, and novel methods to treat disease.

From a young age, Ms. Deming has been fascinated by the idea that longevity is a mechanism able to be manipulated. After years working on nematode longevity at the University of California, San Francisco in the lab of Dr. Cynthia Kenyon, molecular biologist known for her research on ageing,

Laura matriculated at Massachusetts Institute of Technology (MIT) at age 14. At MIT she worked on artificial organogenesis and bone ageing. She is now based in San Francisco, working to find and fund therapies to extend the human healthspan.



Linda P. Fried



Linda Fried is Dean and DeLamar Professor of Public Health at Columbia University's Mailman School of Public Health. A world-renowned geriatrician and epidemiologist, Dr. Fried is a serial innovator, known for tackling the major issues of our lengthening lives.

Her scientific contributions include creating the transformational science defining frailty as a medical condition; research on the natural history of frailty and disability; and illuminating their causes and the potential for prevention and treatment as keys to optimizing health for older adults. She is the designer and founder of Experience Corps, an evidence-based senior volunteer program in which older adults serve in public schools. The program was found to simultaneously prevent cognitive loss and functional decline in the volunteers while benefiting students. Dean Fried advocates for the potential of longer lives to be the basis of a Third Demographic Dividend whereby society benefits from the social capital of older adults and invests in health promotion across the life course. Under her leadership, the Columbia

University Mailman School has developed new dimensions of public health science, from the University-wide Robert N. Butler Columbia Aging Center to the new science of precision prevention, and has become a key leader in innovation in public health education and in intersectoral partnerships for health.

Dean Fried was named one of the 1% most influential scientific minds of the past decade in 2014 by Thomson Reuters. She is an elected member of the US National Academy of Medicine, and of its executive Council. In 2016–17 she served as the President of the Association of American Physicians. The recipient of numerous awards and prizes, she received the French National INSERM International Prize in Medical Research in 2017.



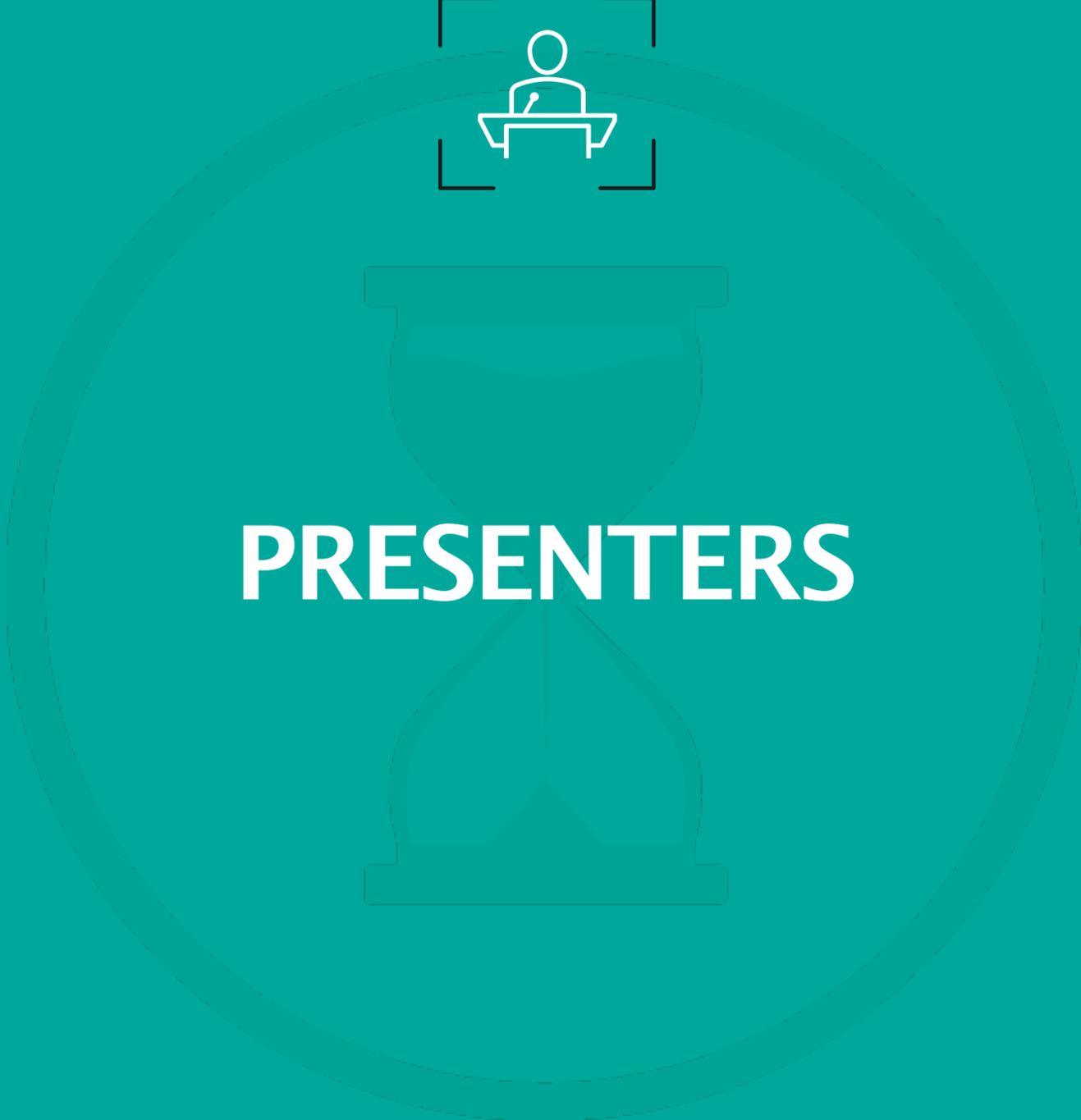
Aubrey De Grey



Dr Aubrey de Grey is a biomedical gerontologist based in Mountain View, California, USA, and is the Chief Science Officer of SENS Research Foundation, a California-based 501(c)(3) biomedical research charity that performs and funds laboratory research dedicated to combating the ageing process.

He is also VP of New Technology Discovery at AgeX Therapeutics, a biotechnology start up developing new therapies in the field of biomedical gerontology. In addition, he is Editor-in-Chief of Rejuvenation Research, the world's highest-impact peer-reviewed journal focused on intervention in ageing. He received his BA in computer science and Ph.D. in biology from the University of Cambridge. His research interests encompass the characterisation of all the types of self-inflicted cellular and molecular damage that

constitute mammalian ageing and the design of interventions to repair and/or obviate that damage. Dr de Grey is a Fellow of both the Gerontological Society of America and the American Aging Association, and sits on the editorial and scientific advisory boards of numerous journals and organisations. He is a highly sought-after speaker who gives 40–50 invited talks per year at scientific conferences, universities, companies in areas ranging from pharma to life insurance, and to the public.



PRESENTERS



Andy Briggs



Andy was most recently CEO of Aviva UK Insurance and was on the Aviva plc Board. Prior to that he was Group CEO of Friends Life.

He has over 25 years of operational and executive experience in the insurance industry across life assurance and general insurance, both in the UK and overseas.

At Friends Life he led the transformation of the three acquired businesses and brings his strategic and business skills, experience of organisational change and knowledge of the Friends Life business to the board.

He has extensive knowledge of the UK regulated environment combined with experience in capital and risk management. Andy was formerly CEO of Scottish Widows plc (financial services), CEO of the General Insurance businesses of Lloyds Banking Group plc (financial services) and CEO of the Prudential Group's Retirement Income business (insurance).



Cynthia Brown



Cynthia Brown is Vice President for Operations & Finance in the Office of the Chief Operating Officer at AARP, the USA's largest nonprofit, nonpartisan organization dedicated to empowering people to choose how they live as they age.

With 38 million members and offices in every state and territory, AARP works to strengthen communities and advocate for what matters most to families – with a focus on health security, financial stability, and personal fulfillment. With keen awareness of the longevity economy, AARP also works for individuals in the marketplace by sparking new, innovative solutions and allowing carefully chosen products and services to carry the AARP name.

Cynthia manages and executes on a broad range of strategic finance and operations issues ensuring effective integration, coordination and communication across the enterprise. A primary focus of her work is on AARP's social impact investment strategy. She oversees the AARP Innovation Fund, a \$40 million venture capital investment vehicle to spur innovation in the

consumer health products and services arena. In addition, she provides strategic leadership to the nationally and internationally focused AARP Brain Health Fund which provided a \$60 million investment in the London-based Dementia Discovery Fund last year designed to accelerate research into cures for all types of dementia including Alzheimer's.

During her tenure at AARP, Brown has led the centralization of AARP's financial functions, resulting in enhanced strategic decision support to executive management, played a key role in improving customer service and reducing operational costs, and transformed the organization's financial planning and analysis function by shifting focus from annual budgeting to strategic business and financial planning, and new business opportunity assessment.



Joseph Coughlin



Joseph Coughlin is the founder and director of the MIT AgeLab, a multi-disciplinary research program created to understand the behaviour of the 50+ population, the role of technology in their lives, and the opportunity for innovation to improve the quality of life for older adults and their families.

He is a member of the board of directors of AARP, AARP Services, and Benchmark Senior Living. Coughlin consults with major companies in the United States and internationally, including BMW, Colgate, Kimberly Clark, JP Morgan, Marriott, Johnson & Johnson, Cartier, and many others.

In his book *The Longevity Economy*, Coughlin provides the framing and insight business leaders need to serve the growing older

market: a vast, diverse group of consumers representing every possible level of health and wealth, worth about \$8 trillion in the United States alone and climbing. Coughlin pinpoints the gap between myth and reality and then shows businesses how to bridge it. As the demographics of global ageing transform and accelerate, it is now critical to build a new understanding of the shifting physiological, cognitive, social, family, and psychological realities of the longevity economy.



Scott Johnson



Scott Johnson is an economist with Bloomberg Economics in London, where he writes research on Russia and broader trends in emerging markets.

A former journalist, he previously edited Bloomberg's economic research and daily newsletters in Europe and Asia. Prior to that, he reported on asset management for Financial Times publications in New York and Hong

Kong, with a focus on institutional investors and retail funds. He began his career reporting on local politics in the U.S. Southwest. He has a B.A. in Economics and Environmental Policy from the College of William and Mary.



Polina Mamoshina



Polina is Head of Biomarker Development at Insilico Medicine, Inc, a Baltimore-based bioinformatics and deep learning company focused on reinventing drug discovery and biomarker development and a part of the computational biology team of Oxford University Computer Science Department.

Insilico Medicine, Inc is headquartered at the Johns Hopkins University –Montgomery County Campus in Rockville. The company is focusing on applying deep learning and advanced signalling pathway activation analysis to biomarker discovery, drug discovery and drug repurposing for ageing and age-related diseases. Through a partnership with the BitFury Group, the company is working on a range of AI solutions for blockchain to help return the power over life data back to the individual. A brief video explaining Insilico Medicine research and commercial focus is available on Youtube. Her primary research interests include artificial intelligence, deep learning, biomarkers of ageing and disease and drug

responses, healthcare data management, and healthcare data economy.

Polina graduated from the Department of Genetics of the Moscow State University. She was one of the winners of GeneHack a Russian nationwide 48-hour hackathon on bioinformatics at the Moscow Institute of Physics and Technology attended by hundreds of young bioinformaticians. She is involved in multiple deep learning projects at the Pharmaceutical Artificial Intelligence division of Insilico Medicine working on the drug discovery engine and developing biochemistry, transcriptome, and cell-free nucleic acid-based biomarkers of ageing and disease.



Julia Randell-Khan



As founder and CEO of Encore Fellows UK, Julia is an enthusiastic encore career advocate. Finding no road map for her own transition from a long-term career in the legal field (at Norton Rose Fulbright and Freshfields Bruckhaus Deringer), Julia decided to create one.

This led Julia to Stanford University's Distinguished Careers Institute combined with a role at Encore.org, the leading non-profit in the encore movement, which taps the skills and experience of those in midlife and beyond for social change. At Encore.org Julia works on building global and cross-cultural connections. This includes leading the Encore Fellows UK programme which draws on the successful US scheme to offer experienced talent an opportunity to work on a paid, high impact assignment as part of purposeful

transition to retirement. Julia combines this with her on-going fellowship at Stanford University's Center on Longevity working on the New Map of Life project.

Julia is an active mentor and works closely with Fair Trials, a specialist human rights NGO. She also set up a network, Women in Transition, to support growth and development from change as senior women transition from long term careers to new opportunities in the next phase of life.



SCIENCE PANEL

What does the UK need to ensure that we add 5 more years of healthy life for everyone by 2030?

This panel will explore the recent advances in pro-longevity therapies, including small molecules, stem cells, regenerative medicine, microbiome and gene therapy. All of these are, to varying degrees, in human trials and the combination of these exciting developments and the fact that ageing pathways have been proven to

be malleable, make the bioengineering of human beings to live longer and more robustly a strong likelihood, rather than an historically improbable aspiration. Indeed, it is clear that the science of biogerontology is rapidly catching up with the desire of most of us to live longer and in better health.

Panel moderated by

Greg Bailey, MD

SCIENCE PANEL



Charles Alessi



Charles Alessi is the Chief Clinical Officer for HIMSS International. HIMSS is a global voice, advisor and thought leader of health transformation through health information and technology with a unique breadth and depth of expertise and capabilities to improve the quality, safety, and efficiency of health, healthcare and care outcomes.

As Chief Clinical Officer for HIMSS International, Alessi leads relationship-building efforts among HIMSS's various international clinician-focused communities; furthering HIMSS's position as a thought leader in the health industry and supporting both the vision and understanding of information and technology's roles in the advancement of health and care.

Before joining HIMSS in 2018, Alessi has acted in numerous external positions for governments and executive agencies on a national and international level. Alessi brings more than 25 years of experience in global healthcare policy and clinical practice to HIMSS. Most recently, he chaired the National Association of Primary Care (NAPC), has served as an adjunct research professor for Clinical Neurosciences

at the Schulich School of Medicine for the University of Western Ontario, Canada, and as executive director of the Global International Care Delivery Alliance.

Alessi is also the senior advisor for Public Health England, leading national policy implementation, productive healthy ageing and is currently contributing to the global World Health Organization guidelines for dementia risk reduction. Alessi has also contributed his expertise to multiple international publications such as the British Journal of General Practice, addressing topics such as health and social care contract and health policy. He has lectured and led keynote addresses for healthcare engagements taking place on every continent (except Antarctica).



Lynne Cox



Professor Cox is a biogerontologist at the University of Oxford. She runs a research group focused on understanding the basic molecular mechanisms underlying ageing, with the aim of using that understanding to improve health in later life, by developing treatments to alleviate the diseases of old age.

She received her MA and PhD in Natural Sciences at the University of Cambridge, then carried out post-doctoral work on the tumour suppressor p53 in Dundee with Prof Sir David Lane. She was awarded a Royal Society of Edinburgh Research Fellowship to progress her independent research, and from this, developed initial IP for the spin-out Cyclacel (<https://www.cyclacel.com>). She holds a Fellowship at Oriel College, Oxford, and an Associate Professorship at the Department of Biochemistry, University of Oxford.

She is a Trustee of the British Society for Research on Ageing, Fellow of the Royal Society

of Biology, and co-founder of the Oxford Ageing Network, OxAgeN, which now forms part of the wider Oxford collaboration on ageing. In 2015, she received the US Glenn Foundation award, presented at the House of Lords, for research into the biological mechanisms of ageing. She serves on the All-Party Parliamentary Group on Longevity, the Clinical and Translational theme panel of the Biochemical Society, is a primary international member of the Norwegian NO-Age consortium, and has just been elected co-chair of a new EU special interest group of the European Geriatric Medicine Society on the biology of ageing.



Tina Woods



Tina Woods is CEO and Founder of Collider Health, a health innovation catalyst working with organisations in both private and public sectors (corporates, investors, third sector, government, SMEs and start-ups) to accelerate innovation.

Tina is an ecosystem architect and builds collaborative networks and strategic partnerships to transform health with sustainable impact at scale. Tina and her team at Collider Health work with NHS X and the National AHSN Network to build the AI ecosystem for the NHS, with AXA health insurer on their corporate innovation programme Health Tech & You.

She has been involved in consortia development for the Healthy Ageing Industrial Strategy Challenge Fund with UK Research &

Innovation. Tina is also CEO and Co-founder of Longevity International, which runs the All-Party Parliamentary Group for Longevity, developing a UK National Strategy to help deliver 5 extra years of healthy life expectancy to all UK citizens by 2035 while closing the social gap to ensure democratic access to the 'longevity dividend'. Tina is also CEO & Founder of Collider Science, that aims to inspire young people in science and technology and equip them with the skills for the future. Tina writes regularly for Forbes, D/sruption and other media channels, and is currently writing a book, 'Live Longer with AI'.



Greg Bailey



Dr Bailey is the CEO of Juvenescence Limited a company that develops therapeutics, so people can live longer, healthy. Juvenescence develops drugs, IP protected consumer products and other therapeutic modalities to slow ageing and increase a healthy lifespan. The company uses AI to augment its drug discovery and drug development programmes in partnership with Insilico Medicine and NetraMark.

Dr Bailey has been founding and financing life science companies since 1995. Some of these companies have traded on NASDAQ, AIM, AMEX and the NYSE, reaching over \$19 billion in market capitalization. He co-founded Ascent Health Care in 1995 it was sold to Stryker for \$525 million and he financed Medivation Inc., (MDVN: NASDAQ) with \$14 million at a \$12 million pre-money. Medivation was acquired by Pfizer in September 2016 for \$14.3 billion. In January 2014 Declan Doogan and Dr Bailey capitalized Biohaven through Portage with 3.5 million for 54% and added a further \$3.5 million over the next 2 years. That position in Biohaven is now worth \$400 million.

Gregory Bailey currently sits on the board of directors of 3 public companies: Portage Biotech, Inc.; SalvaRx PLC.; and Biohaven Pharmaceutical Holding Company Ltd. SalvaRx is an Immune-oncology company which went public in February 2016. Portage was the major shareholder in Biohaven beginning in January 2014 until a dividend of \$200 million of Biohaven shares to its shareholders. Dr Bailey remains a major shareholder of Biohaven which went public in May 2017 and has a market cap of a little over \$2.4 billion.

Dr Bailey received his medical doctorate from University of Western Ontario.

TECHNOLOGY PANEL

Technologies Shaping the Future of Humanity

Technology has accelerated the pace of innovation and this presents significant opportunities to help promote longer, healthier and more fulfilled lives. A number of technologies and innovations have the potential to shape the future of humanity over the next decade. The use of robots in social care, the application of artificial intelligence in healthcare, the role of gene

editing to eliminate disease and the rise of super intelligence as we witness the merging of humans and machines will present both opportunities and challenges. The panel will debate the optimal governance framework required to ensure that these technologies and innovations can help society fulfil its potential rather than create inequality.

Panel moderated by

Dafina Grapci-Penney
(Biography in founders section)



Camilla Cavendish



Camilla Cavendish is an award-winning journalist and broadcaster, and the author of “Extra Time: Ten Lessons for an Ageing World”, published by HarperCollins in 2019. She is a Senior Fellow at Harvard’s Kennedy School.

She is also Contributing Editor at the Financial Times where she writes a weekly op-ed column on Saturdays.

Camilla was Head of the Prime Minister’s UK Policy Unit under David Cameron. One of the policies associated with her is the 2016 “sugar tax” on fizzy drinks. She has been a Non-Executive Director of the Care Quality Commission, and was author of the 2013 Cavendish Review, an independent review for the Department of Health, into junior nursing staff and care workers. She now sits in the House of Lords as a non-aligned peer: Baroness Cavendish of Little Venice.

Camilla’s work has changed the law: her exposure of miscarriages of justice in family courts led the Brown government to open those courts to the media in 2009. Her awards include Wincott Senior Financial Journalist of the year, and the Paul Foot award for investigative journalism.

Camilla began her career at McKinsey & Co. She helped to found the lobby group London First and was CEO of the South Bank Employers’ Group, a public-private joint venture which regenerated parts of London’s south bank. She holds degrees from Oxford and Harvard and chairs the non-profit Frontline, which puts talented graduates into social work.



Stephen Emmott



Stephen is a scientist and entrepreneur with a track record of scientific leadership and technological innovation in some of the world’s leading technology companies. He is Founder and CEO of Scientific, a technology business which operates at the intersection of science, technology and impact investment innovation.

From 2003 to 2016, Stephen was Chief Scientist and Global Head of Computational Science at Microsoft, where he led Microsoft’s Computational Science Laboratory in Cambridge, pioneering new kinds of science to develop previously impossible, game-changing solutions to this century’s greatest challenges and opportunities. Prior to that, Stephen was Chief Scientist, NCR Corporation’s Advanced Research Lab. Stephen started his career as a postdoctoral scientist at Bell Laboratories, under Nobel Laureate Arno Penzias.

Stephen is also Professor of Biological Computation at University College London and was previously Professor of Computational Science at the University of Oxford (2007–2014). He was scientific advisor to the Chancellor of the Exchequer (2005–2010). In 2012 his 10 Billion lecture at The Royal Court Theatre received critical acclaim. 10 Billion was published as a book in 2013 and became an international best-selling book. In 2015, 10 Billion was made into a feature-length documentary film.



James Lawford Davies



James is a solicitor and partner at Hill Dickinson in London. He specialises in life sciences regulation and litigation with a particular interest in cell and gene therapies. He advises a large number of companies, clinics, and universities regulated by the MHRA, HFEA and HTA, and has been involved in most of the leading cases relating to reproductive and genetic technologies in the UK.

He advised the Francis Crick Institute in relation to their successful application to use germline genome editing in human embryos, the first such regulatory approval of its kind in the world. In addition, he advised the Wellcome Trust and Newcastle University in relation to mitochondrial donation, both as a research project and therapy, and in relation to the successful passage of the draft Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015 (a similar route to that required to allow the use of genome editing in therapy).

James was previously a lecturer at the Institute of Human Genetics at the University of Newcastle, a Visiting Research Fellow at Durham University Law School, and is now an Honorary Lecturer in the Department of Biochemical Engineering at UCL.

James contributed a chapter (The Regulation of Human Germline Genome Modification in the United Kingdom) to a new Cambridge University Press textbook on genome editing which will be published in January 2020.



Ali Parsa



Dr Ali Parsa is a British-Iranian healthcare entrepreneur and engineer.

He's the founder and CEO of Babylon, the revolutionary AI and digital health company. Babylon's mission is to put an accessible and affordable health service in the hands of every person on earth.

Dr Parsa was listed in The Times 100 people to watch. The Health Service Journal recognised

him as one of 'the 50 most influential people in UK healthcare'. He was featured in the Maserati 100, a list that recognises game-changing entrepreneurs. He's a UK Cabinet Office Ambassador for Mutuals and has a PhD in Engineering Physics.



Anders Sandberg



Anders' research at the Future of Humanity Institute centres on management of low-probability high-impact risks, estimating the capabilities of future technologies, and very long-range futures

Anders is a Senior Research Fellow on the ERC UnPrEDICT Programme and the FHI-Amlin Collaboration. Topics of particular interest include global catastrophic risk, cognitive biases, cognitive enhancement, collective intelligence, neuroethics, and public policy. He is research associate to the Oxford Uehiro Centre for Practical Ethics, and the Oxford Centre for Neuroethics.

He is on the advisory boards of a number of organisations and often debates science and ethics in international media. Anders has a background in computer science, neuroscience and medical engineering. He obtained his Ph.D. in computational neuroscience from Stockholm University, Sweden, for work on neural network modelling of human memory.



THE LONGEVITY DIVIDEND PANEL

With 80% of employment growth in the US, UK, Germany and Japan in the last 20 years coming from those aged over 65; with growing VC investment in life sciences focusing on ageing; with firms beginning to

wake up to the needs of an older workforce and realising the potential for new products should we start talking more about the longevity dividend rather than the silver tsunami of an ageing society?

Panel also includes

Cynthia Brown

(Biography in the Presenters section)

Panel moderated by

Andrew Scott

(Biography in Longevity Forum founders section)



David Miles, CBE



David Miles is Professor of Financial Economics at Imperial College, London. He was a member of the Monetary Policy Committee at the Bank of England between May 2009 and September 2015.

As an economist he has focused on the interaction between financial markets and the wider economy. He was Chief UK Economist at Morgan Stanley from October 2004 to May 2009.

In 2004 he led a government review of the UK mortgage market. He recently completed a review for the UK Treasury on reference prices of UK government bonds. He is an advisor to the IMF.

He is a research fellow of the Centre for Economic Policy Research and at the CESIFO research institute in Munich. He is Chair of the Board of Trustees of the Institute for Fiscal Studies.

He was awarded a CBE in January 2016.

Gerald Moser



Gerald joined Barclays in 2019 as Chief Market Strategist. In this position, he is responsible for Barclays Private Bank and Overseas Services investment views.

With his team, he defines the advisory investment views through thematic and opportunistic investment ideas while also contributing inputs to the discretionary process. Prior to his appointment at Barclays, Gerald spent several years at Credit Suisse in its Wealth Management division where he was in charge of the equity views as well as thematic investment ideas. Prior to that he

worked for almost a decade in the Global Investment Research division at Goldman Sachs as a strategist, providing investment ideas to a broad set of institutional clients.

Gerald graduated from Paris Dauphine University with a MSc in International Management.



Yvonne Sonsino



Yvonne re-joined Mercer in 2013, after six years out of the consulting industry working in senior HR roles in the Middle East and Europe. In her previous role in Mercer, Yvonne led the International Consulting Group in London, working with global companies on HR policy and programme design.

Prior to that, there were a further fifteen years in the HR consulting industry. Her role at Mercer is Innovation Leader for the International region, leading design projects in the areas of Health, Wealth and Careers. At present, she is leading major global projects around flexible ways to source, manage, motivate and reskill future workforces, as well as co-leading Mercer's Next Age initiative focussed on longevity.

Yvonne recently Co-Chaired the UK Government Department for Work and Pensions Fuller Working Lives Business Strategy Group, working with employers to recruit, retain and retrain older workers. Her first book, *The New Rules of Living Longer*, was published in November 2015, with a foreword

from the UK Pensions Minister. She is also working on Mercer's answer to the Mid-Life MOT. Yvonne served as an Advisory Board member of TransformAgeing, has now been appointed to the Healthy Ageing Advisory Group working on the UK Government's Ageing Society Grand Challenge. She supports a number of other specialist bodies examining the demographic impact on workers, work and the workplace.

She is a Fellow of The Pensions Management Institute and a previous author of their International Diploma syllabus. Yvonne has Masters Degrees in Psychology and Business Research, and in her spare time holds both Trustee and Director roles in Creative Arts organisations.



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Barclays Private Bank

At Barclays Private Bank, we have the scale, connectivity and determination to help you make the most of burgeoning developments.

We recognise that breakthroughs in bioscience could increase life expectancies and help people live fitter, healthier lives for much longer than we ever thought possible. Our Beyond 100 series investigates the economic and societal impact of longevity to help you understand how longer lifespans could transform the next generation, and what it could mean for you, your family and your portfolio.

In the white paper report, video and podcast we spoke to world-leading experts including Lynda Gratton, co-author of the 100 year life and Dr Aubrey de Grey,

Chief Scientific Officer at SENS Research Foundation, to understand the implications of ground breaking new developments in biotechnology.

Barclays Private Bank are proud to sponsor the Longevity Forum 2019 and believe that our shared goals to support healthy longevity and overall productivity will drive innovation and investment within this field.

Our highly focused and collaborative approach to growth draws on a wide range of advisors and specialist services and at the heart of this relationship is a dedicated Private Banker.

Our Chief Market Strategist, Gerald Moser, will be joining Andrew Scott on the Longevity Dividend panel to discuss the challenges and opportunities that come with longer lifespans.



Hill Dickinson

Hill Dickinson LLP is a leading and award-winning international commercial law firm with offices in the UK, mainland Europe and Asia.

Our Life Sciences team provides practical, commercial legal advice to companies at all stages of development, from start-up to established multinational.

We support clients from an idea in a lab, to helping incorporate the company, raising capital, protecting and licensing intellectual property, signing strategic partnerships and, ultimately, commercialising life-changing treatments and technologies.

We also help clients navigate a legal and regulatory landscape that is continuously evolving in response to innovation as well as societal and ethical challenges.

Our interdisciplinary team blends insight and pragmatism to provide high-quality, trusted advice to some of the world's leading life sciences companies.

Areas of expertise in which we work include pharma, biotech, healthtech, medical cannabis, cell and gene therapies, genomics, IVF and embryo research.

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Juvenescence Limited

Extending Healthy Lifespan

Developing therapies to treat diseases of ageing and increase human longevity.

Juvenescence develops therapies that will enable people worldwide to live longer, healthier lives. We actively look for scientific founders probing exciting areas of ageing biology, and work with leading research institutions to create joint ventures combining their IP and our resources.

We are very active partners in the companies we create. In addition to providing financial support, we use our extensive drug development expertise to give ground-breaking science the best opportunity of achieving value-driving inflection points for targeted programmes, always with the goal of serving unmet patient need. Our pipeline of companies allows for flexible financing of individual opportunities, easy pipeline management, and the ability to exit via licensing, sale of underlying assets and royalties.

Juvenescence has raised USD \$165 million to date to create joint ventures and build an ecosystem of seasoned drug developers to support scientists, universities, and institutions specializing in ageing, senescence, and the diseases of ageing.

The Juvenescence team comprises proven and seasoned pharmaceutical industry experts covering drug research and development, strategy, structure, commercialization and finance. The team members, located across the US and the UK, design the R&D strategy and go/no-go experiments, to mitigate the risk in each of our programs.

A key element within the Juvenescence ecosystem is our use of artificial intelligence and machine learning techniques to discover and develop new drugs, working in conjunction with our partners, Insilico Medicine and Netramark.

We have also partnered with leading research institutions across the globe, like the Buck Institute for Research on Aging. Napa Therapeutics and BHB Therapeutics, both Buck spinouts, were capitalized by Juvenescence.

This ecosystem will allow our pipeline companies to cross-pollinate and collaborate, adding further value to each of the individual opportunities.

www.juvenescence.ltd



Background

Zinc builds new companies that tackle important societal issues. We do this through a 9-month, full-time programme for 50 creative, entrepreneurial individuals who come together to create a new business from scratch. They build scalable products and services that target millions of customers, based on the best social science research, exponential technologies and creative design. Each of our programmes focuses on one 'mission'. Our previous two missions have focused on improving women's mental health, and unlocking opportunities for people who live in places hard-hit by automation and globalisation. We have a live portfolio of >20 companies that have emerged from these two programmes.

The 50 entrepreneurs who join our programmes are a motivated, talented and diverse bunch. For each programme, we are also extremely fortunate to have the support of a wide community of experts, whom we call 'Visiting Fellows'. Our Fellows network represents an incredible breadth and depth of expertise, including in technology, design, business, health, education, employment, and more.

Zinc's Third Mission; Later life

The mission we have selected for our third programme, beginning September 30th, 2019, is to add more years of high quality to later life.

We know that, globally, the over-60s are expected to spend \$15 trillion annually by 2020. Yet, too often, their needs are ignored, underserved or badly-designed-for by youth-obsessed businesses and unresponsive public services. We've identified 10 opportunity areas, including assistive technology, disease prevention and financial services, which we believe contain important and fertile areas for new products and services with the potential to improve the quality of later life for millions. We're excited to have selected the next cohort of 50 Founders, from >600 applications. They are an interesting & talented mix, including robotics engineers, former CCG leaders, doctors, creative designers, management consultants, etc. Over the next nine months, they will create and test a range of innovative products and services across a range of areas of relevance to later life.

For more information about the programme and ways to get involved (e.g. as a potential partner, investor, collaborator), visit our website www.zinc.vc or contact info@zinc.vc.

THE LONGEVITY FORUM SUPPORTERS



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