

GREATER ST. LOUIS  
Venture Capital Report 2006

St!Louis  
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The St. Louis Capital Alliance

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*Partner*

Triathlon Medical Ventures

The St. Louis Capital Alliance is pleased to present this Greater St. Louis Annual Venture Capital Report.

As described in more detail in this report, during 2005 over \$115 million in venture capital investments were made into thirteen St. Louis regional companies, bringing the total venture capital investments since 2000 to over \$930 million. During 2005, investments were made in pharmaceuticals and medical devices, healthcare, information technology and other sectors.

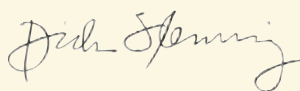
In addition, during 2005 and continuing into 2006, there was a strengthening of the region's resources that support entrepreneurial growth as well as the region's technology and educational environment. The pipeline of high-growth companies continues to fill as BioGenerator started its fifth company, with Washington University technology, soon or immediately after the St. Louis Arch Angels made its fifth seed investment into a local start-up.

The St. Louis Capital Alliance was formed in 2005 under the aegis of the St. Louis Regional Chamber and Growth Association (RCGA) to facilitate and accelerate this momentum by helping develop a vibrant venture capital environment in the St. Louis region.

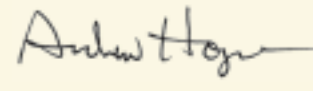
The Alliance is led by an active Managing Committee with the support of the St. Louis RCGA. Special thanks for their leadership with the Managing Committee to Marie Carlie and Mark Stoneman for Alliance Outreach, Michelle Murray and Bryan Muehlberger for the Annual Report, Andres Bonifacio and Ben Johnson for Communications, and Jim Brasunas for Deal Flow.

The Alliance and the St. Louis RCGA are engaging a number of projects designed to improve capital access and entrepreneurial success in the coming year. Please feel free to contact Jay DeLong, Vice President for New Ventures & Capital Formation at the St. Louis RCGA at (314) 444-1130 (jdelong@stlrcga.org), or any member of the Managing Committee to discuss your ideas and your participation.

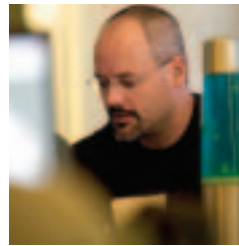
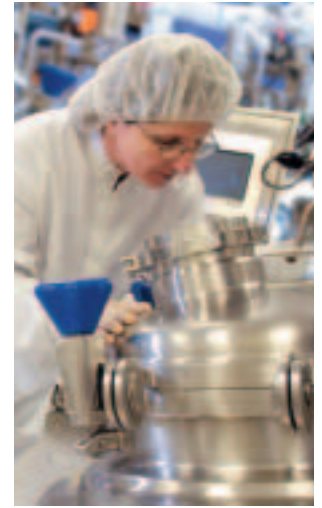
Sincerely,



**Richard C. D. Fleming**  
*President and CEO*  
 St. Louis Regional Chamber  
 & Growth Association



**Andrew T. Hoyne**  
*Partner*  
 Armstrong Teasdale LLP  
 Chairman  
 St. Louis Capital Alliance



# St!Louis

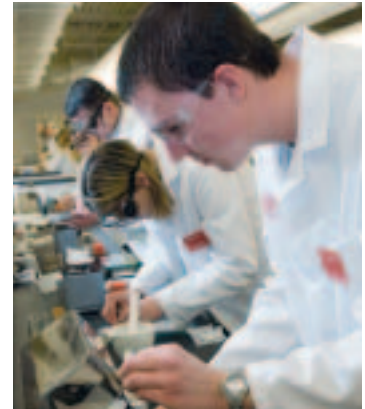
Perfectly Centered. Remarkably Connected.

**T**he St. Louis Capital Alliance was formed by the St. Louis Regional Chamber and Growth Association in 2005 to help develop a vibrant venture capital environment in the St. Louis region through:

- Raising the St. Louis venture capital profile locally, nationally and globally
- Leveraging St. Louis's financial resources
- Supporting programs and infrastructure that generate compelling investment opportunities
- Encouraging collaboration among organizations supporting the growth of the St. Louis venture capital community
- Gaining public support of venture capital by working with government leaders
- Providing networking opportunities across the St. Louis financial community
- Increasing the awareness and involvement of senior St. Louis financial personnel in St. Louis venture capital matters

#### THE ST. LOUIS CAPITAL ALLIANCE

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## STATE OF THE GREATER ST. LOUIS REGION'S Venture Capital Industry ANNUAL REPORT

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The St. Louis region has continued its progress toward becoming one of the major centers for venture capital in the central United States. Especially prevalent has been the impact of its life science-oriented funds, emerging companies, research institutions and established companies. “St. Louis has made more progress in its implementation of the plant and life sciences strategy than any region of the country, and is well on the road to becoming the leading center for plant sciences and a major center for the life sciences,” according to Dr. Walter H. Plosila, vice president of Technology Partnership Practice.

Battelle Memorial Institute in a 2005 update to the Battelle Report.

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### VENTURE CAPITAL INVESTMENT ACTIVITY

St. Louis-based companies attracted \$115 million of venture capital during 2005. The first two quarters of 2006 indicate a trend that by year's end may lead to a 30 percent increase over 2005's total. Leading investment sectors included healthcare, pharmaceutical products, medical devices, information technology and software. Since 2000, over \$930 million of venture capital investment has been made in St. Louis-based companies.

Among the St. Louis companies that obtained more than \$10 million in financing during 2005 were:

- **AGEIA TECHNOLOGIES INC.**, a pioneer in hardware-accelerated physics for games, closed \$27 million in new financing. The offering was led by Granite Global Ventures; financing also came from new investor Hercules Technology Growth Capital along with current investors Apex Venture Partners, BA Venture Partners, CID Ventures, HIG Ventures, and VentureTech Alliance.
- **CENTERRE HEALTHCARE** raised a \$30 million Series B financing. In addition to local RiverVest Venture Partners, fundraising has included River Cities Capital Funds, Sterling Venture Partners, Pacific Venture Group, SightLine Partners, Baird Venture Partners and Three Arch Partners. Centerre has partnerships with St. John's Mercy in St. Louis, Lancaster General in Pennsylvania, and Methodist in Dallas, among others.
- **ISTO TECHNOLOGIES**, an orthobiologics company, raised \$10.8 million of equity and development funds. Zimmer Holdings led the financing round; other key investors included Alafi Capital Company LLC, Life Science Partners and Mid-America Transplant Services. ISTO is developing cell-based therapies that team with the body's resources to heal, regenerate, and restore full function to damaged cartilage. ISTO has received FDA approval to initiate clinical trials for its cartilage repair graft and has teamed with Zimmer for its development.

- **KEREOS INC.** raised \$20 million in a Series B venture financing. Prolog Ventures, Triathlon Medical Ventures and Charter Life Sciences led the round along with existing investors RiverVest Venture Partners, Advantage Capital and Barnes-Jewish Hospital. Additional new investors included Alafi Capital, Apjohn Ventures, Harris and Harris Group, Lux Capital, MB Venture Partners, Sigvion Capital and Vectis Life Sciences, as well as corporate investors Genentech and Royal Philips Electronics.

- **PURKINJE**, a leading EMR Canadian vendor and Wellinx, developer of an evidence-based electronic prescribing system, merged in 2005 and received \$11 million of financing. The combined company is headquartered in St. Louis.

### NEW VENTURE FUNDS

Prolog Ventures closed on its \$66 million second fund, Prolog II, in 2005, to add to a cumulative total of nearly \$1.6 billion of venture capital under management by the eleven St. Louis-based venture capital funds. Vectis, a life sciences fund-of-funds and Prolog II's lead investor, closed its \$81.5 million fund in 2005. Lead investors in Vectis include The Danforth Foundation, the James S. McDonnell Foundation, Washington University and Missouri Foundation for Health. Vectis has invested in 12 life sciences venture capital funds across the country. The Vectis network of VC firms work actively to consider investment opportunities and syndicate on deals in St. Louis. In addition, during 2005 Advantage Capital Partners raised over \$40 million of new capital for investment in entrepreneurial ventures.

### SEED-STAGE INVESTMENT ACTIVITY

A new angel network, the St. Louis Arch Angel Network, was launched in early 2005 as a civic venture by the Nidus Center and the RCGA. The St. Louis Arch Angel members have invested millions into five St. Louis companies and membership in the Arch Angels is approaching 50 members.



## Annual Venture Capital Report

The group provides seed and early-stage capital in a range from \$250,000 to \$2 million. Members commit to invest a minimum of \$50,000 per year in network-backed investments and to act as mentors, serve on boards, provide contacts, generate deal flow, assist with team building, and help with strategies, planning and fundraising.



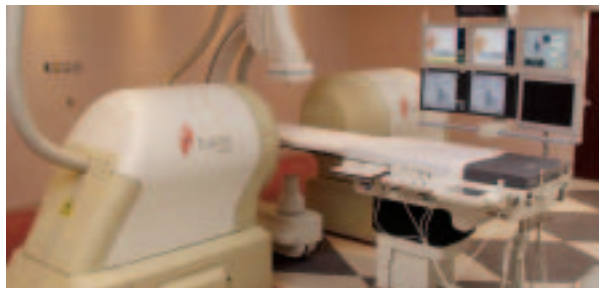
### ENGINES OF INNOVATION

The St. Louis region continues to strengthen its resources to support entrepreneurial growth as well as its technology and educational environment. Highlights included:

- **BIOGENERATOR** recently made a seed investment into its fifth company—Medros Inc.—which was formed from Washington University technology to identify pharmaceutical products directed at diabetes and cancer using proprietary *Drosophila*-based technology. Medros is the first company based upon Washington University School of Medicine technology formed by BioGenerator, and is the first local company based upon the School of Medicine technology formed in recent years.
- **CORTEX-1**, the first building in a midtown St. Louis biomedical business district between the Washington University Medical School and Saint Louis University was completed. Initial tenants of the 170,000 square foot building are Stereotaxis and Washington University. CORTEX, the Center of Research, Technology and Entrepreneurial Exchange, was formed in 2003 by Washington University, Saint Louis

University, University of Missouri in St. Louis, the Missouri Botanical Garden and Barnes Jewish Hospital, the City of St. Louis, Civic Progress and the RCGA. The research institutions have invested \$29 million—now leveraged to \$55 million—to form CORTEX, a legal partnership that buys and develops real estate to attract established and start-up biotech companies. It has acquired development rights for 175 acres from the City of St. Louis, in a several hundred acre overall district west of downtown.

- **NIDUS CENTER** incubator clients have attracted nearly \$32 million in funding over the past 18 months from venture capital investors, angels, grants and licensing fees. During this time, two clients have graduated from the incubator—Quick Study Radiology (QSR), a medical imaging company, and Advanced ICU, a medical services company. QSR relocated to downtown St. Louis, attracting significant additional new investment from Advantage Capital Partners. Advanced ICU remained in Creve Coeur and has continued to raise monies from local angels and venture groups as they expand their business. Another Nidus Center Company, Akermin, Inc., a biofuel cell company, secured \$2.75 million from Prolog Ventures, Chrysalix Energy, OnPoint Technologies and local angels which has allowed them to substantially expand their R&D efforts. HumanZyme, Inc., a producer and supplier of human proteins, started their company at Nidus Center in 2005 and receipt of a \$2.5 million round of series B funding enabled the company to expand operations into China.
- **STEREOTAXIS** recently graduated from the Center for Emerging Technologies, one of the region's high technology incubators, and became the first tenant at CORTEX-1. The publicly-traded Stereotaxis makes advanced surgical equipment for preventive and life-saving cardiac procedures. Its Niobe system creates a magnetic field and uses metal guide wires that allow doctors to deliver stents and catheters to remote recesses of the heart.



- **EDWARD A. DOISY RESEARCH CENTER** has been “topped out.” The \$67 million building is part of an \$80.5 million project that also includes renovation of existing laboratory space at Saint Louis University’s medical center. Construction began in June 2005 and the building is expected to open in the fall of 2007. The research center will focus on five key areas: cancer, liver disease, heart/lung disease, aging and brain disease, and vaccine development for a variety of infectious diseases. The building is named for Saint Louis University School of Medicine Nobel laureate, Edward A. Doisy, Ph.D.
- **WASHINGTON UNIVERSITY SCHOOL OF MEDICINE** received a \$16 million grant to set up a center using nanotechnology to diagnose and treat cancer. The five-year grant, from the National Cancer Institute, is to create the Siteman Center of Cancer Nanotechnology Excellence (SCCNE), which will be headed by Dr. Samuel Wickline. Wickline, a professor at the school and a cardiologist at Barnes-Jewish Hospital, and Dr. Gregory Lanza, an associate professor of medicine and cardiologist at Barnes-Jewish, developed nano-scale particles that find tumor cells and carry imaging agents and drug therapy directly to the tumor site. The center will focus on breast cancer, melanoma detection and treatment and developing general oncology applications. It is located at CORTEX-1.
- **WASHINGTON UNIVERSITY MEDICAL SCHOOL** was ranked as #4 in the *U.S. News & World Report* rankings for medical schools, released in April 2006. The University’s biological sciences (biology, biomedical sciences, and biomedical engineering) were tied for #9 in the rankings.
- **CENTOCOR BIOLOGICS** marked the first year of operating its 250,000-square-foot manufacturing site in St. Louis. It has over 300 employees and further expansion of the plant is continuing. Centocor Biologics produces clinical stage and commercial biomedicines for use in therapeutic areas such as immunerelated disease and oncology. Centocor is a member of the Johnson & Johnson family of companies.

*Continued on page 6*

## Information and Communications Technology

Efforts to build and expand St. Louis’ information and communications technology industry are underway as a complement to the region’s plant and life sciences development.

The St. Louis region currently has approximately 40,000 jobs in IT-related fields. IT operations in the region include major facilities for such diverse companies as AT&T, Boeing, Edward Jones, Emerson, Enterprise Rent-A-Car and MasterCard. In addition, there is on-going research and development at the region’s universities—Washington University, Saint Louis University, University of Missouri at St. Louis, and Southern Illinois University Edwardsville.

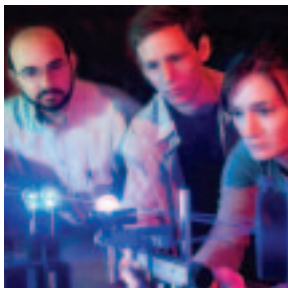
The Technology Entrepreneur Center (TEC) was established as an IT incubator in 2004. It generally houses about six emerging tenant companies. St. Louis has had a number of successful IT start-ups in recent years. IT companies currently in the entrepreneurial pipeline include Ageia, Asynchrony Solutions, Global Velocity, iMobile Access Technology and Exegy.

There are a number of efforts underway to build on this solid base. Recent start-ups include Ageia, Asynchrony Solutions, Global Velocity, iMobile Access Technologies and Exegy.

During the summer of 2006, the St. Louis Coalition for Information and Communication Technology was formed to leverage this potential among information technology professionals, companies and universities. The Coalition is chaired by Mark Showers, Monsanto CIO, who is supported by a board of industry and academic IT leaders.

Another IT incubator will be established on the campus of the University of Missouri at St. Louis. This incubator is intended to house a dozen or so technology start-ups. The start-ups will benefit from the center’s high-performance computing capabilities and access to faculty and graduate students.

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- **WASHINGTON UNIVERSITY** was awarded \$400 million of NIH awards for 2005, ranking #4 among medical schools, and trailing Johns Hopkins University, University of Pennsylvania, and University of California San Francisco.
- The \$20-million **NATIONAL CORN-TO-ETHANOL RESEARCH CENTER** (NCERC) on the Southern Illinois University Edwardsville campus has recently received four multi-million dollar grants and corporate donations. The center is designed to support the research and development of various processes when ethanol is produced from corn or its components through fermentation. It is the only facility in the world that fully emulates both a corn wet-mill and dry-mill commercial fuel ethanol production center.
- **PFIZER** broke ground on a \$200 million expansion of its research and development center in suburban St. Louis County. The nearly 330,000-square-foot facility will provide Pfizer with space to relocate approximately 250 employees, currently dispersed throughout the St. Louis region, to its Chesterfield campus. It is scheduled to open in late 2008. The new facility will bring the total number of Pfizer employees located at the Chesterfield site to slightly over 1,200. Researchers in St. Louis, working closely with other Pfizer researchers around the globe, focus on potential medicines to treat cardiovascular disease, pain and inflammation, and Chronic Obstructive Pulmonary Disease (COPD) and respiratory diseases. Its St. Louis facility is one of the company's six major research sites around the world.
- **MALLINCKRODT PHARMACEUTICAL GROUP**, a division of Tyco Healthcare, expanded its St. Louis research and development efforts by moving parts of its pharmaceutical group to a new 65,000-square-foot building that will house 100 scientists, including more than 25 new researchers.

*Continued on page 8*

## Nanotechnology- Making Giant Strides in St. Louis

**T**he St. Louis region is developing its reputation and building on its strengths in nanotechnology.

Missouri was ranked as the #5 state in July 2006's *Small Times* state venture capital and MEMS rankings. The ranking notes that Missouri "also benefited from a strong nanobio community, as evidenced by the funding of both Kereos and Chlorogen in 2005, each of which raised significant dollar amounts."

In addition, Washington University School of Medicine's Siteman Center of Cancer Nanotechnology Excellence was recently established as one of seven U.S. labs that the National Cancer Institute has funded. NCI provided \$16 million for the Center, which is now located in midtown at CORTEX-1 as part of the new Consortium for Translational Research in Advanced Imaging and Nanomedicine (C-TRAIN). C-TRAIN is also supported by the National Heart Lung and Blood Institute and Philips Medical Systems.

On a related note, St. Louis-based McCarthy Building Companies Inc, has built or established joint ventures to construct or remodel nanotechnology facilities at Cornell University, Rice University and the University of California at Berkeley.



## St. Louis Venture Capital Annual Survey

COMPANY NAME	FUND DETAILS	CLOSED CAPITAL UNDER MANAGED \$M (AS OF 12/31/2005)	YEAR FOUNDED
A.G. Edwards Capital Inc. <sup>1</sup>	A.G. Edwards Private Equity Partners I - II	\$ 230.0	1999
Advantage Capital Partners <sup>2</sup>	Advantage Capital Missouri Partners I - III	\$ 650.0	1992
Ascension Health Ventures LLC	Ascension Health Ventures Fund I	\$ 125.0	2001
Community Investment Partners	Community Investment Partners II - V, L.P., LLLP	\$ 6.5	1990
Gateway Associates LLC	Gateway Mid-America Partners Gateway Partners II - III Banc One Missouri Equity (BOME), Inc. BOME II - III	\$ 153.5	1984
Oakwood Medical Investors	Oakwood Investors I, LLC Oakwood Medical Investors II - IV, LLC	\$ 77.0	1997
Prolog Ventures LLC	Prolog Capital A & B, L.P. Prolog Capital II, L.P.	\$ 100.0	2001
RiverVest Venture Partners	RiverVest Venture Fund I, L.P.	\$ 89.0	2000
Triathlon Medical Ventures <sup>3</sup>	Triathlon Medical Ventures Fund I	\$ 104.0	2004
Vectis Life Sciences <sup>1</sup>	Vectis Life Sciences Fund I, L.P.	\$ 81.5	2004
<b>Total</b>		<b>\$ 1,616.5</b>	

1 St. Louis based fund-of-funds

2 Dual headquartered in New Orleans, LA and St. Louis, MO

3 Branch office in St. Louis

## Venture Capital Firms Investing in St. Louis in 2005

FUND MANAGER	HEADQUARTERS LOCATION
Advantage Capital Partners	Louisiana & Missouri
Alafi Capital Company LLC	California
Apex Venture Partners	Illinois
Apjohn Ventures Fund	Michigan
BA Venture Partners	California
Baird Venture Partners	Illinois
Burrill & Co.	California
Charter Life Sciences	California
Chrysalix	British Columbia
CID Equity Partners	Indiana
Granite Global Ventures	California
Harris and Harris Group	New York
HF Management	Indiana
Hercules Technology Growth Capital	California
HIG Capital Management	Florida
Life Science Partners	The Netherlands

FUND MANAGER	HEADQUARTERS LOCATION
Lux Capital	New York
MB Venture Partners	Tennessee
On Point Ventures	Florida
Pacific Venture Group	California
Portage Venture	Illinois
Prolog Ventures	Missouri
Redmont Ventures	Alabama
River Cities Capital Funds	Ohio
RiverVest Venture Partners	Missouri
SightLine Partners	Minnesota
Sigvion Capital	Illinois
Sterling Venture Partners	Illinois
Three Arch Partners	California
Triathlon Medical Ventures	Ohio
Vectis Life Sciences Fund, LLP	Massachusetts
VentureTech Alliance	California



## Walking the Talk, Literally

**CORTEX** is no longer the collaborative theory of academics and economic developers, but now this urban research and technology district west of downtown St. Louis stretching three square miles has become a walking tour of some of the largest R&D commitments in the Midwest.

Flanked on the east by the nearly completed \$65 million Doisy Research Center, CORTEX, is now proving out the value of locating in the corridor between Saint Louis University and Washington University Medical School. Stereotaxis (NASDAQ: STXS), which recently went public, moved into the 170,000-square-foot facility of office and laboratory space—CORTEX 1. Washington University's new external project: Center for Applied Nanomedicine has also just moved there. These two tenants leased over half of the building.

Solae, the DuPont/Bunge joint venture, has recently started construction of its \$40 million headquarters down the street.

"This project (CORTEX) represents a seminal contribution to the St. Louis community's goal of becoming a national leader in the life sciences through contributions to CORTEX," says Joe Weixlmann, Ph.D., provost of Saint Louis University. "This collaborative organization promises to position the St. Louis region as one of the nation's most vibrant and productive contributors to the advancement of life sciences."

CORTEX, which stands for the Center for Research Technology and Entrepreneurial Exchange, is driven by a consortium that includes UMSL, Washington University, Saint Louis University, Missouri Botanical Garden, and Barnes Jewish Hospital, as well as civic leaders such as the RCGA, Civic Progress, and the City of St. Louis. The CORTEX initiative is designed to provide incentives to collocating within a nationally recognized life-sciences industry in Midtown St. Louis. The district's proximity to these major research institutions, and the economic development benefits of the zone, are serving as an effective draw. n

- **RCGA BIOFUELS WORKING GROUP** established the Center for Evergreen Energy. The initiative is chaired by Dr. Ganesh Kishore, Vice President of Science and Technology and Chief Biotechnology Officer for DuPont, and is designed to link local groups with expertise and experience in biofuels, including Washington University, the Donald Danforth Plant Science Center, DuPont, Monsanto, Peabody Energy, the National Corn Growers Association and the National Corn-to-Ethanol Research Center on the campus of Southern Illinois University Edwardsville.



- **ST. LOUIS COALITION FOR INFORMATION AND COMMUNICATION TECHNOLOGY** was formed to help build and expand the region's IT and telecom business community. The Coalition is chaired by Mark Showers, CIO of Monsanto, and includes representatives of universities and emerging and established IT and telecom companies.
- **INNOVATE ST. LOUIS** was officially launched by business, civic, university leaders and the St. Louis Regional Chamber & Growth Association, to enhance the region's entrepreneurial environment and to catalyze innovation and entrepreneurship. It is chaired by Dr. William A. Peck, Director of Washington University's Center for Health Policy and former dean of the Washington University School of Medicine.



## Annual Venture Capital Report

- **CHLOROGEN INC.** was named 2006 Outstanding Incubator Client in the technology category at the National Business Incubation Association's 20<sup>th</sup> International Conference on Business Incubation held in St. Louis. The international award was based on Chlorogen's efforts to raise venture capital to produce therapeutic proteins in tobacco plants for the treatment of certain ovarian and other reproductive cancers. Chlorogen is based at the Nidus Center for Scientific Enterprise. In January 2006, Chlorogen announced that it had raised \$6 million of venture fund financing.

- **THE CENTER FOR EMERGING TECHNOLOGIES (CET)** announced that its tenant companies had attracted \$72 million of investment and revenues for its 2005-2006 fiscal year, and that its graduates had received an additional \$85 million in venture finance. Since CET was established in 1998, its tenant companies and graduates have attracted a total of \$710 million of funding. The CET also announced that three new tenants were occupying space formerly occupied by Stereotaxis Inc., which relocated to expanded space at CORTEX. Those companies include: Somark Innovations Inc. developing a radio frequency identification system for tracking cattle and other livestock; TradeHarbor Inc.—offering voice-print security technology to health care and financial services firms; and Pepex Biomedical Inc.—developing biosensors for monitoring patients' lactate levels following a trauma, or in critical care.

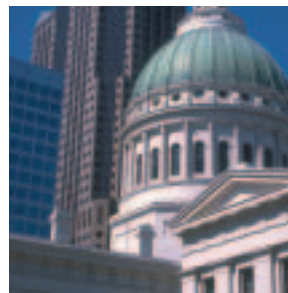
- **THE BIOTECHNOLOGY LABORATORY INCUBATOR** was established at Southern Illinois University Edwardsville and construction is now complete on the \$1.6 million biotechnology research center. It spans 11,076 square feet and will house up to 12 wet labs designed for biology, chemistry and bio-chemical experimentation.

- **THE SITEMAN CANCER CENTER** at Barnes-Jewish Hospital and Washington University School of Medicine in St. Louis has been accepted into The National Comprehensive Cancer Network (NCCN), an alliance of the world's leading cancer centers. The Siteman Cancer

Center has multidisciplinary programs for all types of cancer. Nearly 6,000 new cancer patients are treated there each year. The Siteman Cancer Center is a partnership of two nationally recognized organizations: Barnes-Jewish Hospital and Washington University School of Medicine. Barnes-Jewish Hospital ranks consistently among the top 10 hospitals nationally in *U.S. News and World Report* ratings, and in the same ratings, the School of Medicine routinely ranks among the top five medical schools.

- **THE SOLAE COMPANY** announced plans to relocate its global headquarters to the CORTEX district. Construction is expected to be completed in the second half of 2008. Solae was established in 2003 as a joint venture of DuPont (NYSE: DD) and Bunge (NYSE: BG). Solae is the global leader in soy protein research and innovation with 3,000 employees, annual revenue of more than \$1 billion, and greater than 50 percent share of the world's isolated soy protein food ingredient market.

- **MONSANTO FUND** awarded a \$15 million donation to the St. Louis-based Donald Danforth Plant Science Center to support the Center's "Campaign for a Green Future" and efforts to develop high-yield crops for Africa. The Donald Danforth Plant Science Center is an independent, not-for-profit research institute. Its research focuses upon enhancing the nutritional content of plants to improve human health, increase agricultural production to create a sustainable food supply, and build scientific capacity to generate economic growth in the St. Louis region and throughout Missouri.



# Developing the St. Louis Pipeline

The St. Louis region has developed a system of interrelated entities and organizations working together to identify, nurture, build and expand venture-ready and venture-backed companies, particularly in the plant and life sciences. Three emerging companies illustrated below demonstrate some of the interrelationships that have been put into place.

**MEDROS INC.**, established in 2006, is based upon technology developed at the Washington University School of Medicine by Ross Cagan, Ph.D., professor of molecular biology and pharmacology and Thomas Baranski, M.D., Ph.D., professor of medicine and an endocrinologist at Barnes-Jewish Hospital. The company will use a novel technology to rapidly screen thousands of drugs for their effectiveness against diabetes and cancer.

Medros was launched with the joint backing of the Washington University School of Medicine and BioGenerator. Medros is the first BioGenerator-funded company originating from research conducted at Washington University School of Medicine.

Vectis Life Sciences Fund I is an \$81 million Missouri-based life sciences Fund of Funds which has invested into three (3) St. Louis based venture capital firms and ten (10) others located around the U.S. Brooke Private Equity, the Fund's general partner, has been encouraging interaction and co-investing by the recipient funds to enhance the early-stage Missouri venture capital industry and to ensure sufficient funding for portfolio companies to reach fruition. Vectis has also made direct investments at later-stage rounds behind lead investors.

Medros is located in the Center for Emerging Technologies, a technology incubator organized in 1995 as a public-private-academic partnership.

Serving on the science advisory board of Medros are Kenneth S. Polonsky, M.D., the Adolphus Busch Professor and head of the Department of Medicine; John F. Dipersio, M.D., Ph.D., deputy director of the Siteman Cancer Center and the Lewis T. and Rosalind B. Apple Professor of Medicine; and Philip Needleman, Ph.D., adjunct professor of molecular biology and pharmacology. Dr. Needleman is also a partner of Prospect

Venture Partners, and was the senior executive vice president and chief scientist of Pharmacia from 2000 to 2003.

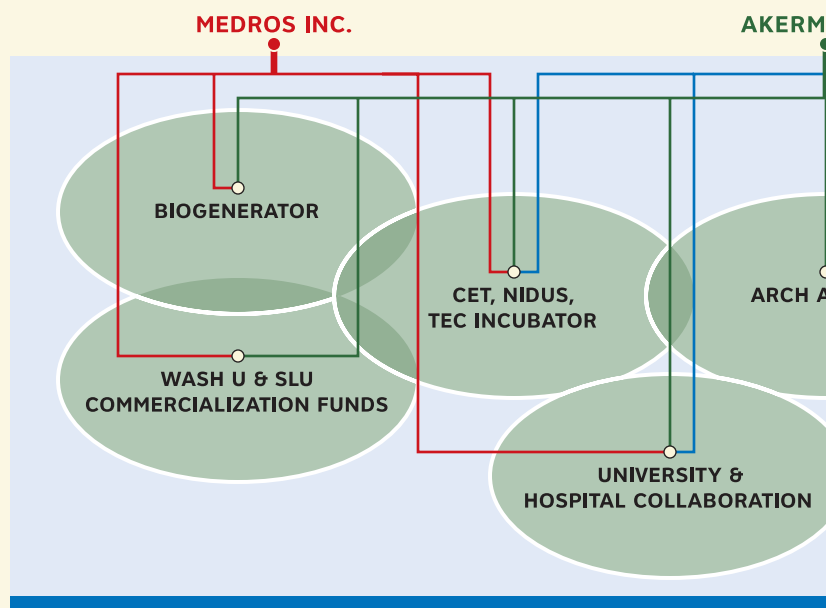
**AKERMIN INC.** was established in 2003 by Nick Akers and Dr. Shelley Minteer, Associate Professor at Saint Louis University, based upon bio-fuel cell technology developed at Saint Louis University.

The company received initial funding from Saint Louis University and BioGenerator. Akermin graduated from BioGenerator in 2005.

Akermin completed a Series A venture capital funding round in 2005. The investors were Chrysalix Energy, a Vancouver-based venture fund, OnPoint Technologies, a private equity firm funded by the U.S. Army, Prolog Ventures of St. Louis, and investors from the St. Louis Arch Angel Network. St. Louis Arch Angels was formed in 2005. Its members have individually invested several million dollars in local companies.

Akermin is located at the Nidus Center for Scientific Enterprise. The Nidus Center is a plant and life science technology incu-

## Process of Com



bator. The independent incubator was established and is funded by Monsanto as a way to encourage innovation and technology development.

**KEREOS INC.** is developing targeted imaging agents and chemotherapeutics based upon technology developed by Samuel A. Wickline, M.D., a professor at the Washington University School of Medicine and a cardiologist at Barnes-Jewish Hospital, and Dr. Gregory Lanza, M.D., Ph.D., an associate professor of medicine and cardiologist at Barnes-Jewish.

Kereos received early funding from RiverVest Ventures.

In October 2005, Kereos completed a \$20 million Series B venture round. Co-led by local venture capital firms Prolog, Triathlon Medical Ventures, and California-based Charter Life Sciences, investors in this round included St. Louis based, RiverVest, Advantage Capital, and Barnes-Jewish Hospital. Other investors included Alafi Capital, Apjohn Ventures, Harris and Harris Group, Lux Capital, MB Venture Partners, Sigvion Capital and Vectis Life Sciences, as well as corporate investors Genentech and Royal Philips Electronics.

BioGenerator is a non-profit corporation that facilitates the formation of plant and life science companies in the St. Louis region. It identifies promising university-based life science technologies, then provides the seed funding and other professional resources and support to turn the technology into early-stage companies. Major contributors to BioGenerator include the Danforth Foundation, the James S. McDonnell Foundation, Monsanto, and Bunge North America.

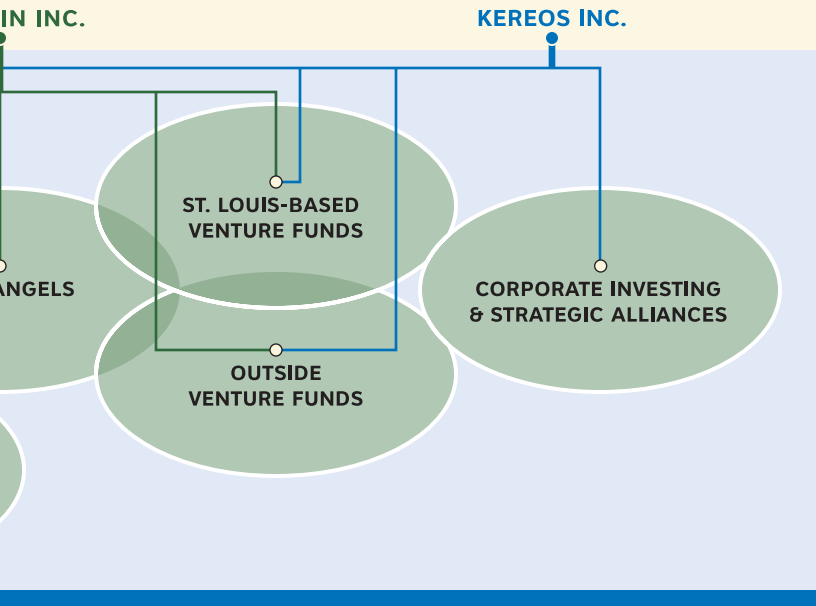
Kereos is also working with pharmaceutical and imaging companies, including Bristol-Myers Squibb Medical Imaging and Philips Medical Systems on the development of molecular imaging systems.

Kereos is based at the Center for Emerging Technologies (CET). In January 2003, CET was named as one of the top 10 incubators in the United States by the National Business Incubation Association.

**Final Comment.** Although the stories set out above demonstrate many interrelationships that are working together to identify, nurture, and build venture-ready companies in St. Louis, there are others worth noting. These include:

- The availability of a trained workforce with employees from the pools of established workers at Pfizer, Monsanto, Sigma-Aldrich, Centocor, and other companies
- The numerous corporate partnering arrangements, i.e. venture-backed companies Divergence Inc. and Chlorogen Inc. and their respective partners Monsanto and Sigma-Aldrich
- Opportunities to work with the Donald Danforth Plant Sciences Center that so many local venture-backed companies do, such as Divergence Inc.
- The pool of local experts available as Directors and Scientific Advisors
- Service providers to the local pharmaceutical industry available to support start-ups
- The overall leadership of the Coalition of Plant and Life Sciences.

## Commercialization





## SUMMARY OF COMPANIES RECEIVING Venture Capital IN 2005

**Ageia Technologies** develops technology to enhance interactive media playback. The company develops chips for processing three dimensional visual data for applications such as computer simulation, gaming, and security. Its product—PhysX—is a physics semiconductor chip that can enable realistic videogame graphics like crumpling fenders in car crashes, exploding buildings with tons of debris and a wall of lava that flows like the real thing. Besides venture capital, they have received strategic investments from corporate partners like Dell.

**Akermin** is developing biofuel cell technology based on work originating in Saint Louis University. Biofuel cells eliminate the two most expensive components of a conventional fuel cell, the platinum catalyst and the PEM, and operate on a wide variety of benign fuels. The result is a cost effective and user-friendly power supply that will offer significantly greater operating times for portable electronics devices such as cellular phones and laptop computers.

**Assist Guide** is a six-year-old internet-based company that serves the long-term care market with information management and electronic forms systems that function as a single point of contact between consumers, government agencies, service providers and employers.

**Centerre Healthcare** is a provider of inpatient rehabilitation services in partnership with general acute care hospitals using either a joint venture or hospital-within-a-hospital platform. The company enables hospitals to develop or continue to offer high-quality inpatient rehabilitation services

that meet their patient and physician needs, while minimizing their operational and reimbursement risk.

**Chlorogen** is developing pharmaceutical proteins in tobacco through chloroplast transformation, a new technique that could increase therapeutic drug availability, reduce drug costs and prevent biotech genes from escaping into the environment through pollen. Chlorogen has an extensive pipeline of therapeutic, agronomic and industrial proteins and has successfully expressed them in the chloroplasts of tobacco. Chlorogen will partner with pharmaceutical companies in developing its high-value therapeutic proteins. The company is also pursuing licensing agreements with developers of agronomic, nutritional and industrial proteins.

**Everest Biomedical Instruments** develops neurological and brain-state assessment devices. Everest's technology incorporates the sciences of electroencephalography (EEG) and computerized neurometric assessment and creates unique low-cost handheld diagnostic devices available at the bedside. Each of Everest's products is predicated on essentially the same miniaturized hardware, but each also contains a unique set of algorithms and proprietary digital signal processing (DSP) to address specific unmet clinical needs and is tailored to a specific point-of-care. Its current product-SNAP II—provides an all-new objective metric to help assess levels of consciousness (LOC). A derived EEG measurement, the SNAP Index, based on analysis of high- and low-frequency EEG, indicates the patient's brain activity level. The SNAP II device supplements hemodynamic monitoring and clinical observa-



tions with the SNAP Index to facilitate patient management. Principal areas of use are hospital operating rooms and ambulatory surgery rooms.

**Exegy** integrates search-optimized data storage systems, data mining and business intelligence appliances, greatly accelerating knowledge mining in a data mart environment. Exegy's technology is especially powerful over very large—multi-hundred of terabytes or more—data stores such as those utilized by financial services and U.S. intelligence agencies.

**Isto Technologies** is a developer of engineered tissues and chemical compounds for the repair or regeneration of human tissue that has been injured or destroyed by trauma or disease. The company's technology is being developed to grow human cartilage tissue from chondrocytes derived from human donors. This laboratory-grown cartilage is intended for surgical implantation to repair or replace injured or diseased cartilage in the knee or other joints. Its product—Neocartilage—is an in-vitro cultured cartilage graft that is intended for use in patients with early cartilage damage. With early intervention, Neocartilage will help prevent the development of osteoarthritis.

**Kereos** is a developer of targeted therapeutics and molecular imaging agents that detect and attack cancer and cardiovascular disease earlier and more specifically than previously possible, and was selected as one of the "Fierce 15" of the top emerging biotechnology companies for 2004 by FierceBiotech, an internationally-recognized publication for the biotech industry.

**Orion Genomics** develops oncology diagnostic products for cancer screening and therapy selection. They find and interpret normal and abnormal epigenetic patterns of DNA methylation, also known as DNA's Second Code, to find breast, lung, ovarian, colorectal and other common cancers. Additionally, they are discovering biomarkers that can aid in the selection of best therapies for cancer patients.

**Quick Study Radiology** is a medical technology service provider company that is dramatically altering the way radiology departments will operate in small and mid-sized markets whose hospitals have 300 beds or less. Using a web-

based service business model, QSR will greatly enhance the manner in which small and mid-sized radiology departments store, retrieve, and present diagnostic images; manage their workflow; and provide or utilize referral and consult services among different radiology departments.

**Singulex** is a provider of ultrasensitive instrumentation, assays, and related reagents for infectious disease, blood screening, and biodefense. The company provides an instrument that differentiates and counts individual molecules, cells, and microspheres, in solution. The company has demonstrated that its sensitivity is 100 times greater than a commercial TSH test and 30 times more sensitive than a commercial PSA test.

**Purkinje** (formerly Wellinx) developed an electronic medical record system for physician groups, hospitals and government agencies. The system allows doctors to track their patients' prescriptions and access medical information on wireless handheld computers. n

COMPANY	AMOUNT
AGEIA	\$ 19,110,000
Akermin	\$ 2,500,000
AssistGuide	\$ 2,615,000
Centerre Healthcare	\$ 30,000,000
Chlorogen	\$ 2,000,000
Everest Biomedical Instruments	\$ 1,000,000
Exegy <sup>1</sup>	\$ 6,000,000
ISTO Technologies	\$ 10,800,000
Kereos	\$ 19,500,000
Orion Genomics	\$ 4,000,000
Quick Study Radiology	\$ 2,030,000
Singulex	\$ 4,500,000
Purkinje <sup>2</sup>	\$ 11,000,000
<b>Total</b>	<b>\$ 115,055,000</b>

1 Formerly DSSI  
2 Formerly Wellinx

