

## Google-backed 23andMe hits major milestone: 100,000 users in DNA database

June 16 2011, By Peter Delevett

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Mountain View, Calif., genomics startup 23andMe just hit a milestone: As of Wednesday, 100,000 people have uploaded their genetic code to the 4-year-old company's database.

Co-founder and CEO Anne Wojcicki says her scientists now have one of the world's largest genetic databases, which will enable them to do "a tremendous amount of discovery" into the possible causes of ailments such as Parkinson's disease. The company is also helping customers better understand their own DNA, the [genetic blueprint](#) that determines everything from whether someone is prone to [breast cancer](#) to whether their urine smells funny after eating asparagus (for 70 percent of us, the answer's yes on the latter).

But critics worry that [23andMe](#) and other such genomics companies are misleading consumers with DNA profiles that don't tell nearly as much about their health - good or bad - as many might think. And in 23andMe's case, they've raised questions about the fact that one of the company's chief financial backers is Google - whose co-founder, [Sergey Brin](#), is Wojcicki's husband.

In a rare interview, Wojcicki spoke frankly about those controversies and alluded to the challenges of life in the spotlight that follows the world's 24th-richest man. With a young child and another on the way, it's a spotlight the family figures will be around for a while.

A graduate in biology from Yale, Wojcicki spent 10 years managing

health care investments on Wall Street before founding 23andMe with Linda Avey, a biopharmaceutical executive.

"The health care I wanted for myself wasn't necessarily being represented by the kind of companies I was able to invest in," Wojcicki says. "We don't have a system that really rewards prevention."

Wojcicki, 37, said Brin encouraged her to tackle the problem. "We want to be an agent for changing the entire health care system," she said from the startup's cluttered headquarters, which abuts Google's campus. In part, that means making consumers "part of the dialogue."

Using DNA extracted from mailed-in saliva samples, then processed at contract laboratories, 23andMe can identify which genetic variants a person possesses. Users then can compare their genotypes to others in the company's database to learn, for instance, how many traits they share with people prone to given health conditions.

After taking 23andMe's test, Brin in 2008 announced he himself has a genetic mutation that's been found to boost the odds of developing Parkinson's; his mother already has the condition. Earlier this year, Stanford researchers said they had, for the first time, been able to observe in the lab how neurons sicken and die in Parkinson's patients, using cells from Brin's mother.

But Stanford bioethicists have been among the top critics of 23andMe and its peers.

"I think direct-to-consumer genetic marketing about health is a really bad idea," said Hank Greely, who heads Stanford's Center for Law and the Biosciences. "Let's say you get a result back that says you're at low risk of breast cancer, and without talking to the doctor or a genetic counselor about it, you decide you're not going to get mammograms

anymore. That could be a fatal mistake."

Last summer, the U.S. Government Accountability Office accused 23andMe and other direct-to-consumer genomics companies of making "medically unproven disease predictions." The report led to hearings before Congress and the Food and Drug Administration, which Greely blames for being slow to address the emerging field of genomics. He and others have called for the FDA to take an oversight roll on genetic testing.

Wojcicki has called the GAO report "deeply flawed," noting among other things that it looked at only a portion of the company's product offerings and lumped 23andMe in with other, perhaps shadier, operators.

In a nod to critics like Greely, the company makes clear on its website that it doesn't provide diagnostic tests but simply compares portions of individual DNA to "current scientific knowledge." The site also encourages customers - who pay \$99 for the service, plus a \$9 monthly subscription to receive updated genetic information - to talk with their doctors about the odds of developing a given condition.

Wojcicki, for her part, says she's "eager to figure out a way to work with the FDA." At the same time, she argues that genomics firms shouldn't be subject to regulations imposed on clinical laboratories, noting that her company outsources its lab work and is simply in the business of crunching data.

While the regulatory wheels slowly grind, 23andMe has charged ahead. Avey left 23andMe in 2009 to launch an Alzheimer's disease foundation but remains on the startup's board. Meanwhile, the company has grown to 60 employees, a number Wojcicki expects to increase steadily in the coming year.

In November, the company landed its third and largest round of funding: \$22 million from Johnson & Johnson, venture capital firm New Enterprise Associates and Google's in-house venture arm.

Google has put money into dozens of startups, but the search giant's first investment of \$3.9 million in 23andMe in May 2007 - the same month Brin and Wojcicki married - raised a few eyebrows in corporate governance circles. (Brin himself had earlier loaned the startup about \$2.6 million and, Wojcicki says, helped come up with the name.) Google said its audit committee approved the transaction and that Brin recused himself from the deal.

Wojcicki says that while some may assume her marriage greased the skids for Google's investment, the opposite was true. "Anybody that understands public companies and conflicts of interest says, 'I can't believe you actually got it through.' It was not an easy investment."

Given the long hours she puts in on the startup treadmill, it frustrates Wojcicki to know some may view her company as either an offshoot of [Google](#) or, at worst, a vanity project. Other people, she knows, sometimes approach the company seeking entree to Brin, whose worth was most recently estimated by Forbes at just under \$20 billion. "It's always important to understand people's motivations when they're wanting to do a deal with us," she said.

Looking ahead, 23andMe plans to offer customers the ability to sequence their full DNA instead of just the relatively small portion where genetic differences are most likely to be found.

Quentin Lai, a life sciences analyst with private equity firm Robert W. Baird, is more reserved than Wojcicki about the potential of 23andMe and its peers to provide clinical breakthroughs because, he says, it doesn't gather enough detailed medical information from clients.

Still, Lai says he believes companies such as 23andMe play a valuable role. "What it helps do," he said, "is educate the general public that genetics matter."

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Citation: Google-backed 23andMe hits major milestone: 100,000 users in DNA database (2011, June 16) retrieved 17 April 2024 from <https://medicalxpress.com/news/2011-06-google-backed-23andme-major-milestone-users.html>

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