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# biotech focus

## Bioscience industry in metro Atlanta

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One of the world's fastest growing cities, Atlanta, GA, is the business center of the southeast USA and is rapidly becoming a leader for biotechnology innovation. With state research investments exceeding US\$1 billion, and numerous collaborations under way between the city's world-renowned research pillars and ~200 bioscience companies, Atlanta continues to build an environment where entrepreneurs take root and existing companies prosper (Box 1).

### Research

Atlanta is home to several high-profile anchor institutions, including the Centers for Disease Control and Prevention (CDC), the American Cancer Society, the Arthritis Foundation and the Carter Center. In addition, the region encompasses many prestigious research universities such as Emory University, the Georgia Institute of Technology and Georgia State University, all of which collaborate with the nearby University of Georgia and the Medical College of Georgia.

Having access to these research pillars provides a unique opportunity for corporate and scientific interaction. For example, the Metro Atlanta Chamber of Commerce's Bioscience Council presents an annual CDC partnering event, which provides attendees from around the world with the opportunity to meet on a one-to-one basis with CDC scientists to discuss partnering and licensing (Box 2). This year's *Second Annual CDC Technology Symposium* will be held 10–12 April 2005 at the

Georgia World Congress Center, produced in collaboration with the BioFusion 2005 international bioscience partnering conference.

Adjacent to the CDC, integrated into the Emory University campus, Yerkes National Primate Research Center is a prime example of how higher education research integrates with the bioscience industry in Atlanta. One of only eight national primate research centers appointed by the National Institutes of Health, the Yerkes Center is an international leader in biomedical and behavioral research. The center has 3600 nonhuman primates and 5000 rodents, which provide a crucial link between animal research and human clinical trials. Scientists at the Yerkes Center are currently focusing on lifespan research, including research on Alzheimer's disease, Parkinson's disease, and development of an HIV vaccine. The Yerkes Emory Vaccine Center HIV vaccine program, using a purified DNA vaccine approach, is the largest HIV vaccine effort of any academic research institution. The Yerkes Center is also studying behavioral patterns and tendencies, such as addiction, anxiety disorders and depression after exposure to early life trauma.

### Incubators and technology parks

Successfully transferring technology from labs to the commercial market involves specialized knowledge, skill and support. Bioscience start-ups have greater needs for capital, take longer to get to market and face significant technical risks. In Atlanta, such endeavors benefit from a wealth of public and private technology transfer specialists and incubators.



Yerkes National Primate Research Center

The state's Advanced Technology Development Center (ATDC) showcases the thriving collaborations among the government, the university community and business. The approach is two-tiered: (i) ATDC works with existing start-ups to provide strategic business advice and resources that fledgling firms need to become high-growth companies; and (ii) ATDC's VentureLab fellows serve as business coaches for faculty with potential commercial innovations. Managed by the ATDC, Georgia Institute of Technology's bioscience incubator integrates entrepreneurs and university faculty – individuals who are typically isolated from each other – for easy collaboration. The logistical arrangement also fosters an exchange of perspectives, often helping investors and entrepreneurs better understand one another's interests.

In addition to housing this incubator, the Georgia Institute of Technology partnered in 2000 with Emory University to form the EmTech Biotechnology Center. EmTech houses a variety of biotechnology companies, including GeoVax, which is partnering with Emory and Yerkes for clinical trials and development of the HIV vaccine. This public–private–university partnership even extends into academic programs, for

# biotech focus

## BOX 1

### Case studies of biopharmaceutical companies in Atlanta, GA, USA

#### Corautus Genetics

Corautus Genetics is a clinical-stage biopharmaceutical company dedicated to the development of gene therapy products for the treatment of severe cardiovascular and peripheral vascular disease. Relocating from California to Atlanta in 2003, Corautus is a graduate of the ATDC program, and continues to use office and laboratory space at the Georgia Institute of Technology bioscience incubator. The company is developing a gene therapy product using a plasmid DNA form of vascular endothelial growth factor 2 (VEGF-2) to promote therapeutic angiogenesis in ischemic muscle (muscle with decreased blood supply as a result of constricted blood vessels). Corautus is publicly held and trades on the NASDAQ under the symbol VEGF.

#### Merial

Merial, a joint venture company between Merck and Sanofi-Aventis, is a world-leading animal health company producing a wide range of pharmaceuticals and vaccines to keep livestock and pets healthy and productive. Merial moved its world-wide operational headquarters from New Jersey to Atlanta in 2001 to join its two other divisions located in north Georgia. Merial now employs >1000 people in the state and is a symbol of successful bioscience relocation into Atlanta.

#### Alimera Sciences

Alimera Sciences is a dynamic ophthalmic pharmaceutical company specializing in the development and commercialization of over-the-counter and prescription ophthalmology pharmaceuticals. In 2004, Alimera Sciences, created and managed by a seasoned executive team, raised US\$27 million in its initial round of funding. The company has since launched Soothe, the market's first multi-dose, emollient-based artificial tear product to offer over-the-counter relief from dry eye. Alimera Sciences continues to develop a full pipeline of ophthalmic pharmaceuticals.

#### Altea Therapeutics

Altea Therapeutics provides a non-invasive alternative to painful needle injections through its innovative PassPort™ system. The PassPort™ system delivers proteins and peptides, small molecule drugs, genes and vaccines from a skin patch, eliminating the need for invasive needle injection. The company is currently conducting Phase I human trials for delivery of insulin and hydromorphone. Altea continues to expand their presence in Atlanta as one of the city's leading drug delivery companies.

#### Inhibitex

Inhibitex is a biopharmaceutical company focused on the discovery, development and commercialization of antibody-based products for the prevention and treatment of serious, life-threatening infections. The company currently has five drug development programs, all of which are based on its proprietary MSCRAMM protein platform technology. The company's most advanced product candidates are: Veronate, for the prevention of hospital-associated infections in very-low-birth-weight infants; and Aurexis, for the treatment of serious *Staphylococcus aureus* bloodstream infections in hospitalized patients. Both Veronate and Aurexis have been granted fast-track designation by the US FDA. The company's preclinical programs include a collaboration and joint development agreement with Dyax to develop fully human monoclonal antibodies against MSCRAMM proteins on *Enterococci*, and a partnership with Wyeth to develop staphylococcal vaccines. The company carried out an IPO in June 2004 and trades on the NASDAQ under the symbol INHX.

#### AtheroGenics

The impetus for AtheroGenics, a specialized pharmaceutical company focused on novel treatments for chronic inflammatory diseases, was proprietary research originating from Emory University researchers Russell M. Medford and R. Wayne Alexander. AtheroGenics officially opened in 1994 with five employees and has since grown to more than 90. The company's V-protectant® technology is involved in several clinical trials, including a Phase III trial studying the effectiveness of its lead compound, AGI-1067, in atherosclerosis. The company is publicly held and trades on the NASDAQ stock exchange under the symbol AGIX.

example, the joint university PhD program for biomedical engineering. Indeed, Emory University boasts a top-twenty ranking among research medical schools and The Georgia Institute of Technology School of Engineering is ranked 2nd for biomedical and bioengineering research in the USA ([http://www.usnews.com/usnews/edu/college/rankings/rankindex\\_brief.php](http://www.usnews.com/usnews/edu/college/rankings/rankindex_brief.php)).

Further demonstrating state-wide collaboration, several companies have tapped the resources of the University of Georgia BioBusiness Center, which acts in partnership with its Center for Applied Genetic Technologies (CAGT). This program enables bioscience start-ups to accelerate their early growth through access to management expertise and state-of-the-art instrumentation. Interdisciplinary resources nurture and stimulate biotechnology companies in the 60,000-square-foot facility.

Recently, the Georgia Bioscience Joint Development Authority began efforts to create a linear research park along the highway corridor connecting Athens to Atlanta. New research parks are springing up in east and north Atlanta, adding more post-incubator space for emerging bioscience companies.

#### Regional support

In addition to the technology transfer powerhouses, Atlanta is building a commercial infrastructure to encourage state research and business collaboration. The Metro Atlanta Bioscience Council, in collaboration with industry leaders and partner organizations like the Georgia Biomedical Partnership, Georgia Department of Economic Development and the Georgia Research Alliance (GRA), is executing a strategic plan to expand the area's bioscience industry. The Council's plan includes business support and recruitment, public advocacy and marketing. All of these organizations house full-time bioscience staff dedicated to supporting and encouraging the growth of Georgia's biotech, pharmaceutical and medical device industries.

#### Capital

In 2004, over US\$100 million in venture capital flowed into Atlanta biotech companies, and initial public offerings (IPO) and follow-on offerings raised the capital

# biotech focus

## BOX 2

### Websites of interest

#### General information, news and events for Atlanta's bioscience industry

[www.atlantabioscience.com](http://www.atlantabioscience.com)

#### 2nd Annual CDC Technology Symposium and BioFusion 2005

[www.biofusionsouth.org](http://www.biofusionsouth.org)

#### Advanced Technology Development Center

[www.atdc.org](http://www.atdc.org)

#### American Cancer Society

[www.cancer.org](http://www.cancer.org)

#### Arthritis Foundation

[www.arthritis.org](http://www.arthritis.org)

#### Center for Biotechnology and Drug Design

[www.cas.gsu.edu/units/default.aspx?unit=biotech](http://www.cas.gsu.edu/units/default.aspx?unit=biotech)

#### Emtech Biotechnology Development

[www.emtechbio.com](http://www.emtechbio.com)

#### Georgia BioBusiness Center

[www.biobusiness.uga.edu](http://www.biobusiness.uga.edu)

#### Georgia Cancer Coalition

[www.georgiacancer.org](http://www.georgiacancer.org)

#### Georgia Research Alliance

[www.gra.org](http://www.gra.org)

#### US Centers for Disease Control and Prevention

[www.cdc.gov](http://www.cdc.gov)

#### Yerkes National Primate Research Center

[www.yerkes.emory.edu](http://www.yerkes.emory.edu)

inflow to its most active year to date. In addition to venture capital, emerging and existing biotechnology companies in the Atlanta region have access to several grant and seed money opportunities. For example, the GRA recently unveiled its GRA Innovation Grants Program, which connects university researchers and companies in Georgia for the purpose of developing and deploying technologies that lead to increases in the state's economy.

Emerging companies can also attain resources through the Georgia Bioscience Seed Fund and the Intellectual Capital Partnership Program (ICAPP), which connects the state's business community to resources within the University System of Georgia. In addition, Georgia's Governor, Sonny Perdue, recently announced the bioscience facilities

financing program to help this important sector of the economy burgeon [1].

### Talent

With one of the world's largest concentrations of bioscience employment – >20,000 researchers, scientists, doctors, bioscience executives and their staffs – the area is reaching a critical mass of intellectual human capital. In addition to those already employed throughout the state, the Atlanta region is poised to attract the most innovative professionals by leveraging its industry programs. The GRA's Eminent Scholars Program, for example, is using endowed chairs and the latest equipment and facilities to lure world-renowned scientists to Georgia. In addition to building research programs, these scholars are helping to train the next generation of leading bioscience researchers and executives.

Georgia has also provided US\$400 million to the Georgia Cancer Coalition (GCC), spurring an even greater investment in research, treatment innovations and talent. Since 2001, the GCC has recruited over 60 distinguished clinicians and scientists from prestigious institutions such as Mayo Clinic, Harvard, Stanford and Johns Hopkins in the USA.

The region's 45 colleges and universities are making strides to ensure that companies sprouting from, or relocating to, Georgia can continue to choose from the industry's top professionals. These institutions combine to make Georgia the seventh largest producer of bioscience degrees in the USA [2]. In addition to numerous university and technical college bioscience programs, the region also looks to help companies by providing continuing education to entrepreneurs and those who seek enhanced skills for the biotechnology sector. One such effort is the Bioscience Council's Supporting Entrepreneur Education and Development (SEED) program, which offers workshops, seminars and training for business people considering the biotech market and developing business plans. The state also offers funding for Georgia QuickStart, an initiative that pairs qualified biotech employers with technical colleges, providing free, customized job-training for employees. Manufacturing companies that have benefited from Georgia QuickStart include CR Bard, CIBA



Vision, Johnson & Johnson, Kimberly-Clark, Siemens, Merial and Monsanto.

### Business climate

Atlanta is consistently ranked in the top five cities worldwide for business expansion, relocation and entrepreneurial growth. The city boasts over 1600 international corporations and is ranked third in the USA for FORTUNE 500 headquarters, a measurement of the top revenue-producing corporations [3].

In short, the Atlanta region offers a strong concentration of research infrastructure, capital, talent and quality of life that is propelling the city to biotech prominence. Indeed, Ernst & Young's 2004 Biotechnology Report named Georgia eighth in the USA for the total number of biotechnology companies [4]. All of these factors point in one direction: Atlanta is on the threshold of becoming a major world bioscience center.

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