

THE BIOTECH AND THE BILLIONAIRE

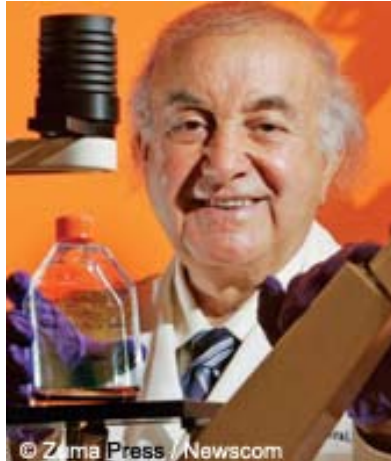
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Habib Fakhrai has a lot of tough jobs at NovaRx: He has to be a manager, do basic research and keep an angel's son busy.

In a lab in northern San Diego, Habib Fakhrai is working on a drug he believes will vastly improve and extend the lives of cancer patients. The molecular biologist, who is founder and president of NovaRx, mixes four different irradiated lung cancer cell lines with some DNA he has constructed, then gives the mixture several electric charges so they bind together. He puts the cells in one of three dozen refrigerator-size incubators operating at 98.6 degrees, where they will grow into the main component of Lucanix, a cancer vaccine he developed. In a small midstage trial of the drug that ended in 2006, lung cancer patients lived years



Habib Fakhrai

longer than is typical with the deadly disease. "I would put the chance of success at over 99%," Fakhrai, 66, says of the drug.

He has spent 18 years studying tumor cells and the human immune system; he developed Lucanix in 2000. NovaRx, founded three years earlier, got a big boost in late 2006 from a dream-come-true investor: billionaire David Murdock, the 85-year-old owner of Dole Food. Murdock and his son, Justin, put \$35 million into the company. The Murdocks promised Fakhrai that if NovaRx's clinical

trial data were good, they would fund his efforts to go after a host of other cancers, including cancers of the brain and pancreas. Fakhrai says the two also vowed to put money behind a drug that he hopes will eventually prevent cancer altogether. (The elder Murdock's second wife, Justin's mother, died of ovarian cancer two decades ago.)

Such angels are rare in the world of drug development. Fakhrai spent more than a year trying to scare up funding and was so grateful to the Murdocks that he agreed to give them a 60% stake in NovaRx, and he welcomed Justin, 35, aboard as chief executive.

Fakhrai explains that Lucanix is designed to get the body's immune system to kill lung cancer cells. It works, he says, by overcoming an immune-suppression shield that protects the cancer cells. At least a dozen other cancer vaccines have failed in clinical trials over the past 15 years, but Fakhrai still believes in Lucanix, and he isn't the only one. "I'm moderately

optimistic it will succeed," says Dr. Giuseppe Giaccone, a lung cancer expert at the National Cancer Institute in Bethesda, Md. Giaccone is serving as the principal investigator for NovaRx's third and perhaps final clinical trial, which will include 700 patients who have been treated with chemotherapy and whose tumors are neither growing nor shrinking. Fakhrai hopes to show that Lucanix increases survival far longer than drugs like Avastin and Erbitux.

The results of the clinical trial won't be known for three years, and Fakhrai needs another \$25 million to keep it going. The early promise of unlimited cash from the Murdocks looks less definite at a time when backers consider cancer vaccines, which attracted a lot of money over the past decade, "dead as an investment," in the words of Ivor Royston, an immunologist and a partner at San Diego venture capital firm Forward Ventures. Forward invested in two companies with cancer vaccines that bombed in clinical trials.

Fakhrai, who now owns 8% of NovaRx, says there "haven't been any changes" in the Murdocks' funding commitment, noting that Justin Murdock recently raised \$2.5 million from outside investors

to match a grant from the National Cancer Institute. But much more is needed, and Murdock the younger, unfortunately for NovaRx, has many distractions.

Before taking the helm at the company, Justin Murdock worked in mergers and acquisitions at his father's Castle & Cooke real estate conglomerate, where he still serves as senior vice president of investments. (He holds that title at Dole Food.) He is a big player on the celebrity social scene, hobnobbing with Ivanka Trump, Donald's daughter, and rocker Steven Tyler of Aerosmith. A college dropout who grew up in Bel Air, he went through a goth rock phase a few years back, performing at Los Angeles music clubs as Eliphaz Horn, a caped, horned character that was half-man, half-beast, according to press reports.

Justin Murdock says he is fully devoted to NovaRx. "If I preferred, I could be in the south of France on a boat hosting cocktail parties for people who don't have to work and who lead lives of leisure. I've decided to take a different path," he said in an e-mailed statement. In it he described his role as NovaRx chief executive this way: "I write and sign the checks, I assemble the best people on the frontiers

of oncology." How much time does he devote to NovaRx? "I don't break it down," he says. His latest move at the company: firing NovaRx's public relations representative and replacing her with Elliot Mintz, Paris Hilton's former publicist.

Fakhrai defends Justin but makes it clear who's in charge. "This technology is my third child," he says. "I would not throw it to the lions. I was running every aspect of the company for nine years. [Justin] has come, and I am still running it from the inside."

Certainly a chief executive with drug-development experience could help nudge NovaRx along. It took more than two years for the company to move from mid-to late-stage clinical trials, a year longer than is typical. Fakhrai blames the Food & Drug Administration for a lot of back and forth on the wording of documents. But Giaccone, at the National Cancer Institute, believes there haven't been enough people at NovaRx (it has 50 employees) with clinical trial experience. Fakhrai "has done most of the work himself," Giaccone says.

Fakhrai was born in Iran and came to the U.S. in the mid-1960s to get a doctorate in human genetics at Michigan

State University, in East Lansing. After returning to Iran to set up that country's first genetics institute, he jumped at the chance to return to the U.S. to do research and teach. While at the Sidney Kimmel Cancer Center in San Diego in 1994, he discovered a new way to get the immune system in rats to go after cancer, and shortly thereafter he moved to UCLA to try it in humans with brain cancer. His efforts got national publicity, and several people contacted him about starting a company. He was offered millions to open a clinic in the Bahamas or Mexico, but he wanted to keep working on his drug, which eventually evolved into Lucanix.

Emmet O'Neal, a steel tycoon from Alabama, spent \$20 million over nine years to get NovaRx going (his stake in the company: 30%). To make the initial funds stretch as far as possible, Fakhrai served as chief executive, chief medical officer and liaison with the FDA. "For seven years we ran the company on \$4 million," he says.

Fakhrai met David Murdock in 2006 at a cancer conference in Chicago. He says the investor (who didn't return phone calls from Forbes) was enthusiastic about Lucanix from the get-go. "He said, 'Give me good

results in one [type of] tumor and I will support you for all other tumors,'" Fakhrai recalls.

NovaRx has \$15 million on hand. Although the next financial infusion may be uncertain, Fakhrai is determined to see Lucanix through its trials. "I want to cure cancer before I die," he says.