

Biomedical research has been Suzanne Cory's passion in every sense. She has worked to decode the genetic mysteries of the immune system and cancer, has rallied her country to invest in its scientific future, and is married to a fellow scientist from her post-doctoral years. *Nature Medicine* talked to the Director of the Walter and Eliza Hall Institute in Melbourne to find out why her love affair with science hasn't waned in intensity over four decades.

Suzanne Cory

Reinvigorated from trekking in one of New Zealand's most challenging mountain ranges during a rare break from work, Cory was brimming with enthusiasm. Uppermost is excitement about her involvement in a consortium bidding for the Federal Government's Biotechnology Center of Excellence—the winner will be announced later this year. Cory and her colleagues have the bold vision of establishing a Therapeutics Development Pipeline, another example, she says, "of Australian scientists putting limited resources together in novel combinations to achieve bigger goals."

She has always been a vigorous campaigner on behalf of the nation's biotechnology industry, believing it to be essential for strengthening not only the economy but also basic science. "The race is on to exploit genetics to create the medicines of tomorrow", she urges, "but unless we quickly harness our scientific resources, Australia will be left at the starting gate."

Cory was appointed as Director of the Walter and Eliza Hall Institute (WEHI) in 1996—the first woman to hold the post. "On the one hand, it is tremendously satisfying to help make a difference to science on a bigger scale—furthering the careers of talented colleagues, helping a great institution reach its full potential, enhancing science education..." Nevertheless, she says "personally there is nothing equivalent to being in your own lab, debating scientific ideas with stimulating colleagues and seeing discoveries emerge with your own eyes."

Her scientific career began in the 1960s when, as an undergraduate, she was startled to learn of the discovery that a chromosome consists of a single giant molecule of DNA. Still entranced by DNA, on completion of her Masters degree, she wrote to Francis Crick asking if she could study for her PhD in his department at the MRC Laboratory of Molecular Biology (LMB) in Cambridge, UK, then the Mecca for budding molecular biologists. "If I had realized how audacious that request was, I would never have had the courage to apply!" she remarks.

The experience at LMB left an indelible

stamp on Cory's life: "It was an environment steeped in scientific passion and rigor—four Nobel laureates and ambitious post-docs from all around the world, hungry for success. It was there that I realized that there are no half measures in science—the commitment has to be all or nothing." And it was there that she met fellow scientist Jerry Adams. They married and embarked on a research career together, which began with post-docs in Geneva.

Molecular biologists were still a rare breed in 1971 when Cory and Adams decided to return to Australia to work at WEHI. A self-confessed "passionate Australian", Cory hoped that they could establish internationally competitive careers in Australia. The gamble paid off and the pair led the way in introducing the emerging recombinant DNA technology into Australia. Working in the field of immunology, Cory and Adams cloned genes of the immune system in an effort to understand its capacity to generate billions of different antibodies. One notable early discovery was that lymphocytes assemble functional antibody genes by DNA rearrangements that delete DNA.

In the 1980s, Cory and Adams switched their attention to cancer and identified the link between karyotypic alteration and oncogene activation in tumorigenesis. They showed that the chromosomal translocation hallmark of Burkitt lymphoma—a malignancy of antibody-producing cells—reflects an abnormal rearrangement of antibody genes that activates a dormant oncogene, *MYC*. "The inadvertent linkage to the active antibody gene forced *MYC* to work continually and drive cell proliferation". Always eager to embrace new tools of molecular biology, they then applied transgenic technology and directly demonstrated that the altered *MYC* gene inexorably promoted lymphoma development in mice.

This work laid the foundation for Cory's seminal research into the role of cell sur-

vival in tumorigenesis. Together with Adams and a PhD student, David Vaux, Cory discovered that *BCL-2*, the oncogene activated by chromosome translocation in human follicular lymphoma, had a very different mode of action than all previously characterized oncogenes. Rather than stimulating cell proliferation, *BCL-2* promotes cell survival. "Nobody then dreamed that simply stopping a cell from dying could empower it to found a tumor," reflects Cory.

For Cory, the outstanding question now for the field—and a goal she and her colleagues avidly pursue—is to elucidate how the *BCL-2* protein acts molecularly to block apoptosis. Looking ahead, she hopes that by identifying small-molecule inhibitors and agonists of apoptosis that interact with the *BCL-2* family, they can develop potential drugs against cancer or autoimmune and degenerative disorders.

Not surprisingly, Cory is considered a role model for other women scientists. When she wanted to study abroad in the 1960s, she found that only one Australian scholarship was open to women. "That one was so old (1851) that they probably hadn't thought to

exclude women!" she laughs. "Thankfully times have changed, but more still needs to be done to enable women in science to reach their potential." She feels women are often held back by their own lack of confidence. "They need more role models, genuinely flexible career paths and, of course, partners who truly share responsibilities."

Cory attributes the success of her partnership with Adams to common interests, complementary skills and great mutual respect. While science consumes their lives, they have always preserved blocks of time, together with their two daughters, for camping and hiking trips in the wilderness. For her, "these are important renewal times, when life comes back into perspective."

Carina Dennis, Sydney



A scientific love story