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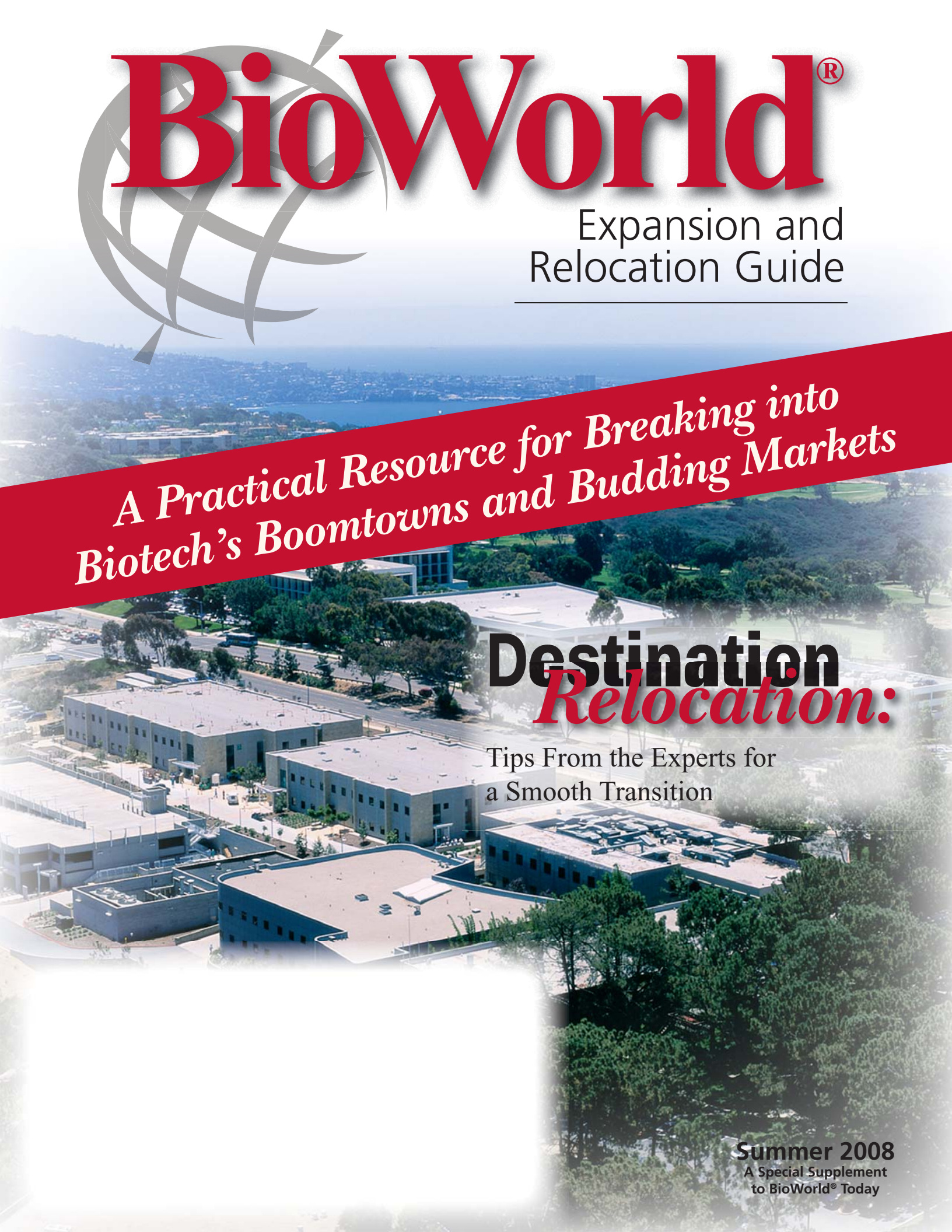
Expansion and Relocation Guide

A Practical Resource for Breaking into Biotech's Boomtowns and Budding Markets



Destination Relocation:

Tips From the Experts for a Smooth Transition

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Welcome

to the BioWorld® Relocation and Expansion Guide.

This magazine offers a practical approach to growing your business, whether you're looking to move into the industry's leading hubs or expand into new markets.

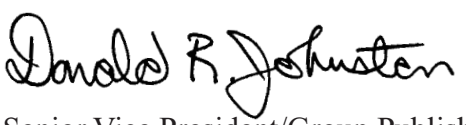
With interviews from relocation experts, profiles of biotech's boomtowns and burgeoning regions, a breakdown of the key players in each market and a thorough analysis of the unique assets each locale offers, all compiled by BioWorld's award-winning team, the *BioWorld Relocation and Expansion Guide* will steer you every step of the way, helping you avoid costly mistakes and barriers to entry. Let us do the groundwork while you focus on growing your business!

In addition to tips on site selection, advice on choosing the right broker for your business and key factors you should consider when relocating or expanding your operations, this guide offers a detailed look at the hotpots for biotech development with commentary from industry experts in each area. Within these pages, you will find a wealth of information regarding prime locations for life sciences in the U.S., as well as a compilation of the tax advantages, research opportunities and incubator offerings that each locale provides.

We've broken the chapters down state-by-state to give you a complete picture of the biotech industry in each market. In addition, we've included a spotlight on developing markets in Europe, with insight into the competitive advantages that overseas expansion can offer your business.

At BioWorld, we strive to provide you with practical information you can use to boost your business. We hope this guide offers you a tool for navigating the relocation and expansion process. We invite you to peruse our other publications, led by our flagship news services, *BioWorld® Today* and *Medical Device Daily*, for daily updates on the places and players making an impact on the industry. Check out all that we do at www.bioworld.com and www.medicaldevicedaily.com.

In the meantime, we hope you enjoy our latest venture and that it proves essential to your relocation and expansion efforts. And as always, we welcome your feedback. Happy hunting!



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BioWorld®

Expansion and Relocation Guide

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Cover Photo: Located in La Jolla, Calif., the Burnham Institute for Medical Research, founded in 1976, is an independent not-for-profit biomedical research institution dedicated to advancing the frontiers of scientific knowledge and providing the foundation for tomorrow's medical therapies. The Institute is home to three major centers: the Cancer Center, the Del E. Webb Neuroscience and Aging Center and the Infectious and Inflammatory Disease Center. Photo Courtesy of the Burnham Institute for Medical Research.

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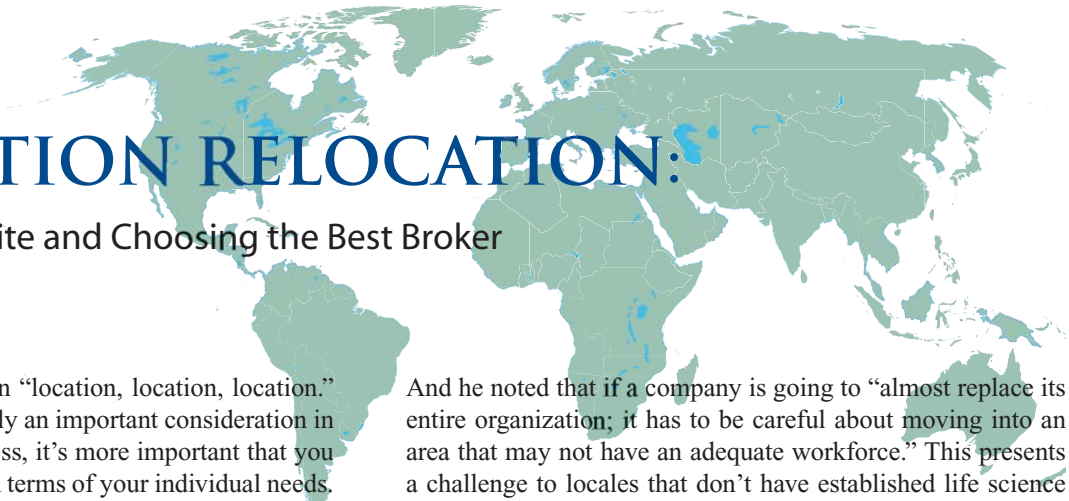

DESTINATION RELOCATION:

Selecting the Right Site and Choosing the Best Broker

By Tiffany Turner
BioWorld Staff Writer

You've heard the expression "location, location, location." But while geography is certainly an important consideration in selecting a site for your business, it's more important that you consider what a locale offers in terms of your individual needs. Thus, while biotechnology clusters are clearly the first places to look to for relocation and expansion, biotechs seeking a change of scenery should consider what Edge Bio Realty Managing Partner Bob Walden calls "critical mass." According to Walden, critical mass is the key factor a company should consider when selecting a site for its operations. The concept of critical mass centers on a confluence of elements. These include: access to a highly educated workforce, proximity to cutting-edge research universities and academic medical centers, and the ability to tap into an array of capital resources, such as local incentives and venture capital support, as well as access to affordable housing, mass transit and cultural amenities.

First and foremost, critical mass entails locating in an area with a highly qualified workforce. According to Walden, it is essential that life science companies locate near a workforce best suited to the nature of their business and their future needs. "If you're a life science company and you're already in the manufacturing stage and the research and development is not as critical to you, then you will be looking for a different type of workforce than companies in a research and development mode," he said. From a personal perspective, he noted that he's been with companies on the other end of the spectrum. "The companies I've been with have all been primarily research and development focused, and it was critical that we locate in an area that had a very robust workforce of similarly qualified people," he said. The take away here: study the demography of the workforce in your desired locale before settling on a site.

In that vein, for most life science companies, academic universities are a "great source for producing people that have the appropriate educational background," Walden said. Moreover, he noted that "universities provide a source of continuing research collaborations to help leverage the company's efforts to the extent that they have complementary research developments within the university."

In that regard, companies should be willing to go outside of traditional clusters, but careful to ensure they locate near a life science hub. "Once you move a company more than a couple of hundred miles, you can easily expect an attrition rate of 85 percent after the first year of relocation," Walden said. And he noted that if a company is going to "almost replace its entire organization; it has to be careful about moving into an area that may not have an adequate workforce." This presents a challenge to locales that don't have established life science centers to develop the industry. "From the other side, if you are a state that does not have established hubs or centers for life sciences, then an executive looking at that area might be hesitant to relocate a company there," he said. In that regard, savvy biotechs look to relocate to areas rich in resources "Typically, not always, the venture capital firms like to fund companies that are within their geographical areas," Walden said. He pointed out that often, venture capitalists spend a considerable amount of time helping manage the biotechs they invest in, and "from a logistical standpoint, they need to be within an easy commute of their portfolio companies." Moreover, for biotechs, funding is an arena where state and local incentives can make a big difference. Walden pointed to the industry trend of venture capital funding moving away from early-stage companies and toward mid- to later-stage companies. "That's created a bit of a gap for the early-stage companies," he said.

This creates room for states and municipalities to step in and offer incentive packages to woo life science firms to their locales. Many states and counties have programs that can provide seed funding. Biotech hubs, in particular, have excelled in attracting new business to their area through such incentives. And Walden said that "while programs offered by life science hubs can't make up all of the shortfall that's been created by the VC money moving to later-stage companies, they can make up a critical piece of it that can then help those companies qualify for an SBIR (Small Business Innovation Research) grant or some other research support." He said that these incentives, combined with other support can truly make a difference to burgeoning biotechs and can help fledgling firms thrive. "The earlier stage you are, the more critical it is to have that state and government funding," Walden said.

He also said that state and government funding takes time to move through the pipeline, and that companies basing their business model on such incentives could find themselves in financial straits. "That money usually moves into place more slowly than money from private sources," he said. "It takes a while for those things to work through the process and if that money is on the critical path for a company moving to a new location, that can be very challenging."

Patricia Larrabee, a principal with Facility Logix LLC, a Columbia, Md.-based consulting company, recommends that firms define their requirement in a formalized selection process and include a Request for Proposal (RFP). “Whether your firm and its consultant elect to use an RFP, it is important that you spend the time to define your requirement, and position your company to maximize offers by describing the benefits your firm brings to a community or region in both direct and indirect measures,” she said.

These benefits could include jobs generated due to your company’s relocation, and other jobs created to sustain your operations. Larrabee said that the biotechnology industry boasts powerful multiplier effects for new job generation. “Biotechnology firms need to capture the value of this indirect job generation as a part of their site selection process,” she said. To that end, she said companies should realize that the site selection process centers on other factors outside of the immediate requirement to fulfill a particular facility objective. She said a company’s RFP should present its needs and objectives from a global perspective. “If focused on the immediate need, your firm will receive short answers based on perceptions of your firm’s problems rather than solutions that mesh with, support, and enhance your firm’s overall business plan. Done well your RFP should motivate competing regions to offer a range of proposed solutions and partnering opportunities that go well beyond standard financial incentives,” Larrabee said.

In considering the responses of different localities to your RFP, it is important to remain objective and to critically assess a region’s ability to consistently support your firm’s needs, as well as the needs of the life science industry in general. Larrabee noted that “responses should demonstrate a site’s commitment to the industry at all stages of development with programs offered to support start-ups through fully integrated discovery, development and manufacturing organizations.” Programs should show a long-term commitment to the industry, and good site options will demonstrate transparency in the means by which they communicate and implement all programs, enabling a company to predict future tax implications.

Once you’re ready to settle down at a particular site, there are several steps to consider.

First, it is essential to secure the services of a site selection firm or real estate broker familiar with the industry.

“The selected advisor or advisors should be able to understand and help define your firm’s requirement and be able to articulate those needs,” Larrabee noted. “Knowledge of the broad array of offerings enables your consultant to negotiate incentive packages tailored to your firm’s needs within the framework of existing programs offered in a given region,” she noted.

To this end, Walden pointed out that the needs of life science firms are so specific that the average service provider might not understand them. For example, a biotech firm may need wet lab space or well ventilated rooms with special provisions for occupational hazards. “Because these are highly specialized facilities, you don’t want a construction company that has never done it before,” he said.

In addition, he said it’s important that your broker have a clear picture of the limited capital that biotechs often bring to the table. “Working with a broker that understands the life science industry and understands how the life science industry gets funded is really important when you’re trying to develop your real estate needs,” he said. He noted that many biotech firms cannot pull from large revenues, and thus their ability to finance projects is driven by an equity or debt financing or even by milestone payments through partnerships with another companies. This caution underscored a Walden termed “value engineering.” The concept centers on what biotechs need to drive out of their facility, what they do with their money and how that differs from larger institutions. “Because the universities are building facilities to last a hundred years, it makes sense that they would put a lot more into the materials and systems with a longer life cycle,” he said.

Walden said it is important to distinguish between brokers that have institutional experience, such as building out research facilities for universities and hospitals, versus private sector expertise. “The budgets for building out research facilities for private companies in the life sciences are considerably different.” And as a result of such budget constraints, biotechs have to be more careful with their money than educational institutions and mindful about choosing the right broker.

In addition, when companies go through relocation, they need to think carefully about whether they need to higher a dedicated project manager. Walden said, “There are a million details that have to be handled. And usually the existing staff and the management are already completely occupied with just trying to run the business and conduct their research and clinical trials, and they don’t have the additional bandwidth to handle relocation.” He urged biotechs looking to relocate to consider hiring a project manager. “I would argue that you can’t afford not to hire one.” And he said the bigger the company, the more important it is to hire a specialist to manage the relocation process.

By following tips from the experts, you can avoid making costly mistakes in the relocation process, and you can ensure that you get the maximum benefit from the locales that you consider as well as the people you elect to work with. So maintain an open mind and consider all of your options, and when the time is right, hire a project manager to take care of the details.

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CALIFORNIA

It's impossible to talk about biotechnology without mentioning California. After all, the West Coast state has been a focal point of the industry since chemist Herbert Boyer and venture capitalist Robert Swanson first founded Genentech Inc. in 1976 as a vehicle to market recombinant DNA technology.

Today, the state is home to about 40 percent of the nation's biotech companies, most of them found in the two central hubs around San Francisco and San Diego. The state that also spawned the famed high tech industry of the Silicon Valley, California is home to a wealth of venture capital firms and has cultivated an environment that encourages research and development efforts. The state's political leaders also have strived to maintain strong economic ties with existing industry players through incentives, and they have initiated some of the most groundbreaking legislation in the country to spur biotech growth, such as Proposition 71, a bill approved by California voters in 2004 to provide $3 billion in funding over a 10-year period for human embryonic stem cell research.

With more than 100,000 Californians employed in biotech, as of May 2002, and more jobs expected as the industry grows, the state has implemented a Biological Technologies Initiative, led by six community college centers and partnered with biotech firms, secondary schools, universities, public agencies and associations to ensure the necessary educational programs to generate an adequate work force. But it's the overwhelming spirit of innovation and entrepreneurial atmosphere that perhaps is the state's most compelling draw for biotech firms, big or small. In 2002, California received a whopping $2.5 billion in National Institutes of Health Research grants, more than any other state. A report by the Brookings Institution showed that in 2000, the San Francisco and San Diego metro areas got more than 11 percent of the NIH funding. Add to that an already well-established network of industry leaders and it's obvious California has much to offer companies looking to expand or relocate their operations to the West Coast.

San Francisco

Bay Area Attracts Big Names, New Firms

In California, biotech "is one of only a handful of industries that is growing, bringing investments and adding jobs by the thousands," said Matt Gardner, CEO of BayBio, the biotech association for the state's Bay Area.

POLITICAL, EDUCATIONAL AND ECONOMIC ENVIRONMENTS DRAW BIOTECH TO THE WEST COAST

The greater Bay Area encompasses 7,000 square miles and nine counties – Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma – with a population of about 7.2 million, according to 2006 Census estimates. While the area is known to have one of the highest costs of living in the country, it also has one of the highest median household incomes and highest per capital incomes in the country. Figures from the 2000 Census put the Bay Area's annual median income of $62,024 as the highest of any U.S. metropolitan area.

Over the last three decades, the biotech industry has contributed to a significant portion of the area's economic prosperity, ever since Cetus, hailed as the world's first biotech company, opened its doors in Emeryville in the mid-1970s, followed shortly by Genentech in South San Francisco. Since then, business has continued booming, as the Bay Area represents the "largest and most productive" life sciences cluster in the U.S., Gardner said.

It is home to about 1,377 companies, with a collective market capitalization of $144 billion and representing about 30 million square feet in real estate and an estimated $7 billion economic investment annually. Bay Area biotech firms have brought to market a total of 408 products, and have another 492 products in Phase II or Phase III development, and those figures don't even include medical device innovations, Gardner said.

The area also "attracts continued interest from most of the top multinational firms," he added. Pharma giants such as Bayer, Novartis and Merck all have facilities in the region. Most recently, Japanese firm Takeda established a U.S. subsidiary in San Francisco to conduct antibody research.

Those "established name-plate" firms also imbue the Bay Area with a sense of familiarity toward biotech,

'In 2000, the San Francisco and San Diego metro areas got more than 11 percent of the NIH funding'

Gardner said, which provides local start-up companies and newly relocated firms a robust network in which to operate. "There's literally a partner standing by on every corner, and it's an incredibly welcoming environment."

That environment also has led to a strong work force. The Bay Area's life sciences sector employs about 95,000 people directly and another 200,000 or more indirectly, and Gardner said headcount increases between 8 percent and 10 percent each year. To keep up with demands for talented staff, the area invests in training programs and also relies on state efforts, such as the California Applied Biotech Center, to generate employees for jobs ranging from lab technicians to offering more detailed science curricula.

In 2003, an estimated 41 percent of people over the age of 25 had at least a bachelor's degree.

But even when companies have to cut staff during hard times or disappear through an acquisition, there remain plenty of opportunities available for skilled biotech employees. In fact, Gardner said, those events help "create a movement of people that actually drives the entrepreneurship and innovation."

The area's colleges and universities also drive innovation. The four major research universities – the University of California at Davis, the University of California at San Francisco, the University of California at Berkeley and Stanford University – each are credited with bringing in an estimated $500 million in research funding annually.

Spinouts from Bay Area universities and research institutions also comprise a significant fraction of the 30 new firms founded in the region each year. In fact, the Bay Area has an exceptional track record when it comes to successfully spinning out companies from local institutions, thanks in large part to readily available venture capital.

BayBio reported that about 34 percent of active U.S. venture capital firms are located in the region – a few of the notable VCs include Sofinnova Ventures, Bay City Capital, Venrock and Versant Ventures – and biotech in the greater San Francisco area has held steady even in the face of economic downturns. In 2002, when overall U.S. venture investment dropped from $37 billion to just $7.7 billion, local biotechs still managed to raise 38 percent more funding than the year before.

Overall, Northern California holds about 24 percent of the $200 million biotech market cap and is home to the most companies with an annual revenue growth of more than 20 percent for four consecutive years.

There is also great community support for biotech, from state legislation granting tax credits for R&D facilities to local projects, such as the creation of the 300-acre biomedical research campus UCSF Mission Bay, adjacent to downtown San Francisco. Aimed at becoming an integrated hospital complex for cancer patients, the facility brought in its first scientists in 2003 and at the center's completion, forecast for 2020, the total campus population is expected to be about 9,000.

And for firms looking to build lab space or manufacturing sites, the Bay Area's long history in the biotech industry can help ease the planning process. City planning departments "have done this hundreds of times," Gardner said. "Just the amount of steel we've put into the ground here" indicates the region's expertise on that level.

Some of the company's biggest players have manufacturing facilities in the Bay Area, including Novartis and Johnson & Johnson, as well as Genentech, which has invested more than $1 billion in a facility in Vacaville.

San Diego

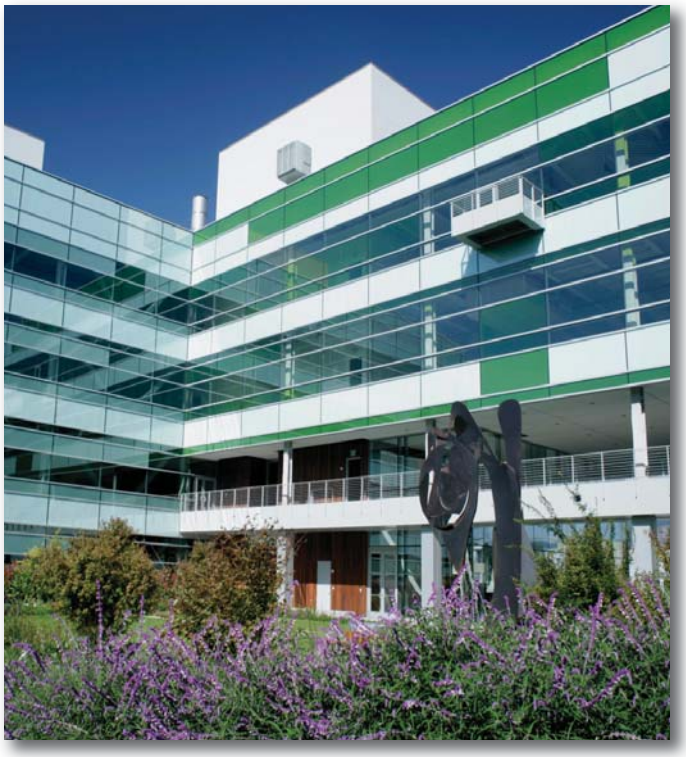
Matching Innovation With Investment

Traveling roughly 500 miles south of San Francisco – anywhere from seven to 10 hours by car – lies the state's second major biotech hub: Southern California, which spans seven counties – from the coastal regions of Los Angeles, Ventura, San Diego and Orange counties to the "Inland Empire" of San Bernadino, Riverside and Imperial counties.

In 2007, Southern California received about $1.8 billion in research funding from the National Institutes of Health, representing more than half of the statewide total of $3.1 billion. Venture capital in the overall region totaled $1.7 billion last year. And the reason for that success is clear to Joe Panetta, president and CEO of BIOCOM, the life sciences association representing the Southern region of the state.

"What distinguishes Southern California in terms of biotech and biomedical development is that it is such an innovation capital," he said. "The overall environment and climate is all about innovation, so we're a little more open and flexible and there's more of a creative base."

In San Diego, which has emerged as one of the fastest-growing biotech regions, research funding totaled about $1.2 billion in 2007. The 2,000-square-mile San Diego County, which includes the metro areas of San Diego, Carlsbad and San Marcus and had a 2006 estimated population of 2.9 million, is home to about 700 life sciences companies – some of the big local names include Amylin



EmeryStation East has become the acknowledged center of clean energy that provides life, physical and nano science space for the East Bay Biotech Corridor. Photo courtesy of BayBio.

Pharmaceuticals Inc., Gen-Probe Inc. and Invitrogen Corp. – employing about 40,000 people.

In 2004, the Milken Institute rated San Diego the number one metro area in the biotech index. Ratings were based on the existing infrastructure, including R&D investment, innovation and work force, as well as impact assessment in terms of how well the region succeeded in bringing ideas to the marketplace and creating companies, jobs and products.

It also doesn't hurt that the region is rife with venture capital firms, which helps pave the way for start-up firms emerging from one of San Diego's 25 research institutes. Those institutes range from the big facilities like the Scripps Institute in La Jolla, to smaller institutes, plus the two major state schools: the University of California at San Diego, as well as San Diego State, which recently opened a cardiovascular research center.

Big pharma firms also have landed in the San Diego area to take advantage of the region's innovative atmosphere. Johnson & Johnson, Pfizer Inc, and Novartis AG all have biotech research facilities. Both J&J and Novartis have spun out several companies over the years, Panetta said, and, last year, Pfizer established a wholly owned, fully funded biotech incubator in La Jolla. That 26,600-square-foot facility contains eight laboratories and enough office space to house between five and eight start-up firms.

Overall, the annual economic impact in San Diego from direct and indirect biotech investments totals about $8.5 billion, according to the San Diego Association of Governments.

But, according to Panetta, the biggest incentive is the "ready-made infrastructure" in place to "support every aspect of growth."

That includes a well-established network of legal services to help companies navigate through patents and intellectual property issues, in addition to the easy access to VCs and research funding.

Local government doesn't provide any financial incentives, such as tax credits, Panetta said. Because of the already-strong biotech sector, "it doesn't have to." But it does provide a "sympathetic and empathetic ear" toward companies building in the region.

For example, when Biogen Idec Inc. approached the town of Oceanside about building a 400,000-square-foot manufacturing facility, the town was able to assure the firm of the necessary uninterrupted water supply, a critical factor for operating a plant in California. That facility, now owned by Genentech Inc., is the manufacturing site for cancer blockbuster Avastin.

The San Diego region also is home to a highly educated work force, with great training programs at its local schools. The 2000 Census reports that nearly 30 percent of people over the age of 25 have a bachelor's degree or higher.

The challenge is in recruiting talent to run the more mature companies that have developed in the region, Panetta said, and the area has initiated efforts to bring in people from the outside, particularly those in executive positions at large companies.

"We need that kind of talent," Panetta said. "So we look for people who have been working at some of the big firms and try to talk them into coming here" to take the reigns at a growing biotech.

But that shouldn't be difficult, given the area's warm weather and pleasant – though expensive – quality of life. In 2000, the median home value in San Diego was $227,200. But, like its northern counterpart, the median household income of about $50,000 also is higher than the national average.

San Diego is an "environment that has it all," Panetta said. "You can work hard, play hard, and the [region] really breeds a culture of collaboration and inventiveness."

CONNECTICUT

With its large pharmaceutical presence, revolutionary approach to stem cell research, economic incentives, active support organizations, a low cost of living and easy accessibility to other biotechnology hubs, Connecticut offers a number of comparative advantages to biotechnology companies looking to expand or relocate.

Biotech firms in Connecticut employ more than 18,000 people. According to Paul R. Pescatello, president and chief executive officer of Connecticut United for Research Excellence, the state has 45 biotech companies, which range from smaller outfits with fewer than 10 employees to larger operations with several hundred employees.

Biotech spending within the state exceeds $7 million. The state has a strong research and development base. In 2004, spending in that sector comprised 6.5 percent of the total research and development spending in the country.

Such strength in research and development is unequivocally linked to the pharmaceutical industry, which makes a large mark on Connecticut's landscape. Connecticut is a hotbed of pharma activity, and that bodes well for the biotech industry. "We have a unique mix of big pharma and biotech companies," Pescatello said.

A bevy of big firms are located in the state. Among the most notable players is pharma giant Pfizer, which has its research headquarters in New London. Pescatello points to Pfizer's vested interest in the state as proof of Connecticut's strength in research and drug development. He also pointed out that German giant Boehringer-Ingelheim calls Connecticut its U.S. home. "It's the 15th largest pharmaceutical firm in the world, and they have their headquarters here and a big, expanding presence here," he said.

In addition, Connecticut counts Bristol-Myers Squibb among its pharmaceutical heavy hitters. "Bristol-Myers Squibb has a big research facility in Wallingford," he said. Pescatello also noted the presence of big pharma in Stamford. Perdue Pharma considers that city its home base.

In total, the presence of so many pharma leaders is a major catalyst for academic research and biotech development in the state. "We have several companies now that are offshoots of the big pharma companies, which is a good trend, to have another contingent of new company formation," Pescatello said.

He pointed to Optherion Inc., an early-stage New Haven-based company conducting research on age-related macular degeneration, and BioRelix Inc., a Southport pharmaceutical company, as successful offshoots of bigger players that are making Connecticut their home. "These are new companies founded by Bayer people, and they're using Bayer intellectual property," he said.

PHARMACEUTICAL PROWESS, STEM CELL SUPPORT GIVE STATE AN EDGE

The state's pharmaceutical prowess also provides more research opportunity for Connecticut's research universities. "This big pharma and research presence works very nicely with the academic research at Yale and the University of Connecticut, as well as with biotech," Pescatello said. "There's no real distinction between the research goals of all three."

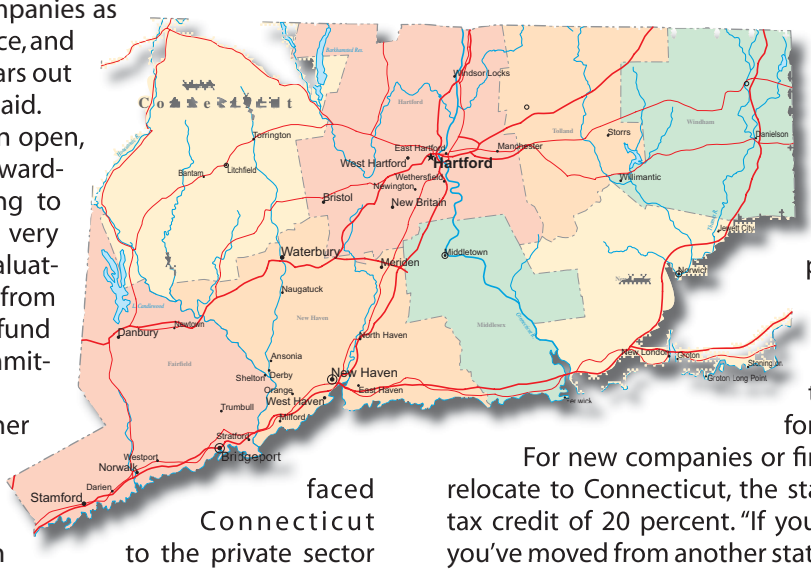
Indeed, research is Connecticut's bread and butter, and the state sets itself apart from competitors in stem cell research. In 2005, Connecticut Governor Jodi Rell signed legislation authorizing $100 million in funding for stem cell research in the state over 10 years. Pescatello called this legislation a landmark for the industry.

The University of Connecticut, in particular, has been a major beneficiary of the state's progressive approach to stem cell research, receiving nearly $12 million for research in that arena. Among the grants provided to the university were $3.25 million in funding for major group projects; $3.7 million for five established investigator grants; and $1.4 million for seven seed grants; and $1 million for a joint research project with Wesleyan University. Approximately $2.5 million of those funds were directed to the development of a core stem cell facility, which will enable the culture, quality control and banking of human embryonic stem cell lines in a centralized location.

To that end, renovation is under way on an 113,000-square-foot complex on the University's campus. When completed in 2009, the institute will house a team of scientists with hands-on expertise in human embryonic stem cells. Those experts, in turn, will provide support to and training to researchers throughout the state.

But stem cell research is not just limited to the academic

arena. The private sector is benefitting from Connecticut's novel approach to the field. "We were actually the first state to get dollars for stem cell research into the hands of researchers," Pescatello said. "Our stem cell research initiative allows for-profit companies as well to apply for assistance, and some have received dollars out of the initiative too," he said.



The state maintains an open, collaborative process in awarding the grants, according to Pescatello. "There's a very effective process for evaluating requests for grants from the stem cell research fund with a peer review committee," he said.

And unlike in other states, where stem cell research has faced political hurdles, in Connecticut the dollars trickle down to the private sector and academic community rather quickly. Pescatello pointed to the trouble that stem cell proponents have faced in funding the science in states like California, New Jersey, Massachusetts and Wisconsin.

"A lot of times there is a lot of talk and very grand announcements about stem cell research funding," he said. But he noted that these proclamations have little to do with implementing policy or getting dollars into the hands of stem cell researchers. "In California, there's $3 billion, but not a penny has been given out, it's stuck in litigation," he said. "In Connecticut, we've always had a very broad consensus for stem cell research. There really isn't much opposition," Pescatello said.

That cooperative approach has been instrumental in making the state a safe haven for stem cell research and a hospitable environment for the life sciences in general. Pescatello said the state is very much prepared to promote life science growth through policy initiatives. "We have a very pro-bioscience policy in the state. There's a bipartisan consensus that there is a great future for the state in bioscience, and there's a lot of positive policy that promotes the industry," he said.

Accordingly, the state offers a package of economic incentives that make it an attractive place to do business. "We have a very favorable research and development tax credit for large companies, big pharma and biotechs," he said. In general, the state offers a research and development tax credit of six percent.

Biotech firms in particular benefit from the state's Research and Development Tax Credit Exchange. This credit can be instrumental in allowing companies struggling to get products to market to get returns on their research and development expenses. "When you think about it, most biotech, drug discovery companies take 15 years to bring a product to market. During that time, they don't have profits, so a credit against income isn't very useful to them," Pescatello said. "So Connecticut lets them trade in those costs for 65 cents on the dollar."

For new companies or firms looking to expand or relocate to Connecticut, the state offers an incremental tax credit of 20 percent. "If you're a new company, or if you've moved from another state, then everything you do the first year in Connecticut is considered new or incremental research and development, and you're eligible for a 20 percent credit," Pescatello said.

In addition, lab equipment is eligible for sales and use tax credits. And Connecticut offers a lab fund, a revolving low-interest loan fund that has proven useful to life science firms. Pescatello says almost all of the biotech companies in the state have used the loans to fund their laboratory build outs.

Connecticut's support organizations are also instrumental in growing the life sciences in the state. Connecticut Innovations (CI), an organization created by the state legislature to offer capital and guidance to emerging firms, is one group particularly dedicated to building the biotech industry within Connecticut's borders.

CI's BioScience Facility Fund has been instrumental in helping life science companies expand their operations. Started in 1998, the fund has provided more than $33 million for the creation of laboratory space. More than 320,000 square feet of research space have been produced by the fund, and projects benefitting from facility fund dollars include the 10,600-square-foot New Haven Science Park.

Several life science companies also have utilized the fund to expand their operations. Achillion Pharmaceuticals drew $3 million from the fund to develop a facility adjacent to the Yale University Medical Center. Neurogen Corporation received $5 million to develop lab space at

its Branford location. Genaissance Pharmaceuticals also received $5 million from the fund to enhance its research facilities. Cara Therapeutics utilized a $4 million loan from the fund to convert a warehouse in Shelton to high-tech laboratory space, and in the process, moved its operation from Tarrytown, N.Y., to Connecticut.

Connecticut Innovations also offer several new initiatives designed to provide developing companies with the capital, as well as the guidance to further their businesses.

The organization has a Pre-Seed Support Services Program that helps companies identify the services they need to launch their businesses. Once a business has identified the resources it needs to get off the ground, CI coordinates access to a variety of services, such as technological and Internet support and basic utilities. The organization also offers technology reviews, intellectual property and patent support, market feasibility analyses, business plan development and mentoring services.

One life science company has already benefitted from the newly initiated fund. Chester-based Equity Health Partners LLC, the first company to receive pre-seed support from CI, is receiving financial and in-kind assistance through the program. That support will be instrumental in helping the company to develop its revolutionary software service. The service aims to allow health care providers, as well as various payers and purchasers, to design and implement quality improvement and pay-for-performance programs. The clinically integrated, continuous programs would be available to a wide network of health care institutions, clinicians, physicians and researchers. In addition to providing a measurement tool for assessing quality and performance, the system could help standardize care across the network.

"The state maintains an open, collaborative process in awarding grants."

In addition to pre-seed support, CI offers a seed fund specific to the biotech industry. The group's Connecticut Bioseed Fund gives young biotech companies up to $500,000 in financial support. Companies working to solve unmet medical needs are given priority access to monies, but fledgling firms in the fields of biomedical engineering, genomics, medical devices, molecular sciences, medical devices and pharmaceuticals are all eligible for the fund. CI originated the program to bridge the gap between new firms and development dollars and to set Connecticut life science firms on the right track to attaining Series A financing and support from the private sector.

One major beneficiary of the BioSeed Fund is Stevens Proof of Concept Inc. (SPOC), a Stamford-based medical device company. The company is currently developing a proprietary point-of-care medical diagnostic system that incorporates a medical device with a methodology to pinpoint myofascial trigger points for pain. The non-invasive device is the first to use electroneural stimulation for diagnostic purposes. In March 2007, Connecticut Innovations granted the company $500,000 in BioSeed Fund money, which enabled SPOC to initiate clinical trials of its device and to begin the application process with the FDA.

Life sciences companies also can throw their hat in the ring for general seed funding from CI. The group's newest initiative, the Seed Investment Fund, allocates nearly $2 million to turn startups into full-fledged operations. Companies in a variety of fields can qualify for up to $500,000 in support during their early stages of development.

Outside of initial funding initiatives, Connecticut Innovations offers management and marketing support to fledgling companies. For biotechs with little experience in those areas, such support can be invaluable. For example, Standing Stone Inc., a Westport-based disease management company, has utilized over $700,000 in funding from CI to enhance its sales and marketing campaigns and to boost new product development. In addition to its flagship product, CoagClinic, which offers a web-based documentation system for anticoagulation therapies, Standing Stone now provides lipid and diabetes management, as well as a tracking tool for patients with congestive heart failure.

On the innovation front, Connecticut Innovations provides record support through its flagship investment fund, the Eli Whitney Fund. Started in 1995, the fund has provided more than $109 million in early-stage financing to support startups. In 2007 alone, the fund provided $5.8 million to nine companies. More importantly, the fund has been highly supportive of the life science industry. Advanced material firms, bioscience business, energy and information technology providers have all benefitted from the fund.

CI has also made leeway in prompting venture capital investment in the biotech industry, by tapping into the robust hedge fund market in Fairfield County and surrounding environs. Outside of hedge funds, Pescatello

also pointed out that the state's proximity to Boston gives Connecticut's companies prime access to Beantown's venture capital market.

Connecticut Innovations also has been instrumental in recruiting new talent to the state. Due in part to CI's efforts, five companies relocated to the state in 2007.

But it's not just the state's support organizations that have fueled relocation to Connecticut. Their recruitment efforts have been successful, in part, because the state offers a reasonable cost of living and lower rents than many of its neighbors. Connecticut real estate is at a premium price compared to space in neighboring states.

Pescatello says that Connecticut's value is not always apparent from cost of living estimates. Further, he said that the high cost of living in Fairfield County has the tendency to skew cost of living figures for Connecticut. "There's a misperception that Connecticut is an expensive place to live and work." But he points out that Greenwich is not the primary seat of biotech and pharma activity, and thus companies looking to relocate to the state's life science clusters, would do well to consider Connecticut's overall affordability. "If you take Fairfield County out of the equation, Connecticut is a very cost effective place to do business and a very attractive place to live and work, especially compared to its competitors like Boston, Cambridge, San Diego and the Research Triangle," he said.

Pfizer's research headquarters are located in New London. Photo courtesy of Pfizer Inc.

Pescatello said that the state is not only affordable for housing, but for employers as well. "It's cheaper to live and work here than in those other clusters of biotech activity.

Indeed, dollars in Connecticut go farther, especially in terms of lab space. Lease rates are 30 to 50 percent lower than those in Boston, presenting a bargain for biotechs looking to branch out from traditional hubs.

And for firms looking to be in the center of the life science industry without the high rent, Connecticut offers a prime location. "People joke that when you're in San Diego and you go 100 miles, you're in the desert. But if you go 100 miles from New Haven or Branford, you're either at Sloan-Kettering in New York or Brigham and Women's in Boston. And you can do that in a day, go to New York or Boston and then back to the lab," Pescatello said.

That access to the top scientific and financial centers in the country, plus the wealth of research opportunities in stem cells and the availability of seed funding and support, makes doing business in Connecticut easy. Biotech companies can tap into the cutting-edge research being done in Connecticut universities or form research collaborations with schools in the Big Apple. They can access funding for stem cells or garner venture capital funding in Greenwich or Boston. And when it's time to go public, they can take Manhattan...

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A Growing Life Science Business Culture

FLORIDA

SCRIPPS, BURNHAM AND OTHERS ANCHOR BURGEONING BIOTECH SECTOR IN THE SUNSHINE STATE

While already home to more than 100 biotech companies – Accentia Biopharmaceuticals Inc., in Tampa, and Oragenics Inc., in Alachua, for example – the state of Florida might be one of the most attractive emerging markets for relocation and expansion. What it lacks in long-established networks and infrastructure, it more than makes up for with its aggressive incentive programs, a willingness to make hefty local investments and a decidedly pro-business environment.

The state, which is home to about 18 million people, according to 2006 Census estimates, scored a major coup for its emerging biotech sector in 2003 when the Scripps Research Institute in La Jolla, Calif., decided to locate a second facility in the southeast state. In October of that year, the Florida legislature appropriated a whopping $310 million to pay for scientific equipment and staff salaries for the first seven years of operation at the Scripps Florida Research Institute, a state-of-the-art biomedical research facility in Jupiter, a town in Palm Beach County.

Money to recruit Scripps came from the state's Innovation Incentive Fund, created in 2006 by former Gov. Jeb Bush, "which requires a 100 percent local match," said C. Russell Allen, president and CEO of BioFlorida Inc., the state's non-profit bioscience organization headquartered in West Palm Beach.

In addition to the initial legislative appropriation, which came from Florida's federal economic development fund, Palm Beach County provides an economic package that includes the 100 acres of land and funding for construction of the complex, as well as for building the two temporary facilities at FAU. So far, the state has invested more than $650 million in financing to the project.

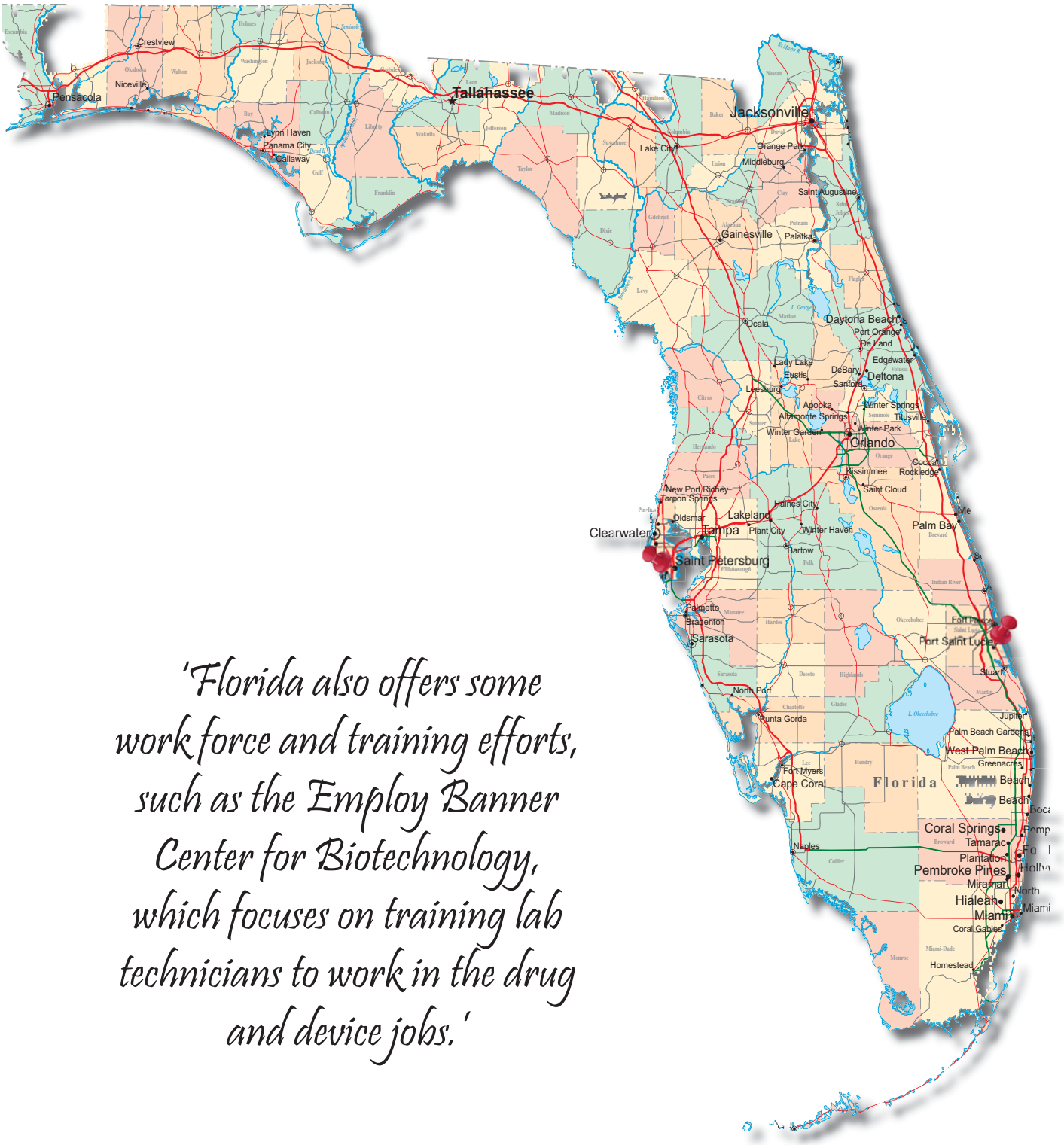
A permanent 350,000 square foot, three-building complex in Jupiter is expected to be ready for occupancy in early 2009. In the meantime, Scripps Florida is operating out of temporary facilities on the nearby campus at Florida Atlantic University.

Aimed at conducting biomedical research on diseases such as AIDS, Alzheimer's disease, cancer, diabetes, hepatitis C and schizophrenia, Scripps Florida already has yielded some early success, with 29 patents filed and 14 technologies licensed as of 2006, according to figures compiled by state business resource Enterprise Florida. And, as the Scripps Florida facility begins to fill up, stakeholders are counting on the area to turn into a large research park replete with biotech firms, technology incubators, venture capital firms and other life science-associated businesses. But Florida's story doesn't end with Scripps, Allen said, adding that the pursuit to attract additional opportunities "just blossomed from there."

In the last few years, several other research institutes have expressed interest in relocating or expanding in Florida. The Burnham Institute for Medical Research is establishing a life science research center near Orlando and has received more than $300 million in state and local incentives to date. When complete, the Burnham Institute, along with UCF College of Medicine, is expected to anchor a growing life sciences cluster at the Lake Nona Science & Technology Park. Stakeholders are estimating that the cluster could have a multi-billion-dollar economic impact on the region. Similar efforts are ongoing in other areas of the state, as well. The Torrey Pines Institute for Molecular Studies received a $94 million offer from St. Lucie County, just north of Palm Beach, to locate a 100,000-square-foot facility and 189 jobs to its Florida Center for Innovation in Tradition development in Port. St. Lucie. That building is expected to be complete around the end of 2008.

SRI International, of Silicon Valley, opened a marine technology research complex in St. Petersburg, with more than $50 million invested so far, and, farther south, the University of Miami is developing a large life sciences research along Interstate 95 in a $1.5 billion, two-phase plan. The first phase, started in 2006, includes a 336,000 square foot clinical research institute, with another 182,000 square foot biomedical research institute and a hospital coming down the road. The second phase calls for a 1.4 million square feet of research space and is expected to create some 5,000 new jobs and bolster the city's annual income by about $263 million. Like Scripps, those are all "state and local funded," Allen said.

Most recently, the Oregon Health & Science University's Vaccine and Gene Therapy Institute agreed in January 2008 to build its facility in Port St. Lucie at the urging of



'Florida also offers some work force and training efforts, such as the Employ Banner Center for Biotechnology, which focuses on training lab technicians to work in the drug and device jobs.'

state and local initiatives, which invested $113 million in the project.

But "we're not only recruiting organizations from outside the state," Allen said. "We're also looking to build from within."

In early 2008, the state allotted $80 million to the University of Miami for the Institute of Human Genomics, established a year earlier to investigate genetic variants that underlie common human diseases.

Overall, the state has 136 biotech firms – representing about 9 percent of the country's biotech industry – with nearly half of those specializing in therapeutics. Others are working in the areas of diagnostics, regenerative medicine, industrial biotech and other life science-related efforts. While many of those companies are clustered in the South Florida or Gainesville/Alachua regions, the state's recruitment programs are statewide, Allen said.

Florida is home 11 public and 29 independent colleges and universities, including several schools with a science and technology focus, such as the University of Florida, FAU, the Florida Institute of Technology, Florida International University, Florida State University, the University of Miami and the University of South Florida. Its university system has generated plenty of success over the years securing grants and other funds for research opportunities – in 2007 the total research funding exceeded $1.6 billion, from federal, state, industry and non-profit sources – and that bodes well for the burgeoning biotech sector.

Since it was established in 2002, the Sid Martin Development Incubator, affiliated with the University of Florida, in Gainesville, alone has raised $241 million in equity investment, and has attracted more than $89 million in grant funding.

The state has a total of nine medical universities, and is home to several world-class research hospitals, such as the Mayo Clinic Jacksonville and the H. Lee Moffitt Cancer and Research Institute at the University of South Florida in Tampa. "So we really have all the resources here," Allen said, including a "business-friendly climate, as evidenced by not only our incentives, but also the fact that there's no personal income tax in the state." In addition, there is no sales tax on R&D equipment, no state-level property tax, no corporate income tax on limited partnerships and no corporate franchise tax on capital stock.

Florida also offers the Capital Investment Tax Credit, which is administered through Enterprise Florida Inc. and certified by the Governor's Office of Tourism, Trade and Economic Development (OTTED), at the commencement of a firm's operations. An annual credit, equal to 5 percent of the eligible capital costs, is provided for up to 20 years against a company's state corporate income tax liability, provided that the applicant firm creates at least 100 jobs and invests at least $25 million in eligible capital costs between the time it begins construction and the day its opens its doors for business.

As of September 2006, three biotechs, which planned to invest a total of $207 million and create at least 575 jobs, had their applications approved and certified by OTTED.

Allen said further legislative efforts "are under way to add R&D incentives, tax credits and SBIR [Small Business Innovative Research] programs." From BioFlorida's perspective, much of its efforts are focused on helping "our small and emerging companies," he added.

That includes aiding companies in attracting the attention of venture capital, which, historically, has flown much more freely into big biotech markets such as California and Massachusetts. But, according to the 2008 State of the Industry Report posted by the University of Florida, VC funding has increased dramatically, more than tripled in the last two years. In 2007, VC money going to Florida biotechs totaled about $438 million in 21 deals, averaging a $21 million investment per deal. And, since 2005, VC firms have funded Florida companies.

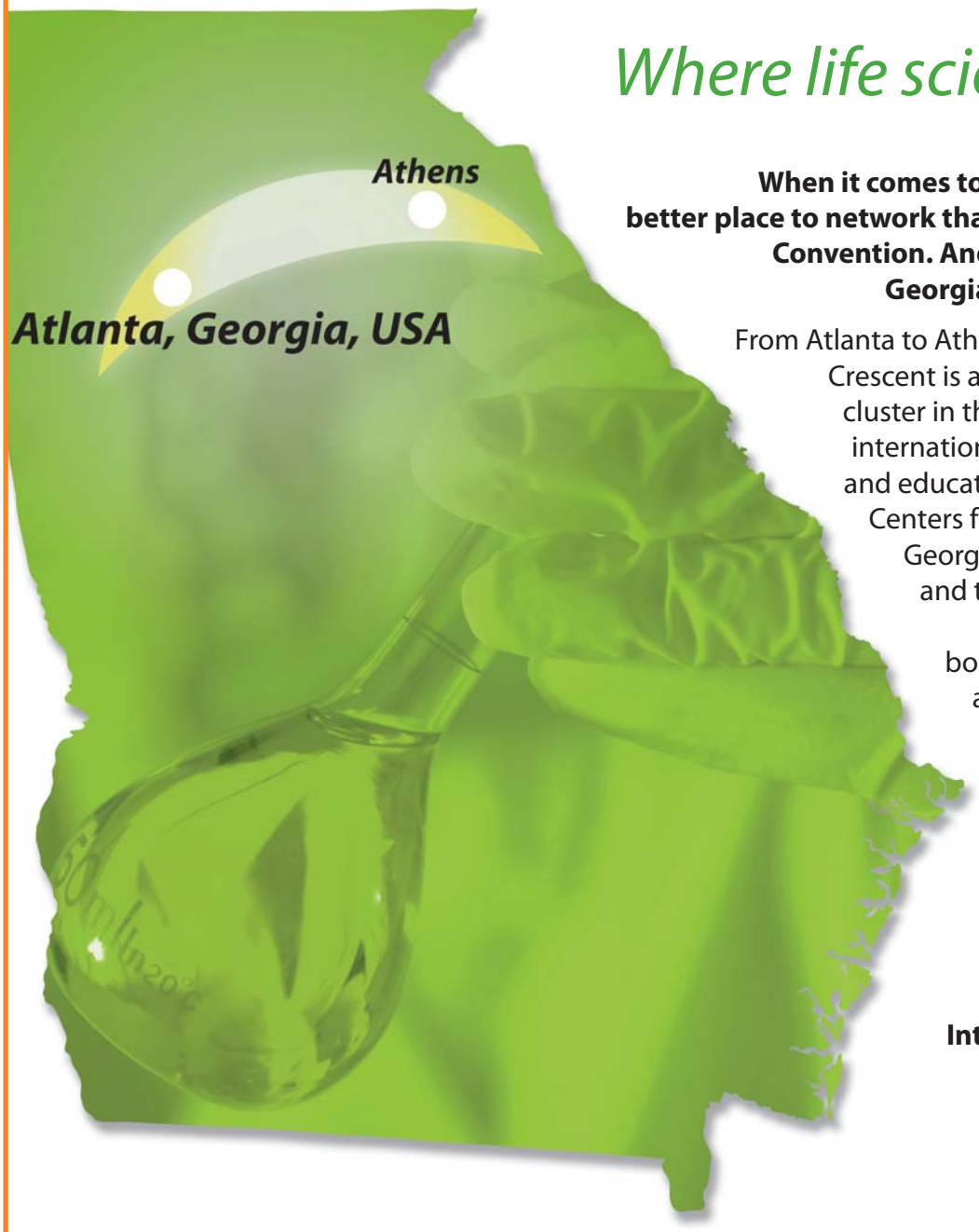
In terms of work force, Florida has roughly 300,000 people employed in knowledge-based jobs, based on figures from Enterprise Florida. Among those include more than 6,000 employed as biological scientists/technicians and more than 20,000 working as clinical or laboratory technicians. While the state seems to "be doing well meeting the current" work force needs, Allen said, "we anticipate that, within the next two years," with the build-out of the research parks, that "we'll have to address adding" further initiatives. But, at least, "we already know it's coming, so it won't be a speculative investment." Florida also offers some work force and training efforts, such as the Employ Banner Center for Biotechnology, which focuses on training lab technicians to work in the drug and device jobs.

According to 2000 Census figures, about 22.3 percent of people over 18 years of age had a bachelor's degree or higher. But the pull of state universities and research institutes, like Scripps, should help recruit additional work talent to the area. And if those don't, the temperate climate, proximity to the beach and reasonable cost of living likely will do the trick.

In 2000, the median home value was about $105,500, and the state has a 70 percent home ownership rate. Median household income was $38,819.

"People who come here tend to stay," Allen said. "We've got a great quality-of-life climate and a great cost-of-doing-business climate. You don't get that everywhere."

innovation crescent
GEORGIA



Where life science grows™

When it comes to Life Science, there's no better place to network than the BIO International Convention. And in 2009, it's coming to Georgia's Innovation Crescent!

From Atlanta to Athens, Georgia's Innovation Crescent is a fast-growing life science cluster in the southeastern U.S. With internationally recognized research and educational institutions like the Centers for Disease Control (CDC), Georgia Tech, Emory University and the University of Georgia, the Innovation Crescent boasts strong infrastructure and workforce to support its ever-growing life science community.

To learn more about the Innovation Crescent, visit the Georgia Pavilion (#1701) in San Diego at the 2008 BIO International Convention.

GEORGIA

As the seat of business in the Southeast, Georgia offers a number of competitive advantages to life science firms looking to expand or relocate. The state is enjoying rapid growth in the life sciences, and has a wealth of burgeoning biotechs to its credit. In addition, the state is home to a number of key medical institutions and renowned research universities, which are conveniently clustered around Atlanta and Athens.

The state also has strong support organizations in place and a strategic plan to increase its standing in the industry. Georgia has recognized the industry as one of its top strategic industries, according to Charles Craig, president of Georgia BIO. "The state recognizes that the development of the life sciences industry is critical to the economic growth of the state," he said. Coupled with a package of economic incentives and a low cost of living, the state has all of the necessary elements to accommodate further biotech development.

With more than 270 life science companies, Georgia ranks seventh in the nation for number of life science companies, and the state is experiencing a biotech boom. Since 1993, Georgia's biotech industry has seen a 140 percent growth rate, and projections have the sector tripling in size by 2010. "It's the fastest growing industry sector in the state" Craig said. Investment in biotech in the state has blossomed as well, increasing at an astronomical rate of 489 percent between 1993 and 2000.

In terms of total employment, the state counts more than 30,000 life science jobs on its roster, according to Bill Davis, business development manager of healthcare & life sciences for the Gwinnett County Chamber of Commerce. This number includes jobs in the private sector, as well as positions at university labs, research hospitals and the Centers for Disease Control (CDC). In the sector of pharmaceutical & medicine manufacturing alone, the state has nearly 50 companies employing 3,420.

Because of the presence of a large number of renowned research universities, as well as the Centers for Disease Control, the American Cancer Society, and the Arthritis Foundation, and cutting-edge medical centers, Craig said Georgia is at the global crossroads of public health. As a result, the life sciences in Georgia are strongly focused on vaccine development, cancer research, immunology and medical devices.

Craig said the CDC's impact on Georgia life sciences has been tremendous. "The CDC is a world-class public health institute and a huge asset for Georgia. And the institute has brought in new life science business to the state.

BIOTECH BOOM, WORLD-CLASS INSTITUTIONS AND ECONOMIC ADVANTAGES SET SOUTHERN STATE APART

"Companies around the world want to be associated with the CDC. Certainly, that's a reason for companies to come to Georgia," he said.

He also pointed to the Yerkes National Primate Research Center as another of the state's assets. The center, based out of Emory University, is an international leader in biomedical and behavioral research. "This is the number one primate research center in the world," Craig said. He also noted that the Atlanta-based Carter Center has been instrumental in the eradication of infectious diseases in the developing world.

In the private sector, major players in the Georgia life science market include Alimera Sciences, AtheroGenics Inc., CardioMEMS, Inhibitex Inc., Merial Limited, Metastatix, Monsanto Solvay Pharmaceuticals, Steifel Laboratories, TheraGenics Corporation and UCB Inc.

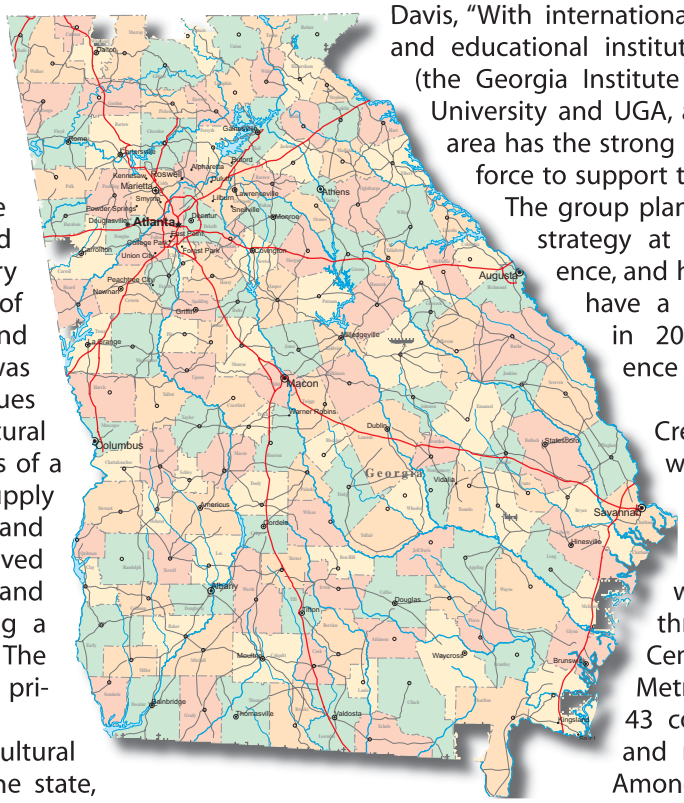
The industry produces over $940 million in annual wages for the state. In 2007, the life sciences generated $6.9 billion in sales in the state. Life science companies in Georgia also have generated a number of innovative new products. "They have 160 products on the market and 300 products in various stages of clinical development. And the companies expect to introduce another 100 products over the next five years," Craig said.

Life science companies in the state are clustered around the capital. According to Craig, "the life sciences industry in Georgia, particularly the pharma, biotech and medical device companies are focused around the metro Atlanta and Athens areas." Seventy-seven percent of the state's life science firms are located in the metro Atlanta area. More than 10,000 people are employed in life sciences in the metro Atlanta community, which includes the suburbs of Alpharetta, Decatur, Marietta and Norcross.

But the state's primary flagship research university, the University of Georgia in Athens (UGA), also contributes to the life science industry. That growth has spilled over

into the counties linking the two cities, and as a result, the Clarke/Gwinnett County corridor is home to a large number of biotech companies. "We basically say that 95 percent of life science companies are between Atlanta and Athens," said Davis.

Craig said that the rest of the state accommodates a growing agricultural biotech and biofuels sector. "When it comes to agricultural biotech companies, those companies are located around the state, and primarily in the rural areas, especially the biofuels companies." And Craig said the state has a separate strategy for promoting biofuels development. A large part of this is the Energy Innovation Center, which Craig said "is designed to apply state programs for the development of the biofuels industry."



In the central half of the state, Tifton is home to an agricultural biotech base. Tifton houses the National Environmentally Sound Production Agriculture Laboratory (NESPAL), a unit of the University of Georgia's College of Agricultural and Environmental Sciences. NESPAL was formed in 1991 to address the issues of maintaining efficient agricultural production and assuring consumers of a safe and affordable food and fiber supply while protecting natural resources and the environment. NESPAL has evolved into an interdisciplinary research and education effort aimed at building a better environment for agriculture. The organization also offers outreach to private sector partners.

Outside of biofuels and agricultural biotech, in the Southern half of the state, Savannah and Valdosta have a number of medical and diagnostic laboratories. On the Eastern border, Augusta houses the Medical College of Georgia and corresponding life science support organizations.

Craig said that Georgia offers a wealth of opportunities in the life sciences and that its diversity sets the state apart. "We have a really robust mix of pharmaceutical, biotech and medical device companies, along with a strong agricultural biotech presence and a fast-growing biofuels industry that has really exploded over the past few years," he said.

And the state is well prepared to capitalize on its diversity to promote the state as a premier destination for the life sciences. Indeed, a consortium of state and county agencies are working together to increase the state's visibility and to target growth to specific corridors. Georgia BIO, in partnership with the Atlanta Regional Commission, representatives from the Department of Economic Development, local chambers of commerce and a variety of county organizations, as well as innovation and economic development centers at the state's research universities, have branded the corridor between Athens and Atlanta the Innovation Crescent.

The group is working to get the word out that Atlanta is a hub for life science development. According to Davis, "With internationally recognized research and educational institutions like Georgia Tech (the Georgia Institute of Technology), Emory University and UGA, as well as the CDC, this area has the strong infrastructure and workforce to support the life science industry." The group plans to unveil its branding strategy at this year's BIO conference, and hopes the campaign will have a higher visibility launch in 2009, when the conference will come to Atlanta. Within the Innovation Crescent, the state has a wealth of research institutions to enhance its offerings. In addition to the offerings in Athens, which include one of only three Bioenergy Research Centers in the nation, Metro Atlanta is home to 43 colleges and universities and nine technical colleges. Among these offerings are Clark Atlanta University, Emory University, Georgia State University, Georgia Tech, Morehouse College and Spelman College.

With 31 percent of the population holding a higher degree, Atlanta ranks sixth in total number of degrees conferred upon college graduates and second in the U.S. in engineering and technology. The city ranks seventh in the U.S. for degrees awarded in biological and life sciences.

The state's universities excel at forming collaborations to benefit the life sciences. In particular, the technical colleges in Clarke and Gwinnett counties have teamed up to create a Biomanufacturing Workforce Training Program

and the Georgia Bioscience Institute. That collaboration earned the attention of the Department of Labor, which awarded the schools a $2 million grant for their efforts. Craig says this collaboration gives the state yet another leg up on its competitors in the life sciences. "This is a competitive advantage for Georgia when companies are looking for states in which to build biomanufacturing plants," he said.

Additional opportunities for research and collaboration are available through the Georgia Research Alliance (GRA) a strategic partnership of Georgia's business, community and government, and six public and private research universities, including the University of Georgia, Georgia Tech, the Medical College of Georgia, Emory University, Clark Atlanta University and Georgia State University. The Georgia Research Alliance has invested $400 million in state funds over 15 years to create a world-class university research infrastructure.

Craig said that the GRA "also has funds that it uses to help commercialize technology discoveries at the universities." In particular, the GRA aids academic scientists in forming new companies and securing resources to build their businesses.

To that same end, the state has a broad network of incubators. "The universities in Georgia are very entrepreneurial in nature, and they have developed a very effective system of incubators to help commercialize new technologies coming out of the universities," said Craig.

These incubators include the Georgia Tech's Advanced Technology Development Center (ATDC); Georgia Tech's VentureLab; CollabTech, Georgia State's Biotechnology Development Center; Emtech Bio, a partnership between Emory University and Georgia Institute of Technology; the Georgia BioBusiness Center, a partnership between the University of Georgia and the Center for Applied Genetic Technologies; and the Medical College of Georgia's Life Sciences Business Development Center and Innovation Center.

ATDC is looking to expand its incubator space to include a Northern campus and Davis said Gwinnett could be the beneficiary of that ATDC satellite. And he pointed out that incubators play a role in bridging the gap between academics and the private sector in Georgia. "At the incubator, companies can get state funds for a short period and expand, and then when it's time to leave the incubator, they can get their own space."

'The facilities fund is a program where the state will lend money to companies to help them build new laboratory and office space.'

In addition to providing incubator space, the state and many counties, like Gwinnett, offer economic incentives aimed at retaining life science companies once they move from the incubator to the market. "We want to keep them happy and keep them here. We don't want them to look at other places when it's time to grow," Davis said.

For smaller firms, the state offers small business tax relief, enabling companies making capital investments of less than $410,000 to write off up to $102,000 of those expenses. For investments exceeding $410,000, the tax write off is reduced dollar for dollar.

The state also has an Entrepreneur and Small Business Loan Guarantee Program in place, which offers loan guarantees between $35,000 and $250,000 to cover start-up costs or working capital expenditures.

Specific to biotech, the state has a BioSeed Fund, an $8 million fund that can be used to invest in start-up companies. According to Craig, "the seed fund invests typically $200,000 to $300,000 dollars per company, but it can invest up to $1 million per company." And he said this state support is essential for getting companies off the ground. "This is money that the state of Georgia has allocated to help companies get started," he said.

He said the fund is also instrumental in bringing venture capital partners into the funding loop, because the BioSeed Fund is a three to one matching fund. "For every one dollar of state money invested, there must be a three dollar match from the private sector," he said. Craig also pointed out that the group Georgia Venture Partners has been helpful in securing funding for biotech startups and in aiding the state in investing in burgeoning firms. "Georgia Venture Partners is the group that raises the private sector match for the state seed fund money," he said.

Craig also discussed the state's Life Sciences Facilities Fund, which offers low interest loans to life sciences companies looking to expand their facilities or build new ones. "The facilities fund is a program where the state will lend money to companies to help them build new laboratory and office space." The loans are typically awarded over a 10-year period. And they can tally up to $2 million, according to Craig.

Craig said the Facilities Fund has been instrumental in growing life science companies in the state. "The state

has used this money to help companies like Inhibitex and Altea Therapeutics and CardioMEMS build new facilities," he said. Craig noted another initiative to expand company operations in the state. "There's also OneGeorgia, which helps companies build facilities around the state," he said. The OneGeorgia Authority has a number of programs in place to aid companies in expanding their facilities or in relocating their base of operations within the state.

Besides these initiatives, Georgia has a favorable corporate tax system, which particularly benefits new businesses and foreign investors. At six percent, the corporate tax rate in Georgia is among the lowest in the nation. And in 2005, the state became the first in the Southeast to utilize a "Single Factor Gross Receipts" apportionment formula for corporate income taxes. For companies based in the state that deliver a large number of products and services to customers outside of Georgia, the formula reduces their taxes. In addition, Georgia's corporate net worth tax is capped at $5,000. Corporations based out-of-state are only taxed on the net work apportioned to Georgia.

Georgia also offers a Headquarters Tax Credit that gives companies that create or relocate their corporate headquarters to Georgia up to $5,000 per job, per year, for five years. In order to qualify, companies must create 50 or more jobs at their Georgia headquarters, invest $1 million and pay wages that exceed the county average wage rate. The credit can be used against 100 percent of tax liability, regardless of where in the state a company chooses to locate its headquarters. Credits not applied to liability may be used to reduce withholding taxes.

The state also offers a research and development tax credit of 10 percent of a company's qualified R&D expenses. The credit can be used against 50 percent of the remaining income tax liability after all credits have been applied.

Firms focused on life science manufacturing could potentially qualify for a one-time, one percent tax credit on a minimum capital investment of $50,000. In order to qualify for this investment tax credit, a company must have operated a production facility in the state for three years.

The Job Tax Credit is another of the state's corporate income tax credits. The credit enables companies in strategic industries, including distribution, technology and manufacturing, to receive tax credits depending on the number of jobs they create and their location. The state is divided into four tiers, which offer various credits, ranging from as little as $750 per job in a Tier 4 community to $4,000 per job in a Tier 1 community. Companies must create between five and 25 new jobs per year to qualify, and credits can be received for up to five years. Unused credits can be carried forward for 10 years.

In addition, the state offers a revolutionary employee training program, Quick Start, which provides customize training for new employees in skill-based jobs at no cost to qualified companies. Quick Start provides training space, instructors and all materials related to the program.

Many counties in Metro Atlanta will offer 10-year periods of property tax relief, negotiated on a case-by-case basis. Typically offered only in conjunction with the use of revenue bonds, this type of incentive is predicated on the number and quality of jobs created and the amount of the financial investment.

Yet another incentive exists through sales tax exemptions, which can be applied to manufacturing machinery, computer equipment used in high tech operations, equipment and materials used in clean rooms, material handling equipment, and more.

Beyond incentives, the state offers a quality of life that is unparalleled. "The thing we hear the most is that the quality of life is great, and the cost of living in Georgia, is so much lower than it is in the Northeast and in other areas of the country," said Davis. Indeed, the average cost of a home in metro Atlanta is $283,900, which puts it just above average housing costs in the Research Triangle, and far below averages in Boston, Miami, New York and San Francisco.

And the cost of doing business in Georgia is exceptionally low as well. "The cost of doing business in general is less than it would be in places like Massachusetts and California," Craig said. And while the cost of doing business is low, wages in Georgia's life science industry are exceptionally high, averaging at $61,507.

The combination of high growth in the industry, active clusters, world-class medical institutions and research universities really set Georgia apart from its competitors, state advocates claim. Moreover, because Georgia is targeting the life sciences for further growth, companies looking to expand their operations to this Southern state stand to reap tremendous benefits.

In addition, the state offers a low cost of living and a high quality of life, attributes that attract businesses and employees alike. In total, as life science supporters in one state pointed out, Georgia offers a comprehensive package of competitive advantages that make it a hospitable environment for life science companies looking for a state with abundant research offerings, a well-developed infrastructure and a budding business climate.

MARYLAND

RESEARCH CENTERS, EDUCATED WORKFORCE, INCUBATOR GROWTH PUT STATE IN POLE POSITION

With its proximity to the nation's capital, access to federal research centers and funding and world-class laboratories, Maryland is in the pole position to expand its life science community. Sally Sternbach, executive director of Rockville Economic Development Inc., sums up the state's competitive strengths as follows. "It is the combination of federal assets, a very high level of education and the overall availability of a well-educated workforce that makes us a very interesting place," she said.

Indeed, the state houses a highly-trained workforce and the best-educated professionals in the business. That workforce is about 40,000 strong, and includes 12,000 to 13,000 people who work in the private sector; 20,000 people at the NIH; 5,000 at the FDA; and others in nonprofit institutions and universities.

In addition, Maryland has active support organizations, which work to expand the state's life science offerings. Thanks to their efforts, the state houses over 20 incubators, which make transitioning from the academic laboratory to the private sector easier. In addition, support groups in the state provide financial incentives to foster technology transfer and facilitate collaborations between fledgling firms and larger partners. Such support groups, coupled with initiatives from the state's Department of Business and Economic Development, make Maryland an accessible market for emerging biotechs, as well as established firms looking to expand or relocate.

Maryland is one of the fastest-growing biotech clusters in the world. The state continually ranks among the top 10 for life sciences in the U.S. And according to Sternbach, "depending on which list you look at, Maryland is third of fourth in terms of concentration of life sciences in the country." The state is home to more than eight percent of the country's bioscience community, putting it on par with other life science powerhouses. "Our closest competitor is North Carolina and Massachusetts," said Sternbach. "We jockey with them for position."

The state has more than 370 biotech companies of record, and Bernadette Musselwhite, a business development specialist with the Montgomery Country Department of Economic Development, puts the number of bioscience organizations that call the state home even higher. "The number of companies, depending on the definition, ranks between 250 and 400," she said.

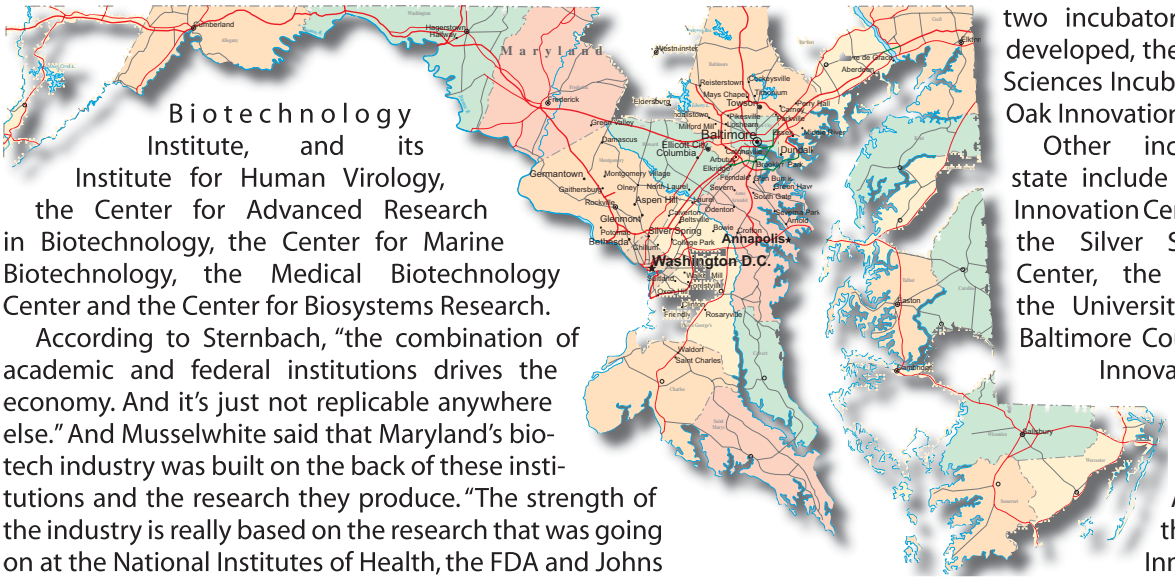
Of those companies, 17 are publicly traded. But the smaller companies make their fair share of profits. Musslewhite said, "Many of the companies are small companies, but some of our fairly small companies have grown into big success stories, such as MedImmune, which last year, was bought for $15.5 billion by AstraZeneca." She also pointed to Human Genome Sciences as a bulwark of the Rockville community. And she noted other players poised for success. "Emergent BioSolutions, MacroGenics, United Therapeutics are all starting to get national and international recognition as well," she said.

Other big players in the Biotherapuetics and Diagnostic field include Celera, GenVec, Martek, Otsuka, BD Diagnostics, Digene, Invitrogen and Qiagen. On the agricultural biotechnology front, the state is home to the Beltsville Agricultural Research Center, the Center for Biosystems Research and the Center for Advanced Research in Biotechnology II.

And in terms of drug development, pharmaceuticals and biomanufacturing, Maryland boasts Lonza, Chesapeake Biological Laboratories, Shire Pharmaceuticals and Pharmaceutics International. Contract research services are booming in the state as well, thanks to players like Accelonvance, Battelle, Fischer Bioservices, the Science Applications International Corporation, Shin Nippon Biomedical Laboratories and Westat.

But while Maryland is home to a profusion of life science companies, the state's biggest competitive advantage is its access to federal research institutions and world-class universities. Sternbach said, "The piece that sets us apart is the federal assets. Nobody else has them. Nobody else has an NIH, a NIST or an FDA."

Maryland is home to a number of federal institutions, namely the National Institutes of Health (NIH), the Food and Drug Administration (FDA), the National Institute of Standards and Technology (NIST) and the J. Craig Venter Institute. In addition, the state is also the seat of research institutions such as Johns Hopkins University's Applied Physics Laboratory, the Center for Environmental Energy at the University of Maryland, the University of Maryland



Biotechnology Institute, and its Institute for Human Virology, the Center for Advanced Research in Biotechnology, the Center for Marine Biotechnology, the Medical Biotechnology Center and the Center for Biosystems Research.

According to Sternbach, "the combination of academic and federal institutions drives the economy. And it's just not replicable anywhere else." And Musselwhite said that Maryland's biotech industry was built on the back of these institutions and the research they produce. "The strength of the industry is really based on the research that was going on at the National Institutes of Health, the FDA and Johns Hopkins University and the University of Maryland. And in the mid 80s, some of those researchers started to come out of the labs to start their own companies," she said.

Laboratories abound in Maryland, with 60 alone in Maryland and the District of Columbia. Sternbach estimates that the preponderance of labs attracts 4,000 post docs a year. And the state has made an effort to retain these professionals. Maryland now ranks first in the country for percentage of professional and technology employees in the workforce. The state also ranks second in the U.S. in number of PhD scientists and engineers and second in percentage of the population over 25 with a bachelor's degree or higher.

Sternbach said that continually replenishing and highly-educated workforce brings tremendous talent to the area. "They do their one- to four-year fellowships, and then they become a phenomenal workforce. These are the best and brightest scientists in the world. We're making some very concerted efforts to help place these people locally in jobs and to encourage them to do things like tech transfer and start up companies."

She said the state is making strides in capitalizing on the intellectual property coming out of Maryland's research universities and labs. And one way the state facilitates this tech transfer is through the building of incubators.

There are 20 incubators in the state of Maryland, with a quarter of the incubator space centered in Montgomery County. That area, which counts Rockville, Gaithersburg and Germantown among its hubs, includes incubators such as the Maryland Technology Development Center, the Rockville Innovation Center, the Shady Grove Innovation Center, the Wheaton Business Center, and two incubators currently being developed, the Germantown Life Sciences Incubator and the White Oak Innovation Center.

Other incubators in the state include the Technological Innovation Center in Hagerstown, the Silver Spring Innovation Center, the Tech Center at the University of Maryland in Baltimore County, the Frederick Innovative Technology Center, the Prince George's County Technology Assistance Center, the Chesapeake Innovation Center in Annapolis, the Higher Education and Applied Technology Center in Aberdeen, the Garrett Information Enterprise Center in McHenry, the Neotech Incubator in Columbia, two Emerging Technology Centers in Baltimore, the Technology Advancement Program in College Park, the Tawes Science/Technology Incubator in Frostburg and the TowsonGlobal Incubator.

In addition, the Maryland Technology Development Corporation (TEDCO) has an Incubator Development Fund to develop and grow technology-oriented business incubators around the state. TEDCO provides matching funds to qualified groups interested in developing incubator programs, in the form of operating or capital funds. That seed funding is designed to leverage other public and private investments in the incubator. The fund offers a combination of finance instruments: debt, equity and guarantees. TEDCO also provides technical assistance and support to incubator management.

The incubator model has produced positive results for the life sciences industry in Maryland. "It's a very viable economic strategy, and Maryland has done extremely well with it," Sternbach said. In Montgomery County, that strategy has been even more successful. "We just opened a technology incubator in Rockville in mid-June of last year, and we're now full. We have companies on a waiting list," she said.

Sternbach also pointed to Montgomery County's success in utilizing the incubator model to grow fledgling firms into full-scale operations. "We have successfully moved lots of small companies out of the Rockville incubator, into commercial lab space for them to grow. There

have been about 35 or 40 graduates from that incubator. Over 90 percent are settled locally and are doing well," Sternbach said.

Outside of incubators, the state has a number of economic incentives aimed at boosting technology transfer in Maryland. TEDCO, in particular, is among the largest players in technology transfer in the state and its funding initiatives are instrumental in bringing technology out of the lab and into the private sector. Its primary initiative, the Maryland Technology Transfer Fund (MTTF), provides funding for Maryland companies developing technology-based products and services in collaboration with the state's universities and federal laboratories.

To be eligible for the program, a company must be partnered with a Maryland university or a federal laboratory. In addition, the company must have fewer than 16 employees or be a university spin-off that has been in business less than five years. Eligible applicants must also qualify as pre-revenue or pre-venture investments. Success in raising downstream funding is a key criteria in evaluating second award proposals.

Funding proposals are submitted for review on the first day of the month, and the review period is 60 days. Applications are reviewed by a committee of TEDCO members, personnel from the Maryland Department of Business and Economic Development and select venture capital partners.

The focus of the program is support of company technology development projects that transfer technology to the commercial sector from any university or federal laboratory in Maryland. A secondary focus is on development of technology-based products and services for future government procurements.

The program offers fledgling companies up to $75,000 in non-equity investments to defray the direct costs of developing early stage technology, which could include feasibility testing. In addition, companies gain access to other inventions in university or federal laboratories.

Moreover, companies maintain the rights to their technology. The program does not involve ownership by TEDCO of equity or intellectual property rights or the option to commercialize a technology without the company's consent.

Most importantly, no repayment is required unless the company receives revenue from sales. Beginning five quarters after the end of the funding period for the project, the company is required to pay TEDCO, annually, the lesser of either three percent of revenue or 40 percent of the award amount over the period of five years. Repayment is capped at twice the original award at the end of five years. Moreover, interest rates are extremely reasonable. A company can repay early at the multiple current for the year in which buyout occurs.

TEDCO also has been instrumental in forming strategic collaborations with life science companies in Maryland. In fact, the organization successfully secured a landmark partnership with Johnson & Johnson's Corporate Office of Science & Technology (COSAT), in December 2005. The Joint Investment Venture facilitates investment in seed-stage companies with technologies of interest to Johnson & Johnson (J&J). The program is yet another component of the MTTF.

At the partnership's inception, J&J provided an initial investment of $250,000 to seed the fund, and TEDCO agreed to provide matching funds. Since its initial investment, the company has doubled its original contribution.

There are three tracks for companies to apply to the joint program. Companies that are new to TEDCO apply under Track 1. Applicants must meet the MTTF eligibility criteria and can apply for awards up to $75,000. Johnson & Johnson and TEDCO will review the proposal, unless the applicant opts out of a joint review. If the MTTF review team recommends funding of a proposal, J&J can designate a different, specific amount of to the applicant from its award pool. J&J contributes up to 50 percent of the award, with TEDCO making up the balance.

TEDCO portfolio companies can apply for funding under Track 2 or Track 3 status, which could make them eligible for as much as $150,000 in awards. In order to qualify for Track 2 or Track 3 status, applicants must have received an award under one of TEDCO's existing seed stage funding programs and successfully completed a project. For the Track 2 program, applicants must submit a concept paper to determine whether there is interest by COSAT. Under Track 3, a portfolio company can apply for MTTF II funding after receipt of an invitation from a TEDCO review committee member up to the award limit of $75,000. However, an angel investor must provide at least a 1:1 match of the TEDCO funds.

COSAT receives periodic reports from the awardees through TEDCO. And the company has the option to enter into other partnerships with awardees.

Thus, the partnership has two-way benefits, both for Johnson & Johnson and for fledgling firms looking to market their technologies. First, the joint program provides J&J with insight into promising technologies being licensed to the private sector by the state's universities and federal labs in Maryland. Development of these technologies could enhance the company's pipeline. Secondly, the funding provides TEDCO portfolio companies with

valuable commercial insight. Companies that received joint investment awards through the program have access to a large market and a conduit for licensing products and technologies through Johnson & Johnson's operating companies. In some cases, the funding has helped build sustainable enterprises, which eventually qualify for equity investment from larger partners like J&J or venture capital firms.

Another technology transfer initiative propagated by TEDCO is the Fort Detrick Technology Transfer Initiative (FDTTI). The initiative, which was created through a partnership between TEDCO, the Frederick County Office of Economic Development and the U.S. Army Medical Research and Material Command (USAMRMC), and funded by Congress, offers companies awards of up to $50,000 for projects that meet the technology and medical needs of USAMRMC.

For-profit companies are eligible for the awards if they meet a series of guidelines, which can be found on TEDCO's website. The open admission process has a rapid turnaround; a typical review cycle is 60 days. And the Frederick County OED assists eligible businesses with planning, development and financing.

The Rockville Innovation Center is one of 20 incubators within the state of Maryland. Photo Courtesy of Rockville Economic Development Inc.

Outside of technology transfer, TEDCO offers a Working Capital Loan Fund, which provides loans to early stage technology-oriented companies. Loans of between $15,000 and $50,000, which are offered by TEDCO in partnership with the U.S. Department of Commerce, can be used for working capital to assist a company with expansion, market entry or other initiatives. Rates are at or below market rate. And the loan term is normally three to five years with a minimum term of six months.

In addition, the state's Department of Business and Economic Development offers the Maryland Venture Fund, a state-funded seed and early-stage equity fund. The fund makes direct investments in technology and life science companies and indirect investments in venture capital funds. Approximately 40 percent of the fund is invested in life sciences companies.

The fund has two investment vehicles: the Challenge Investment Program and the Enterprise Investment Fund. The Challenge program provides financing for seed-stage companies to cover a portion of the initial costs associated with bringing new products to market. Initial investments of $50,000 to $100,000 are made, with incremental investments up to $150,000. These incremental investments are awarded based upon the performance and the achievement of milestones.

The Enterprise Investment Fund makes direct equity investments in emerging technology companies, typically during the first round of institutional financing. The amount of investment ranges from $150,000 to $500,000. Enterprise investments are generally in the form of equity. A minimum 3:1 match by a lead investor is required.

Combined, these two vehicles have invested over $45 million in more than 175 companies since the fund's inception in 1994. Companies in the portfolio have attracted over $1 billion in private equity. And more than 1,500 jobs have been created as a result of these initiatives.

The Department of Business and Economic Development also offers a Biotechnology Investment Tax Credit program that provides income tax credits for individuals, corporations and venture capital firms that invest in qualified Maryland biotechnology companies. This tax credit program was passed to offer incentives for investment in seed and early-stage, privately held biotech companies.

The value of the credit is equal to 50 percent of an eligible investment made in a qualified Maryland biotechnology company during the taxable year. The maximum amount of the credit cannot exceed $50,000 for individual investors or $250,000 for corporations and qualified Maryland venture capital firms.

It is this type of financial support, combined with the abundance of research laboratories, a well-educated workforce and a commitment to building incubator space that sets Maryland apart from its competitors, said state advocates. And it is that access to federal, state and county resources that makes the state an attractive place for biotechs looking to grow their business.

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MASSACHUSETTS

ECONOMIC INCENTIVES AND A HIGHLY EDUCATED WORKFORCE PUT STATE AT CENTER OF THE BIOTECH INDUSTRY

With its reputation for scientific achievement, an abundance of tax incentives and venture capital funding, as well as its renowned research universities, Massachusetts stands as a leader in the biotechnology industry, both compared to its Northern counterparts and powerhouses around the country.

According to the Massachusetts Biotech Council, more than 400 biotechnology companies call Massachusetts home. Massachusetts bio firms are among the most productive in the world. Of those companies, 235 are involved in drug development and therapeutic research. BioPharm Insight 2007 notes that seven percent of the global drug pipeline, or 1,827 drugs, are being developed in Massachusetts.

Innovation is encouraged through the Emerging Technology Fund (ETF), which provides loans and guarantees to technology-based manufacturing facilities, as well as equipment at lower costs. The fund targets companies making the difficult transition from research and development to production. It provides loans and loan guarantees for buying equipment, renovating leased space or purchasing and expanding facilities. The ETF gives Massachusetts a major competitive advantage compared to its neighbors, in some cases prompting companies to relocate or expand to the area.

In 2006, for example, Valeritas LLC, whose pipeline includes a breakthrough insulin-delivery system for Type II diabetes, received a $2.5 million loan courtesy of the ETF. That support prompted the company to move its 46,000-square foot research and manufacturing facility from New Jersey to Shrewsbury, Mass.

In 2005, Spherics Inc., a developer of oral pharmaceutical products, utilized a $2.5 million ETF loan to move its operations from Rhode Island to Mansfield, Mass. The company's new location peaked the interest of investors, and Spherics was able to raised $26.4 million in venture capital, thanks to Boston-based lead investor Advent International. The funds will aid the firm in advancing its clinical pipeline, which includes product candidates to treat central nervous system conditions, gastrointestinal disorders and cancer.

Indeed, the robust venture capital market may be the key differentiator between Massachusetts and its neighbors. PriceWaterhouseCoopers reports that in 2006, 18 percent of the U.S. biotechnology venture capital was invested in Massachusetts companies.

In terms of dollars and cents, the biotechnology industry in Massachusetts brings in $5 billion in revenue. For every job created in biotechnology, five support positions are created in other industries.

Moreover, the industry pays well, particularly in comparison to other professions. The average salary of a biotechnology industry employee tops $100,000. Employment in the Massachusetts biotech industry grew by 25.6 percent from 2006 to 2007.

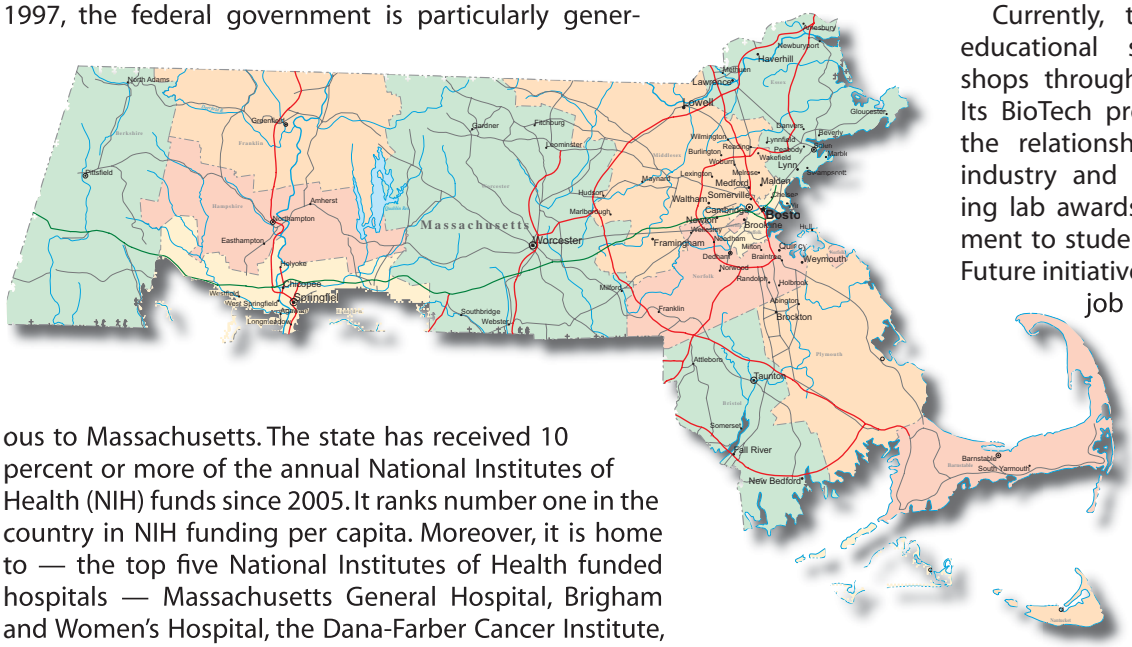
The state government also does its part to make Massachusetts a hospitable place for bio to do business. Peter Abair, director for economic development for the Massachusetts Biotechnology Council, says, "Massachusetts has a good competitive tax rate for manufacturers." Abair points to the state's single sales tax and its efforts to make research and development credits refundable as additional incentives for companies to make the move to Massachusetts. The state also offers manufacturers a three percent investment tax credit.

In addition, companies looking to locate their operations outside of larger cities can find quite a bargain. Abair notes that, "There are better cost points in going outside of Boston," and he points to smaller enclaves that make major contributions to the industry. "Wooster has established itself as a biotech cluster," he says. A $90 million Advanced Therapeutics Center at the University of Massachussets at Worcester is further testament to the town's predominance in the life science community.

Many smaller communities in Massachusetts qualify as Economic Target Areas, and as such, are eligible for Economic Development Initiatives. Tax Increment Finance agreements in these areas provide exemptions to property taxes, while abandoned building renovation deductions allow business to deduct as much as 10 percent of the costs they incur in renovating building that have been 75 percent vacant for two or more years in Economic Target Areas.

On the legislative front, a new bill making its way through the state House would earmark $120 million for development. Abair says the legislation has the potential "to provide grants to municipalities to promote infrastructure growth to support the biotech industry." The grants would ease the burden of water and sewage projects and provide companies and municipalities with the financial support to bolster wireless and Internet connectivity, as well as funds for roadway and building improvements.

And while the state government has provided $1.8 billion in support to new life science companies since 1997, the federal government is particularly generous to Massachusetts. The state has received 10 percent or more of the annual National Institutes of Health (NIH) funds since 2005. It ranks number one in the country in NIH funding per capita. Moreover, it is home to — the top five National Institutes of Health funded hospitals — Massachusetts General Hospital, Brigham and Women's Hospital, the Dana-Farber Cancer Institute, Beth Israel Deaconess Medical Center and the Children's Hospital of Boston.



Massachusetts schools generate millions in life science research. In 2007, for example, the University of Massachusetts at Amherst reported that nearly a third of its research base, a total of $28.8 million, was centered on bioscience. Moreover, the university's partnership with the Baystate Medical Center has given birth to the Biomedical Research Institute, which seeks to translate university research to clinical practice.

It is such partnership between academic institutions that sets Massachusetts apart, according to Abair. He says that the state is hard at work "in sustaining the environment in which a very strong biotech industry has emerged." He notes that the Massachusetts Biotechnology Council considers very seriously its role in bridging the gap between employers and education institutions. "Higher education and industry have to talk," he says.

And he says the council will take a broader role in the future in facilitating that communications. "We want to provide a direct interface between the industry and higher education."

Currently, the council provides educational sessions and workshops through its Learning Center. Its BioTech program seeks to build the relationship between the bio industry and local schools, providing lab awards, supplies and equipment to students and teachers alike. Future initiatives in the works include job fairs and a redesign of the Biotechnology Education Research Center.

The state also offers Hiring Incentive Training Grants, which provides employers up to $2,000 in training funds for hiring eligible unemployed workers. Bigger initiatives such as the Workforce Training Funds provide grants of $250,000 to businesses seeking to upgrade the skills of new workers. In rare cases, such as businesses seeking to transition from a manufacturing to a sales or management focus, the state offers as much as $1 million in support.

The bevy of state and federal funding offered to Massachusetts companies makes the state an ideal location for biotech and pharmaceutical giants like Amgen, AstraZeneca, Biogen Idec, Genzyme, Novartis, Pfizer and Shire, but there is room for growth. Economic incentives, a highly-educated workforce, abundant vehicles for research and funding and a supportive biotechnology organization, make Massachusetts a prime destination for biotech companies looking to be in the center of "Genetown" or businesses merely looking to capitalize on the state's growth.

NEW JERSEY

A robust pharmaceutical industry, access to venture capital funds and a variety of economic, technological and educational incentives all make New Jersey a hotbed of biotech activity. And new opportunities for growth make the state a prime location for biotechnology companies seeking to establish profitable collaborations, tap into new funding streams or broaden their research.

With approximately 124 biotechnology companies, New Jersey is the fourth-largest biotechnology hub in the country. New Jersey employs an estimated 123,000 workers in the life sciences.

From 2003 to 2006, the state saw a swell in the number of biotechnology jobs, from 7,834 to 10,071. This growth generated another 9,000 jobs and $644 million at vendor companies. In addition, support sectors saw a growth of 7,367 jobs and $321 million thanks to the biotech boom. Overall, the state's biotech industry brought in $1.7 billion in 2007.

According to Debbie Hart, president of BioNJ, the industry is mainly concentrated in the northern half of the state, but there is expansion in the southern half of the state as well. And she said that the state's small size makes it an efficient place to do business. "New Jersey is a small state, geographically, so that you can literally travel from the northern to the southern point and be home in your bed that same night. We're fairly concentrated," she said.

Hart pointed to several main clusters for the state's life science industry. "There's a definite cluster in the Princeton to New Brunswick corridor, the Route 1 corridor." She also pointed out the boom that is taking place along the Route 130 corridor. "Anywhere from Washington township on up to New Brunswick, as you drive along, you see every quarter mile or so one company situated in a space or a tech park." She said that the Cranbury and Cedarbrook areas are among the busiest biotech centers along this route.

But Somerset County remains the state's hub for life science activity. "Somerset County has the main concentration of pharma companies, and many biotech companies are located there as well," Hart said.

Drug development results in a large capital flow throughout New Jersey. The state houses 235 research and development companies. And New Jersey ranks fourth in the nation in receiving research and development funding. In fact, 24 percent of the nation's research and development expenditures are spent in New Jersey.

The biotech industry in New Jersey has been fueled in large part by the state's robust pharmaceutical industry. The state is home to some of the country's major pharmaceutical players, and biotech firms benefit from such proximity to drug developers.

PROXIMITY TO BIG PHARMA, SKILLED WORKFORCE AND VENTURE CAPITAL ACCESS MAKE STATE AN INDUSTRY LEADER

Hart said, "We have the added benefit of the pharmaceutical industry being based here. We have 15 of the 20 largest pharma companies; they have their headquarters or some significant operations here," she said. Among the state's major players are Aventis, Enzon, Johnson & Johnson, Medarex, Merck, Novartis, Roche, Schering-Plough and The Medicines Company.

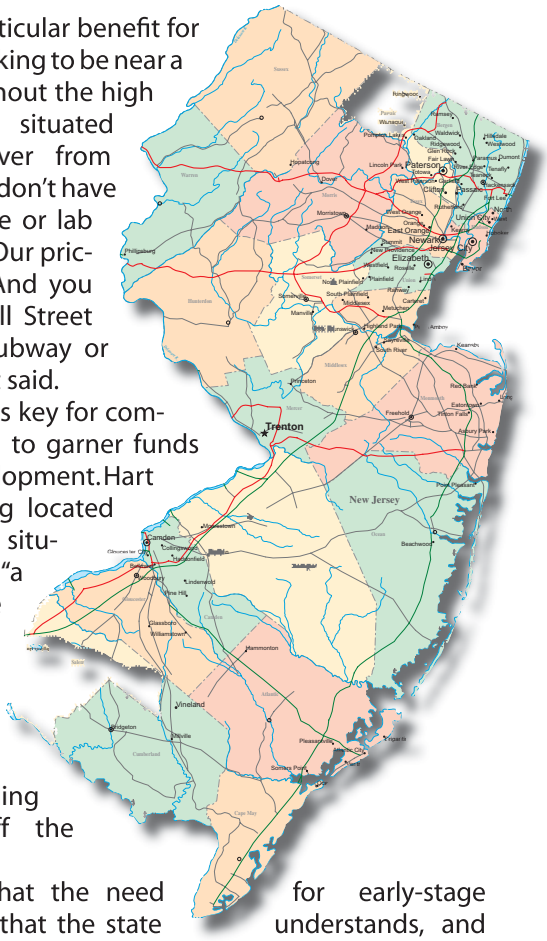
Hart said the potential for partnerships between big pharma and biotech firms makes New Jersey an ideal place for building profitable relationships. "The potential for collaboration is tremendous. It's so much easier to knock on a company's door one town over than having to get on a plane," she said.

In addition to these partnerships, the state offers a skilled labor force, with benefits for employers and workers alike. "We have a skilled labor pool, through the pharma industry, and we're developing that labor pool for biotech as well," Hart said. That pool of well-educated workers could be of tremendous benefit to companies looking to grow. "We have access to a skilled workforce. And we hear that all the time that is an important factor for companies relocating here," Hart said.

Wages are extremely competitive. The average biotechnology worker in New Jersey earns more than $86,000. Biotechs in New Jersey offer generous benefits, some as much as $40,000 in annual bonuses. The median household income in New Jersey is the second highest in the nation. Such record compensation, coupled with affordable housing, make the state a cost-efficient alternative to its neighbors. Hart said that the state is an ideal place for workers and families alike. "In terms of locating a family, it's a nice place to be," she said.

In addition, New Jersey offers access with affordability,

which is of particular benefit for companies looking to be near a major hub without the high rents. "Being situated across the river from Wall Street, we don't have the same office or lab space pricing. Our pricing is better. And you can access Wall Street with a brief subway or train ride," Hart said.



This access is key for companies looking to garner funds for future development. Hart said that being located in New Jersey situates firms near "a large volume of venture capital money. And that money can be critical to getting fledgling operations off the ground.

Hart said that the need for early-stage money is one that the state understands, and that New Jersey is continually looking for opportunities to connect companies with funding sources. "Given the number of companies and the drying up of the public markets, there are so many opportunities out there that early-stage money may be harder to come by. So what we would like to see more of is additional dollars going into early-stage funding."

She said the state, and in particular, the New Jersey Economic Development Authority (EDA) have been very forward in their approach to linking life science firms with funders. "The EDA has some initiatives there where they're partnering with venture funds, and giving them dollars to invest on their behalf," she said.

And she said that the state is looking for more opportunities to strategically invest in life science companies. "New Jersey has been very supportive in that arena and the state continues to look for opportunities to be more supportive," she said.

Hart points to BioNJ's partnership with the EDA on the Life Sciences Seed Syndicate, as evidence of the state's support for funding initiatives. "We established the Life Sciences Seed Syndicate, an angel investor group, last year, and the EDA is working with us on that to try to meet early-stage need." she said.

New Jersey also piloted the Technology Business Tax Certificate Transfer Program, which allows small and mid-size companies to sell net operating loss credits for cash. This bail out, coupled with tax incentives aimed at reducing transaction costs for developing firms, is now being promoted at the national level.

Outside of economic incentives, the state offers other solutions to boost training and technology within its borders. "We have strong, supportive, creative government programs," Hart said.

The state has thrown its financial support behind the New Jersey Biotechnology Workforce Investment Initiative, a novel training program initiated by the Biotechnology Council of New Jersey and the HealthCare Institute of New Jersey. Through this program, pharmaceutical and biotechnology companies are eligible to receive state funding to adapt the skill sets of their employees.

The program offers classes in biotechnology for non scientists, finance courses for researchers, strategic planning and leadership seminars, as well as basic business courses. Six Sigma and Good Manufacturing Practice Regulation courses are also provided for companies seeking to brush up on manufacturing standards.

"It's literally free training for companies," Hart said. "And depending on your number of employees, and your education need, that can be a very significant contribution to your bottom line," she said. She also pointed out that the EDA is working with BioNJ to develop mentoring programs for CEOs.

The state also provides training through technology initiatives. "The state is trying to be innovative in workforce development. Most recently, with the U.S. Wired Initiative, we secured a $5 million, three-year grant for developing the workforce and the biotech cluster," Hart said.

In addition to furthering technology through connectivity, the Economic Development Authority encourages investment and clustering of biotechnology companies in technology centers. The flagship center, the Technology Centre of New Jersey, located in North Brunswick, offers real estate space, a well-developed infrastructure and convenience for biotech business looking to build their operations within the state. Other biotechnology parks, such as the Waterfront Technology Center at Camden and the Digital Century facility building in Newark, provide

state-of-the art facilities for firms looking to capitalize on the state's biotech growth.

These hubs also offer opportunities to build profitable relationships outside of the private sector. For example, the ACIN Camden Center for Entrepreneurship in Technology, the first tenant at the Waterfront Technology Center in Camden, offers its neighbors aid in building rapport with the military. Guided by its technology accelerator program, smaller biotechs learn how to deliver products and services that meet the military's immediate needs.

Gestalt, an international consulting firm, located at the Waterfront Center, is yet another example of a business that benefits from ties to the government. The company has built a large revenue base by providing consulting, technology and service to the defense and energy industries. Through this work, the company received $53 million government contracts. The multi-year agreements, which will focus on technology to benefit mission-critical operations in the United States Air Force and the Joint Forces Command, will make the company an integral provider for the military.

The state has an expansive offering of incubator space, which provide qualified companies with subsidized rents and other economic incentives. Hart said, "We have an incubator network from the tip of the state in the north to the tip of the state in the south. Three of those have been developed by the New Jersey Economic Development Authority, and there are others that are supported by the Economic Development Authority, as well as the Commission on Science and Technology."

> *"We have an incubator network from the tip of the state in the north to the tip of the state in the south."*

These incubators are often tied into the state's research universities, which are another of the state's key competitive advantages. From an education perspective, New Jersey excels in the sciences and technology. The state's universities produce valuable scientific research, as well as a number of skilled graduates. Hart gives the universities significant credit for some of the life science research that takes place in the state. "We have tremendous research institutions in New Jersey."

New Jersey houses 20 public and private four-year colleges, 21 public two-year colleges, two engineering schools, one medical college and two dental schools. Included in New Jersey's educational offerings are the renowned Princeton University and prestigious Rutgers University. A wide variety of other educational opportunities exist through the state's technology schools, such as the New Jersey Institute of Technology and the Stevens Institute of Technology.

And the universities are willing to advance their life science programs and to work with the biotech industry to better prepare students for the workforce.

Rutgers recently received an Innovation Partnership Institute grant from New Jersey's Department of Labor and Workforce Development, which will be used to develop a curriculum to address the needs of New Jersey biotech companies. With input from the state's major research universities, as well as community colleges, the university will not only put together a curriculum standard to the life sciences, but also will catalog the many life science programs available in the state's schools.

Hart said this consolidation will help shed a new spotlight on the innovative biotech research coming out of the state's educational institutions. "What we find so often is that there are many exciting and innovative things going on in the different pockets of the cluster, but there's no one repository for them. So one of the initiatives is to have a repository for the educational programs that exist or are being developed," she said.

In addition to the IPI grant, New Jersey has other initiatives aimed at boosting partnerships between life science companies and the state's educational institutions. According to Hart, the Commission on Science and Technology has a number of programs that award dollars based on companies interacting with New Jersey research universities. She points to an example in the state's post doctorate program, which provides incentives to companies to hire graduates from New Jersey universities. "If a company hires a post doc from a New Jersey research university, the commission will cover their salary. She said the commission will pay as much as $65,000 for the first year and $70,000 for the second, "which is pretty generous for a post doc."

She also noted that on a general level, many of the programs at the Economic Development Authority offer incentives for companies to relocate to a university center. "Companies are eligible for additional dollars, additional percentage points and additional perks based on where they locate and if it's within a certain radius of a New Jersey university," she said.

Spotlight on

NEW YORK CITY

AT THE NEXUS OF NEW JERSEY AND NEW YORK, RESEARCH AND DEVELOPMENT, VENTURE CAPITAL MONEY ABOUND

New York City is a major hub for the life sciences industry, largely on account of its research offerings. The city boasts a wealth of academic institutions and cutting-edge medical centers, putting it squarely at the nexus of higher learning and public health. In addition, New York City offers a tremendous employment base and access to venture capital funding, as well as prospects for future growth in the life sciences.

Lenzie Harcum, vice president of biosciences for the New York City Economic Development Corporation, sums up the city's attraction for life science companies as follows: "The biggest incentives are the assets that we have: that R&D base, the concentration of academic medical centers and the access to capital. Those are truly the incentives that drive companies here," he said. Those factors – the strong commitment to research and development, a profusion of research universities and medical centers, a highly-skilled workforce and an abundance of venture capital money – combine to make the city a powerhouse that benefits both the metropolitan area and its neighbors. And for biotechs looking to be in the mix, relocation or expansion to New York City and its surrounding environs, could put them in the center of the city's wide array of research opportunities and in the midst of a capital market willing to fund future development.

Harcum estimates that there are 125 biotech firms in the city, Approximately 52,000 life science workers are employed in the metropolitan area, and more than 35,000 employees work in the city's research laboratories. Research and drug development are the crux of the city's life science industry. And 60 percent of the nation's pharmaceutical companies are located in New York City. Major publicly-traded biopharma companies include Bristol Myers Squibb, ImClone Systems, OSI Pharmaceuticals, Pfizer and Regeneron.

Outside of drug developers, Harcum says that the city's strong academic research and development base country," he said. There are 26 medical centers in the city and 175 hospitals and laboratories. Some of the most renowned specialty centers in the world are located within New York City.

The Memorial Sloan-Kettering Cancer Center is among the top treatment centers for breast, colon, lung and prostate cancers. New York University's Cancer Center also enjoys renown for creating the first national registry of patients who are at risk for lung cancer.

The Weill Cornell Center at Presbyterian Hospital is noted not only for excellence in obstetrics and gynecology, but also its expertise in treating gastrointestinal disorders. In addition, Presbyterian's cardiologists are at the top of their field. The city is also the seat of the prestigious Mount Sinai School of Medicine, the Hospital for Special Surgery and the Columbia University Medical Center. New York City's research universities draw millions in support funding for the life sciences each year. From 1999 to 2006, the city ranked second in the nation for receipt of NIH grant money. Harcum said that the city received $1.3 billion from the National Institutes of Health this year.

The city is home to nine major academic institutions. Barnard College, Columbia University, Fordham University and New York University are among the city's most hallowed educational institutions.

But the big names aren't alone in bringing renown to the city's biotech industry. The city also boasts the Albert Einstein College of Medicine, which received a whopping $134.3 million in awards, contracts and grant from the National Institutes of Health in 2002.

The college ranks 24th in the nation for NIH funding.

New York City also is home to Rockefeller University, which offers specialties ranging from genetics to neuroscience, as well as research focused on structural biology and immunology. The college ranks second in the nation in terms of research and development spending. For a school that rarely graduates more than 30 in a doctoral class, its $95 million in research and development expenditures is impressive.

The conjunction of academic medical centers and research universities produces a number of private ventures. "They're just prolific developers of intellectual property," Harcum said. They spin off up to 30 companies a year. Columbia alone spun off 12 companies last year."

A rendering of the East River Science Park, which will be completed in 2009. Rendering provided by the New York City Economic Development Corporation.

And the city's educational institutions continue to spur collaborations with public companies, thanks in large part to the work of the Academic Medicine Development Company (AMDeC), a foundation that fosters collaboration among 28 of New York's medical schools, academic health centers and major medical research institutions. Maria Mitchell, president and CEO of AMDeC, said that "New York City has really become a hub for biomedical research and for bridging the gap between industry and academia." Her organization helps support those efforts by supporting various collaborative projects such as the MicroArray Research Center, the Shared-Use Mouse Facility, as well as the Integrated Translational Genomics (InTraGen) program.

The MicroArray Resource Center is a project spearheaded out of the University of Rochester, but which benefits the metropolitan area. The center provides shared-use and core facilities, as well as 30,000 standardized microarrays for research.

The Shared-Use Mouse Facility, which is currently in the early stages of design and is slated for completion in 2009, will be "the first shared-use breeding facility in the country," according to Mitchell. The 50,000 square-foot facility will be built in Yonkers, but is supported by Rockefeller University, Mount Sinai School of Medicine, New York University School of Medicine and the North Shore-Long Island Jewish Health System. In addition, Taconic Farms Inc., of Hudson, N.Y., will aid in development, planning and management of the facility.

The project will allow mice to be bred in a disease-free and cost-effective environment and will benefit scientific investigators by providing access to high-quality barrier production space for mouse models of human disease. The facility will continue AMDeC's mission of attracting high-level scientists to the area. In a release issued by AMDeC, Mitchell said that "the project truly demonstrates that New York is home to an innovative thriving biomedical community that is committed to collaborative science."

InTraGen is a translational genomics platform that will allow researchers to exchange information via an Internet database. According to AMDeC's website, "InTraGen will improve medical diagnostics and therapeutics by providing computational and analytical tools to merge and analyze a variety of personal data, including gene expression, protein and clinical information."

Mitchell said the platform will bring together data from the New York Cancer Project, another AMDeC initiative. For that project, Mitchell said, "We recruited 20,000 ethnically diverse New Yorkers to look at gene and environment interaction for cancer and other major diseases." DNA and blood samples from those patients have been stored, and Mitchell said, "a number of academic institutions, as well as private biotech and pharma companies, have used those samples largely as controls, in studying diseases from cancer to rheumatoid arthritis, cancer, diabetes, obesity and other major illnesses contributing to larger public health crises."

The InTraGen project will be utilized to genotype the Cancer Project samples and to make them available on a web-based platform. Mitchell also noted the platform's utility for making microarrays from the MicroArray Resource Center available online to researchers. InTraGen also could be useful for building "a proteomics resource network similar to the microarray." And by consolidating an array of genetic data in one place, the translational research platform could provide a one-stop data source for clinical trials and for life science companies looking to conduct further research on a subset of the population.

The cost savings of such a project could result in big returns for New York City and its life science partners. And AMDeC sees the potential of InTraGen to help the state compete with thriving biotech communities such as California and Massachusetts.

In addition, AmDeC is working on a pilot project for diabetes, which will link medical centers together to collect clinical data for diabetes. According to Mitchell, the project would utilize electronic medical records and make the diabetes data available for research purposes.

AmDeC also is modeling another project after InTraGen, in hopes of connecting researchers and private industry. "One of the things we're looking at is creating an interactive website that would allow investigator-to-investigator collaborations, as well as academic partnerships with industry," Mitchell said.

She claims that AMDeC is taking on a larger role in linking companies and academics. "We're also beginning to work with companies to serve as a conduit for them in finding both investigators and science of interest at particular New York institutions. So if a company is interested in finding a specific area of research or investigator, they can go through us and we can facilitate that partnership," she said. "There really is the opportunity to work in large collaborations."

Such strong support for collaboration between academic researchers and life science companies is strengthened by the city's broad employment base. Harcum said, "We've got the talent base here. The metro region is number one in the country for bioscience employment, and a lot of that is because we produce more college students than any other city. We have the 69 hospitals and the academic medical centers and 29,000 physicians. All of this is a tremendous base from which to build a biotech economy," he said.

And he pointed to the city's venture capital markets as fertile soil for fledgling life science firms looking to get off the ground. "We're the financial capital of the world, and there are 125 venture capitalists investing in health care here," he said. "And there are quite a number of accredited investors on the angel side and quite a number of high net worth individuals here."

According to Harcum, financial support from investors is evident in the success of the city's life science companies. "We have companies that have been quite successful with their rounds of funding. They are able to achieve $30 million and $40 million rounds," he said.

Harcum did point to one limitation for biotech growth in the city. "There's not a lot of R&D space here right now, but that's certainly something we're working on," he said. Currently, the Audubon Biomedical Science and Technology Park, which is affiliated with Columbia University, is the city's only incubator.

But the city is slated to grow its research and development space, with the East River Science Park, a state-of-the-art facility currently under construction. The park will add another 1.1 million square feet of biotech space to New York City upon its completion in 2010.

Harcum said the park will be "perfectly situated along the First Avenue Science Corridor, in close proximity to Memorial Sloan Kettering, and right beside NYU and Bellevue Hospital." The park will also be near the Aaron Diamond AIDS Research Center, the Orthopedic Institute for Joint Diseases, the Skirball Institute of Biomolecular Medicine, the New York City Public Health Laboratories and the Veterans' Administration Medical Center.

That commitment to future life science growth in the metropolitan area makes New York City a prime locale for biotech companies looking to be on the cusp of cutting-edge research and collaborations and highlights the city's status as a major player in the life sciences. As Mitchell said, "New York City has come a very long way in the past 10 years. It's a wonderful place to be for the life sciences."

NEW YORK

SUPPORT ORGANIZATIONS, ECONOMIC INCENTIVES BOOST STATE'S BIOTECH CLUSTERS

The biotech industry in New York State benefits from its proximity to the Big Apple, as well as growth in the capital and western corridors. While the state is home to 419 medical device companies, 217 research and development firms, 155 drug and pharmaceutical companies and 73 agricultural manufacturers, the state is looking for new business.

But New York's comparative advantage lies in the active support organizations that provide a strategic vision for biotech growth in the state. Besides their focus on building incubator space and nurturing fledgling firms, these organizations are strong lobbyists for the industry, promoting tax and technology initiatives to attract new firms to the state. The support of these organizations also is significant in the educational realm, where funding enables the state's centers of excellence to build on cutting-edge research. In addition, the state's economic development agencies and biotechnology association have been instrumental in building bridges between universities and local biotechs through programs designed to take technology from the lab to the private sector. That commitment to the life sciences industry and the opportunity to tap into the state's deep pockets for research and development, offers a major incentive to biotechs looking for a change of pace from the industry's established hubs.

> *"For a small company, for every million dollars of investment, companies can get up to $250,000 of refundable tax credits from the state for up to five years or $1.5 million."*

New York isn't as bustling as its neighboring Massachusetts, but the state still maintains a large share of the life science industry. Nine percent of the nation's biotechnology and pharmaceutical industry is centered in New York. The biotechnology industry in New York contributes nearly $8.5 billion to the state's economy. And the state employs nearly 60,000 people in the biotechnology industry. The drug and chemical manufacturing subsector alone employs 22,000 people, and labs and research generate more than 20,000 posts. Medical equipment and sales provide more than 16,000 positions.

Employment is strongly centered in three areas: the Albany/Schenectady/Troy corridor; Buffalo; and Rochester. The Albany corridor remains a hub for research; 3,634 employees staff the laboratories in the area. Buffalo and Rochester lead the state in drug development, with more than 3,000 workers devoted to pharmaceuticals in the two cities. Medical device and equipment jobs also are in abundance, employing 5,000 workers in the area.

The industry pays exceptionally well in New York. Annual wages rose 16.9 percent between 2003 and 2006, topping out at $63,510. Total annual wages peaked at $3.75 billion in 2007.

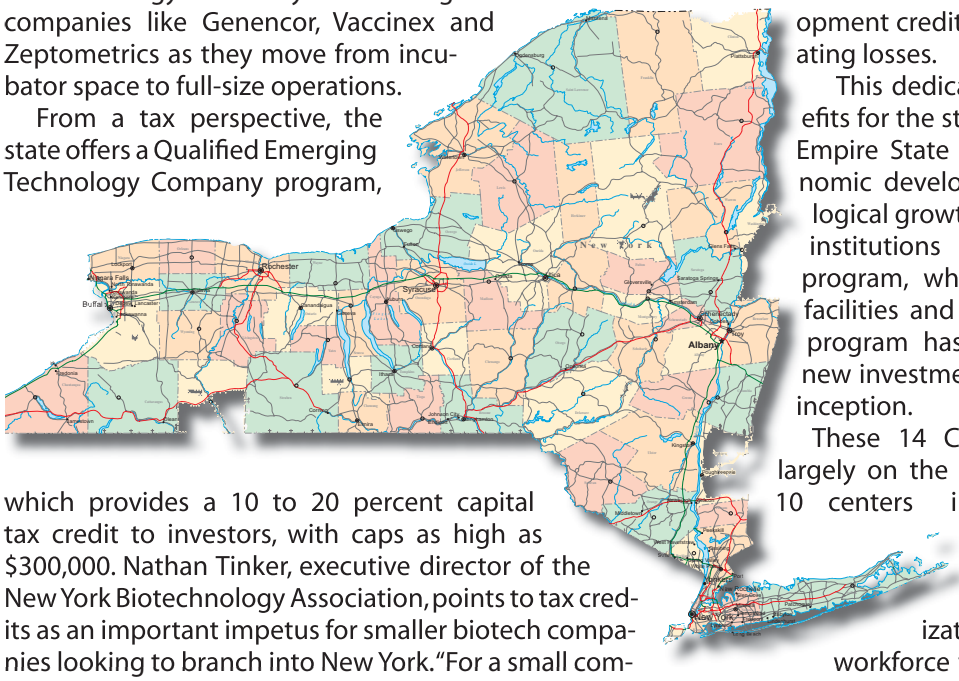
The state is devoted to building biotech space within its borders. New York strives to encourage the construction of new technology parks near existing clusters and research centers. Sowing growth in fertile fields reduces the costs for firms looking to expand and enables incubators poised for further development to build bigger operations within the state.

State organizations are crucial in this mission, and are instrumental in nurturing fledgling biotechs. The New York Biotechnology Association (NYBA), in particular, is instrumental in encouraging smaller firms to set their foundations in the state. In that vein, the NYBA is promoting rapport between the incubator located at the State University of New York at Albany and major biotech players within that region, such as Albany Molecular and Regeneron.

In the environs of Buffalo and Rochester, the NYBA is pushing for the development of a biotechnology park to accommodate growing firms. According to policy papers

developed by the organization, additional square footage for technology is the key to retaining smaller companies like Genencor, Vaccinex and Zeptometrics as they move from incubator space to full-size operations.

From a tax perspective, the state offers a Qualified Emerging Technology Company program, which provides a 10 to 20 percent capital tax credit to investors, with caps as high as $300,000. Nathan Tinker, executive director of the New York Biotechnology Association, points to tax credits as an important impetus for smaller biotech companies looking to branch into New York. "For a small company, for every million dollars of investment, companies can get up to $250,000 of refundable tax credits from the state for up to five years or $1.5 million," he said.



Tinker pointed out that this credit has been so effective in attracting biotech investment to New York that its northern neighbors are following suit with similar initiatives. "Canada adopted a national tax credit based on that formula," he said.

The incentives also have succeeding in pulling companies away from their home bases in other states. In 2007, Ohio-based Cleveland Biolabs relocated to Buffalo, drawn in part because of both state and local incentives. Tinker said the relocation of the company marked "a big win in terms of bringing the state and the city together." The company has since partnered with local life science leaders such as the Roswell Park Cancer Institute and the Buffalo Niagara Medical Center.

And there may be more tax credits to come. "There's a bill working its way through the assembly that would double those credits," Tinker said. He also noted the state's Employment Credit as a small way for businesses to cut hiring costs. The Employment Credit offers biotechs looking to hire in New York a tax credit of $1,000 for each new employee.

Tinker also praised the state's commitment to tax incentives aimed at boosting cutting-edge research. "There is a nine percent credit available for research and development facilities," he noted. And he pointed out that the state has transferable research and development credits, which allow firms to sell their operating losses.

This dedication to research translates into benefits for the state's scientists and academics as well. Empire State Development, New York State's economic development agency, has spurred technological growth at a number of the state's academic institutions through its Centers for Excellence program, which supports upgrades of research facilities and biotechnology capital projects. That program has provided more than $1 billion in new investment for the state's universities since its inception.

These 14 Centers for Excellence are centered largely on the state's growth clusters. They include 10 centers in Buffalo, most notably, the Center for Bioinformatics, which focuses on drug design research, computational and three-dimensional visualization, product commercialization and workforce training. Other Centers for Excellence include the College of Nanoscale Science and Engineering at the University at Albany. The college, which is housed in a $4.2 billion facility, is the first in the world of its kind. With a focus on research, development, education, and deployment in nanoscience, nanoengineering, nanobioscience, and nanoeconomics, the center has attracted over 250 global partnerships.

The state's organizations also have been instrumental in providing a path into the private sector for new technologies coming out of its research universities. The Concept to Company Technology Transfer Initiative, which was started in 2002, helps bridge the gap between university researchers and biotech businesses. The seminar series encourages commercialization of technology by academic scientists.

Such educational outreach sets New York apart from regional competitors. Moreover, the state's organizations, with their understanding of the symbiotic relationship between developing firms and local resources, and the vision to pursue new pathways to growth in existing hubs, provide a supportive environment for the life sciences industry.

In sum as state advocates noted, New York offer unmatched incentives for biotechs looking to expand their operations to the state or companies seeking to relocate to an environment rich in both revenue and research opportunities.

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NORTH CAROLINA

ACADEMIC AND RESEARCH OPPORTUNITIES, LOW COST OF LIVING GIVE STATE COMPETITIVE EDGE

Despite having grown up far from the biotech hubs of California and New England, North Carolina's biotech industry is home to an impressive line-up of biotech names, such as Biogen Idec Inc., which manufactures interferon-beta-1a and alefacept at a facility in Research Triangle Park, and Gilead Sciences Inc., which handles clinical development activities for its hepatitis programs at an office in Durham, as well as a number of mid-stage and start-up firms freshly spun out of nearby universities.

According to Ernst and Young's 2007 industry survey, this southern state ranks third in the nation in the number of biotech companies. More than 450 firms are headquartered or have operations in North Carolina, including 31 publicly traded companies with a market capitalization totaling $543 billion. The sector employs more than 56,000 people, and that number has continued to grow at an average rate of 5 percent to 10 percent each year since 1996. But, unlike its counterparts in California and Massachusetts – where biotech sprung up organically with the establishment of a few early firms - North Carolina's biotech industry has been aggressively pursued and supported by the state from the start.

"Twenty-five years ago, the governor decided to invest in some of the future growth areas," specifically biotech and information technology, said E. Norris Tolson, president and CEO of the North Carolina Biotechnology Center, headquartered in Research Triangle Park. Initially intended to supplement the waning traditional textiles and tobacco industries in the region, North Carolina's government has invested more than $200 million in taxpayer money "to grow this segment from zero," Tolson said.

Much of that money has been dispersed through the biotechnology center in the form of grants and loans for fledgling firms, as well as through efforts to boost education and biotech training programs.

In North Carolina, it's the educational opportunities that really bolster the local life sciences industry. The state boasts 36 private colleges and universities, including prestigious names such as Duke University and Wake Forest University, as well as a 16-campus public university system headed by the University of North Carolina at Chapel Hill and North Carolina State University. All told, those schools offer more than 300 undergraduate and graduate degree programs, and myriad research opportunities, supported by annual funding of $1.6 billion, have formed the foundation of a solid development pipeline. In fact, university technologies have formed the basis of at least 45 new North Carolina companies.

University researchers garner, on average, about 150 patents each year in the area of science, ranging from marine science to forestry to cancer diagnostics to aging. About half of North Carolina's 1,100 doctorate recipients complete their study in biological and related sciences.

Census estimates from 2006 reported that about 23 percent of adults over the age of 25 have a bachelor's degree or higher.

"We have one of the best higher education systems," Tolson said, with a combination of public and private institutions working together in a "conscious effort to build a bridge" between the schools and the companies.

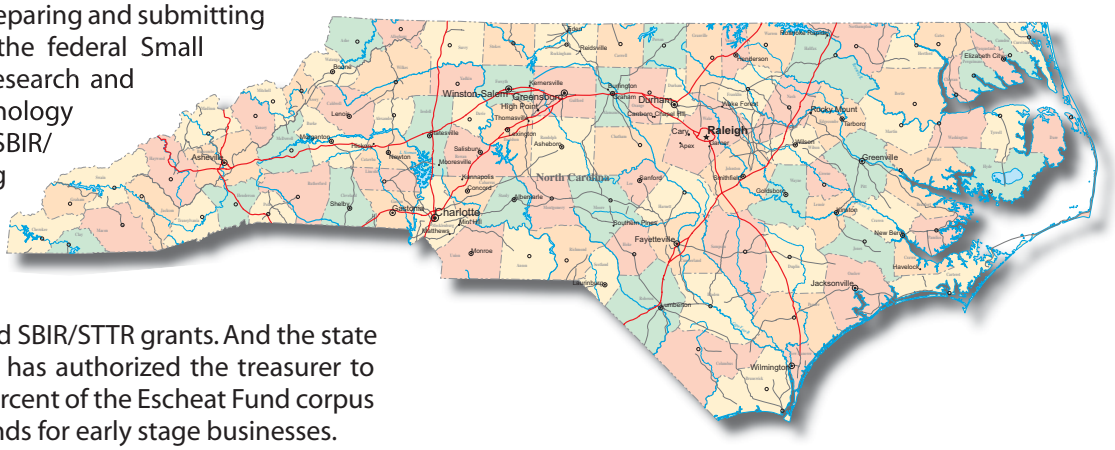
For example, NC State has a pilot plan training facility. Representing a $40 million investment, that facility is used to train USDA and FDA employees on the specifics of biotech manufacturing. While the universities turn out the scientists, the North Carolina Community College System aims to provide needed workforce training. The network was created to offer a "community college within 30 miles driving distance of every citizen," Tolson said, "and we have, by far, exceeded that."

There are 58 community colleges across the state, some of them enrolling as many as 80,000 students. And 28 of those colleges offer specific biotech training programs, such as the BioWork course, a 128-hour introductory course designed to train workers specifically for biomanufacturing jobs. That program is intended for high school graduates, traditional manufacturing workers who have lost jobs or anyone interested in new opportunities. Within the next 10 to 12 years, the number of people working in biotech is projected to grow by 75,000, Tolson said.

Latest figures put the estimated payroll of state's total biotech work force at about $3 billion, with an average annual individual salary of $63,010 – higher than the state's median household income of $40,863. The industry

contributes about $145 million annually in personal state income taxes, and a portion of that goes into incentives and programs to encourage further growth in the sector.

North Carolina offers an SBIR/STTR Phase I Incentive program that reimburses qualified firms for a portion of the costs incurred in preparing and submitting Phase I proposals to the federal Small Business Innovation Research and Small Business Technology Transfer program. A SBIR/STTR Phase I Matching Funds program also is available and intended to award matching funds to companies that have been awarded SBIR/STTR grants. And the state General Assembly also has authorized the treasurer to invest as much as 20 percent of the Escheat Fund corpus in venture and seed funds for early stage businesses.



Beyond its educational and financial opportunities, perhaps the state's greatest advantages are its low cost of living and overall quality of life. Despite significant investments in the biotech infrastructure, North Carolina has the lowest cost of doing business when compared to the other leading biotech states, according to a 2005 Cost of Doing Business Index reported by the Milken Institute. In that study, the state ranked as the 30th overall most expensive state based on wages, taxes, industrial and office rents and cost of electricity.

North Carolina boasts a variety of attractive geographic features, including a sea coast and mountains, with a temperate climate. And, with a population of about 8.8 million – expected to grow to about 12.5 million in the next 10 or 12 years – people "still have some elbow room," Tolson said. In fact, he added, 85 of the state's 100 counties are considered "rural." From a live, work and play perspective, it's the "best place in the world to be," he said.

Once companies have decided to put down roots in North Carolina, the only question remaining is whether to move to the well established hub around Research Triangle Park (RTP), which has had a long-standing focus in the biosciences, or seek out one of the emerging, yet growing, hubs around Charlotte, Ashville, Greensboro and Winston-Salem.

Rather than concentrating its efforts on one region, the North Carolina Biotechnology Center is looking to promote biotech "in every corner of the state," Tolson said. The center has several regional offices in addition to its RTP headquarters, which encompasses 15 million square feet of space of 7,000 acres.

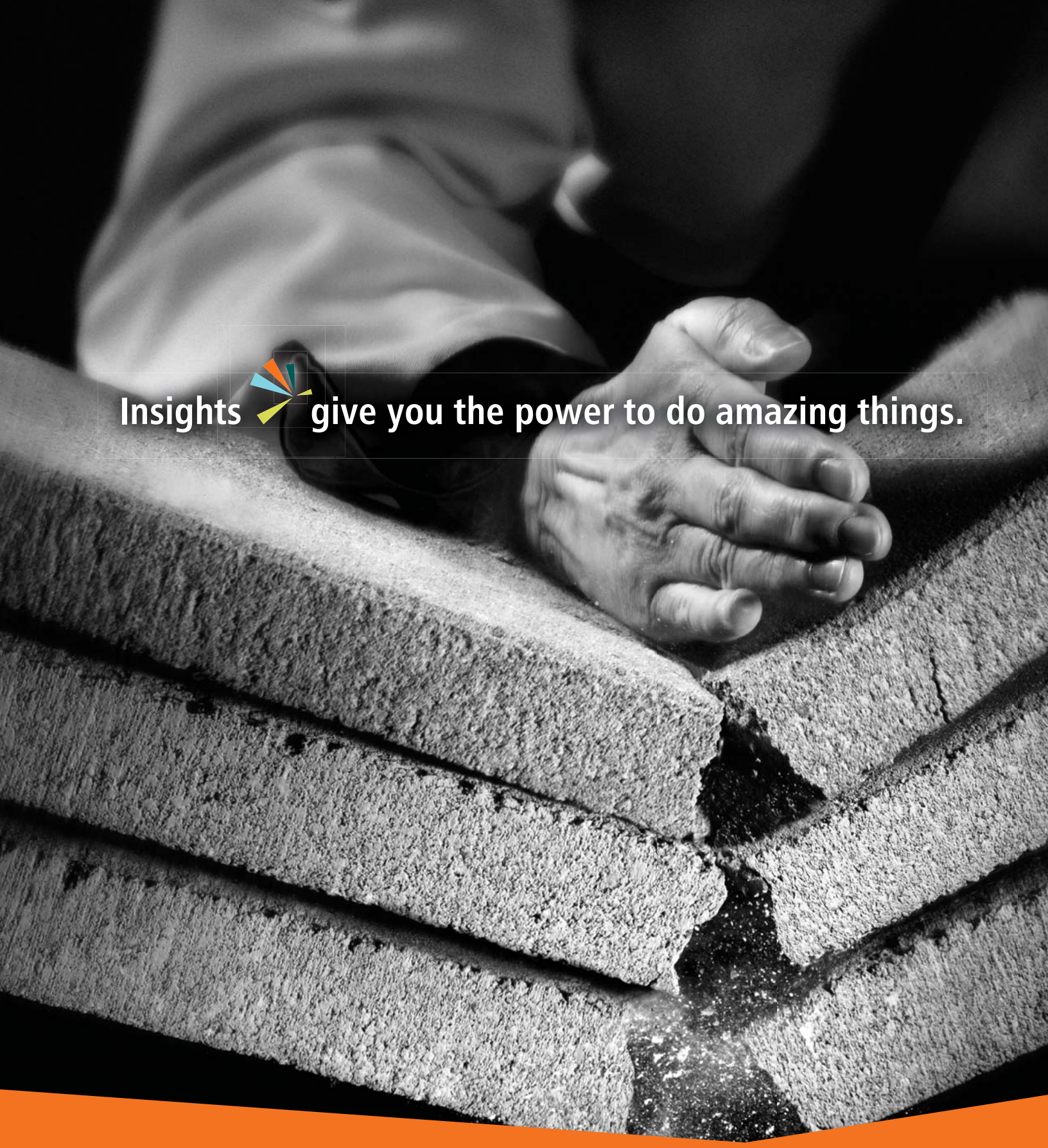
Beyond the RTP area, there is the Centennial campus of NC State University in Raleigh, which includes 1,334 acres on two sites being developed as a dual-use campus and research park. The main campus includes university resources in genomics and bio-informatics, and the Centennial Biomedical Campus, which will have about 1.6 million square feet when complete, is developing room around the College of Veterinary Medicine.

In Winston-Salem, the Piedmont-Triad Research Park involves participation from the Bowman Gray School of Medicine at Wake Forest University. That park is being developed by regional technology council Dalliance and houses 14 bioscience companies in four buildings. When complete, the park will cover about 200 acres, with about 5.7 million square feet of space.

Perhaps one of the most ambitious science parks is the North Carolina Research Campus in Kannapolis, a city located adjacent to Interstate 85 about 20 miles north of Charlotte. The NCRC is a joint venture between Dole Foods, Duke University and the North Carolina University System to build a complex on the site of the former textile plant Cannon Mills. Dole CEO and former Cannon Mills owner David Murdock has been called a "visionary catalyst" for the $1 billion project, aimed at building a complex comprised of research facilities, office space, townhomes and retail development, with UNC institutions later funding and operating their individual programs.

The venture capital arm of the NCRC will invest in emerging biotech and life sciences companies, and will be responsible for bringing additional capital to the Kannapolis region.

Initiatives for additional science parks are under way across the state and are at varying stages of development at UNCC, North Carolina A&T, UNC Greensboro and UNC Chapel Hill/Carolina North.



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RHODE ISLAND

FIRM BIOTECH FOUNDATION, PRIME LOCATION AND INNOVATION PUT OCEAN STATE AHEAD OF COMPETITORS

Rhode Island is a relative newcomer to the biotech game, but the state has several strengths compared to its neighbors. A healthy biotech base, plus a growing life sciences industry, puts the state on par with competitors like Connecticut. In addition, Rhode Island offers a prime location but a relatively low cost of living for businesses looking to get the most for their money. And the state is poised to nurture its industry through economic incentives. Rhode Island offers unmatched tax credits on research and development and a bevy of development initiatives aimed at promoting growth in new markets. Plus, the state offers innovation incentives designed to cultivate product development in the state. Coupled with the state's ideal location, these offerings make the state a cost effective choice for businesses looking to expand or relocate.

The biotechnology industry is flourishing in Rhode Island, with robust employment and room for growth. According to Melissa Withers, the director of communications and market development for the Rhode Island Economic Development Corporation, "health and life sciences is one of Rhode Island's strongest sectors."

The state is home to 1,400 life sciences businesses and that there are more than 35,000 people employed in health care and life science across Rhode Island. Of those numbers, 20,000 employees work in research and development, a large number when considering the state houses 118 companies dedicated solely to that subsector.

The state has a record for retaining firms that get their feet in the door. "Seventy-five percent of the biomedical startups that start in Rhode Island remain in the state." But while industry leaders such as Amgen and Alexion call the state home, there's certainly room for more biotechs. "We think the state has tremendous growth potential," Withers says.

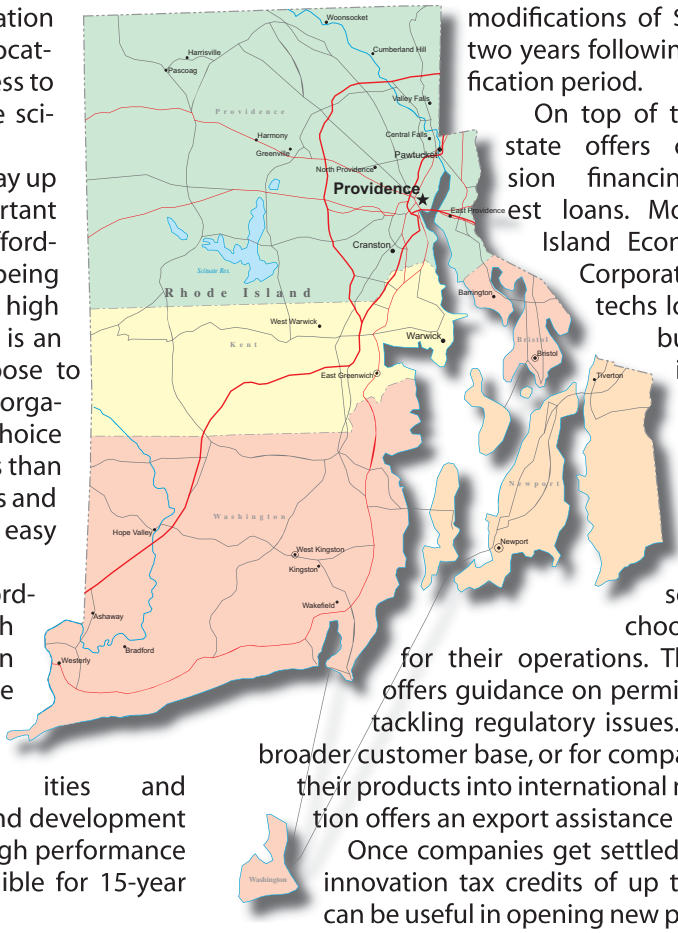
A variety of life science-related firms have found the state to be hospitable, among them device companies, nanotechnology firms and pharmaceutical companies. "We have a very diverse peer cluster of health and life science institutions, and while that includes companies in drug manufacturing like Amgen and Alexion; it also includes basic research, biomedical devices, cell line development and nanotechnology," Withers says. Among the other biotech players that call Rhode Island home are Cumberland-based Collegium Pharmaceuticals, a specialty pharmaceutical company focused on late-stage development and commercialization of pharmaceuticals for the treatment of central nervous system, respiratory and skin-related disorders, and Providence-based Afferent Corporation, a device manufacturer focused on noninvasive and minimally invasive medical devices for the treatment of chronic neurological dysfunctions. NABsys, also based out of Providence, is another significant player in the state's biotech industry, offering genome sequencing. Some of the other influential life science firms in Rhode Island includes vaccine maker EpiVax, whose pipeline include vaccines for HIV, HPV, Influenza, tuberculosis, and smallpox, and cell line developer MultiCell Technologies, whose portfolio includes candidates for treating multiple sclerosis and Type I diabetes. Lincoln-based Neurotech Pharmaceuticals remains a life science force within the state, with a strong portfolio of ophthalmologic products and plans to grow its operations in Rhode Island. The state also has one of the largest biomedical textile manufacturers in the nation in Coventry-based Concordia Fibers. Wither points to that company as proof that the state's biotech industry is evolving. "They are an amazing success story of a company that went from making traditional fabrics and yarn to manufacturing biomedical textiles," she says.

But growth and diversity are not the only drivers for Rhode Island life sciences. The state has a prime location between two of the largest biotech clusters in the country.

"We're lucky to be located along that BIO 95 corridor. We're about 45 minutes from Boston and less than three hours from New York City." That proximity remains a key weapon in Rhode Island's arsenal, as does the state's convenience to the 86 colleges and universities along that corridor. According to Withers, "Within a 50-mile radius,

we have access to more higher education facilities than any state in the nation. By locating in Rhode Island, companies have access to the largest concretion of health and life sciences talent in the country," she says.

For its part, the state does its best to play up its great location and an even more important factor for cost-conscious businesses: its affordability. The state has the benefits of being close to bigger biotech hubs without the high price tag. Withers said such affordability is an obvious driver for businesses that choose to set up shop in Rhode Island. "For many organizations, this is a strategic location of choice because the cost of doing business is less than in Rhode Island than it is in Massachusetts and Connecticut but companies still have easy access to those networks," she says.



Rhode Island capitalizes on that affordability by offering the highest tax research and development expense tax credits in the country. Eligible businesses can receive as much as 22.5 percent in tax credits. And the state offers a 10 percent credit on new research and development facilities and equipment, as well as various research and development sales tax exemptions. Companies with high performance manufacturing capabilities also are eligible for 15-year investment tax credits up to 10 percent.

In addition, Rhode Island's Enterprise Zone Program offers tax incentives to businesses seeking to expand their operations in selected areas. Among the locations covered by these incentives are: Bristol, Central Falls, Cranston, Cumberland, East Providence, Lincoln, Pawtucket, the Port of Providence, Portsmouth, Tiverton, Warren, West Warwick and Woonsocket. Businesses that grow their employment base by five percent in these areas are eligible to receive credits equal to 50 percent of the employee's wage, with a cap of $2,500 per employee. Credits of 75 percent, or a maximum of five percent of an employee's annual wage, are available if new employees reside in one of the approved zones. In addition, unused credits can be carried forward for three years.

The state also gives business owners the option of taking the Enterprise Zone Resident Business Owner Modification, instead of the Enterprise Zone credits if they reside in the same zone where their operation is located. The three-year, $50,000 modification of the taxpayer's federal adjusted gross income tax liability offers a larger one-time adjustment. Qualified recipients can receive modifications of $25,000 per year for two years following the original modification period.

On top of these incentives, the state offers competitive expansion financing and low-interest loans. Moreover, the Rhode Island Economic Development Corporation provides biotechs looking to grow their businesses assistance in creating workforce development programs. Firms with no experience in the state can take advantage of the corporation's site selection service to choose an ideal location for their operations. The corporation also offers guidance on permitting and support in tackling regulatory issues. For biotechs with a broader customer base, or for companies looking to take their products into international markets, the corporation offers an export assistance program.

Once companies get settled, Rhode Island offers innovation tax credits of up to 50 percent, which can be useful in opening new product pipelines. The credits, which were initiated in 2006, should help smaller biotechs get off new innovations off the ground. In particular, the credits were instrumental in driving product development for Bionica Corporation, a company which is marketing the first hearing aid that separates speech from white noise in multiple environments such as automobiles, movie theatres and restaurants. Thanks to an innovation credit, the company is well on its way to securing additional financing for its device. The credits are constantly evolving, and they can now be used by investors looking to put their money into smaller, innovation-focused companies. "We recently put into the market a new Innovation Investment tax credit that allows investors to take investment credits of up to $200,000 for investing in small businesses in the state," Withers said.

Seed money is also available to Rhode Island biotechs in the form of the Slater Technology Fund. The Slater Fund provides $3 million annually in seed funding for technology-based ventures in Rhode Island. According to Withers, the fund is a good stepping stone for securing additional support for new innovations. She says that in addition to

the money, the fund "provides the industry knowledge and network of strategic partnerships that allow companies to seek additional investment."

In addition to the Slater Technology Fund, life science companies can take advantage of the Rhode Island Science and Technology Advisory Council's Collaborative Research Awards to boost funding. The awards are aimed at promoting research and cooperation between academic institutions and the private sector. Wither says the awards have been particularly beneficial for the life sciences industry. "For two years in a row we have been able to directly invest in collaborative research projects, and we've been using those grants to provide seed funding to allow commercial and academic organizations to go on to get larger funding opportunities," she says.

Among the projects awarded were a collaboration to develop high-tech therapeutic toys for children with cerebral palsy, a virtual reality venture to improve the design of prosthetic limbs and a program aimed at boosting research on testicular cancer. The testicular cancer partnership, in particular, was successful in attracting both state and national renown. According to Withers, that team "received a $1.4 million NIH grant, which essentially paid for the entire program. That one win brought as much money into the state as we invested," she said.

It may be no coincidence that the state's funding from the National Institutes for Health reached an all-time high at $130 million in 2007. And Rhode Island continues to rack up funding from the National Science Foundation, receiving as much as $37 million in 2007.

With such open access to funding and the array of economic incentives offered to companies that call the Ocean State home, the reasons for Rhode Island's life science boom are apparent, according to advocates for the state. Biotech firms looking to relocate can count on the state's firm life science foundation, its prime location and its affordability to double their investments. Plus the state's commitment to innovation and collaborative partnerships provide biotechs looking to expand their operations with the resources to grow both their pipelines and their revenue base.

An overhead view shows Amgen's West Greenwich campus. Photo courtesy of Amgen Inc.

SPOTLIGHT ON EUROPE

France

France is ranked third in Europe for its number of biotech companies, and the French biotechnology industry is experiencing record growth. According to the 6th edition of the "French Biotechnology Panorama," France Biotech's annual survey of the sector's companies, there are more than 400 biotech companies in France. Those companies employ 7,000 people, and 3,500 of those are in the research and development sector.

The country's life science industry has benefitted tremendously from an increase in the number of initial public offerings. Large IPOs initiated in 2005 include

BioAlliance Pharma and ExonHit, as well as a secondary offering from Transgene, which raised a total of €72 million. In 2006, Innate Pharma and Genfit solicited public money through offerings, while Eurofins and ExonHit implemented secondary offerings. The latter raised a total of €240 million. In 2007, several other large life science players opened their doors to investors. In that year, Cellectis, Genoway, METabolic Explorer and Vivalis were added to the stock market.

According to France Biotech's estimates, the industry has expanded from four listed companies in early 2005 to 13 today. French companies account for around half of the biotechnology firms listed on the Euronext markets.

France garnered €625 million in life science investment in 2007 (including €499 million raised on the stock market and €126 million from venture capitalists). The improved stock market climate has boosted the upstream financing chain and venture capital in particular, which increased from €99 million in 2005 to €148 million in 2006 and €126 million in 2007. The leverage effect on venture capital raised is 1 for 1, a figure which puts France on par with the UK and Germany.

In terms of employment, staffing at French biotech companies rose by 10 percent between 2005 and 2006, with a 68 percent increase in research and development jobs.

To this end, the designation of Young Innovative Company Fiscal Status, a concept derived from France Biotech and the Strategic Innovation Council, has had a positive impact on employment. The status has been adopted by 1,700 French companies, and 20 percent of the qualified companies are centered on the biotech industry. In fact, more than two thirds of the country's biotech firms (74 percent) have opted for this tax regime, which exempts them from social security contributions on research staff salaries. This marks an average of 20 percent in savings for biotech firms, as long as their R&D spending accounts for at least 15 percent of their total expenditure.

As a result, research and development companies have increased hiring. Three in four research companies have recruited more staff. In total, 76 percent of life science companies have hired more personnel as a result of the initiative.

And the measure has spurred an increase in new research and development projects and increased spending across the sector. Three in four French biotech

OPEN MARKETS IN FRANCE, ITALY LEAVE PLENTY OF ROOM FOR BIOTECH GROWTH

companies have initiated new R&D projects and have purchased extra R&D equipment under the incentive. Approximately 72 percent of life science companies have launched new R&D projects as a result of the program, and 74 percent have bought new R&D equipment.

In 2006, the surveyed companies had invested a total of 195 million in R&D. Public money in the sector has blossomed as well, with an estimated €735 million awarded to life science firms by the government's Directorate General for Enterprises. The biotech sector represents 20 percent of the life sciences, and thus, has secured €150 million in government awards. The leverage effect of public grants-in-aid on R&D expenditure by biotechnology start-ups (1.3 for 1) is thus, quite significant.

These awards have resulted in a significant number of new drugs in development. Fifty percent of the new products in development reside in the biotech sector. According to France Biotech estimates, there are 68 biotech products in clinical trials in France, including 41 in Phases II and III.

France offers many opportunities for growth and investment

In terms of hubs for biotechnology, France boasts Biocitech, a privately owned life sciences technology park just outside Paris that offers offering a world-class environment and services for the development of biotechnology, biopharmaceutical and fine chemical companies. Companies already established at Biocitech represent a wide variety of complementary disciplines and many are working on collaborative projects. They include Alkapharm, Biodoxis, Cellectis, Discngine, Eco-Solution, Endotis Pharma, Ijina, Kiralya, Mutabilis, Novexel, Oroxcell, Proskelia, Roowin, Scientis, Sibio, Structuralis and Theraptosis.

Biocitech has received regulatory approval for conformity to environmental protection standards. Companies can use offices, laboratories and a range of technical and scientific services, designed to let entrepreneurs concentrate their time and resources on their core business.

Along with other organizations in the Ile-de-France region around Paris, Biocitech plays a key role in the Medicen Paris Region network. That healthcare and therapy cluster was designated by the French government as internationally competitive and members are qualified for special privileges.

In addition, there is the Alsace Biovalley, which is home to some of the country's most dynamic companies and laboratories. The sectors targeted by Alsace Biovalley include medical research, healthcare, biotechnology, telemedicine, pharmaceutical manufacturing, surgical robotics and drugs. The Alsace Biovalley cluster brings together and encourages the development and growth of public and private entities based in Alsace. The cluster includes the main aid agencies which offer simplified and effective access to all the regional services and aid.

The cluster boasts over 200 companies and 60 laboratories. And because of its proximity to Switzerland and Germany, the cluster has been instrumental in building a tri-national network of excellence made up of Alsace (France), the Basel region (Switzerland) and Fribourg (Germany).

Pascal Neuville, president of the Alsace Biovalley Association and chief scientific officer of Faust Pharmaceuticals said the region is looking toward non-traditional models of growth to spur life science innovation. "We were determined to break free of a mold based on administrative structures and move into a more market-oriented mode of operation." And he says cooperation and government support are essential to development in the region. "We believe this bringing together of complementary support organizations is a French first in the life science sector. We will now be able to coordinate the different agencies in a much more effective way," he said.

Nicolas Carboni, general manager of the Alsace Biovalley Association, noted that "the new approach will make the Alsace bio-region much more attractive for international companies and researchers."

Carboni also said the cluster's location, in the nexus of three major European players, gives biotechs in the region a competitive advantage and access to a broad network of resources. "We are at the heart of Europe and our membership of the cross-frontier Biovalley partnership with Swiss and German regions is a huge advantage and makes us one of the biggest bioclusters in Europe," he said.

Thus, in terms of life science development, France offers many opportunities for growth and investment, and many incentives for companies looking to build a European base of operations. Moreover, through its strong clusters, France offers unparalleled access to markets in Switzerland, Germany and the UK. These factors combined make the country a hotspot for international biotech development and a prime locale for firms looking to tap into the European market.

Italy

Italy's competitive international positioning is much stronger than is perceived. The Italian biotech system is comprised of innovative companies centered on growth, and research universities characterized by high doses of dynamism and innovation. And the life sciences in Italy are continuing to grow. Since 2001, the Italian biotech companies have almost tripled in number, becoming more and more productive and open to the global market. Data in *Biotechnology in Italy 2008. Strategic and Financial Analysis*, a report by Assobiotec, the Italian Association for the Development of Biotechnology, provides statistics that evidence Italy's success in the life sciences. By the numbers, there are 228 companies that perform research and development activities in Italy in various biotechnological areas. The life sciences employ more than 26,000 people and 6,652 work in research and development.

Breaking the industry down by sector, there are 168 companies in health care, 30 in biotechnologies for animal husbandry and veterinary applications, 19 in industrial and environmental fields and 11 orientated to research and development in the field of bioinformatics.

The industry's structure is characterized by a high preponderance of small companies. Of the 228 certified companies, 170 have fewer than 50 employees and revenues of under €10 million. Of the remaining companies, 28 are medium-sized (employing less than 250 employees and with annual revenue of under €50 million), while the other 27 are large companies with more than 250 employees and revenue of over €50 million.

Thus the large companies, although not numerically prevalent, play a dominant role in terms of revenue and employees. They account for 80 percent of the revenue of biotech companies in Italy and over 80 percent of all employees in the industry. Subsidiaries of multinationals in Italy account for 50 percent of overall biotech revenue and employ 50 percent of the workers in the industry.

New companies are being created in Italy at a rapid rate. And this growth trend has been exhibited in recent years. Almost 60 percent of Italy's life science companies surveyed were set up after 1996 and of these 96 (42 percent of the entire industry) were set up since 2000. Roberto Gradnik, president of Assobiotec says that the country's firms practice strategic growth, and that their flexibility is key to their success. "The main trait of Italian biotech is the impressive roster of nimble, highly strategic and innovative companies, particularly in the health-care sector," he said.

Gradnik said that such strategic growth gives biotech in Italy a competitive advantage over foreign competitors. "The previous lack of public support forced Italian biotech companies to become ultra competitive in order to survive," he said. And the revenues being brought in by Italy's life science firms attest to this competitiveness. In 2008, Italy garnered €4.8 billion in revenues from sales in biotechnological product-licensing operations. In 2006, life science firms in Italy secured 1.3 in capital investments for the development of biotechnological products and processes.

Biotech product development in Italy is peaking as well. Gradnik said that "in the area of therapeutics, Italy's roughly 35 companies have at least 84 drugs currently in clinical trials. These include 16 products in Phase III development. These data clearly show that the existing bio industry core has great potential to create new and effective drugs. From a regional perspective, the life sciences in Italy are centered largely in Milan. Major players in Milan include Genextra, which was recently listed on the Italian Stock Exchange in 2006. Researchers at Genextra are working on the identification of the molecule able to stop the gene P66, responsible for the aging process.

Other players include Eurand International SpA, which in 2006 filed a registration statement for a proposed initial public offering on Nasdaq of up to about $153 million. The specialty pharmaceutical company develops products

based on its formulation technologies. Its new drug application for the porcine-derived, pancreatic enzyme replacement therapy, Zentase (EUR-1008), was accepted for review by the FDA and given priority review status.

Another major player is Recordati SpA, a specialty pharmaceutical firm based in Milan. Recordati's flagship product is ZANIDIP (lercanidipine), a latest generation calcium-channel blocker for the treatment of hypertension.

Outside of Milan, the Lazio region, and Rome in particular, is one of the most competitive clusters in the sector. With almost 500 foreign companies and an innovative industrial base, Lazio boasts a highly diversified economy with a dynamic entrepreneurial culture. There are also around 100 clinical trial centers working with companies in the area on an everyday basis.

The cluster's industry focuses on pharmaceuticals, hematology, oncology and the treatment of neurodegenerative diseases. Many international life science firms have bases in Lazio. Players such as Abbott, Sanofi-Aventis, Baxter Healthcare, Bristol Myers-Squibb, ElanPharma, Merck Sharp & Dohme, Pfizer, Serono, Servier and Wyeth, employ more than 12,000 staff in the area.

With overall pharmaceutical investment above the national average and a public and private hospital and healthcare system boasting a total of 28,000 beds, the cluster provides a dynamic backdrop for biotech growth.

And there are a bevy of cutting-edge research universities In the area, there are 10 universities (three of which are education and research hubs specializing in the life sciences), over 50 public and private research centers of international renown and high-quality hospitals. The area is home to an employment base of 3,000 researchers and 22,000 students. Lazio's schools produce more than 7,000 graduates per year in biotechnology, pharmaceuticals and medicine. Research universities with centers of excellence include the San Raffaele Biomedical Science Park, the Regina Elena Institute, the Gemelli University Polyclinic and the Hematology Center of La Sapienza University. Gradnik said educational institutions play a predominant role in building biotechnology in the country. He said these institutions are fundamental in providing training for the country's researchers and scientists. "Italy has more than 30 universities with dedicated biotech courses: this means that all the main Italian universities have at least one degree course in biotech that will provide a new generation of very well prepared specialists for the industry," he said.

In addition to the research universities that play a predominant role in the life science industry, the Italian government offers a number of incentives to support biotech within its borders. "Our government is deeply committed to the promotion of this vibrant and strategic sector of Italy's economy and to the expansion of the participation of the already numerous foreign bio and pharma companies in the Italian market," said Aniello Musella, executive director of U.S. offices of the Italian Trade Commission

Gradnik concurred with Musella, and he noted that "growth of the emerging life sciences industry in recent years has been accelerated by the government's new science-oriented and entrepreneurial approach, promoting new business ventures and strategic partnerships. This government orientation partially filled the lack of public support of previous years," he said.

An additional boost to biotech growth was provided by a new law passed in 2008, which among other things, granted qualified companies Young Innovative Company status" The measure also enacted a tax credit for R&D activities amounting to 10 percent of investment. Under the new law, the tax credit for R&D expenditure was increased from 15 to 40 percent (with a ceiling of €50 million per year) for R&D investment in partnership with universities all around Europe. Foreign investors are also greeted with a variety of incentives, and there are no restrictions on foreign ownership. Moreover, Italy has flexible labour laws in place. Costs in Italy are very competitive compared to other European countries: about one-quarter to one-half the cost in the U.S.

And Italy has support organizations based in the U.S. to promote trade between the two nations. The Italian Trade Commission, in particular, has been instrumental in attracting foreign investment in Italian life sciences. Musella said that "Besides promoting Italian biotechnology firms in the U.S., our offices in Los Angeles and New York also act as a reference point for U.S. companies seeking biotech investments or collaborations in Italy." As a success story for the commission's activism, he cited a recent agreement between South San Francisco-based Genentech and the Nerviano Medical Sciences, "the largest pharmaceutical R&D facility in Italy and one of the leading oncology-focused and integrated discovery companies in Europe, to collaborate in the discovery of small molecule inhibitors which may be developed as anticancer agents."

In all, Italy offers life science firms the opportunity to capitalize on the country's prolific growth in the industry and incentives to invest. With well established hubs, collaborative partners on the cutting-edge of research and support for multinational enterprises, Italy offers biotech companies looking to branch out of traditional hubs a chance to be in the center of one of Europe's hotspots.

KEY STRENGTHS OF ITALIAN BIOTECH

- *The combination of high quality research together with low costs makes the Italian biotech system highly competitive*
- *Excellent scientific community with strong international interactions*
- *Strong product pipeline: +280% in the last 3 years*
- *Tax credit for R&D activities (10%) and for R&D investments in partnership with Universities (increased from 15% to 40%)*

ITALIAN BIOTECH AT A GLANCE

- *228 companies that perform R&D activities in various biotechnological areas (74% of which involved in Red biotech)*
- *4.8 billion Euros in revenues from sales in biotechnological product-licensing operations*
- *1.3 billion Euros in capital investments in 2006 for the development of biotechnological products/processes*
- *over 26,000 employees, of whom 6,500 are engaged in R&D*
- *84 therapeutic products in clinic development (by 35 companies), excluding those being trialled by large overseas-headquartered firms*

ITALY'S PRODUCT PIPELINE

	PRECLINICAL	PHASE I	PHASE II	PHASE III	TOTAL
Gastroenterology and metabolic diseases	6	2	3	3	14
Hematology and hemopoietic organs	0	1	2	3	6
Cardiovascular	5	3	2	3	13
Dermatology	8	1	3	0	12
Urology and reproductive organs and hormones	1	1	1	0	3
Hormones (sex hormones excluded)	0	2	0	0	2
Systemic antimicrobials	3	0	0	1	4
Antineoplastics and immunomodulators	32	19	15	4	70
Bone/Muscles	3	1	0	1	5
Neurology	6	5	3	2	16
Respiratory	0	0	3	0	3
Sense organs	2	1	0	0	3
Others	4	2	7	3	16
Total	**70**	**38**	**39**	**20**	**167**

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