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## **New Funding Model for Start-Ups**

With Seed-Stage Capital Deals in Short Supply, Private/Public Partnerships May Be a Solution

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Start-up life sciences companies are the lifeblood of medical innovation and an engine for economic growth. They depend on funding to move from academic labs or entrepreneurial concepts to potentially life-saving treatments. When it works, the interdependence of inventiveness and seed capital can build a pipeline of novel therapeutic discoveries that have the potential to improve human health and create a robust economy.

As these novice companies grow, the regions in which they reside do as well, benefiting from additional investment attracted in follow-on funding as well as meaningful, high-paying jobs.

Given the importance of start-up companies to move biomedical innovation to the marketplace, 2006 was a welcome respite in the seed-capital drought experienced from 1999–2005. Venture funds poured \$498 million in 2006, exceeding the previous high of \$398 million in 1998. Whether this is a one-year aberration or a turning of the tide remains to be seen.

Despite this positive development, a look behind the numbers gives reason for caution. Based on the total number of early-stage deals, 2006 does not match the numbers of 1998. That year, 151 life sciences companies received initial funding as compared to 103 in 2006. So, we are not yet back to peak levels of company creation.

It is clear, however, that the average dollars per investment have increased dramatically, suggesting that companies with later-stage products are getting seed-stage investments.

A breakdown of early-phase financing activity in key life sciences regions suggests that the increased size of fundings accompanies a change in the type of start-up. Such deals ranging from \$10–55 million were seen in regions like Rockville, MD (CoGenesys received \$55 million); King of Prussia, PA (Eusa received \$19 million); and Princeton, NJ (aTyr Pharma received \$10.5 million). Though these collaborations are a promising indication of funding interest within the sector, they reflect clinical-stage companies that are late in product development.

In other words, these larger investments redefine the meaning of seed companies. Hence, it is likely that the capital shortage for traditional, early-stage companies will continue.

## **Regional Approach to Tackling the Funding Gap**

As the traditional model of funding initial-phase life sciences companies appears to be either broken or struggling, a number of states and regions are stepping in to address this critical investment gap. An example is a program in southeastern Pennsylvania. Philadelphia and its surrounding metropolitan area offers start-up life sciences companies a rich asset base, an experienced, educated workforce, and proximity to multinational pharmaceutical companies and first-rate research facilities. In fact, according to a 2005 report by The Milken Institute, the greater Philadelphia region employs more than 53,000 people in the sector and over 300,000 in related industries.

Even with this robust infrastructure, life sciences entrepreneurs and start-ups in Philadelphia, like their counterparts around the country, face serious challenges in finding seed capital. Pennsylvania thus established a comprehensive initiative just over four years ago to create a continuum of investments for emerging businesses throughout the state. The program dedicated \$100 million from its tobacco settlement funds to create three regionally-focused life sciences "greenhouses." The initiative also awarded \$60 million to three venture funds to provide the next stage of capital.

With the money, the Philadelphia greenhouse developed a \$20-million seed fund. To date, it has stacked half of that on regional companies that are now advancing new therapeutics, biomedical devices, diagnostics, and platform technologies through commercial proof of concept. From its first investments in the spring of 2003 through to 2005, this model has tripled the annual number of venture funds in the region.

This public/private model offers some strategies for other regions in their investment decisions for start-ups. Some of the lessons learned from southeastern Pennsylvania include:

- A company should have multiple opportunities for success to offset the inherent risk of failure in the life sciences.
- Use of tranche investments and a convertible note structure can mitigate some of the risks of seed-stage financing.
- Key milestones that will make a company attractive to the next stage of investor must be carefully defined.

Another important strategy for funding life sciences start-ups is to use a region's network of experts, consultants, and contract research organizations to enhance capital efficiency.

Early-stage companies in the Philadelphia region are fortunate because the area provides an extensive network that supports larger biopharmaceutical and device companies. While other areas of the country may not have as many resources, a region's academic institutes, hospitals, and other biomedical services often represent untapped assets.

To help ensure financing success, it is critical to take every opportunity to nurture alliances between start-ups and these regional entities.

## **Attracting Follow-On Capital**

The ability of a seed-stage firm to move to the next level and obtain follow-on investment is an important measure of success. It improves the capital continuum in the region. What is equally important is that venture funds create a cascade of financing if done properly. With this in mind, from a regional standpoint, the trend in the Philadelphia area is going in the right direction. The nearly \$11 million in initial investment has resulted in an additional \$150 million coming into the region through these companies in less than four years.

For the local economy, these investments have created new wealth in the region and new jobs. From the perspective of improving human health, all of these companies are working on significant unmet medical needs, including new products to treat Alzheimer's, cancer, GI disorders, and neurological and respiratory illnesses.

While the life sciences sector will continue to face many challenges in the years ahead, the achievements seen in southeastern Pennsylvania shows that a private/public funding model can work for start-ups. It also demonstrates that states can and should play an active role in bridging the investment gap. Some other regions using public/private models are Ohio, Maryland, and Washington.

Leveraging public financing to promote private sector growth can produce impressive results in just a few years. It can also position the sector to nurture early-stage companies so that they grow into major contributors to the regional economies in the years ahead.

Applying regional public/private funding models on a national scale can strengthen the ability to combat devastating diseases and maintain leadership in this industry sector across the globe.

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