

# Biotech Entrepreneur Seeks Safer, Noninvasive Prenatal Test

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If he hadn't been partially color-blind, Ravinder Dhallan might be flying planes now instead of heading up Ravgen, a Columbia-based biotech company.

Barred from learning to fly, Dhallan was persuaded to study medicine and become a flight surgeon, since the Air Force was suffering a shortage and it would at least let him work with pilots.

However, what started as a means to a flight-related career became a calling. While earning his doctorates in medicine and biomedical engineering at The Johns Hopkins University, Dhallan said, "I fell in love with medicine for medicine's sake."

## Trying to Solve the Biggest Problem

As a medical student, Dhallan said he always aimed to solve the biggest problem he could find. With his biotech startup, Ravgen, Dhallan is trying to develop a safe, non-invasive diagnostic test for Down syndrome, cystic fibrosis and other birth defects.

Dhallan's patented procedure, Rapid Analysis of Variations in the Genome (from which the company derives its name), is a prenatal test that requires only a small sample of the mother's blood. The procedure, as used to diagnose certain fetal abnormalities, has undergone two clinical trials, the first of which was published in the March 2004 Journal of the American Medical Association and the second in the February issue of The Lancet, a British medical journal.

Dhallan is now recruiting clinicians and patients for the third and last clinical trial, after which

he will seek U.S. Food and Drug Administration approval. He is also preparing to do a larger, more comprehensive clinical study on testing for a wider variety of birth defects. If all goes well, the test could be on the market in the next few years.

## Adjusting His Career Path

Dhallan started his medical studies working on a radiation oncology residency at Massachusetts General Hospital and focusing on preventive oncology testing, but "realized I was going down the wrong path or potentially the wrong path" when he discovered that patients had little incentive to learn whether they were at risk for cancer.

Meanwhile, his wife, Hejung Christine Chang, suffered two miscarriages after their first child, a daughter, was born. The cause later was determined to be genetic. Chang, who was pregnant again at the time, suggested that Dhallan find a safer alternative to amniocentesis, a procedure that's 100% accurate but can trigger miscarriages and must be performed at least 15 to 18 weeks into pregnancy. "It was that discussion more than anything else that ... led to me to this problem," Dhallan said.

Dhallan did some checking and discovered that, while lots of research was being done, no one had developed an alternative test that was close to being accepted.

## From Practitioner to Entrepreneur

From Massachusetts General, Dhallan moved on to a three-year residency in the emergency room at York Hospital in Pennsylvania. In 1998, he began working part-time

in the emergency room at Holy Cross Hospital in Silver Spring and spent the rest of his week focusing on starting a company.

He decided to start a business because "building companies is a great way to solve big problems." And when Dhallan wants to do something, he isn't halfhearted about it. "I wanted to aim as high as I possibly could," he said.

Dhallan left Holy Cross in 2000, incorporated the business in December of that year and, with more than \$1.1 million in "seed money," began operating Ravgen in February 2001.

## 'Where the Good People Are'

He located the company in Columbia because it's equidistant from The Johns Hopkins Medical School and the National Institutes of Health (NIH), and is close to many colleges and universities, providing access to talented scientists and other beneficial contacts.

"That's where the good people are," Dhallan said. Although Columbia is a commute for Dhallan, who lives in Bethesda, he chose a location that would draw good employees by making their commutes easier.

The location "also allowed me to be very stealthy," he said, since it's outside the nucleus of biotech activity in Montgomery County. "I could do my work quietly, without attracting a lot of attention."

## Finding Patient Investors Who Believe

Dhallan didn't go into medicine thinking he'd become an entrepreneur. However, he said, "I love it.

It suits my personality quite well." He earned an MBA in May from the University of Pennsylvania's Wharton School, which he says has been "very useful for rounding out my business knowledge."

Since Ravgen started, it has acquired more than \$17 million funding for research and development from private investors. Dhallan sought money from private sources, rather than venture capitalists or strategic partners, because "I really wanted [investors] who would be very patient and believe in what we were doing."

He would like to work with strategic partners someday, and even considered teaming with an ultrasound company at one point, but has passed on that for now. However, "we are keeping ourselves open, so we can partner with multiple companies in different countries" when the time is right.

## A Life of Consequence

Although Dhallan says he still loves planes ("I still go to the air show every year"), he is excited about his work with Ravgen and is strongly dedicated to the company's mission.

"Once I'm into something, I'm on it," he said. "When I commit to a problem, I don't stop until I've solved it."

"When I was younger, all I wanted to do was be a fighter pilot," Dhallan said. However, he recalls what Bishop Milton Wright said at the funeral for his son, Wilbur Wright, co-inventor of the airplane - that his "life was short, but was a life of consequence."

"All I'm trying to do is have a life of consequence," Dhallan said.