

## The Maverick God of Small Things

The genetic scientist with an eye for money and self-aggrandizement has made new waves by creating the world's first artificial life form.

1. His race to map the human genome earned Craig Venter the nickname Darth Venter. Last week, after creating artificial life in a laboratory, he was accused of playing God. Yet life once seemed so unbearable to the American biologist that he tries to end it all. In 1967 the Vietnam draft propelled Venter, a 21-year-old college dropout with an IQ of 142, from a laid-back existence in California as a surfer and beach bum to the carnage of the communist Vietcong's Tet offensive against US bases. As a medic at field hospital in Da Nang, he saw hundreds of soldiers die, sometimes when he was massaging their hearts.

2. After five months in what he called "the university of death", he decided to swim away from the horror. "My plan was to carry on swimming until I was exhausted and then sink," he recalled in his 2007 memoir. At him pause, but he swam on -- until a shark prodded him in a "bump and bite" attack. "Then I became consumed with fear. What the f\*\*\* was I doing? I wanted to live, more than I had ever done. I turned and swam for a shore in panic." Back on land he concluded: "I wanted my life to mean something, I wanted to make a difference."

3. Venter's severest critics wish the shark had been more peckish. He was vilified by parts of the scientific establishment for taking them on in a competition to sequence the human genome -- the biochemical instruction manual for Homo sapiens. The result in 2000 was a dead heat between the publicly funded human Genome Project, which intended to release the knowledge free of charge, and Venter with his schemes to commercialize some of the results. A man of supreme immodesty, Venter relished the controversy, flaunting his Learjet, Rolex and yacht. Improvement to insults deriding him as "a self aggrandising pain in the arse" and "an opportunistic maniac", he railed against the "morons" who failed to appreciate his vision and declared: "Is my science of the level consistent with other people who have gotten the Nobel? Yes."

4. Last week the 63-year-old maverick stunned the scientific world again by announcing creation of the first cell controlled entirely by man-made generic instructions. The technology, he claims, opens the door to biology's holy grail -- a way of creating synthetic bacteria that produce environmentally friendly fuels as natural waste products. Some scientists were appalled. Fears of bio-terror vied with the spectre of "bio-error". One declared it was "a Pandora's box moment, like splitting the atom or the cloning of Dolly [the sheep]". To which Venter had reply: goats. The "host" bacterium in the experiment causes mastitis in goats and would be harmless outside the lab unless injected into these animals: "And we don't work with goats"

5. Even when not buffeted by criticism, Venter loves to be in the eye of the storm -- abroad his yacht Sorcerer II, in which he has circumnavigated the globe. Like the renegade Captain Nemo in Twenty Thousand Leagues Under the Sea, Venter plies the oceans to plunder their riches. In a genetic treasure hunt he has harvested millions of new genes from underwater life forms with aim of changing the gene structure of algae and ticking them into producing oil. "Our aim is to have a real and significant impact on the billions of gallons [of fossil fuel] consumed worldwide," he told New Scientist last year. "The expectation is that doing it on this scale will take five to 10 years."

6. Is he driven by ego, altruism or commercialism? In Venter's view his marine endeavour has "trillion-dollar" potential. He is also working with BP on exploiting his team's discovery of ancient bacteria, deep underground, that can turn coal into recoverable methane "without even digging up the coal", Although described as the alpha male of US science, Venter's modest body language and once said unassertive voice have surprised interviews. "The action is in his steel-grey eyes, which flash with a cold energy as he talks," one reported. Another said: "I found him to be a personable, chubby, middle-aged bloke."

7. Twice divorced, the genomics pioneer lives with his third wife. Heather Kowalski, his former PR, in Alexandria, Virginia. His office at the J Craig Institution in

Washington is adorned with model ships, citations and photographs of deep-sea creatures -- alternating with shots of a windblown Venter at the helm of his yacht. Analysis of the six billion chemical letters of Venter' s personal genome have revealed an increased risk of heart disease, late-onset diabetes and Alzheimer' s -- which made little difference to his "omnivore" preferences. "I do enjoy a drink even though there is a history of alcohol abuse in my family," he once noted. "My father died at 59, a sudden cardiac death."

8. Venter was born in October 14, 1946, in Salt Lake City, Utah, into a military family that moved to Millbrae, California, a middle-class suburb near San Francisco airport. With pointed symbolism, he begins his memoir by describing how he and his friends would race their bikes down the pilots and passengers. He was a mediocre student at school but excelled at swimming (because of a genetic trait, he reckons). "Craig likes to do high dives to time it so the water is there by the time he hits the bottom."

9. Something of a lothario, Venter never forgave his father for tipping off his girlfriend' s gun-toting father to his teenage tryst, considering this "betrayal" to be "even worse than having a gun pointed at me" . Higher education left him truly at sea: he seemed to spend more time around boats and on California' s beaches than at the state' s College of San Mateo.

10. Vietnam changed all that, leaving him with a burning mission to become a doctor. En route home, he dropped into Britain where his dishevelled appearance persuaded immigration officials that he was heading to London to import drugs or foment opposition to the Vietnam war. Memories of his day of interrogation and hostile coverage in the British media later did not turn him against “the land of my fathers” , he said “I am very forgiving.”

11. Returning to the United States, he got married and threw himself into his medical studies. In just five years he received a biochemistry degree and a PhD in physiology and pharmacology at the University of California, San Diego. With a failing marriage and a young son, he shifted into medical research and began teaching at the State University of New York, where he split with his wife and married Claire Fraser, one of his students.

12. In a blinding revelation he discovered how to fast-track decoding genes while working at the US National Institutes of Health, which he joined in 1984. The breakthrough enabled him to sequence genes with unprecedented speed. His success, although remarkable to some, did not impress James Watson, the co-discover of DNA's structure, who dismissed the result as work “that could be run by monkeys” .

13. Criticism and lack of funding prompted Venter to set up a private research

body, the Institute for Genomic Research, in 1992. Three years later he pulled off a coup by unveiling the first genome of a free-living organism, *Haemophilus influenzae*, a bacterium that causes childhood ear infections and meningitis. He dropped his next bombshell in 1998, announcing the formation of a company, Celera Genomics, to crack the entire human genetic code in just three years. At that point the public Human Genome Project was five years into a rather relaxed 10-year program.

14. Undiplomatically, Venter suggested to government scientists that they let him finish the human genome while they charted a mouse genome instead. A tussle developed between the flamboyant Venter and the understand British academic John Sulston of the Wellcome Trust, a leading figure in the largely US-funded Human Genome Project. "If global capitalism gets complete control of the human genome that is very bad news indeed," Sulson said, adding that Venter was "morally wrong" .

15. On June 26, 2000, presided over by President Bill Clinton, both sides presented their draft results. It was more a truce than a tie. Venter agreed with one scientist "who said it was like doing a marathon and I was jogging on the spot waiting for the other guy to catch up so we could cross the line together" . In Venter's view, the importance of the contest had been hyped to an "unbelievable" degree -- "I said it was only the race to the starting line" -- as has the promise of

gene therapy. "Gene therapy has almost no chance of working in the near future," he believes.

16. Despite all his awards, Venter is said still to crave scientific respectability. The paradox is that he chooses increasingly controversial means in pursuance of this end. His synthetic microbes, he claims, could usher in a new industrial revolution -- which, coincidentally, will make him much richer. Meanwhile, the demand for quick fixes becomes more pressing. If he could deliver oil-devouring algae to the Gulf of Mexico, yesterday's cartoon villain would be feted as a hero.

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