

Kurzweil's Quest For Eternal Youth Sets Group Abuzz

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By *Leslie Walker*

CAMBRIDGE, Mass. - Inventor Ray Kurzweil takes 250 nutritional supplements a day in his quest to live long enough to reap the benefits he expects from biotechnology. He says he's trying to reprogram his body, as he would his computer.



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"I really do believe it is feasible to slow down the aging process," Kurzweil told Technology Review magazine's Emerging Technologies Conference at the Massachusetts Institute of Technology ([news - web sites](#)) here last week. "We call that a bridge to a bridge to a bridge -- to the full flowering of the biotechnology revolution."

Kurzweil, a well-regarded scientist who invented the flatbed scanner and a reading machine for the blind, claimed his pills appear to be helping: Biological tests conducted at a clinic in Denver found his body resembles that of a man in his early forties, he claimed, rather than his true age of 56.

The claim startled many in the audience because there is no medically accepted way to measure aging. Most biological markers simply measure health.

And health is a theme Kurzweil returned to repeatedly; it is the subject of his latest book, "Fantastic Voyage: Live Long Enough to Live Forever," co-authored with medical doctor Terry Grossman. But it was his broader vision of how biology, nanotechnology and information science are merging that set the backdrop for the conference, which brought together nearly 1,000 scientists and executives from various disciplines to peer into the future.

Kurzweil has long contended technology is advancing exponentially, as each new breakthrough -- fire, the printing press, computers, the Internet -- is used to speed up development of the next. Debate at the two-day event ranged widely about just what is on the horizon.

Presentations ranged across the frontiers of science, including robotics, nanotechnology, biometrics and geographical positioning systems. World Wide Web inventor Tim Berners-Lee described the second big phase of the global computer network, a "Semantic Web" project involving tagging or defining online content in a special language. The idea is to let computers accomplish work humans now do by making it possible for machines to read the Web. "Isn't that a bit old-fashioned, having a human being browse the Web?" mused Berners-Lee.

DuPont's research chief, Uma Chowdhry, said her company is working on a long-range project for the Department of Energy ([news - web sites](#)) involving a bio-refinery to create renewable energy resources. General Motors Corp. chief executive G. Richard Wagoner Jr. described the automaker's plans to expand the safety and security services it offers through its OnStar subsidiary.

Yet no one got the crowd talking like Kurzweil, winner of the National Medal of Technology and author of "The Age of Spiritual Machines." He's known for making accurate predictions, including one about the emergence of a global network resembling the World Wide Web and another about when computers would beat humans at chess.

At MIT last week, Kurzweil described a future in which he's convinced immortality -- or a drastically longer life span -- will be possible thanks to emerging technologies. His new book, which will hit stores in a few weeks, outlines a special "longevity program" of diet, exercise and nutritional supplements aimed at slowing the aging

process.

He and Grossman recommend simple starches and foods low in sugar and high in anti-inflammatory agents such as fish and nuts. They advise taking all sorts of substances such as phosphatidylcholine, a cell-membrane component that people tend to lose as they age, making their skin sag.

In an interview, Kurzweil said he and Grossman also have developed their own line of products and will launch a Web site to sell them, including shake mixes and other meal-replacement products .

Such dietary supplements tend to be controversial in the medical community. David Schardt, senior nutritionist at the nonprofit Center for Science in the Public Interest in Washington, said the only regimen that has shown real potential to slow aging to date is drastically reducing calorie intake.

"We tell people to take these claims with a grain of salt because in many instances there is no evidence -- or the evidence is far from conclusive -- that these supplements will do anything," Schardt said.

Kurzweil acknowledged that science today can't halt aging, but he said he believes science will develop age-defying or even age-reversing techniques within 10 to 20 years, thanks to advances in biotechnology and nanotechnology.

He described three stages or "bridges" on the purported road to immortality. First is his healthy living program designed to correct "metabolic imbalances" and keep people alive long enough to benefit from the second stage. In stage two, a decade or so away, he contends biotechnology advances will block diseases and slow aging, because the decoding of our genome is already leading to tissue-engineering techniques for regrowing cells and organs, and to the creation of genetically targeted drugs and gene therapies.

These techniques, he said, should help some people reach the third stage -- about 30 years away -- when nanotechnology will allow humans to radically rebuild and extend their bodies with help from "nanobots," it'sy-bitsy robots smaller than human blood cells that will slip into our bloodstreams to fix DNA errors, fight pathogens and expand intelligence.

At that point, he declared, humans may be able to live forever.

Some are skeptical. S. Jay Olshansky, an epidemiology professor at the University of Illinois School of Public Health, called Kurzweil's vision "science fiction" in a phone interview. He said life expectancy isn't likely to change much even after the expected medical advances. "Life expectancy is inching up. It's not jumping up."

At the MIT conference, not everyone seemed enamored with this idea. During lunch the next day, Daniel McCurdy, chief executive of consulting company ThinkFire Services USA Ltd., said immortality didn't strike him as all that appealing:

"I'm already periodically bored, and I'm only 48. Why would you want to live forever?"

Kurzweil later conceded that radically extending human life could lead to a "deep ennui" if nothing else changed, but he believes we will grow smarter and vastly improve our quality of life. Nanobots, if we let them swim around our brain capillaries, will boost our brainpower, he said, as they chatter with our biological neurons over a wireless local network and the Internet, creating a hybrid form of super-intelligence.

"This scenario will enable us to expand our mental faculties through these massively distributed neural implants with no surgery required," he added.

Kurzweil said he doesn't think such changes will detract from our humanity. "The emergence of artificial intelligence is not an alien invasion of intelligent machines coming from over the horizon to compete with us," he declared. "Rather, it is emerging from our human civilization."

For baby boomers, though, it's a safe bet many will resist the idea of tinkering with Mother Nature. That's the thinking of McCurdy, who believes part of what makes life a great adventure is knowing it will end.

"I would rather continue the adventure by dying and going into a different plane," he said, "instead of having nanobots running around my brain."

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