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Judith Campisi (1948–2024)

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Judith Campisi, one of the foundational members of the Buck Institute for Research on Aging and an internationally recognized cell biologist for her work on cellular senescence, passed away at her home in Berkeley, California, on 19 January 2024. Judy studied chemistry at the State University of New York at Stony Brook, and obtained her PhD at the same institution. She went on to do postdoctoral research Dana–Farber Cancer Institute and Harvard Medical School, initially studying cell cycle biology and cancer. While studying whether cellular senescence is a tumour mechanism, she became intrigued by the idea that senescent cells were also important drivers of ageing[1,2]. This concept was later refined into a decade-long search for the definition of what constitutes a senescent cell, in several contexts of ageing and disease[3]. Judy was a prodigious collaborator — by February 2024, she had over 115,000 citations exemplifying her amazing networking capability, bringing together diverse groups of scientists to investigate the biology of ageing. She was the recipient of numerous scientific awards, including election to the US National Academy of Sciences, the Irving S. Wright Award of Distinction from the American Federation for Aging Research, the longevity prize from the Fondation Ipsen, and the International Prize in Natural Sciences and Medicine by the Olav Thon Foundation.

It is difficult to summarize her many scientific achievements over the past four decades, as well as her monumental impact in shaping ageing research. However, three major discoveries could arguably be said to be the most important of her scientific career. First, the groundbreaking observation, published in 1995, demonstrating that cellular senescence was not just an in vitro phenomenon, but could be detected in tissue samples from ageing individuals using the histological biomarker β-galoctosidase[4]. This discovery legitimized cellular senescence as a biological phenomenon, with potentially major effects as we age[5]. Second, the identification of a complex suite of molecules, secreted by senescent cells, termed the senescence-associated secretory phenotype (SASP), which have the potential to negatively affect the surrounding tissue micro-environment in driving inflammation

and cancer[6,7]. The SASP has become a major area of contemporary ageing research[8], including the potential of removing senescent cells to treat age-related diseases or understand the role of senescence in ageing itself[9]. Third, a major contribution to the field was the creation of the 3MR mouse model, which enables the identification of cellular senescence driven by the cell cycle regulator p16 in animal tissues[10]. This model has been extensively used to identify and characterize senescence in the context of different inducers, and to determine whether a putative intervention can target senescent cells in vivo for death ('senolytics') or to modulate the SASP ('senomorphics'). Judy postulated that cellular senescence is an antagonistic pleiotropic mechanism that improves wound healing and inhibits cancer early in life while later driving chronic inflammation. These are just three of Judy's many contributions that had an enormous impact in shaping how we think about drivers of ageing in general. Despite the profound effects of her work, Judy did not get caught up in any hype surrounding findings, and maintained her focus to study the problem deeply through the lens of basic science.

Judy's legacy transcends her scientific achievements; she was a remarkable unifier of people, a trait that was instrumental in drawing colleagues together to study ageing and cellular senescence. Her charm and infectious laughter provided a sense of belonging and purpose to trainees and colleagues. Her openness, especially in discussing and sharing data, distinguished her within the scientific community, and her candid opinions on topics related to ageing research were highly valued. A staunch advocate for the open sharing of data before publication, Judy's approach invariably led to enlightening conversations, and many colleagues valued her late-night phone calls about science and life.

Judy's mentorship and influence established her as a unifying presence within the scientific community. It is touching to hear from so many of her colleagues how she made them feel welcome, a message that was highlighted many times at her '40 years of research' celebration in November 2023. For Judy, the scientific community was her family. Her mentorship instilled a fierce passion for scientific discovery, and she challenged others to ask critical questions that would move the field forwards. Indeed, her long-standing postdoctoral trainee program from the National Institute on Aging often started with a mentoring session highlighting several core principles of great science, including "always question dogma!". Judy's legacy will continue to thrive going forwards via the discoveries of her trainees, collaborators and many other scientists who were influenced by her seminal scientific work.

She was a fiercely loyal friend and colleague who nurtured her interactions with the same care and dedication she applied to her research. The gift of friendship she offered so willingly will remain the most endearing part of her legacy, leaving a profound effect on those fortunate enough to have worked alongside her, and who she cared about professionally and personally.

We will miss a brilliant scientist and our dear friend, Judy Campisi.

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Competing interests

None of the authors have any competing interests.