KU professor’s research leads to new company

Commercialization assistance available at KU

Bioscience research at the University of Kansas may have the potential to lead directly to new technologies that can readily be transferred to the marketplace. This proved to be the case for Cory Berkland, an associate professor of pharmaceutical chemistry, chemical and petroleum engineering and bioengineering. In late 2007 Berkland co-founded Orbis Biosciences, headquartered in Kansas City, Kan., with Bo Fishback, the company’s chief executive officer, in order to commercialize a process Berkland had invented called Precision Particle Fabrication technology. This process allows scientists to control the properties of particles and can be used in many applications, potentially for projects under way at KU.

“KU has a history of innovation in drug formulation and delivery. Orbis

Biosciences Incubator

An artist’s rendering of the biosciences incubator, which is expected to be completed in 2010 on the west campus of the University of Kansas, provides an early idea of what the facility is expected to look like. Changes may be made as plans are finalized.

Planned biosciences incubator designed to support start-ups

Bioscience researchers at the University of Kansas soon will have a place where they can turn their inventions into startup companies. And the best part is they won’t have to leave campus to make it happen.

After more than three years of planning and having secured nearly $8 million in financial commitments, the Lawrence-Douglas County Bioscience Authority is about to start construction of a wet-lab business incubator on KU’s west campus. The 20,000-square-foot facility will be ready in 2010 and marks a milestone in economic development cooperation between the university and the community.

“The incubator facility is going to give KU researchers the opportunity to commercialize their innovations and technologies right in their own backyard – they won’t have to leave campus to create and grow a start-up company,” said Matthew McClurey, Lawrence Regional Technology Center president and chief executive officer.

I would suggest that researchers spend time networking with the business community in the region.

- Dr. Cory Berkland, KU associate professor

is very interested in collaborating with these experts and developing relationships with regional companies interested in drug delivery and

(Continued on page 4)
Construction on Biosciences Incubator set to begin at KU
Start-up companies to use space

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The incubator also will provide space for existing companies to work in collaboration with KU faculty. A pharmaceutical company, for example, could rent space for a year and fund a special project that utilizes KU expertise.

“KU researchers come up with great ideas,” said Steve Warren, vice provost for research and graduate studies. “Some of those ideas become inventions, and some inventions have commercial potential. An incubator is a place where this process can play out with a higher likelihood of success. The goal is to work out the kinks and get a company started so it can grow, hire people and, eventually, stand on its own.”

In addition to offering a full-spectrum of tenant services, the incubator manager, LRTC, will provide a breadth of “hands-on” business development services to help tenants grow their businesses and maximize their chances of achieving market success. Incubator clients will have access to, and support from, numerous individuals with years of life sciences industry experience to help guide clients through the product development and commercialization life cycle. For example, the LDCBA will partner with the Institute for Advancing Medical Innovations to provide incubator clients with expertise in the area of drug discovery and development.

KU is providing $1.5 million in support of the project over five years. KU Endowment is leasing the land, valued at $500,000, at no charge. Together, Douglas County, the city of Lawrence and bioscience authority are providing $2 million.

The final piece of the puzzle fell into place in March, when the Kansas Bioscience Authority committed $3.25 million over three years. When operational, the incubator will be owned by the bioscience authority and managed by the LRTC.

“It’s a tremendous coalition of local, university, private and state resources,” said LaVerne Epp, president and chairman of the Lawrence-Douglas County Bioscience Authority Board of Directors. “All of us see this as a smart, long-term investment with benefits for KU researchers, the local economy and the biosciences industry in Kansas.”

It will offer business development assistance designed to give small companies the best possible start.

- Carey Novak, KU director of business and industry outreach

The incubator will be built directly across the street from KU’s Multidisciplinary Research Building, Structural Biology Center and, eventually, the School of Pharmacy building. The Biotechnology Innovation and Optimization Center and other research groups are also nearby, giving the incubator a unique location that encourages close collaboration.

“The facility is more than just a building,” said Carey Novak, KU’s director of business and industry outreach. “It will offer business development assistance designed to give small companies the best possible start. Another feature is the ability to easily expand to 40,000 square feet as the demand for space increases.”

Selection of an architect and contractor are now under way. Groundbreaking is expected to take place in the fall. Construction is expected to be complete in May 2010.

Biosciences Incubator

An aerial view artist’s rendering shows the projected site plan of the facility.
CritiTech’s chairman and president, Sam Campbell, announced today that Dr. David Johnston has been named CritiTech’s new chief executive officer. Johnston is a highly qualified executive with extensive leadership experience in nonclinical chemistry (chemistry, pharmaceutical product development) and Phase I through Phase IV clinical development, regulatory approval, technology transfer, international operations, sales and marketing, and brand management.

“With Dr. Johnston’s extensive experience, he will help elevate and expand CritiTech’s ability to develop and commercialize pharmaceutical products,” Campbell said.

Johnston most recently served as the interim president and CEO for AerovectRX Inc., a spin out from the Center for Disease Control. Previously, he served as senior vice president of research and development for Nektar Therapeutics with responsibility for Nektar’s research and development activities worldwide. In addition to his R&D responsibilities, he was director of Nektar in the United Kingdom, chairman of Nektar India, and a member of the joint development committees for all of their leading pharmaceutical partnerships. Prior to this role, he was chief development officer for control delivery systems. Formerly, he was president and chief operating officer of AAI International directing all of the clinical research organization business in North America, Europe and mainland China. Johnston has held international leadership positions with Oread Inc., Sanofi-Winthrop and Sterling Winthrop and is currently on the board of Wilmington Pharmaceuticals and the advisory board of Velquest Inc.

CritiTech Inc. currently has the oncology drug Nanotax in a phase I clinical trial at the University of Kansas Cancer Center and is progressing with additional drug candidates in preclinical stages. CritiTech opened its laboratory in June 2004 at the West Lawrence Labs located at 4950 Research Park Way in Lawrence, Kan. CritiTech provides critical drug delivery and development technology for the pharmaceutical industry through its patented nanoparticle production technology originally developed at KU.

David Johnston
CritiTech CEO

It’s our intent to continue to have a strong relationship with the BIO Center.

- Sam Campbell, CritiTech chairman and president

The Biotechnology Innovation and Optimization Center, originally as part of the Higuchi Biosciences Center, has supported CritiTech since its founders first set out to start the company. Dr. Roger Rajewski, director of the BIO Center, and Dr. Val Stella, a University Distinguished Professor of Pharmaceutical Chemistry, continue to provide support to the company as members of the scientific advisory board.

“It’s our intent to continue to have a strong relationship with the BIO Center. They have been very supportive of our attempts to transfer research technology from the university setting into the marketplace. They continue to provide sound advice that assists us in developing new products,” Campbell said.

Fast-Fact
- Contributions by KTEC and TechAmerica

Kansas Technology Enterprise Corporation announced that Kansas ranks No. 1 nationally in high-tech industry job growth. According to the recently released 2009 Cyberstates Report published by TechAmerica, Kansas high-tech companies added jobs at a rate of 8.1 percent during the most recently reported period of 2007. Additionally Kansas high-tech companies paid workers 91% more than the state’s average wage.

“This data shows Kansas has a high concentration of high-tech employment and is noticeably, a high-performer overall. However, to continue growth in the high-tech sector, it is imperative that the state of Kansas continue investing in technology-based economic development through university research, entrepreneurism and capital,” said Erik Pages, president of Virginia-based EntreWorks Consulting, focused on innovative economic development strategies.

KANSAS’ HIGH-TECH SECTOR IN 2006 AND 2007

<table>
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<th>High-Tech Employment</th>
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Employment Growth

| Communications Services | 26,000 | 27,800 |
| Computer Systems Design | 8,700 | 9,100 |
| Engineering Services | 8,400 | 8,900 |
| Communications Equipment Mfg. | 2,700 | 3,100 |
| R&D and Testing Labs | 1,800 | 2,800 |

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Orbis Biosciences transfers research to marketplace

BIO Center offers technology transfer services to KU researchers

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controlled release," Berkland said.

PPF technology provides researchers with the ability to control the properties of particles, including the size, encapsulation material, shell thickness and porosity of nearly any material. Berkland became the primary inventor of the technology while collaborating with materials science and pharmaceutical researchers at the University of Illinois at Urbana-Champaign. Since that time, the technology has been used in a variety of fields from pharmaceuticals to agriculture.

"Orbis has grown into applications for pharmaceuticals, nutraceuticals, food, beverage, agriculture, personal care and defense clients," said Maria Stecklein, vice president of business development. "Our mission is to revolutionize the delivery, efficacy and safety of products through unprecedented control of particles."

Orbis consultants are available to help researchers determine if and how the company’s technology could be integrated into their research program or product development. Controlling particle size means controlling the release aspects of products, which can differentiate similar products in the market. Specifically, PPF can create a more desired effect, allow a product to last longer or improve safety. In addition, a proof of concept study can be completed to help researchers identify appropriate processing conditions such as materials needed, particle sizes, nozzle design, characterization of flow performance and characterization of microspheres, including size, size distribution and morphology. After this, Orbis can provide a scalability analysis to determine how the PPF technology would work for full-scale production.

"We are committed to developing partnerships with clients through quality, customized services and support," Stecklein said.

Berkland encourages university researchers to explore the options available to them to commercialize their research.

"I would suggest that researchers spend time networking with the business community in the region. As academics, we often confine ourselves to the same circles of researchers and educators," Berkland said.

Recently, Stecklein was rewarded for her entrepreneurial spirit by the Kansas Technology Enterprise Corp. when she was inducted into the 2009 Pipeline fellowship program. Orbis Biosciences was one of six new technology and bioscience entrepreneurs from the Kansas City area to be represented in this state-funded program, which supports promising entrepreneurs in Kansas by providing training, resources and mentorship.

KU provides services to aid scientists whose research may have commercialization potential. For personalized assistance contact Dr. Roger Rajewski, director of the KU Biotechnology Innovation and Optimization Center, at (785) 864-5158 or rajewski@ku.edu.

"I will also be a part of the program as an alum, so it will have long-term impact on Orbis’s success," Stecklein said.

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To learn more about Orbis Biosciences, visit www.orbisbio.com. Researchers who have controlled release needs and would like to see how PPF technology might be able to solve their challenges, may contact Maria Stecklein at (913) 945-6754.

We are committed to developing partnerships with clients through quality, customized services and support.

- Maria Stecklein, Orbis Biosciences Vice President of Business Development

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