

Obituary

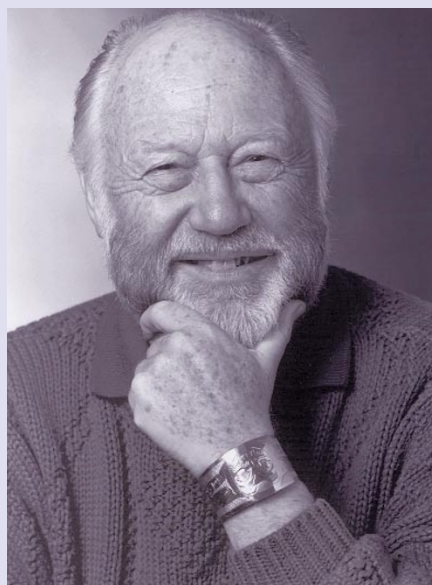
Michael Smith (1932–2000)

Some researchers live their lives by the scientific credo that the best path to creative discovery is an open mind, a stimulating environment and colleagues, and outstanding resources with which to test hypotheses. Such a scientist was Michael Smith, who died on 4 October 2000 at the age of 68. Michael's landmark contribution to science was the development of site-specific mutagenesis, a technique in which small, synthetic oligonucleotides are used to substitute one base pair for another in the DNA of organisms. This approach is now used worldwide, and is crucial in understanding the importance of specific amino acids to the function of particular proteins. The significance of this discovery was recognized by Smith's receipt of numerous prizes and honours, culminating with the Nobel Prize in Chemistry in 1993.

Michael grew up in a working-class neighbourhood in Blackpool, England, and was the only student in his high-school class who went on to study at university. After graduate studies at the University of Manchester, he joined a young scientist, Gobind Khorana, in Vancouver as a postdoctoral fellow, working on nucleotide chemistry. Later, he moved with Khorana to Wisconsin. In 1961, his love of the outdoors led him to return to Vancouver to accept a position with the Fisheries Research Board of Canada, where he combined research into marine biology and into the chemistry of nucleic acids.

Smith's postdoctoral fellowship, together with his sabbatical in 1975 in Fred Sanger's laboratory, provided him with the background and stimulus that were to lead him to the recognition that it is possible to change a single base in a gene, whatever its size. Interestingly, his first paper describing the technique of site-specific mutagenesis was declined by a premier scientific journal. The discovery was clearly ahead of its time. Michael often told this story, particularly to encourage those whose initial report of a scientific advance was not met with unbridled enthusiasm.

Michael was passionate about science, but also dedicated much of his time to the community and country he lived in. Not only did he give away the earnings from his Nobel Prize to causes about which he cared deeply — research into schizophrenia and the development of



Scientist who developed a landmark technique for gene analysis

fellowships for women in science — but he also persuaded provincial and federal governments in Canada to match these awards. He saw no barrier to raising public and government awareness of the importance of basic research to the quality of life of Canadians, and was constantly active in influencing the highest levels of government towards that agenda. After receiving the Nobel Prize, he gave his time, expertise and fame to humanitarian causes — a clear example of the power of individuals in science.

Canada has seen a marked improvement in its research environment and in its support of the early careers of scientists, in large part thanks to Michael's commitment to this goal. He recognized how important it is to ensure that children and students are, at an early age, exposed to the wonder and beauty of science. His story about the rejection of his landmark paper, as well as the fact that he was never a stellar high-school student, gave those he spoke to the belief that anything was possible, as long as you were willing to take risks and pursue your goals diligently.

In the late 1980s, he developed, and persuaded others to support, the idea of a research centre where people with different expertise — in physics, chemistry, botany, zoology and biology — could work together. This led to the

founding of the biotechnology laboratory at the University of British Columbia. He was also the founding director of the Centre of Excellence in Protein Engineering, one of the first eleven Centres of Excellence in Canada.

At the age of 64, Michael was longing to get back to the bench, and took a sabbatical with Maynard Olson at the University of Washington, where he concentrated on genomics and the power of DNA sequencing. With that knowledge, and a firm belief about the future of genomics research and its implications for biology, he accepted an invitation from one of us, Victor Ling, to become the founding director of the Genome Sequence Centre at the British Columbia Cancer Agency.

He was a brilliant recruiter, both there and at the biotechnology laboratory at the University of British Columbia. He often used to explain that the secret was to recruit not the scientist but rather the person. By that, he meant that it was important to understand all aspects of a person — their dreams and aspirations for science, as well as other parts of their lives. That was why he was often to be found at the airport welcoming candidates, and spent a lot of time finding out about their hopes for the future. He was able to converse with his colleagues even about areas totally outside his training or expertise. He would frequently place articles of interest in people's mail boxes, and engage whoever he could talk to in conversations about what excited them in their research.

He was passionately committed to science. But most of his colleagues who spoke at the celebration of his life in Vancouver on 6 November recalled his generosity, friendship, zest for life, and love for his family and three children. He also loved the west coast of British Columbia. An avid hiker, skier, fisher and boater, he was full of tales about the fish he caught, or the pod of killer whales leaping in the air just off his seaside home at Bliss Landing. He will be sorely missed as a colleague, friend and innovator, and as a wise and imaginative mentor in developing and attaining dreams. **Michael R. Hayden and Victor Ling**

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