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Judith Campisi (1948–2024)

By Pierre-Yves Desprez & Pankaj Kapahi

Internationally recognized scientist Judith (Judy) Campisi passed away at her home at the age of 75 on Friday 19 January 2024. Judy was a professor at the Buck Institute for Research on Aging and a former senior scientist at the Lawrence Berkeley National Laboratory (LBNL). Judy earned her PhD from Stony Brook University, in New York, and conducted research in Arthur Pardee's laboratory at the Dana-Farber Cancer Institute, Harvard University, in Boston. She then began her academic career as an assistant professor at Boston University Medical School before transitioning, in 1991, to join Mina Bissell's department at the LBNL as a senior scientist. She moved her laboratory to the Buck Institute in 2009.

The early 1990s and her arrival in California at the LBNL represented a launching pad in her career towards recognition as an outstanding biologist. Most of her career achievements were in the field of senescence and ageing, exemplified by her discovery of the universally used SA-β-Gal marker for senescent cells[1]. Her contribution to the field of cancer research has also been enormous. Judy started her career working on oncogenes, particularly on *MYC* and *RAS*[2]; however, after starting her own laboratory, she altered her focus to the role of cancer-related molecules in the repression of cellular senescence. This transition from pure cancer research to senescence and ageing was a visionary move and was characteristic of Judy's bold approach to science[3]. Yet Judy also asked me, Pierre-Yves Desprez, a postdoctoral fellow in her lab at the time, to determine the role of ID1 as an inhibitor of differentiation in mammary epithelial cells. We were using normal mouse epithelial cells treated with extracellular matrix, a model created by Mina Bissell. These cells were able to make mammospheres and produced milk after the addition of lactogenic hormones and, unsurprisingly, overexpression of ID1 was able to block milk production. One evening, I found Judy working very late in her office and I asked her to come to the microscope to watch as the mammospheres stably transfected with ID1 not only lost the ability to differentiate but also started to collapse and invade the extracellular matrix like metastatic cancer cells[4]. Although this was an initial observation, we further determined that ID1 was a key pro-metastatic molecule in human breast cancer[5], a finding that was later confirmed in multiple cancer types.

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Judy continued to make key discoveries that impacted both the cancer field and the ageing field. She proposed that senescence evolved to provide protection against cancer and promote wound healing; however, as an organism aged, this same process could contribute to ageing. In 2001, Judy's group published an article showing that senescent fibroblasts promoted epithelial cell growth and tumorigenesis in mouse models[6]. This paved the way for her major discovery of the senescence-associated secretory phenotype (SASP), showing for the first time that senescent cells secrete pro-inflammatory factors that promote cancer cell proliferation and invasion[7]. Then, through multiple collaborations, we showed that inhibition of mTOR, which slows ageing and growth in certain cancers, also inhibited the SASP[8], further bridging ageing and cancer. There are now more than 2,000 publications describing the importance of the SASP, including some prominent publications on its role in cancer, from more recent members of Judy's laboratory.

Judy's legacy extends beyond her scientific achievements; she was a beacon of collaboration, a popular and compelling speaker, and deeply invested in making science about people. Her openness, particularly in discussing and sharing data and ideas 'without chains', set her apart in the scientific community. Although it occasionally caused unease among her graduate students and post-doctoral researchers, Judy was valued for her candid opinions and unifying presence within the scientific community. She fostered an environment in which researchers, regardless of their level of experience or background, felt welcomed and valued. Her passionate curiosity for both science and people was the cornerstone of her charm and effectiveness as a mentor and collaborator. Judy had a unique way of making science a shared purpose rather than a solitary endeavour, intertwining personal and professional relations in a manner that enriched the lives of those around her. For Judy, the scientific community was her family, which she nurtured with the same care and dedication that she applied to her research. The gift of friendship she offered so freely will remain the most endearing part of her legacy, leaving a profound impact on those fortunate enough to have worked alongside her.

Pierre-Yves Desprez[1,2] & Pankaj Kapahi[2] ✉
[1]California Pacific Medical Center, Research Institute, San Francisco, CA, USA. [2]Buck Institute for Research on Aging, Novato, CA, USA.
✉e-mail: pkapahi@buckinstitute.org

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Competing interests

The authors declare no competing interests.