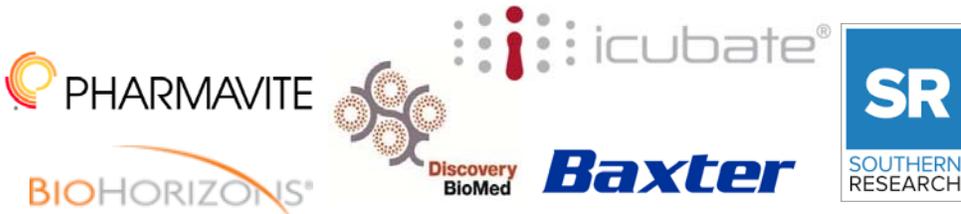




OVERVIEW

Alabama's multifaceted biosciences industry generates \$7.3 billion in economic activity annually while supporting 780 companies and nearly 48,000 direct and indirect jobs across the state, according to an analysis by researchers at the University of Alabama.

Alabama's biosciences sector is a robust combination of research institutions, labs, medical devices, innovative startups, pharmaceutical manufacturers, and more.

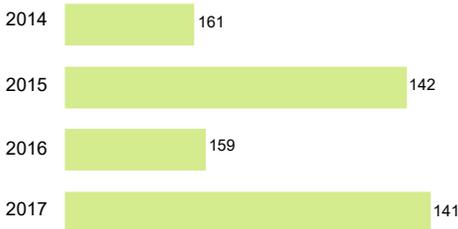


BIOSCIENCES
GENERATED
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IN ECONOMIC
ACTIVITY

BIO-INDUSTRY INNOVATION

SUPPORTING
780
COMPANIES

Bioscience-Related U.S. Patents 2014-2017

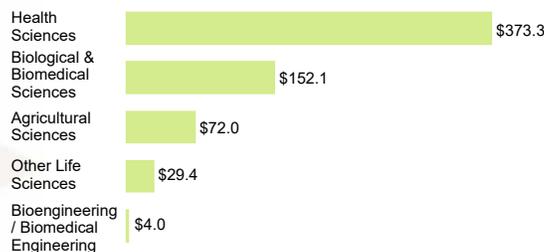


Bioscience-Related U.S. Patents by Segment 2014-2017

Agricultural Chemicals	53
Biochemistry	134
Bioinformatics & Health IT	9
Biological Sampling & Analysis	42
Drugs & Pharmaceuticals	335
Genetics	19
Medical & Surgical Devices	240
Microbiology & Enzymes	37
Novel Plant Variants	14

Source: Bio.org, Alabama: Investment, Innovation and Job Creation in a Growing U.S. Bioscience Industry 2018
www.bio.org/value-bioscience-innovation-growing-jobs-and-improving-quality-life-2018

Bioscience Academic R&D Expenditures \$ Millions FY 2016



48,000
DIRECT AND
INDIRECT JOBS
ACROSS THE
STATE

Source: BioAlabama



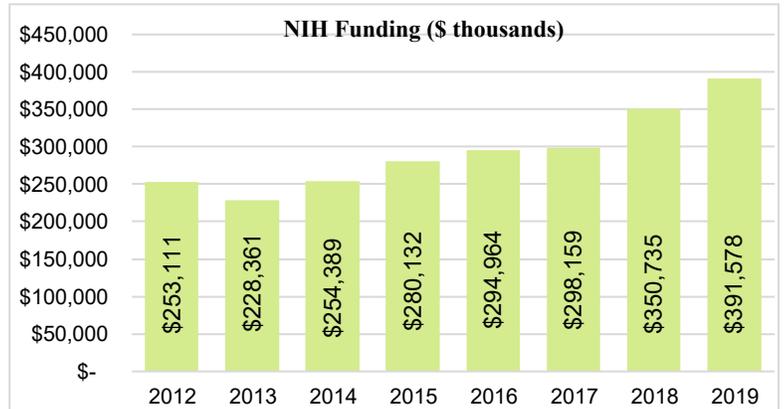


NATIONAL INSTITUTES OF HEALTH FUNDING

Alabama's Top NIH-funded Research Institutions

- University of Alabama at Birmingham
- University of South Alabama
- Auburn University
- University of Alabama
- Southern Research Institute
- HudsonAlpha Institute of Biotechnology

Source: National Institutes of Health, NIH Awards by Location & Organization - U.S. FY2019



ASSETS SUPPORTING BIO-INDUSTRY



BioAlabama is a nonprofit that assists startups in a number of ways, including matching them with mentors and helping them identify sources of capital, from grants to early- and growth-stage equity funding.

AIMTech

Access to partnerships between higher education and the research community creates a favorable environment for the biotech industry. **AIMTech** is an example of this partnership. It is a joint project between the **University of Alabama at Birmingham** and **Southern Research** to increase commercialization potential of medical devices.



Innovation Depot is a 140,000 sq. ft. incubation facility and program that focuses on the development of emerging biotechnology, life sciences, information technology, and service business. The Center has 20,000 square feet of wet laboratory space and a shared equipment lab with an autoclave, centrifuge, low temp freezer and micro-optics.



The 270,000-square-foot Institute is a world-class genomic research center that is continually working to improve human health and well-being, while facilitating the entrepreneurial growth of scientific discoveries in collaboration with over 30 diverse associate companies located on site.

Alabama Innovation Fund

Provides support to the state's universities and other research institutions to promote commercialization and create economic development opportunities.



Southern Research (SR) is an independent, 501(c)(3) nonprofit, scientific research organization pursuing entrepreneurial and collaborative initiatives to develop and maintain a pipeline of intellectual property and innovative technologies that positively impact real-world problems.

Southern Research has Developed 7 FDA Approved Cancer Drugs.





TALENT PRODUCER—GREAT UNIVERSITIES

Alabama has eight research universities across the state that have a strong bioscience-related focus.

UAB THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

University of Alabama at Birmingham Bill L. Harbert Institute for Innovation and Entrepreneurship actively seeks national and international companies that wish to develop and commercialize UAB's innovations.

UAH THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

University of Alabama in Huntsville Office of Technology Commercialization acts as a liaison between university innovators and industry investors.

AU AUBURN UNIVERSITY

Auburn University Office of Innovation Advancement & Commercialization serves as the link between the commercial marketplace and Auburn University faculty.

USA UNIVERSITY OF SOUTH ALABAMA

University of South Alabama's Office of Commercialization and Industry Collaboration assists faculty in turning their inventions into marketable products.

A&M ALABAMA A&M UNIVERSITY

UAH THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

UAB THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

THE UNIVERSITY OF ALABAMA®

AU AUBURN UNIVERSITY

TUSKEGEE UNIVERSITY

ASU ALABAMA STATE UNIVERSITY

8
RESEARCH
UNIVERSITIES
IN ALABAMA

USA UNIVERSITY OF SOUTH ALABAMA

THE UNIVERSITY OF ALABAMA®

University of Alabama Office for Technology Transfer is responsible for commercializing the innovations generated by UA faculty, staff and students, through licenses to industry or via the formation of spin-off enterprises.



COMPANY HIGHLIGHTS

Throughout Alabama are concentrations of large and small, new and well-established bioscience and related companies.



A UAB spinout company located in Birmingham, **Discovery BioMed** specializes in custom human cell engineering and human cell-based drug discovery. The company supports the commercial and academic drug discovery community by integrating human cell research platforms at any and all points within the drug discovery critical path.



With international headquarters in Birmingham, **BioHorizons** is one of the fastest-growing global implant and biologics companies in the dental implant industry. Its portfolio includes dental implants, instruments and biologics products.

BioHorizons is a medical technology company focused on dental implants, as well as hard and soft tissue regeneration products, for the replacement of missing teeth. **BioHorizons** has products in 90 markets around the globe.



Located in the HudsonAlpha, Huntsville **iCubate** is a privately-held molecular diagnostic company. The integrated iCubate System enables extraction, multiplexed amplification and detection automatically in a closed and disposable cassette. **iCubate** provides a sample-in answer-out diagnostic test with high multiplexing ARM-PCR technology in a user friendly, flexible platform. Other **iCubate** products are available worldwide for non-clinical, research-use only in the areas of health, agriculture, and food safety.



Serina Therapeutics in Huntsville developed a proprietary polymer technology designed to optimize drug delivery to maximize compliance, therapeutic outcomes, safety and quality of life for patients.



Pharmavite is one of the nation's largest manufacturers of high quality vitamins, minerals and other dietary supplements. In 2013, after conducting an extensive site search in the U.S., **Pharmavite**, the maker of Nature Made vitamins and supplements, opened a \$76 million manufacturing facility in Opelika.



Evonik Industries is a leader in bioresorbable polymer and injectable drug delivery technologies. In 2014, **Evonik** opened its first U.S. Innovation Center in Birmingham. The Center is focused on medical devices and technology.

Evonik specializes in drug delivery technologies and manufacturing for pharmaceutical, biotechnology, and medical device companies and employs 800 people in Alabama.



Baxter Incorporated makes hemodialysis dialyzers, and high-tech blood filtering product used in kidney dialysis treatment. In 2017, the facility, located in Opelika, completed a \$270 million expansion project that more than doubled the size of its production facility to increase production of dialyzers to serve patients with end-stage renal disease.



GeneCapture in Huntsville was awarded a \$1 million, two-year Small Business Technology Transfer (STTR) contract to develop a portable disease detector. This is a "gene signature matching platform" that screens for hundreds of pathogens in less than one hour.



Cummings Research Park is home to the 2nd largest research park in the U.S.



University of South Alabama Technology Park, located in Mobile, serves to facilitate interaction between the University and the high-tech and biomedical businesses.



Auburn Research Park is 170 acre mixed-use campus incorporating high technology companies, university research facilities, business support centers, and technology transfer capabilities