

DIRECTORY FOR LIFE SCIENCES SOURCEBOOK

Sourcebook for Life Sciences Investors & Entrepreneurs Louisville, Kentucky and Surrounding Region

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Introduction to the Life Sciences Source Book

There is a strong and growing community of successful research scientists and Life Science companies that call Louisville their home. The following sourcebook briefly outlines the resources that make their success possible. From well-known research institutions and private R&D efforts to significant state and locally sponsored economic development resources, Kentucky and Greater Louisville is a burgeoning area for Life Sciences investment.

The purpose of this book is to give Seed, Early and Late Stage Venture Investors an overview of resources available for the Life Sciences in Kentucky and Greater Louisville. A driving force behind the publishing this sourcebook is the consistently strong interest shown by investors once they have been exposed to relevant information on the Healthcare Industry, the Life Sciences Industry and the serious commitment to advancing education, workforce development and research resources in Kentucky and Greater Louisville.

The Greater Louisville Health Enterprises Network has assembled this sourcebook. The Health Enterprises Network connects and informs the leadership of local health-related businesses and brings relevant information regarding the vibrant health-related business community in Louisville to investors, analysts, consultancies and companies.

Definitions for the List of Active Life Sciences Companies Seeking Growth Capital

Biotechnology: Use of cellular and molecular processes to solve problems, cure diseases or make products relevant in human, animal or agricultural uses. Examples: gene chips, gene therapy, genetically modified foods.

Pharmaceutical / Nutraceutical: Chemically synthesized and/or naturally occurring substances used for the prevention and control of disease. Examples: combinatorial chemistry, drug delivery, nutritional supplements. *Note*: If the pharmaceutical involved manipulation of genes or proteins it would be classified as biotechnology.

Medical Devices: Engineered products used within or outside the body. Examples: biosensors, prosthetics/orthotics, durable medical equipment such as splints and traction devices.

Bioinformatics: The science of informatics as applied to biological research. Informatics is the management and analysis of data using advanced computing techniques.

Healthcare Information Systems: Development of software applications for use in health care administration, hospital management, physician practice management, health insurance, etc.

Services (life science related): Scientific related services for life science companies. Examples: contract research, lab services, pre-clinical services, clinical trials, bio-logistics, and a variety of manufacturing related services.

Angel Capital Sources Active in the Region

The Greater Louisville Health Enterprises Network coordinates an Angel Investor Network for investors with expertise and interest in the Life Sciences and Health Related Information Technology.

As The Angel Investor Network Coordinator, the Health Enterprises Network offers sourcing of deals, pre-screening of deals, presentations for investors from promising Life Science and Health-Related Information Technology companies and educational seminars and networking events for investors. Please contact the Greater Louisville Health Enterprises Network for details regarding membership in, or access to, our Angel Investor Network.

Emerging companies can apply to receive business planning or pre-incubation assistance through our partnership with Louisville's "New Enterprise Corporation" – an entrepreneurial initiative sponsored jointly by Greater Louisville Inc, Kentucky's Office of the New Economy and several companies and private investors in Louisville (www.enterpriselouisville.com).

Business incubation services can be sought from a variety of sources in Louisville. These include:
The Louisville Medical Center Development Corporation (www.louisville-medcenter.com)
The Information Technology Research Center at the University of Louisville (www.itrc.com)
bCatalyst (www.bcatalyst.com)

Venture clubs can be found throughout the region. Resources include:

Louisville	www.ventureclub-louisville.org
Cincinnati	www.gcva.com
Indianapolis	www.ventureclub.com
Dayton	www.mvva.org
Columbus	www.columbusventurenetwork.org

Bank Financing Available to Life Sciences Companies

Following are member Banks/Savings & Loan Associations that offer SBA Loan Services, Venture Banking Services and/or have a specialty in Healthcare Lending

Fifth Third Bank of Kentucky, Inc.

Chief Lending Officer Bob Eversole
SBA Loan Contact
Healthcare Contact Rich Whipple 502-562-5337

Republic Bank and Trust Company

Chief Lending Officer David Vest
SBA Loan Contact Andy Parker
Healthcare Contact n/a

National City Bank

Chief Lending Officer Chuck Denny
SBA Loan Contact
Venture Banking Contact
Healthcare Contact Roderic Brown

PNC Bank

Chief Lending Officer Mike Varin
SBA Loan Contact Dan Gossman
Venture Banking Contact
Healthcare Contact Ben Willingham 502-581-4969

Stock Yards Bank and Trust Company

Chief Lending Officer Sam Smith
SBA Loan Contact Sam Winkler
Venture Banking Contact
Healthcare Contact

Research Challenge Trust Fund

The Research Challenge Trust Fund (RCTF), a.k.a. “bucks for brains,” was created to support efforts by the University of Kentucky to attain status as a top 20 public research university and the University of Louisville to become a premier, nationally recognized metropolitan university. Since 1998, the Kentucky Legislature has committed \$240 million to the program, which has been matched by an additional \$240 million from the private sector.

The RCTF expects state and private matching funds to be substantially directed toward supporting research that leads to the creation, preservation, or attraction of businesses that increase the number of good jobs available in Kentucky. This program also encourages the use of endowment funds for interdisciplinary and problem-focused research efforts and recognizes the importance of strategic alliances between universities and corporations in specific research projects.

Endowment Match Program funds will be used for the following purposes: endowed chairs, endowed professorships, endowed graduate/professional fellowships, and general research and graduate mission support.

Application Process

A school or college Dean, the Vice President for Research or a department Chair may sponsor an application. The Board of Trustees of each participating University takes ultimate responsibility for decisions on recruitment under this program.

R&D Voucher Fund

Small and medium-sized Kentucky-based companies that seek to undertake research and development work in partnership with universities in the Commonwealth can apply for up to \$100,000 each year, for up to two years. The company shall match the project award by a one-to-one dollar ratio for each year of the project. At least 25% of the match is to be in cash.

The goal is to expand knowledge-driven R&D capacity in Kentucky by investing in innovation and public/private partnerships that lead to new or valued-added companies, jobs, technology, products, processes or services.

Application Process

All companies will complete a three-screen review. Companies are expected to have a fully developed business plan containing detailed market focus and research. More information is available at: <http://www.kstc.com>.

Kentucky Commercialization Fund

University-based researchers can apply for a maximum seventy-five thousand dollars \$75,000 each year, for up to three (3) years.

The goal is to provide seed money to universities for development of promising innovative technologies and an infrastructure that enhances the institution's ability to commercialize promising technologies and create new knowledge-driven companies.

Application Process

All applications will come directly from the university system and will have been approved by internal processes at the applicant institution. Applicants will have to complete an application, meet face to face with KSTC representatives and then be judged in an external peer review process. More information is available at: <http://www.kstc.com>.

Prior to approval of funding awards, KSTC may negotiate with the university the ownership and disposition of patents, royalties, all other intellectual property rights, and an equity or related position on behalf of the Kentucky Commercialization Fund for the sole purpose of reinvesting and sustaining a revolving fund to carry out the provisions of the fund.

Vogt Invention & Innovation Fund

The Vogt Invention and Innovation Award is a \$5 million endowment left by Henry Vogt Heuser to help inventors and innovators commercialize their products and ideas. The primary purpose of this award is to memorialize the Vogt engineering tradition in Louisville and to give qualified recipients the recognition and financial support they need to commercialize their products and services and attract top-notch entrepreneurial talent.

Henry Vogt Heuser

When Henry Vogt Heuser passed away in 1999, he left a long engineering legacy. He was a native of Louisville, and received a degree in mechanical engineering from Purdue University in 1936. His entire career was spent at Henry Vogt Machine Company, where he served as president for 28 years. Whenever Henry had an idea about how to make something better, quicker, or easier, all he had to do was walk out to the shop floor to assess its viability and commercial potential. The endowment he created allows engineers and entrepreneurs to access the same kinds of resources.

Application Process

Pre-applications are due in July of each year. Full applications are solicited from a select group of pre-applicants. More information is available at <http://www.braindollars.com>.

Research Centers of Excellence – Hospital Based

While the member institutions of the Louisville Medical Center provide a wide array of medical services, below is a listing of areas that the Medical Center has received national and international recognition for their level of expertise. Please also see the list of research institutes in this sourcebook.

University of Louisville Areas of Excellence

Existing: Cardiovascular Disease
 Microsurgery
 Transplantation
 Oncology (in conjunction with the J. Graham Brown Cancer Center)
 Visual Sciences
 Clinical Dentistry

Developing: Bioengineering
 Chemical Catalysis and Biohealth
 Genetics and Molecular Medicine
 Neuroscience
 Perception, Sensory and Cognitive Psychology
 Birth Defects Research
 Health Law and Policy

JHHS Centers of Excellence

Hand and Microsurgery
Heart and Lung Care
Home Care
Neuroscience
Occupational Health
Organ Transplantation
Outpatient Care
Plastic and Aesthetic Surgery
Primary Care
Rehab Medicine

Norton Healthcare Areas of Excellence

Cardiovascular
Neuroscience
Oncology
Orthopedics/Spine
Pediatrics
Pre-Natal / Peri-Natal Care
Psychiatry Services
Women's Services

Research Centers of Excellence - University Based

University of Louisville – Louisville, Kentucky

Center for Chemical Catalysis	http://www.louisville.edu/a-s/chemistry/catal.htm
Center for Desalination Modeling, Optimization and Control	http://www.louisville.edu/speed/chemical/research/desalination_center.htm
Center for Genetics and Molecular Medicine	http://www.louisville.edu/medschool/genetics
Center for Geographic Information Systems	http://www.louisville.edu/a-s/geog/gis
Center for Industrial Ergonomics	http://www.louisville.edu/speed/ergonomics
Computer Vision Image Processing	http://www.cvip.uofl.edu/
Cystic Fibrosis Center	http://www.louisville.edu/medschool/pediatrics/div19.html
ElectroOptics Research Institute and Nanotechnology Center	http://www.ee.louisville.edu/~eri
Industrial Assessment Center	http://www.louisville.edu/speed/chemical/research/industrial_assessment_center.htm
Information Technology Research Center	http://trc.louisville.edu/
Institute for Cellular Therapeutics	http://www.louisville.edu/org/ict
Institute for Molecular Diversity and Drug Design	http://www.louisville.edu/org/imd3/imd3.html
Kentucky Population Research Center	http://cbpa.louisville.edu/ksdc
Kentucky State Data Center	http://cbpa.louisville.edu/ksdc
Logistics and Distribution Institute	http://www.louisville.edu/org/lodi
Lutz Microfabrication Center	http://mitghmr.spd.louisville.edu/
Materials Center	http://www.louisville.edu/speed/chemical/research/materials_center.htm

Research Centers of Excellence - University Based

University of Kentucky - Lexington, Kentucky

Center for Biomedical Engineering	http://www.uky.edu/RGS/CBME/
Center for Health Services Management and Research	http://www.mc.uky.edu/CHSMR/
Center for Minimally Invasive Surgery	http://www-mis.uky.edu/
Center for Pharmaceutical Science and Technology	http://www.uky.edu/Pharmacy/cpst/
Center for Prevention Research	http://www.uky.edu/RGS/PreventionResearch/welcome.html
Center for Robotics and Manufacturing Systems	http://www.crms.engr.uky.edu/
Center for Sensor Technology	http://censet.uky.edu/
Clinical Research (KCCRIS)	http://www.mc.uky.edu/KCCRIS
Gill Heart Institute	http://ghi.uky.edu/
Maxwell H. Gluck Equine Research Center	http://www.uky.edu/Agriculture/VetScience/gluck1.htm
Graduate Center for Nutritional Sciences	http://www.uky.edu/RGS/NutrSci
Graduate Center for Toxicology	http://www.mc.uky.edu/toxicology/
Kentucky Injury Prevention and Research Center	http://www.kiprc.uky.edu/
Kentucky Transportation Center	http://www.engr.uky.edu/ktc/ktctmb.html
Livestock Disease Diagnostic Center	http://www.uky.edu/Agriculture/VetScience/lddc.htm
Magnetic Resonance Imaging and Spectroscopy Center	http://www.mc.uky.edu/mrisc/
NSF-MRSEC Advanced Carbon Materials Center	http://www.mrsec.uky.edu/
Advanced Science and Technology	http://www.rgs.uky.edu/astecc/index.html
Center for Applied Energy Research	http://www.caer.uky.edu/
Center for Computational Sciences	http://www.ccs.uky.edu/
Center of Membrane Sciences	http://www.uky.edu/RGS/Membrane/welcome.html
Kentucky Water Resources Research Institute	http://www.uky.edu/WaterResources/
Survey Research Center	http://survey.rgs.uky.edu/
Tobacco & Health Research Institute	http://www.uky.edu/RGS/THRI/

Research Centers of Excellence - University Based

Purdue University - West Lafayette, Indiana

Agricultural Research Programs	http://www.agriculture.purdue.edu/arp/
Center for the Advancement of Transportation Safety (CATS)	http://iies.www.ecn.purdue.edu/IIES/CATS/
Center for Agricultural Business (CAB)	http://www.agecon.purdue.edu/cab/
Center for Collaborative Manufacturing	http://www.ccm.ecn.purdue.edu/
Center for Computational Image Analysis and Data Visualization	http://www.cs.purdue.edu/visctr/
CRISTAL: Core Laboratory for Image Analysis and Multidimensional Applications	http://www.vet.purdue.edu/cristal/
SHAstra Collaborative Modeling and Visualization Project	http://www.cs.purdue.edu/research/shastra.html
Center for Information and Numerical Data Analysis and Synthesis (CINDAS)	http://iies.www.ecn.purdue.edu/IIES/CINDAS
Center for the Management of Manufacturing Enterprises	http://cmme.mgmt.purdue.edu/
Center for Paralysis Research	http://www.vet.purdue.edu/cpr/
Center for Pharmaceutical Processing Research	http://www.pharmacy.purdue.edu/~nsf
Computer Integrated Food Manufacturing Center	http://www.foodsci.purdue.edu/cifmc
Computer Integrated Process Operations Consortium (CIPAC)	http://unitops.ecn.purdue.edu/~cipac
Environmental Science and Engineering Institute	http://fairway.ecn.purdue.edu/~esei/
The I ² Partnership: Infrastructure Innovation	http://ce.ecn.purdue.edu/~iims
Institute for Interdisciplinary Engineering Studies (IIES)	http://fairway.ecn.purdue.edu/IIES/
Institute for Safe, Quiet, and Durable Highways	http://widget.ecn.purdue.edu/~sqdh
Joint Transportation Research Program	http://www.purdue.edu/jtrp
Laboratory of Renewable Resources Engineering (LORRE)	http://iies.www.ecn.purdue.edu/IIES/LORRE/
Markey Center for Structural Biology	http://www-structure.bio.purdue.edu/
Purdue Cancer Center	http://www.cancer.purdue.edu/
Controlled Ecological Life Support Systems (CELSS)	http://www.bio.purdue.edu/nscort/homepage.html
Purdue Technical Assistance Program	http://tap.www.ecn.purdue.edu/tap/
Purdue University Cytometry Laboratories	http://www.cyto.purdue.edu/
Purdue University Materials Consortium (MatCon)	http://www.purdue.edu/matcon
Software Engineering Research Center	http://www.serc.net/
State Utility Forecasting Group (SUGF)	http://iies.www.ecn.purdue.edu/IIES/SUGF/
Whistler Center for Carbohydrate Research	http://www.foodsci.purdue.edu/WCCR

Research Centers of Excellence - University Based

Indiana University / Purdue University (Combined Campus) - Indianapolis, Indiana

Biomechanics and Biomaterials Research Center	http://www.iusd.iupui.edu/~www/research/industry/l2ind_rd_bbrc.html
Oral Health Research Institute	http://www.iusd.iupui.edu/~www/research/industry/l3ind_ohri.html
Computational Fluid Dynamics Laboratory	http://www.engr.iupui.edu/cfdlab/
Engineering and Technology Computer Network Center	http://www.engr.iupui.edu/cnc/
Institute for Forensic Imaging	http://www.engr.iupui.edu/ifi/
IUPUI Communications Technology Laboratory	http://comtechlab.iupui.edu/
Laboratory for Applied Spatial Information Research (LASIR)	http://www.indiana.edu/~rugs/ctrdir/lasir.html
Amyloid Research Group	http://www.iupui.edu/~amyloid/
Anatomical Education Program	http://anatomy.iupui.edu/
Automotive Safety Center for Children	http://www.indiana.edu/~rugs/ctrdir/ascc.html
Bowen Research Center	http://www.bowenresearchcenter.iupui.edu/
Cancer Center, Indiana University	http://iucc.iu.edu/
Diabetes Research and Training Center	http://www.indiana.edu/~rugs/ctrdir/drtc.html
General Clinical Research Center	http://www.gcrc.iupui.edu/
Histoplasmosis Reference Laboratory	http://www.iupui.edu/~histodgn/
Indiana AIDS Clinical Research Group	http://www.iupui.edu/it/indyactu/index.html
Indiana Lions Eye Bank	http://www.ileb.org/
Multipurpose Arthritis Center	http://www.indiana.edu/~rugs/ctrdir/mamdc.html
National Center of Excellence in Women's Health	http://www.iupui.edu/~womenhlt/
Program in Health Outcomes Research	http://patientcenteredcare.iupui.edu/
Program in Medical Ethics	http://www.medlib.iupui.edu/ethics/index.html
Program in Medical Neurobiology	http://www.iupui.edu/~medneuro/
Regenstrief Institute for Health Care	http://www.regenstrief.org/
State Department of Toxicology	http://www.iupui.edu/~iutox/isdt/
Toxicology Program at Indiana University	http://www.iupui.edu/~iutox/
Walther Oncology Research Center	http://www.iupui.edu/~woc/index.html
Wells Center for Pediatric Research	http://www.iupui.edu/~wellsctr/
Nuclear Magnetic Resonance Center	http://www.indiana.edu/~rugs/ctrdir/nmrl.html

Research Centers of Excellence - University Based

University of Cincinnati – Cincinnati, Ohio

Center for Biostatistical Services	http://www.med.uc.edu/biostatistics
Cytogenetics/FISH Laboratory	
Dietary Data Entry Center	http://www.cincinnatichildrens.org/chrf/resources/ddec/
DNA Sequencing	http://www.molgen.uc.edu/dnacore/index.htm
Expression Technology - Bioinformatics	http://genome.uc.edu/
Expression Technology - Genomics	http://microarray.uc.edu
Expression Technology - Proteomics and Protein Characterization Laboratory	http://proteomics.uc.edu
Flow Cytometry	
Flow Cytometry/Cell Sorting Laboratory	
General Clinical Research Center	
Small Animal Heart Cellular Electrophysiology, Pharmacology and Physiology	http://www.med.uc.edu/cardio_bio
Hoxworth Blood Center	
Imaging Research Center	
Clinical Mass Spectrometry Center	
Mass Spectrometry Facility	
Electron Microscopy	
Microscopy and Imaging Core Facility	http://cellsvr.med.uc.edu/cna/services/microscopy/default.htm
Schubert Electron Microscopy	
Molecular Epidemiology	
Monoclonal Antibody	
Nuclear Magnetic Resonance	
Oligonucleotide Synthesis	
Radiochemistry	

Greater Louisville Health Enterprises Network

The Greater Louisville Health Enterprises Network is a professional association of Louisville's premier health-related companies. Our vision is for the region to be globally recognized as a "location of choice" for health related businesses, researchers, educators, investors and consumers.

In order to implement this vision the Health Enterprises Network hosts a number of high-level events and presentations throughout the year and uses mission-driven committees, consisting of top-level decision makers, to champion and foster the growth of the region's health related economy.

Each committee's focus and responsibility represents one of the strategic priorities set forth by our Visioning Committee and Board of Directors. Areas of focus include Entrepreneurship, Human Capital, Government Affairs, Research and Data Collection, Membership and Marketing. More information is available at: <http://www.healthenterprisesnetwork.com>.

Louisville Medical Center Development Corporation

The Louisville Medical Center Development Corporation, a nonprofit organization, was jointly created by its member institutions-the University of Louisville, Jewish Hospital HealthCare Services, Norton Healthcare and the City of Louisville-to help the community capitalize on the economic development potential that exists throughout the Louisville Medical Center. The organization was developed following a citywide visioning process that identified health-related business as one of two areas that Greater Louisville should focus its future economic growth upon. The other focus area, which benefits health-related business, is logistics. More information is available at: <http://www.louisville-medcenter.com>.

Greater Louisville Inc. - The Metro Chamber of Commerce and Regional Economic Development Entity

Greater Louisville Inc. (GLI) provides economic development services to the Louisville metropolitan area. More than just a traditional chamber of commerce, GLI combines business attraction efforts with initiatives that support business retention, expansion and creation.

More than 2,500 businesses belong to the Metro Chamber and benefit from business development programs, government advocacy, market information, networking opportunities and more.

Visit our Member Services, Economic Development, Entrepreneur Zone and Minority Affairs pages to learn how Greater Louisville Inc. is working to promote the region's growth and economic competitiveness well into the next century and to learn why it's a great place to live, work and play. More information is available at: <http://www.greaterlouisville.com>