



Cincinnati USA: Advancing Bioscience

A healthy environment for life science

Cincinnati USA has a long history of being at the forefront of life science. In 1819 Dr. Daniel Drake founded a formal medical education program that evolved into the University of Cincinnati Medical Center, the nation's tenth oldest medical college and a major center for research.

The region's scientific community boasts a long list of innovations, such as the development of the Sabin oral polio vaccine, first heart-lung machine, first antihistamine, and the Heimlich Maneuver for choking. Recent advancements include a new rotavirus vaccine, islet transplants for diabetics, mammo-tome breast biopsy system, and Actonel for osteoporosis.

Life science enterprises can take advantage of all that Cincinnati USA has to offer. From a skilled workforce and experienced professionals, to a full range of services and

access to capital markets, Cincinnati USA is a supportive business environment. Affordable, too. The cost of doing business is very economical, with utility rates, real estate, and health care costs at or below national averages.

Those are just a few of the reasons why the region is home to more than 200 businesses involved in the research and production of pharmaceutical, environmental, medical and agricultural products. *Source: County Business Patterns.*

Take a closer look at Cincinnati USA, where life sciences thrive.

Educated & experienced workforce

• More than 105,000 of the region's workforce are employed as physicians, engineers, biomedical and environmental scientists and technicians, agricultural and food scientists, and microbiologists. These well-educated individuals work in the fields of life science, natural science, life science technology, mathematical science, health practitioners, health assessment and health technology. *Source: Ohio Job & Family Service.*

Fueling the region's economic engine

- In a recent ranking of top 40 regions for biotechnology, Ohio was #2 with three metro areas, including Cincinnati. *Source: Business Facilities Magazine.*
- The University of Cincinnati (UC) Medical Center—a collective of nonprofits that include University Hospital, Cincinnati Children's Hospital Medical Center, and the Genome Research Institute, among others—is the region's largest employer, with an economic impact of more than \$3.59 billion per year.

At the forefront of research & education

Cincinnati USA offers a range of options for career preparation, from Great Oaks vocational programs geared to bio-medical manufacturing and Cincinnati State's two-year co-op biotechnical program to excellent bio-medical undergraduate and graduate programs at UC, Miami University, Wright State and the University of Dayton. In addition, the region is home to numerous training and research institutions.



Cincinnati USA: A Diverse Bioscience Community

From industry-leading corporations to innovative start-ups, Cincinnati USA is home to diverse companies, including:

Procter & Gamble Pharmaceutical

P&GP scientists focus on cardiovascular, muscular and metabolic research at this division of P&G's Health Care Group, based in a 1.3 million-square-foot R&D center. Cincinnati USA is the world headquarters for Procter & Gamble. The pharmaceutical division markets 40 prescription drugs worldwide and partners with academia, national labs, biotech and pharmaceutical companies in the development of prescription brands.

Ethicon Endo-Surgery – A division of Johnson & Johnson

Ethicon Endo-Surgery's focus is on innovative instruments for non-invasive and traditional surgery, and safety catheters for vascular access. The company develops and markets devices that enable interventional diagnosis and treatment in the areas of general and thoracic surgery, breast disease, gynecology, oncology, and urology. Their three Endo-Surgery Institutes train surgeons in the newest surgical techniques and procedures.

Kendle International Inc.

Headquartered in Cincinnati, Kendle provides clinical development, regulatory/validation consulting, and medical communications services to the pharmaceutical and biotech industries through offices in the U.S., Europe, and Asia. One of the world's largest publicly held clinical research organizations, Kendle has 1,600 associates worldwide and has conducted clinical trials or provided regulatory validation in 60 countries.

Educational center for the development of biosciences

- The **University of Cincinnati (UC) Medical Center**, Nursing and Allied Health programs are ranked among the nation's best graduate schools by *U.S. News & World Report*.
- UC has been designated a Research I University by the Carnegie Commission on Higher Education.
- UC ranked 27th nationally out of 151 U.S. research institutions, earning \$6.5 million in patents (more than the Cleveland Clinic). Fifty percent are licensed or optioned to companies. *Source: Assoc. of University Technical Managers*
- UC's Medical Center is one of the largest centers of life science research in the Midwest, and its graduate biomedical training program ranks 15th nationally.
- The university recently opened the new Center for Computational Medicine.

- Recognized as a leader in clinical teaching and research, UC's Department of Emergency Medicine was the first in the nation to offer an Emergency Medicine Resident Training Program.
- UC's world-class Center for Surgical Innovation is involved in testing and developing new surgical techniques using robotics. The Center's staff includes the first U.S. surgeon to perform cardiac surgery in Europe using the new robotic technology.
- **Cincinnati State Community & Technical College** offers associate degrees and certificate programs in Business and Health Technologies, and ranks fourth nationally for total co-op placements.
- Technology programs include environmental engineering, bio-medical, clinical laboratory technology, nursing, health technology, and computer technology.

A unique partnership of higher education

- The **Ohio Valley Affiliates for Life Sciences (OVALS)**—an alliance of UC, Wright State University, University of Kentucky, and University of Louisville—was formed to reshape approaches to economic development by advancing research in life sciences and stimulating the formation of a regional cluster for biotech organizations in Ohio and Kentucky. Collectively, the OVALS universities attract more than \$500 million annually in extramural research funding.

Cincinnati USA: A Bioscience Research Leader

Rapidly growing research & clinical programs

- UC and its College of Medicine received \$309 million for research in 2003, most coming from NIH, EPA, NASA, state and corporate grants.
- Six departments within the UC College of Medicine rank in the Top 15 for federal research funding: Neurology (#10); Surgery (#15); Cell Biology, Neurobiology and Anatomy (#15); Environmental Health (#10); Molecular Genetic, Biochemistry and Microbiology (#13); Obstetrics and Gynecology (#14).
- Recipient of a \$9.6 million NIH grant, UC is partnering with Cincinnati Children's Hospital Medical Center to establish one of four national breast cancer research centers.
- The Vontz Center for Molecular Studies at UC, home to the university's Cell Biology and Neuroscience graduate programs, has received major grants to conduct stroke and lung cancer research.

At the forefront of genome research

- Scientists at the **Genome Research Institute (GRI)**, established by UC, are working to convert data from the human genome project into better medical treatment. Housed in a \$9-million facility, the GRI works with regional academic, commercial, and government research institutions in a partnership created to enhance Ohio's

biotechnology industry and help the state become the preeminent genome research center. This partnership includes Cincinnati Children's Hospital Research Foundation, Procter & Gamble Pharmaceuticals, Acero, and, in Dayton, Wright State University and the Air Force Research Laboratory at Wright-Patterson Air Force Base.

Leadership in pediatrics

- **Cincinnati Children's Hospital Medical Center** recently tripled the size of its research facility and ranks third nationwide in funding for pediatric centers. The facility conducts research in pulmonology, cardiovascular development, gene regulation, cancer biology, and rheumatology.
- Children's was recently named the nation's eighth best pediatric hospital by *U.S. News & World Report*.
- Children's is the only pediatric organization in the U.S. to receive the prestigious Pursuing Perfection grant from the Robert Wood Johnson Foundation, which will be used for two pilot programs focused on acute and chronic conditions of bronchiolitis and cystic fibrosis.
- Children's was recently awarded a \$17.3 million federal grant by the National Institute for Neurologic Disorders and Stroke for the largest federally-funded study of childhood epilepsy.
- Children's researchers are world leaders in vector technology for human gene therapy.
- The hospital is one of the nation's largest centers for pediatric blood, marrow, and stem cell transplants.

Nurturing entrepreneurial growth

- **BIO/START**, Cincinnati's bio/medical business start-up center, provides start-up firms with cost-effective turnkey lab facilities and office space, guidance from business and scientific experts and mentors, and access to capital. This incubator helps entrepreneurs assemble qualified management, develop effective boards, and reduce time to market through commercialization pathway development and business partnerships.
- *Entrepreneur Magazine* named UC's regional entrepreneurial education programs one of the top 15 out of 700 across the nation.
- Entrepreneurial growth enterprises investing continues to grow through Cincinnati's eight venture capital firms (Blue Chip Venture Corporation, River Cities Capital Fund, Charter Venture Capital, Fort Washington Capital Partners, The Walnut Group, Triathlon Medical Ventures, Isabella Capital, Union Springs LLC), with more than \$1 billion under management, and Queen City Angels, Ohio's leading angel investor network.

Federal facilities

- Cincinnati USA is home to three federal life science facilities:
- US Food and Drug Administration's National Forensic Chemistry Center
 - US Environmental Protection Agency's National Homeland Security Research Center
 - National Institute of Occupational Safety and Health



Cincinnati USA Bioscience Leaders

AccuMed: medical software/hardware

Alkermes Inc.: drug delivery technologies

Atricure: medical devices

Barr Laboratories: generic and proprietary pharmaceuticals

Beckman-Coulter: diagnostic reagent materials

Beiersdorf Inc.: braces, supports, and wound care products

BIO/START: biomedical, bioengineering, and biotechnology start-up business incubator

Biologics Inc.: world's largest developer of live yeast cell derivative

Biopsy Medical Inc.: Mammotome® Breast Biopsy System

Clippard Instruments Lab: accessories for medical and dental equipment

Cutanogen Corp: cultured skin substitutes

Emerging Concepts Inc.: technology commercialization solutions

ENABLE Medical Corp.: surgery products

Ethicon Endo-Surgery: surgical instruments and medical devices

Girindus America Inc.: Active Pharmaceutical Ingredients (API)

Hill-Rom Co.: hospital/patient care systems

Hill Top Research Inc.: consumer and medical product testing

Kendle International Inc.: clinical development services

LanVision Inc.: image-based medical record management

LDT Systems Inc.: wireless and wireline data communications

Medpace Inc.: clinical trials

MedPlus Inc.: medical record management

Meridian BioSciences: diagnostic test kits

Molecular Diagnostics Laboratories: genetic diagnostic tests

Molecular Research Center Inc.: products for isolation and analysis of RNA and DNA

Omnicare Inc.: pharmacy services to long-term care facilities; clinical research

Patheon: pharmaceuticals and vaccines

Procter & Gamble Pharmaceuticals: prescription pharmaceuticals

Shire Pharmaceuticals: prescription and over-the-counter pharmaceuticals

Standard Textile Company Inc.: medical textile, apparel, and surgical products

Teledyne Tekmar: gas chromatography introduction systems

Tyco Healthcare/Mallinkrodt: urology, radiology, and angiography medical equipment

Viacord: R&D in stem cell banking

Wood Hudson Cancer Research Laboratory Inc.: cancer research

Xanodyne Pharmaceutical: women's health products

Cincinnati USA Bioscience Leaders



Cincinnati USA: Easy Access to the World

Cincinnati USA is ideally located for life science enterprises to conduct business throughout the U.S. and the world.

Cincinnati USA is within 600 miles (1000 kilometers) of:

- 54% of the nation's population
- 53% of the nation's manufacturing establishments



World-class transportation options

- Cincinnati/Northern Kentucky International Airport (CVG), ranked best in the U.S. by the International Air Transport Association, offers more than 600 daily non-stop flights to 120 cities, including Amsterdam,

Frankfurt, London, Paris, Rome, and Toronto.

- DHL Worldwide Express, the world's largest air courier, recently completed a \$200 million expansion of its North American hub, located at CVG. Courier hubs for Airborne Express, FedEx, and UPS are located within 100 miles.
- Located where the vital I-75 corridor connects to I-71 and I-74, Cincinnati USA enables quick delivery to customers in multiple states from a single facility.

Additional research activities & facilities

- Cincinnati's **Shriner's Burns Institute**, one of only four in North America, offers support of basic and clinical burn research, including cultured skin substitutes and resistance to infection.
- **Miami University of Ohio** has a Center for Bioinformatics and Functional Genomics, and an interdepartmental facility for molecular biology research and the analysis of molecular data. Miami recently announced the establishment of the Center for Nanotechnology Research (MUCN). The initial focus of research will be on sensor applications in biomedical and industrial uses.

• **Northern Kentucky University's** Center for Applied Ecology does consulting and research with an emphasis on environmental and ecological issues.

- **Cincinnati Zoo's Center for the Reproduction of Endangered Wildlife**—dedicated to the survival of endangered species—has achieved a number of firsts, including the world's first test tube gorilla, first cat born through in vitro fertilization, and first birth of an exotic animal produced through nonsurgical embryo transfer.
- The **Lloyd Library**, founded more than 130 years ago, is considered the world's premier reference library on eclectic, botanical, and pharmaceutical medicine.
- **Wright-Patterson Air Force Base** is conducting R&D on human/machine interfaces under the Human Effectiveness Directorate, and is partnering with Banthrax Corp. on anthrax containment.

For additional information about locating your business in Cincinnati, visit: www.CincinnatiUSA.org. For specific questions, e-mail us at partners@gccc.com.



The Cincinnati USA Partnership is a regional economic development organization representing Southwest Ohio, Southeast Indiana and Northern Kentucky. The Partnership has helped hundreds of companies locate their businesses in Cincinnati USA.