

suggested citation:

Smith, C. (2010). Venter, J. Craig (1946–) In Priest, S. H. (Ed.) (2010). *Encyclopedia of science and technology communication*. Page 931-932. Sage.

J. Craig Venter is an entrepreneurial scientist who has made international headlines for his work sequencing the human genome, discovering new microorganisms and genes in the ocean, and, more recently, engineering synthetic life. Patents on his discoveries caused international concern and speculation about intellectual property rights relating to DNA.

Born in Salt Lake City, Utah, on October 14, 1946, Venter performed poorly at school and was more interesting in building things. He was drafted into the Vietnam War, in which he was a medic for the U.S. Navy. He has attributed his drive and ambition to learning the value of life in the face of death in Vietnam.

On returning from the war, he attended the University of California, San Diego, where he completed a bachelor of science degree in biochemistry in 1972, followed by a doctoral degree in physiology and pharmacology in 1975. He then worked at the State University of New York at Buffalo before joining the National Institutes of Health (NIH) in 1984. After establishing a career in adrenaline research, he became interested in the potential of genomics.

At the NIH, Venter was involved in his first patent dispute, which was over applications relating to his work on expressed sequence tags, portions of DNA useful for gene mapping. Public opposition to patenting sections of human DNA led the NIH to withdraw the patent applications.

Venter was a pioneer of the whole-genome shotgun sequencing approach, a method of DNA sequencing that was faster than traditional methods but which critics thought would not be accurate enough to produce useful genome maps. In 1992, he founded The Institute for Genomic Research (TIGR), which used the shotgun approach in sequencing projects. In 1995, the team published the first complete genome of an organism other than a virus, that of the bacterium *Haemophilus influenzae*, which can cause meningitis and was once mistakenly believed to cause influenza.

In 1998, Venter became a founder and the president of the company Celera, set up to demonstrate how the use of the shotgun method could sequence a human genome faster than the Human Genome Project, which was funded by governments internationally. In 2000, this team published the genome of the fruit fly and important model species *Drosophila melanogaster* in collaboration with researchers from the University of California at Berkeley. In June 2000, at the White House, Celera and the Human Genome Project publicly announced joint victory in sequencing the human genome, with speeches from U.S. President Bill Clinton and U.K. Prime Minister Tony Blair on the importance of the work for humanity.

A week later, Venter was featured on the cover of Time magazine, in front of the leader of the public genome effort, Francis Collins. In February 2001, Venter's team and the publicly funded project published separate drafts of the human genome in Science and Nature, respectively. In a review of his autobiography, Venter is described in the New York Times as a “media darling.” He worked with journalists as well as journal publishers to launch news of his science on several occasions. Scientists from the Human Genome Project criticized Venter's and Celera's public relations efforts; Venter typically received publicity as the underdog or

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maverick character in the race for the human genome. Venter countered his critics in his autobiography, stating that his public relations team consisted only of one person, Heather Kowalski, and that their media strategy was to be honest and straightforward with journalists. Following his work on the human genome, Venter combined his love of sailing with his passion for genomics in an expedition on his yacht, Sorcerer 2, to sample and sequence the ocean's microorganisms. He did a pilot voyage in the Sargasso Sea in 2003, followed by a global circumnavigation that began in 2004 and finished in 2006. The expedition received support from Discovery Channel Quest to produce a documentary.

In 2005, Venter cofounded the company Synthetic Genomics with the aim of genetically modifying or synthetically producing microorganisms to produce clean fuels, among other things. In 2006, he founded the J. Craig Venter Institute, a nonprofit institute that was the merger of four existing nonprofit organizations.

Venter again provoked public controversy over who owns life, in relation to patents subsequently filed on synthetic organisms and their components. In 2006, the J. Craig Venter Institute filed patents on the genome of *Mycoplasma laboratorium*, a largely synthetic bacterium under development at the institute. In 2008, the institute announced it had completed the second step in creating a completely synthetic organism by chemically building the DNA of a whole bacterium and putting it together.

In 2007, Venter became the first person to have his individual genome sequence published in the journal PLoS Biology.

See also

Gene
Gene Patenting
Human Genome Project
National Institutes of Health, U.S.
Synthetic Biology and Genomics

Further Readings

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