

Clive Svendsen

Punctuated by personal tragedy and professional detours, Clive Svendsen's career has been anything but conventional. But all along the way, his unerring instincts led him to success as a prominent neuroscientist.

Clive Svendsen likes research so much he leads a dual scientific life—in reality and in fiction. “As a scientist you have to be so self-critical,” says the noted stem cell researcher, who is also the author of *Genesis*, an unpublished medical thriller. “But in a novel you can just release yourself, and the experiments always work. They never work in real life.”

But Svendsen is being modest. Many of his real-life experiments have worked very well and have led him to his position as director of the Stem Cell Research Program at the University of Wisconsin in Madison. His research focuses on delivering corrective neural stem cells directly to the brain to cure fatal neurodegenerative disorders such as Parkinson disease and amyotrophic lateral sclerosis.

Successful as he is now, Svendsen's career has been meandering and unconventional, and guided only by his instincts. “In science you have to have intuition,” says Svendsen. “Once I choose a project I'm like a bull terrier—I won't let go of it and will see it through right to the end.”

Svendsen's love of biology took root during his childhood in the coastal town of Sidmouth, in southwestern England. He says he loved to hear his botanist father talk about photosynthesis on the way to school. But his interest in neuroscience bloomed at age 17 after an internship studying Alzheimer disease.

After completing his undergraduate degree, Svendsen took a year-long job as a research technician under neuropathologist Edward Bird of Harvard University. One year turned to seven as Svendsen—still a technician—began studying the impact of neuropsychiatric disorders on the brain's amygdala, a region associated with emotion and nervous response. Soon, he began traveling to meetings to present data. At one gathering in San Diego, however, Svendsen was mistakenly introduced as having a doctorate. When Svendsen corrected the mistake, half the audience left. That's when he decided it was time to get a PhD, he recalls.

Instead of diving into research, however, Svendsen followed his wife, who wanted to learn Japanese, to Tokyo. He took a job with ESA, a US company that sells microarrays to detect biochemical patterns in human tissues. “Svendsen was fantastic at explaining something that was brand new and very complicated to just about anybody,” says Wayne Matson, ESA's cofounder and vice-president. “As a scientist he can also pull in information from multiple fields—whether cell biology, data handling or instrumentation—in order to solve a problem.”

After a year in Japan, Svendsen and his wife returned to the UK after she became pregnant. Svendsen pursued a doctorate at Cambridge University studying neural growth factors—proteins that control the growth and survival of developing neurons.

But as Svendsen's career blossomed, his personal life disintegrated. His nine-month-old daughter died of heart problems. Instead of turning back to science, he funneled his grief into fiction, and completed *Genesis*, which describes an ‘evil professor’ who creates a man-ape hybrid to understand the genomic underpinnings of human behavior. A ‘hero’ rescues the hybrid and flees across the country pondering various questions of consciousness on the way. “I wrote it with deep passion,” says Svendsen, adding he is still undecided on whether he should publish it.

Things took an upturn less than two years later. On the day his son Sam was born, Svendsen completed his doctorate. He went back to work for

ESA for a few years, but as he sat in a traffic jam on the M25 highway one day, he told himself, “I could be sitting in the lab right now doing fun stuff.” That evening, Svendsen says he told his wife, “We're going to be broke for a while—I'm going to do a postdoc.”

In the late 1990s, scientists had just discovered that the adult brain carries stem cells. Svendsen began work on transforming stem cells into neurons that secrete the neurotransmitter dopamine. In 1998, after completing his postdoctoral work, he joined Cambridge University's Center for Brain Repair.

In a small pilot study, Svendsen showed that pumping glial cell-derived neurotrophic factor (GDNF) directly into the brain of individuals with early-stage Parkinson disease could prevent dopamine neurons from dying (*Nat. Med.* 9, 589–595; 2003). All five subjects became less debilitated, prompting a deluge of letters from hopeful patients.

Excited by the results, the biotechnology company Amgen, which had donated the synthetic GDNF, volunteered to sponsor future phases of the trial. But during ensuing negotiations, Svendsen fell out with the company.

The problem was Amgen's proposed methodology, says Svendsen. The company wanted to use thicker—and potentially more damaging—catheters. It also wanted to enroll 34 mid- to late-stage study subjects, but Svendsen argued that such patients probably have very few dopamine neurons left to save, reducing GDNF's chances of success. Amgen declined to comment on the disagreement, but a representative says that results from the second phase of its trial are due out this summer.

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In the meantime, the UK's Medical Research Council pulled funding from the Brain Repair Center, jeopardizing Svendsen's research. Opportunity—and an offer of full tenure—quickly arrived from Wisconsin. Svendsen had never even heard of Wisconsin, but when he visited shortly after, he immediately took to Madison's midwestern charm. “The people are nice, the living's cheap, and there are beautiful lakes everywhere,” says Svendsen, who is an avid sailor. He says he also hoped the move might rejuvenate his marriage, which had steadily crumbled since his daughter's death. The couple divorced last year.

Nearly four years later, Svendsen heads a lab with 16 people. His relaxed demeanor is comforting, says graduate student Sandra Klein. “He is really friendly and extremely low-key,” she says. “We all like to go out with him—he can dance till five in the morning.”

Svendsen says he would eventually like to create a nonprofit institute—unfettered by academic, industrial or government interests—where neurosurgeons can transplant embryonic stem cells directly into patients. Whether that comes to pass or not, Svendsen says he will, as always, rely on intuition to carve future paths. “You never know,” he says. “I might just end up on the beach back in Sidmouth, writing another novel.”

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