

A close-up photograph of a scientist wearing a white lab coat and teal gloves, using a blue and white pipette to transfer liquid into a red microplate. The background is a blue-lit laboratory environment.

METRO ATLANTA

AN EMERGING HUB FOR LIFE SCIENCES

**METRO
ATLANTA**
CHAMBER



We hear it all the time: “Georgia is a great place to do business.” It’s an ambitious claim, yet one proven true in countless industries. It’s certainly true in the world of life sciences.

Listen to Shay Foley, General Manager of the Duluth, GA, manufacturing facility for Alcon, the largest eye-care manufacturer in the world. To Foley, “great” has a simple test: Can you find the skilled people you need to operate a specialized, high-tech life science business?

“We’re not recession-proof, but we must be recession-resilient,” says Foley, part of the team that has led \$1 billion in Alcon expansions in Georgia since 2016, pushing the company’s total employee count here to about 2,000 people. “To do that we need an intelligent and adaptable workforce. That’s why we are expanding operations in Georgia: We never have a problem getting talent for our Georgia operations.”

All the components essential to success in the life sciences can be found throughout Georgia, especially in metro Atlanta. For example:

- Talent is a long-term investment. A highly educated and trained workforce coming out of Georgia’s sophisticated collection of world-class colleges and universities supports a wide range of research that produces a continuous output of technological innovation.
- “Speed to market” tops every industry’s must-do list. In a global economy manufacturing and distribution systems must deliver products and services around the world. In Atlanta that speed depends on an unparalleled infrastructure of highways, railroads, seaports, and the world’s busiest airport that put 80 per-

cent of the U.S. population within a two-hour flight or a two-day truck ride.

Life science activities in metro Atlanta — from world-renowned research labs to distinguished medical centers, from advanced life science graduate programs to space-age digital startups — can be found literally next door to one another, forming a critical mass of invention and innovation. All the vital parts of a life science hub are here — an educated, diverse workforce; The Centers for Disease Control and Prevention; world-class universities like Georgia Institute of Technology, Emory University, and the University of Georgia that serve as catalysts in technology and life sciences; corporate and nonprofit initiatives pioneering the development of digital technologies that are changing everything, and global access through sophisticated supply-chain management.

Unlike some cities, which can claim only isolated pieces of this complex puzzle, metro Atlanta has them all in an interconnected ecosystem. The result is a unique double-edged momentum as metro Atlanta and the life science industry it sustains grow in synergistic step with each other. Researchers can depend on support from universities and corporations, manufacturers can maintain and expand a diverse workforce to produce and deliver the results of that critical mass anywhere in the world.

For those engaged in the life-sciences, Georgia is indeed a great place to do business.



“We have found a strong base in Georgia. We’ve experienced pro-business leadership, strong relationships with universities, and more. It comes together to help us be competitive in global market.”

— Shay Foley,
Alcon, Duluth, GA

A MOMENTUM THAT STARTED IN 1942

Dr. Gayathri Srinivasan came to Emory University from MIT seven years ago. As Director of Public and Private Partnerships at the Robert W. Woodruff Health Sciences Center, she has seen the growth of life sciences in metro Atlanta. What’s more, she sees the potential. “The formula for developing the bioscience industry is simple — it takes academic research, government support, industry partners, and above all, patience. I see all that here,” says Dr. Srinivasan. “The result is an entrepreneurial mindset propelling the drive toward excellence. And the momentum is building.”

That momentum began in 1942 when malaria was plaguing much of the world, including the American South. To fight it, the U.S. Public

Health Service created the Communicable Disease Center and located it in Atlanta in order to be close to the problem.

Now known as The Centers for Disease Control and Prevention (CDC), the agency has undertaken a global mission “to create the expertise, information and tools that communities need to protect their health.” From its original staff of 400, the CDC has grown to more than 14,000 employees in 54 countries, earning Atlanta the title “the public health capital of the world,” a global epicenter of education, research, and manufacturing in the life science industry.

The roots of life science in Georgia are deep. The life sciences ecosystem, fueled by world-renowned educational and research facilities, has drawn scores of international corporate and nonprofit entities that do pioneering work in every scientific discipline, advancements made possible by a highly trained, diverse workforce; civic and business organizations that nurture startups and expansions; local and state governments that facilitate growth; and a logistical infrastructure anchored by the world’s busiest airport.

CDC is not the only crown jewel in Georgia life science. Georgia Tech and Emory play numerous catalytic roles in education, research, and partnerships with corporations and nonprofits. Each is a leader in multiple disciplines, but together they have demonstrated the power of visionary partnership in their joint Wallace H. Coulter Department of Biomedical Engineering, consistently ranked in the Top 3 of the nation’s graduate and undergraduate programs. It is but one of many such collaborative research programs in metro Atlanta.

Georgia also boasts an impressive array of distinguished colleges and universities, including several Historically Black Colleges and Universities (HBCU), all with impressive life science credentials and accomplishments. Among them are the University of Georgia, Kennesaw State University, Georgia State University, and Spelman College.

An example of creative educational investment can be found at Morehouse College, where its renowned School of Medicine is offering a tuition-free summer program for students and recent graduates considering careers in biotechnology.



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— Dr. Gayathri Srinivasan,
Emory University



CATALYSTS AND INFLUENCERS

Metro Atlanta continues to grow as a center for life sciences because of its vigorous support for the industry. These Atlanta-based organizations all assist graduates seeking careers in science and technology, help find startup capital, and offer assistance all along the path to success. Among the key players in this catalytic effort are:

- Georgia Bio, the state's life sciences advocacy and business leadership trade organization promoting interest and growth of life sciences, improving access to innovative technologies, fostering strategic partnerships, and advocating on behalf of members on public policy.
- The Technology Association of Georgia (TAG), serving more than 30,000 members statewide to educate, influence, promote, and unite Georgia's technology community to stimulate innovation.
- The Advanced Technology Development Center (ATDC), Georgia's technology business incubator assisting startup entrepreneurs through a unique blend of coaching and connections to capital and customers. Launched at Georgia Tech, ATDC is widely regarded as one of the most successful incubators in the nation.
- Healthcare Information and Management Systems Society (HIMSS), founded on the Georgia Tech campus in 1960, is dedicated to improving healthcare quality, safety, cost-effectiveness, and access through the best use of information technology and management systems.

While Atlanta grew as a prominent research center, it began to attract more corporate and nonprofit commercial ventures that sought close ties with these colleges and universities. A prime example is The Graduate Cooperative Education Program at Georgia Tech, the largest such program in the United States.

Another is the Georgia Research Alliance's Eminent Scholars Program, which recruits some of the brightest minds to Georgia universities. The scholars bring in more than \$500 million in research funding every year that propels innovation and provides jobs.

A TALENT POOL LIKE FEW OTHERS

There are three realities you should know about the life science workforce in Georgia:

1. It's huge. There are nearly 200,000 jobs, more than \$12 billion in total labor income, and \$21.8 billion in GDP.
2. It's well educated. By any measure — academic degrees

awarded in science or jobs secured after graduation — Georgia's colleges and universities are filling the job pipeline well beyond expectations. Metro Atlanta itself is in the Top 10 markets for degrees awarded in science.

3. It's diverse. A half a dozen HBCUs, working with about 3 percent of the state's students, graduated 40 percent of the state's Black STEM graduates.

The result is a life science culture strengthened by the availability of skilled employees and the flexibility industries need to find talent. The life science economy in metro Atlanta can sustain its anticipated growth — roughly 7 percent compared to the nationwide projection of 5 percent — because the education and training of the workforce is keeping pace.



"The talent pool is a major factor in our operations in Georgia," says Avi Robbins, President of Porex Filtration Group, a global leader in the manufacturing of advanced porous solutions for medical devices and writing instruments. Its global headquarters is in Brookhaven, GA, and one of its eight manufacturing facilities is in Fairburn, GA. The company employs more than 600 people in Georgia.

Robbins cites the metro Atlanta talent pool and educational institutions as key factors in the company's decisions to both locate and expand in Georgia. "We have available to us the spectrum from warehouse workers to company executives," he says. "That is especially valuable as we grow."

From 2007 to 2017 private sector life science employment in Georgia grew 14.9 percent along with a 32.3 percent growth in private sector establishments and 20.7 percent growth in National Institutes of Health funding.

Takeda, a Japanese biopharmaceutical company, has a significant presence in Georgia, including a \$1 billion, million-square-foot facility east of Covington that manufactures plasma-derived therapies to treat primary immune deficiency diseases.

Carlos Soto, Vice President of Manufacturing Operations for Takeda, describes his company's role in building the Georgia workforce in a recent press release: "We hire bioscience graduates from the state's universities and technical colleges, and work with the K-12 system as well as college and career academies to develop bioscience pathways."



ALCON, DULUTH, GA

Alcon, a global leader in eye care, houses the world's largest contact lens manufacturing hub at its metro Atlanta campus in the suburban community of Duluth. In 2015, Alcon chose Atlanta for a \$250 million expansion of its manufacturing site because of the region's logistical advantages, strong pipeline of qualified workers, and pro-business political climate.

"The decision to expand our operations in Georgia was influenced by a government that is pro-business," says Shay Foley, general manager at Alcon, Atlanta. "The permitting process and environmental studies were done quickly and thoroughly so we could move forward with our expansion."

Alcon has undertaken aggressive growth in Georgia. In 2013, a \$250-million addition to its manufacturing plant created 340 jobs. The company invested another \$250 million in 2015 for manufacturing facilities, followed by a \$100-million effort in 2017.

Alcon's Georgia operation, which employs about 2,000 people, produces 4.5 million contact lenses a day. The company benefits from a qualified pharma workforce from world-class universities like Georgia Tech, and partners with Kennesaw State University's cutting-edge Artificial Intelligence department to analyze data and create predictive algorithms.

Factors such as these — workforce, pro-business environment and research institutions — complement Georgia's highly developed infrastructure network to make Alcon's Atlanta manufacturing hub competitive in the global market.

"Any issues with the supply chain can cause an interruption in our 24/7 manufacturing operation," says Foley. "The entire infrastructure in Georgia — from the network of railroads to customs and border protection — align to resolve issues quickly and help businesses succeed."

Adjacent to the Takeda plant Quick Start, the workforce training program run by the Technical College System of Georgia, operates the Georgia Bioscience Training Center, a high-tech facility designed to mirror the exact processes used in biomanufacturing. It will soon be available to future life sciences companies to train workers on specific equipment and processes.

Also, among the many Career Pathways programs managed by the Georgia Department of Education is the Health Science Career Cluster that covers planning, managing, and services in therapeutics, diagnostics, health informatics, support areas, and biotechnology research and development.

Now imagine all these assets in one of the most productive business climates in the United States. For the seventh consecutive year Georgia was ranked the No. 1 state for doing business. Other No. 1 rankings for Georgia include:

- The overall cost of doing business and in the Top 10 of the lowest cost of living
- Black-owned business success
- Film production
- The leading state in the South Atlantic Region for total capital investment projects

“We have found a strong base in Georgia,” says Shay Foley, General Manager for Alcon, the Duluth, GA, contact lens manufacturer owned by Swiss health-care company Novartis AG. “We’ve experienced pro-business leadership, strong relationships with universities, and more. It comes together to help us be competitive in global market.”

THE ENTREPRENEURIAL ECOSYSTEM

Georgia’s life science industry is networked within a highly entrepreneurial ecosystem, one that is inspired by a rich talent pool and fed by access to brave and visionary sources of infrastructure and capital.

Inside Atlanta’s 143 coworking spaces and incubators, high-impact bootstrapped companies emerge and grow, many fueled by billions in venture capital funding. This infrastructure and investment have produced in five years more than 60 “exits”, startups that continue successfully after the founders cash out. Atlanta is a verified “unicorn” factory, with 10 startups reaching a valuation of \$1 billion or more since 2013.

“Atlanta is a perfect fit for our business. We’re a 60-year-old company, but we have a startup mentality,” says Robbins of Porex. “Startups are usually on the cutting edge of technology, and we want to be connected with that.”

Corporate innovation centers fill the metro region, including those of Anthem, Mercedes-Benz, Delta, Chick-fil-A, Georgia Pacific, Southern Company, Home Depot, UCB, Novartis, and scores of others.

Atlanta’s successful life science startups have been spurred on by transformative ideas and innovations pouring out of a network of businesses, research institutions, world-class universities, and global health organizations like the CDC. In 2020, \$2 billion in venture capital financed a diverse group of innovative life science sectors from biotechnology to therapeutic devices.



The 2009 Health Information Technology for Economic and Clinical Health Act spurred innovations in digital health, igniting phenomenal growth in metro Atlanta. Helped by an already established information technology industry, more than 200 digital health companies providing 44,000 jobs were created between 2009-2019, and that number continues to grow. According to a Technology Association of Georgia 2020 report, digital health companies contributed \$11.8 billion in estimated statewide revenue since 2010.

Georgia's dynamic life science ecosystem enables startups to successfully transform innovative ideas into marketable products. Life science entrepreneurs are supported by groups like Georgia Bio, which promotes innovation and business leadership through strategic partnerships; Atlanta Technology Development Center (ATDC), a world-renowned technology incubator providing mentorship and unprecedented access to Georgia Tech resources; and the Atlanta Technology Village, an arena for entrepreneurs to collaborate and make connections to Atlanta's business and investment community.

The BioEd Institute, a division of Georgia Bio, is the only life sciences training institute in the Southeast. It works to strengthen the life sciences workforce pipeline through classroom-to-career initiatives that align with industry needs.

Partnerships between Georgia's research universities and the business community are another key to metro Atlanta's life science startups. The Wallace H. Coulter Department of Biomedical Engineering at Emory University and Georgia Tech is a unique partnership providing cutting-edge research in a collaborative environment to train the next



BOEHRINGER INGELHEIM, DULUTH, GA

When Boehringer Ingelheim, one of the world's 20 leading pharmaceutical companies, wanted to establish a U.S. headquarters for its Animal Health business, it selected Duluth, GA, a site with easy access to the world-class veterinary medicine program at the University of Georgia and the attractive lifestyle of metro Atlanta.

The family-owned global pharmaceutical company creates innovative therapies and products to improve human and animal health. Boehringer Ingelheim Animal Health develops and manufactures vaccines, parasitocides and therapeutics to help prevent disease in livestock, horses, and pets.

The Duluth location within metro Atlanta's Innovation Crescent is close to a company manufacturing plant in Gainesville and a research-and-development and manufacturing site in Athens. Nearby Hartsfield-Jackson Atlanta International Airport offers a global gateway to domestic and international destinations, an important asset to a company with worldwide operations.

"The quality of life in Atlanta is a big draw," says Randolph Legg, President and Head of Commercial Business for Boehringer Ingelheim Animal Health USA Inc. "Access to top-notch public and private schools and universities are very important to the company and our more than 600 employees in Duluth, as are the affordable cost of living and diverse population."

As an innovator in animal health, Boehringer Ingelheim partners with the University of Georgia College of Veterinary Medicine on research and provides internships to the school's veterinary students. The company is invested in diversifying the veterinarian profession by working with Atlanta's Historically Black Colleges and Universities (HBCU) through internship programs and relationship building.

"Currently, veterinary medicine is not represented by a diverse population. We are working to help change that," says Legg. "Because metro Atlanta has a diverse and educated population, we are building direct relationships with the area's HBCU's and highly-capable university system to expose more students to veterinary medicine."

generation of biomedical engineers. Similar relationships exist with UGA and Kennesaw State. In addition, the Georgia Research Alliance helps finance startups based on discoveries made at Georgia's research universities and provides guidance to support successful commercialization.

Avi Robbins reflects a widely held optimism when he says, "I'm hopeful for a continuation of cultural growth, investments in diversity and innovation from startups. All this will attract the right talent to fuel local industries."

Partnerships are especially important for Boehringer Ingelheim, a research-driven pharmaceutical company dedicated to improving the health and quality of life of humans and animals by focusing on diseases for which no satisfactory treatment option exists. The U.S. headquarters of its animal health business is in Duluth, GA.

"We have created partnerships with UGA's veterinary school, one of the best in America," says Randolph Legg, President and Head of Commercial Business at Boehringer Ingelheim Animal Health USA Inc.

"We've also established relationships with the HBCUs and Georgia State University. The objective of our internships and research grants is to increase racial diversity in veterinary medicine."

PRIMED FOR GROWTH

What will the future bring to life science in Atlanta? Much of it is already here — momentum, interdependence, collaboration, global reach, and the potential for expanding the critical mass of assets well into the future.

The ecosystem that for decades has sustained life science is primed for growth. Georgia's colleges and universities will continue to pursue essential research, supply a skilled and diverse workforce, and foster a growing stream of startup ventures. The racial and economic diversity unique to this talent pool at Morehouse School of Medicine, Georgia State University, Georgia Tech, and the HBCUs is a strategic asset when compared with other metro areas across the country.

The region's infrastructure — especially Hartfield-Jackson airport and

specialized shipping capabilities like UPS Healthcare and cold-chain storage — will continue to provide the access to the world. Valuable economic stimulation will continue from the Georgia's Job Tax Credit and Research and Development Tax Credit.

Patty Fritz, head of U.S. Corporate Affairs at UCB, a global biopharmaceutical company, sees "an amazing fabric of support" in metro Atlanta.

"We have become a different company since we put up our flag here and have demonstrated that you don't have to be in Boston or New Jersey to be at the center of biosciences," she says. "You can grow in Atlanta."

The system will thrive on the interconnected web of organizations typified by the nonprofit Center for Global Health Innovation (CGHI) and Emory University's Healthcare Innovation Hub (EHIH) which in conjunction with Sharecare, Verizon and eight other partners will create the nation's first 5G healthcare innovation lab. The addition of 5G gives researchers the ability to explore robotic-assisted sur-





gery, remote physical therapy, and next-generation medical imaging.

Both initiatives spur innovation through cross-discipline collaboration. The result: As digital technology advances, it accelerates the growth of life science technology.

This momentum and collaboration have made possible the global reach of the life science industry in metro Atlanta. A good example is the Task Force for Global Health, which since 1984 has been working to bring disease control and enhanced healthcare systems to more than 150 countries. The Task Force is one of many globally focused organizations in Georgia expected to expand in the years ahead.

Expansion will continue on all fronts as Georgia Tech's Technology Enterprise Park brings additional laboratory space to what has become a science corridor in downtown Atlanta. This 18-acre research district is drawing established technology companies and entrepreneurial startups and researchers focused on biomedical innovation, digital health, advanced manufacturing, and medical devices.

Equally ambitious is the creation of Emory's Executive Park near the interchange of I-85 and North Druid

UCB, SMYRNA, GA

UCB, a global biopharmaceutical company focused on neurology and immunology, established its U.S. headquarters in 1994 with 44 employees in rented space in the metro Atlanta community of Smyrna. Today, its footprint there has expanded to a 50-acre campus with more than 400 employees. A \$47.5-million expansion will soon create space for an additional 100 jobs at the site.

"Atlanta offers our employees and their families a great quality of life — an affordable cost of living, good schools, and a diverse population," says Patty Fritz, UCB Vice President, U.S. Corporate Affairs. "And the Hartsfield-Jackson Atlanta airport gives our employees access to a global stage with direct flights to cities across the world."

UCB's Atlanta team focuses on operations, marketing, supply chain, and regulatory functions to support delivery of UCB's innovative therapies and products. Initially the creator of Zyrtec, UCB's solutions have evolved to launch brands for epilepsy, seizures and more. During the COVID-19 pandemic, UCB's work around the world pivoted to contribute to COVID-19 research and position the company to help contain future pandemics.

In 2016, UCB opened the Solution Accelerator in partnership with Georgia Tech at Technology Square. The collaboration harnesses the power of machine learning and advanced analytics to improve patient care. This community of academics creates innovative solutions and creates a strong pipeline for UCB's workforce.

"At our UCB headquarters, we've demonstrated you can grow your life sciences company and be successful in Atlanta," says Fritz. "We're surrounded by an amazing support system including a strong, thriving academic community and a collaborative community of bioscience companies."

GLOBAL IMPACT

The reach of Atlanta's impact of life sciences is worldwide. Among the key global organizations located here are:

- Center for Global Health Innovation (CGHI), a 250-member nonprofit designed to encourage collaboration, innovation, and coordination throughout global health, life sciences, and health technology ecosystems around the world.
- The Task Force for Global Health, the second-largest nonprofit organization in the world, fights neglected diseases, raises vaccine rates, and improves health systems in the least developed countries.
- The Carter Center, founded by President Jimmy Carter and Rosalynn Carter, is a leader in eradication of preventable diseases that affect the poorest countries.
- CARE, with its U.S. headquarters in Atlanta, brought aid, medical services, and disaster relief to 93 countries in 2020.
- American Cancer Society, which leads global efforts from its Atlanta base.

Hills Road, envisioned as a unique walkable community and workplace of the future that continues Emory's commitment to community partnerships and innovative research.

The future will also bring growth to the many subsectors of life sciences, including biopharmaceuticals, medical devices, research and testing laboratories, agriculture and industrial life sciences, digital and tele-health systems, data processing and record-keeping and, of course, the manufacturing and distribution of every component in the system.

Developments in the life science industry can seem complex, but the formula for success has always been simple:

- A highly educated and trained workforce
- Renowned educational and research organizations
- Leading-edge digital technology resources
- Entrepreneurs with ambitions, funding, and patience

Patty Fritz of UCB sums it up neatly:

"We have a collaborative culture. If you need help you need only ask for it, even from competitors. We all benefit by cooperating. The payoff is a great startup mentality and entrepreneurial mindset. It's all right here."

A special thanks to these partner organizations for supporting us:

- Advanced Technology Development Center (ATDC)
- Alcon
- American Cancer Society
- Atlanta Tech Village
- Boehringer-Ingelheim
- CARE
- Center for Global Health Innovation
- Emory University
- Georgia Bio
- Georgia Department of Economic Development
- Georgia Department of Education
- Georgia HIMSS
- Georgia Power
- Georgia Research Alliance
- Georgia State University
- Georgia Tech
- Kennesaw State University
- Morehouse School of Medicine
- Porex Corporation
- Spelman College
- Takeda Pharmaceutical Company
- Technical College System of Georgia (TCSG)
- Technology Association of Georgia
- The Carter Center
- The Center for Disease Control and Prevention (CDC)
- The Taskforce for Global Health
- UCB
- University of Georgia

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