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Predictive Biosciences: A Small Startup With a Big Pedigree is Out to Personalize Cancer Care

Malorye Allison, 10/19/07

It's got advisors like Bob Langer and Judah Folkman, a particularly innovative strategy, and more than 15 years of research behind it. But Lexington, MA-based Predictive Biosciences is starting out by trying to be as small as it possibly can be.

With just $10 million in initial financing, and that all tied to strict milestones, the diagnostic startup "is operating on a staffing model of less than a dozen employees," said Eugene Chiu, the firm's co-founder and VP of business development. Chiu was speaking at Genomic Health Strategies' Personalized Medicine meeting last week, where he, Predictive co-founder Marsha Moses, and venture capitalist Michael Greeley served on a panel that detailed the genesis of this little company, its strategy, and why they have such high hopes for it. It was a cozy little meeting with lots of insiders, more like a think tank in some ways. The presentation on Predictive was meant to show one model for a personalized medicine company. (Predictive plays in the personalized medicine space in the sense that its tests could facilitate more individualized treatment of cancer.)

To be more specific, Predictive Biosciences is developing tests to detect cancer from urine samples, thereby sparing patients the usual diagnostic discomforts. The company, which was founded in 2006, grew out of work that Moses did as a post-doc in Langer's MIT lab in 1989-90 studying what makes cancers grow and spread. (Langer, an Xconomist, is a member of Predictive's board.) Moses and Bruce Zetter, another co-founder, now both have labs at Children's Hospital Boston within the vascular biology program, which Folkman, a member of Predictive's scientific advisory board, directs. Today, Moses also leads the Urinary Proteomics Initiative at Children's Hospital. There, she's helped to build "the largest urine bank in the world," she said.

Having all that pee on hand and all those years of research under their belts has helped the Predictive team identify a new set of biomarkers, or telltale molecules, that are shed into the urine by a range of cancers, including biggies like breast and colon tumors. And while most screening tools for cancer are pretty poor—they raise a lot of false alarms, miss many cancers, and often generate a lot of confusion—Predictive is working on using the biomarkers it has discovered to produce tests that yield "actionable results," according to Chiu.

Predictive's first target market is cancer survivors. After being treated for cancer, people typically undergo a series of painful procedures, such as biopsies or invasive exams, to see if they are cancer-free. Bladder cancer patients, for example, "have 13 to 15 cystoscopies over five years. One every three months at first," Chiu said. A cystoscopy is a really uncomfortable procedure where a tube has to be slipped into the bladder. Using Predictive Biosciences' tests, doctors could ostensibly weed out the patients who really need those cystoscopies from those who don't, thereby

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"personalizing" their follow up. Once the test for bladder cancer is validated, the company hopes to go on to develop tests to predict recurrence of breast, colon, and other cancers. Eventually, such tests could also be used for screening healthy patients. Predictive is aiming to get its first product to market within two years. The company is also designing clinical management tools to help doctors plan follow-up for patients depending on test results.

All in all, Predictive has a novel idea and has put a lot of work behind it. So why so much fiscal caution?

Well, many investors see diagnostics as a perennially low-margin business that cannot reap anything close to the rewards seen with pharmaceutical ventures. "Everyone was trying to talk us out of investing in a diagnostics company," said Greeley, a general partner at IDG Ventures, one of the two firms that put up the initial capital for Predictive. Highland Capital is Predictive's other investor.

Greeley and his colleagues saw another angle to it. For one thing, "We think 'value pricing' is on the horizon," he said. In other words, as healthcare costs continue to skyrocket, a growing number of pundits think diagnostics will become more important as a way to cut costs, enabling diagnostics companies, paradoxically, to garner higher prices. Still, the VCs admit they are uncertain about how big the market will really be. A lot depends on how many tests Predictive can churn out.

In a hotbed of entrepreneurial activity like Boston, the decision to form the company may actually seem overdue, but Moses points to a convergence of factors that finally pushed her into start-up mode. "There was growing interest in biomarkers," she said, and there have been huge improvements in the company's technology platform, called proteomics. These tools can now accurately analyze samples to detect even tiny levels of proteins, including the biomarkers in which Predictive is interested.

Predictive's approach has also gotten a vote of confidence of sorts from the public. "Every time our papers come out in the press," says Moses, "we are inundated with unsolicited urine samples from people who 'get it.'"■