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Life sciences bloom as VC funding rises

By Scott Duke Harris

A few years ago, when Pat Petruno's blood pressure and cholesterol count reached alarming levels, his doctor prescribed Lipitor, the much-publicized drug from Pfizer.

He turned out to be allergic: "It knocked me on my back for a week."

A different drug worked fine. But amid his travails, Petruno pondered why medical care was so slow, inefficient, expensive. The Silicon Valley engineer thought about how blood samples would be drawn and sent to a laboratory, and how days would pass before results came back. Why, he wondered, was his doctor's office so low-tech?

Today, Petruno's frustration has given birth to Alverix, a San Jose start-up that is developing compact, inexpensive, point-of-care diagnostic instruments to analyze bodily fluids within minutes, thus quickening treatment and reducing costs.

The concept, which Petruno and a dozen colleagues nurtured from their days at Agilent, is emblematic of the cross-fertilization that has made Silicon Valley the world's leading incubator for both information technology and life sciences.

Despite the recent economic turndown, venture capital in both sectors is at record levels. Alverix, which recently announced $7.7 million in early-stage funding, is among hundreds of valley companies surfing a Mavericks-like wave of venture funding in life sciences, a sector that includes biotech and medical devices.

Nationwide, the sector in 2007 received $9.1 billion going into 862 deals. This

accounted for 31 percent of overall venture funding, the highest proportion ever. The Bay Area's share was $2.63 billion in 202 deals - nearly a half-billion more than 2006, the previous record. Life science VCs are projecting a similarly robust 2008.

Within Silicon Valley, life sciences is often overshadowed by flashy Internet brands such as Google and Facebook, as well as global giants like Hewlett-Packard, Intel and Cisco Systems. More recently, the fast-growing clean-tech sector has generated a lot of buzz.

Yet life sciences, some say, may represent the biggest long-term potential. "The growth has been phenomenal," said Tracy Lefteroff, a San Jose-based managing partner of the VC practice for PricewaterhouseCoopers.

Likely to continue There are several reasons the trend may continue. The laws of supply and demand, life science mavens say, work in the industry's favor.

On the demand side are familiar macro-trends: America's aging baby boomers and broadening global prosperity represent huge and growing markets. These trends, said Dr. Jonathan Root of

U.S. Venture Partners, are projected to extend for decades, and longer life spans means greater demand to address conditions such as heart ailments, diabetes and cancer. Lou Bock, managing director of Scale Venture Partners, cites the epidemic of obesity as another prominent market for new treatments.

On the supply side, biotech and medical device companies continue to develop new therapies. And there is progress born of breakthroughs in genomics (the analysis of DNA) and proteomics (the analysis of proteins), as well as stem cells, which carry potential for regenerative cell therapies.

In some areas, "things have advanced over the last few years to where the commercial opportunities are really apparent," said Dr. Gary Kurtzman of Safeguard Scientifics, a Pennsylvania holding company that is major stakeholder in Alverix. "In the late 1990s, all the talk was about sequencing the genome - and that was very exciting, but there was really no commercial business model." Now, he said, there is.

Feeling the squeeze between supply and demand are the "Big Pharma" companies like Pfizer, Merck, Bristol-Myers Squibb and GlaxoSmithKline (GSK).

In the biotech age, as Big Pharma's own research-and-development efforts floundered, the companies have become increasingly reliant on smaller biotechs to develop products. Now Big Pharma companies are anxiously watching the patent clock tick down on their monopolies for such "blockbuster" drugs as Lipitor and Viagra, which have revenues totaling billions of dollars each year. Once patents expire, those drugs can be legally produced by any company in generic form.

Promising biotech companies are able to entertain multiple offers to license drugs, or for outright acquisitions. Big Pharma's troubles, as one biotech VC recently put it, "is music to our ears."

In one recent deal, GSK struck an alliance with Redwood City-based OncoMed Pharmaceuticals, which was founded in August 2004 to develop cancer therapies. The deal could earn OncoMed up to $1.4 billion.

Investment bubbles Still, plenty of life science start-ups are bound to struggle and fail. David Douglas of Delphi Ventures said 20 device firms are making artificial disks - and all are competing for the same ailing backs of patients in clinical trials.

While valley icons HP and Apple famously grew out of garages, life science start-ups typically emerge from the laboratories of university research hospitals. Both fields have long benefited the other. Pioneering venture capitalist Tom Perkins had been a laser entrepreneur and HP executive before providing seed capital for biotech pioneer Genentech. He was Genentech's chairman for 14 years.

Alverix, in a sense, also traces its roots to HP. Petruno had worked there many years before departing with the spinout of Agilent Technologies in 1999. When he launched the diagnostic project, Tong Xie, co-inventor of a laser computer mouse, and 11 other colleagues joined the team. When Agilent spun out Avago Technologies, the diagnostic team took their project there.

But a medical device didn't fit Avago's focus on semiconductors, either. To allow the diagnostics project to move on, Avago worked out a deal with Safeguard Scientifics and New Venture Partners, which specializes in corporate spinouts.

The name Alverix, Petruno said, is based on Latin, roughly meaning "all true." He is the company's chief operating officer and Xie is vice president of research and development.

Its investors have high hopes Alverix tools will crack the $18.7 billion central-lab market and the $9 billion point-of-care market for "bench-top" instrumentation. Working with about 30 diagnostic companies, Alverix has already developed applications that test for drugs likely to be abused, infectious diseases and cardiac conditions. More applications are envisioned - including the sort of detailed cholesterol testing that inspired Petruno in the first place.

New Venture Partners' David Tennenhouse, a former Intel research executive who recently opened NVP's first Silicon Valley office, likened the incumbent medical lab practices to old-fashioned centralized "batch computing," when main frames analyzed punch cards in large volumes.

Safeguard Vice President Kurtzman concurred: "We really think this can be a game-changer."

Today, Petruno points out, "rapid diagnostics" are used in two conditions: diabetes and pregnancy. Within a few years, he said, Alverix hopes to have its products in pharmacies, initially sold by prescription and later over the counter. The dream, Petruno said, "is to allow people to take more control of their own health."

That vision inspired 13 colleagues to stay with the project.

"A lot of these guys have turned down opportunities over the years," Petruno said. "But they stayed with this one."

Now all have equity in Alverix. Beyond potential financial rewards, Petruno and Xie said there are psychic rewards.

"It definitely feels more rewarding to do health care products," Xie said.

Petruno, 53, is one of three Alverix partners who are part of that big market of aging boomers. "At the end of the day, we can help people, including ourselves," he said. "For the three of us older guys, that's not lost."