



# ST. LOUIS BIOBELT NEWS

The latest news and information from the St. Louis region.

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www.gotostlouis.org

## HEAL

### Cancer Cure Closer with Help From Washington University Researchers

Entire Leukemia genome has been sequenced lending insight to the biology of cancer

It is being called a true landmark in cancer research. A team at the Genome Center at Washington University in St. Louis, along with collaborating institutions, has sequenced the entire genome (the DNA contained inside the cell nucleus) of a cancer cell. The team compared the tumor genome to the normal genome of a patient diagnosed with acute myeloid leukemia (AML) and identified genetic changes unique to the tumor genome.

While cancer impacts the lives of millions of Americans, only a few groundbreaking therapies have been discovered to combat it. Researchers will sequence additional tumor genomes during this study to increase the understanding of genes that contribute to cancer's onset and progression.

"Cancer is a disease of the genome," said Dr. Elaine Mardis, co-director of the Genome Center. "Genome sequencing doesn't give complete answers, but provides sets of clues to understanding cancer biology."

Because of the vast scope of this project, the Genome Center will acquire 21 additional Illumina Genome Analyzers

www.wustl.edu  
www.genome.wustl.edu



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—Dr. Elaine Mardis, co-director of the Genome Center

in upcoming months. Once in place, the center will house 35 Genome Analyzers, capable of sequencing data much faster than before. Says Mardis, "It looks very promising that we'll be turning these genome data sets around very quickly."

The findings were published in the journal *Nature*.



(L-R) Bridget Weber (Pfizer Scientist), Charlie Dooley (St. Louis County Executive), Dr. Martin Mackay (President Pfizer Global Research and Development), Missouri Governor Jay Nixon, Jeffrey Kindler (CEO and Chairman, Pfizer Inc), Dr. Donald Frail (VP and Pfizer St. Louis Site Director), Dr. Daniel Getman (former Pfizer Site Director), Chesterfield Mayor John Nations, Jeff Prusakiewicz (Pfizer Scientist).

### Dedication to Research Yields Dedication of \$200 Million Facility

Pfizer opens 330,000-square-foot R&D building in suburban St. Louis County

Collaboration, innovation, dedication. These three words are at the heart of the new \$200 million facility global pharmaceutical giant, Pfizer, dedicated last month at its Chesterfield, Mo. campus.

The 330,000-square-foot facility is now home to over 200 R&D scientists who will relocate to the Chesterfield campus from three other St. Louis research sites, bringing the Chesterfield campus to nearly 1,000 researchers.

"Through this building, we are providing our researchers with every advantage to be more successful and efficient in bringing new medicines to patients," said Dr. Donald Frail, site director.

The campus is one of four major R&D facilities within the Pfizer global

www.pfizer.com



research division. The new building, along with additional ongoing expansion projects, places the St. Louis region on the cutting edge of pharmaceutical research.

"In these labs, top researchers are digging into the biology of inflammation and immunology, identifying targets, inventing molecules and drug candidates for a range of autoimmune diseases," said Frail. "Pfizer is investing in St. Louis and counting on scientists here for breakthroughs in rheumatoid arthritis, multiple sclerosis, psoriasis and lupus, to name just a few."

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—Dr. Donald Frail, site director at Pfizer

## Quick Fact

Between 2007 and 2008, nine biomedical firms were launched from Washington University in St. Louis. The discoveries and technologies these businesses have developed resulted in new life saving therapies, medical devices and alternative sources of energy in St. Louis.

—St. Louis Commerce Magazine, December 2008



Artist rendering of bioMérieux's new 40,000-square-foot, LEED-certified research facility.

### Global Medical Diagnostic Leader Embraces Environment in Expansion

bioMérieux building a \$9 million LEED-certified research facility



www.biomerieux.com

It could be called the "Global and Green" building. France-based bioMérieux, a world leader in the field of *in vitro* diagnostics, is investing \$9 million in a new LEED-certified facility under construction in St. Louis County.

The focus of the facility is the development of automated lab systems for a variety of areas, including identification of bacteria and potential therapies. Almost 70 percent of what bioMérieux produces is exported to locations worldwide.

The 40,000-square-foot development, designed by world-renowned architect Jean-Loup Patriarche, will target Leadership in Energy and Environmental Design (LEED) certification by including natural lighting, improved insulation, altered thermostats and recycling.

"The new facility is something all of us at bioMérieux are proud of," says Scott Remes, site director of the bioMérieux, Inc., St. Louis facility.

"It highlights the company's dedication to the community, its employees and the environment."

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—Scott Remes, site director of bioMérieux, Inc., St. Louis facility

### Stereotaxis Gains FDA Approval for a Partnered Ablation Catheter and \$20 Million from Investors

New technology will help individuals living with an irregular heartbeat

A less-invasive treatment for cardiac arrhythmias. That's what Stereotaxis, Inc. delivers. Stereotaxis is a St. Louis-based company that designs, manufactures and markets systems for treating irregular heartbeats.

A new magnetic irrigated catheter from Biosense Webster, which is used with Stereotaxis' Niobe Remote Magnetic Navigation system, received FDA approval in February 2009.

"This magnetic version of the gold-standard catheter for treating cardiac arrhythmias opens the door for clinicians to treat the most complex arrhythmias with our Niobe system," said Rick Green, Stereotaxis vice president of marketing.

Installed in more than 100 hospitals worldwide, including two in St. Louis, the Stereotaxis Niobe Remote Magnetic Navigation system is setting a new standard-of-care for treating cardiac arrhythmias in all four chambers of the heart. The system uses a computer-aided catheter that is guided through the heart using magnets. This system reduces

www.stereotaxis.com



**"...opens the door for clinicians to treat the most complex arrhythmias with our Niobe system."**

—Rick Green, vice president of marketing for Stereotaxis

exposure to radiation and minimizes the risk of perforation.

The market for Stereotaxis' products is large; more than two million people in the U.S. live with atrial fibrillation, and that number is growing.

Late last year, Stereotaxis raised \$20 million by offering common stock and warrants to institutional investors.

### Sigma-Aldrich Expands Search Engine; Introduces Online Stem Cell Biology Community

Leading life science company launches two powerful web components

Biotechnology researchers can now gain immediate access to cutting-edge products and explore existing groundbreaking studies. Headquartered in St. Louis, Sigma-Aldrich has recently launched an online community showcasing products developed for advanced stem cell research along with a web-based biological search portal for exploring dynamic gene-based content.

The stem cell portal features over 1,100 unique products that support every step of the stem cell research workflow. In addition, a team of regenerative medicine experts helps update, identify and develop new and promising technologies in this growing area.

The search portal, called *Your Favorite Gene*, lets researchers model



www.sigma-aldrich.com

and evaluate prospective experiments from previously published scientific literature. Users can search by gene, protein, function, disease, species, tissue or pathway.

Both of these innovative web components from Sigma-Aldrich help scientists streamline the research process and support overall workflow. For more on both components, visit [www.sigma-aldrich.com](http://www.sigma-aldrich.com).

**The search portal, called *Your Favorite Gene*, lets researchers model and evaluate prospective experiments from previously published scientific literature.**

## UNIVERSITY RANKINGS

### 2008 NIH AWARDS AMONG MEDICAL SCHOOLS

Johns Hopkins University	\$422,152,588
University of California San Francisco	\$394,913,990
University of Pennsylvania	\$366,095,869
Washington University in St. Louis	\$350,210,768

Source: National Institutes of Health  
Tabulated by the St. Louis RCGA based on data published on the NIH website.

### TOP MEDICAL SCHOOLS – RESEARCH MEDICAL SCHOOLS

1. Harvard University
2. Johns Hopkins University
3. Washington University in St. Louis (TIE)
3. University of Pennsylvania (TIE)

### TOP LAW SPECIALTIES – HEALTHCARE LAW

1. Saint Louis University
2. University of Houston (TIE)
2. University of Maryland (TIE)
3. Boston University

Source: U.S. News & World Report, April 23, 2009

## Covidien Improves 'Health' of its St. Louis Facilities

Company to invest \$100 million in major expansion

Covidien, a leading global healthcare products company, is investing \$100 million over the next five years at two facilities in St. Louis County. The plans for the 12,000-square-foot, Maryland Heights expansion include a new radio-pharmaceutical production line. The facility in Webster Groves, has been augmented with a 9,000-square-foot pilot lab, which will allow the company to rapidly scale up production of pharmaceutical products.

"We believe St. Louis offers a strong talent base of skilled professionals," says Timothy R. Wright, president of Covidien Pharmaceutical Products and Imaging Solutions. "We expect to take advantage of that resource by hiring locally as well as attracting people from outside the region." Covidien may add up to 30 new jobs in research & development and science-related fields, increasing the company's more than 2,500-strong workforce in the area.



www.covidien.com

"The expansion projects Covidien is planning will strengthen our ability to remain a leader in the global healthcare market well into the future," continues Wright. "These efforts will not only benefit Covidien and its employees, they will also have a positive impact in the communities where we operate. We have found St. Louis County to be a great place to operate and we feel strongly that we will be able to continue our long-standing position in this region."

Covidien enjoys a long history in St. Louis that dates back more than 100 years when it was first known as Mallinckrodt and then Tyco Healthcare. Today, the company maintains five facilities in St. Louis County.

## Washington University and Danforth Plant Science Center Awarded \$35 Million to Establish Two Energy Frontier Research Centers

Awards validate deep research in algae, photosynthesis and biofuels underway in the St. Louis region



www.wustl.edu  
www.danforthcenter.org

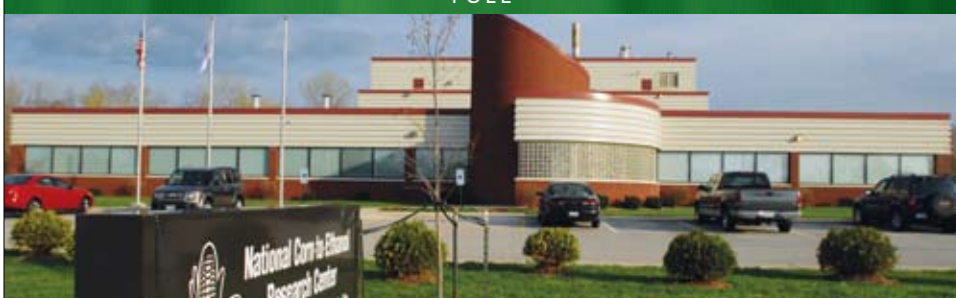


Washington University in St. Louis and the Donald Danforth Plant Science Center have received two awards totaling \$35 million from the U.S. Department of Energy to conduct research on novel energy initiatives as part of the Energy Frontier Research Centers program.

Washington University will receive a five-year, \$20 million award to establish the Photosynthetic Antenna Research Center and study forms of energy based on the principles of light harvesting and energy funneling.

The Danforth Plant Science Center will receive \$15 million over five years to establish a Center for Advanced Biofuels Systems (CABS). The objective of CABS is to increase the thermodynamic and kinetic efficiency for select plant and algae-based fuel production.

"For the St. Louis region to receive two Department of Energy awards represents a great opportunity to advance bioenergy research," Washington University Chancellor Mark S. Wrighton said. "These awards are in recognition of the leadership roles that Washington University and the Donald Danforth Plant Science Center are playing in the development of new energy sources."



The National Corn-to-Ethanol Research Center at Southern Illinois University Edwardsville is in the planning stage of a capital improvement project that will provide a venue for next-generation biofuel production.

## The Next Step in Next-Generation Biofuel Technology

Positioning the National Corn-to-Ethanol Research Center for advanced biofuels research

Providing development of sophisticated biofuels is driving an expansion at the National Corn-to-Ethanol Research Center (NCERC) at Southern Illinois University Edwardsville (SIUE). The NCERC will utilize capital funds made available through the Illinois Department of Commerce and Economic Opportunity to position itself for advanced biofuels research.

"Right now we are at the planning approval stage of capital improvement projects," said John Caupert, director of the NCERC. "It is critically important that we modify our facility so we can conduct these advanced procedures. To stay current with next-generation biofuel production, we must implement these changes."

www.ethanolresearch.com



The Center is located in University Park, a 330-acre portion of SIUE. It is the only facility in the world that fully emulates both a corn wet-mill and dry-mill commercial fuel ethanol production center. Located in the Southwestern Illinois portion of the St. Louis region, this Madison County-based research center is uniquely qualified to lead the transformation of the existing fuel-ethanol industry by providing a model for integration of alternative biofuel technologies into a conventional ethanol facility.

## Enterprise Rent-A-Car Institute for Renewable Fuels Names National Leader in Biofuels As Director

Dr. Richard Sayre and his team to focus on reducing dependency on fossil fuels



Dr. Richard Sayre, one of the nation's foremost biofuels researchers, has been named director of the Enterprise Rent-A-Car Institute for Renewable Fuels at the Donald Danforth Plant Science Center.

Much of the work by Dr. Sayre and his team of 10 researchers focuses on using algae to produce "third-generation" biofuels that someday could be used on a large scale to power cars, trucks and aircraft. This complements the larger body of biofuels research being conducted at the Danforth Center to help decrease the level of greenhouse gases in the atmosphere and reduce future dependency on finite fossil fuels.

"Just as we are committed to using our fleet to grow the market for commercially viable new fuels and engine

www.danforthcenter.org



ENTERPRISE RENT-A-CAR  
INSTITUTE FOR RENEWABLE FUELS  
AT THE DONALD DANFORTH PLANT SCIENCE CENTER



technologies, we believe it is important to play a role in the search for sustainable, renewable fuels that can curb greenhouse gas emissions and reduce dependency on finite fossil fuels," said Andy Taylor, chairman and chief executive officer of Enterprise Rent-A-Car. "Dr. Sayre and his team bring tremendous leadership to this effort."

Dr. Sayre comes to the Danforth Center in suburban St. Louis County from The Ohio State University where he was Department Chair of Plant Cellular and Molecular Biology.

**"We believe it is important to play a role in the search for sustainable, renewable fuels that can curb greenhouse gas emissions and reduce dependency on finite fossil fuels."**

—Andy Taylor, chairman and chief executive officer of Enterprise Rent-A-Car

## Monsanto's R&D Pipeline Yields First Ever Biotech Drought-Tolerant Corn

This is one of many breeding and biotech advances in the company's R&D pipeline

Monsanto, the world's leading agriculture company, has submitted its first-generation biotech drought-tolerant corn product to the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) for regulatory clearance.

In any given year, 10 to 13 million acres of farmland planted to corn in the United States may be affected by at least moderate drought. By mitigating the effects of drought within a corn plant, the product is intended to provide farmers with yield stability during periods when water supply is scarce.

Drought-tolerant corn is part of St. Louis-based Monsanto's long-term commitment to producing more, conserving more and improving farmers' lives. This first-generation biotech corn is expected to enter the market around 2012. It is targeted primarily at the dry-land areas of the Western Great Plains.

"This product, along with all of the products in our industry-leading R&D pipeline, demonstrates how we are helping to provide agricultural solutions that not only reset the bar for on-farm productivity but also contribute to the sustainability of our food supply,"



www.monsanto.com

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Other products under development in the Monsanto pipeline include higher yielding soybeans, insect-resistant corn and herbicide-tolerant cotton. The company's ongoing investment in breeding and biotechnology research is key to meeting the pressing global challenges that agriculture faces today.

## Biotech Start-Up Raises \$11.8 Million for Crop, Pesticide Research

St. Louis-based Divergence targets nematode genomes to develop safer crops

"Higher yields, healthier people."

This credo from Derek Rapp, CEO of Divergence, was validated with an \$11.8 million infusion of capital for the St. Louis-based biotech start-up. This Series C funding (including 41 returning investors) will continue the development of technology that prevents and controls parasitic nematode infestation—one of the major causes of crop yield loss for farmers.

"Since the company was formed in 1999, its goal has been to concentrate on research of parasites and means of combating them," Rapp said. "We're working to develop safer products for higher yielding agriculture and healthier people and animals."

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—Derek Rapp, chief executive officer of Divergence



www.divergence.com

Divergence works with several powerful technology platforms to develop both pesticides and biotech crops. In the long run, these advanced products will kill the parasitic nematodes without impacting the soil, humans or wildlife. Nematode control is the largest unsolved pest problem in agriculture, causing an estimated \$80 billion in crop damage annually, worldwide.

This current funding more than doubles the amount of capital raised since Divergence was founded. Divergence graduated last year from the Nidus Center for Scientific Enterprise, a plant and life sciences incubator in St. Louis County. The company has leased 11,000 square feet in the BRDG Park at the Donald Danforth Plant Science Center also located in suburban St. Louis County.

## New Bio-Park Capitalizes on St. Louis' Growing Life and Plant Sciences Industry

First 110,000-square-foot building being developed by Wexford Science+Technology



www.brdg-park.com

**"...partnerships that will provide the kind of scientific synergy that will help companies grow..."**

—Sam Fiorello, president of BRDG Park

The increasingly vibrant plant and life sciences research base in St. Louis is bringing new opportunities to turn research findings into commercially successful businesses—and creating a need for first-class bio-tech wet labs and office space to meet their needs. The new Bio-Research and Development Growth (BRDG) Park at the Danforth Plant Science Center in St. Louis County is well positioned to provide the right environment for new companies and stimulate economic development in the region.

At the Grand Opening slated for June 2009, Monsanto, Divergence, Nidus Center for Scientific Enterprise and the St. Louis Community College's Center for Plant and Life Sciences biotechnician training program will anchor

the four-story building, the first of three planned for the research park. In addition, Cleveland-based Physical, LLC will open an algae laboratory at the Park.

"In a very tough real estate and economic marketplace, BRDG Park stands out for already leasing nearly 60 percent of our first building prior to opening," said Sam Fiorello, president of BRDG



Finishing touches being made to the Bio-Research Development Growth (BRDG) Park's Building 1—scheduled to open in June 2009.

Park. "It's a great mix of enterprises and innovative partnerships that will provide the kind of scientific synergy that will help companies grow, building on the strong plant and life science base in St. Louis."

Building 1 will feature state-of-the-art wet labs and office space designed to help plant and life science companies with the research, resources and relationships to achieve commercial success.

Tenants at the \$36.1 million project will have access to the Danforth Center's high-tech infrastructure, including

greenhouses, microscopy and proteomics facilities and growth chambers.

BRDG Park is being developed by the Maryland-based Wexford Science+Technology LLC, a privately-held real estate developer and investment company that has developed six major research parks nationwide.

The Donald Danforth Plant Science Center is a not-for-profit research institute whose mission is to improve the human condition through plant science.