

GROWING LIFE-SCIENCE VENTURES

In demand: Triad universities aim to feed pipeline

By JANE PAIGE — Continuing Writen

While area community colleges are helping earn North Carolina accolades for training biotech workers, Triad universities also have their role in the biotech Petri dish.

Through technology transfer or advanced-degree programs, area universities have joined the push to boost biotech throughout the region by putting people and products into the biotech pipeline.

While higher education programs in the Triangle capture much of the biotechnology spotlight, Triad universities are setting their own standards, biotechnology officials agree.

"We are seeing a great deal of advances in the area of biotechnology throughout the universities located in the Triad," says Ken Tindall, senior vice president of science and business development for the N.C. Biotechnology Center. "Each university has thoughtful leadership that is creating a vision for successful biotech programs."

For example, Winston-Salem State University focuses on training graduates for the state's biotech industry.

Most of the university-based specialized biotechnology training programs are located in the Triangle area.

In 2004, N.C. State University, N.C. Central University and the state Community College System formed a consortium with the state's biotechnology industry to develop specific educational programs.

Construction of the Biomufacturing Training and Education Center is under



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Winston-Salem State University students Shannon Jones, foreground, and Darnell Gregory conduct an exercise under the supervision of Teresa Singleton, associate professor of biotechnology, and Donna Durham-Pierre, far right, chair of the Department of Life Sciences.

way at N.C. State's Centennial campus in Raleigh. The Biomufacturing Research Institute & Technology Enterprise will be built at N.C. Central in Durham.

Winston-Salem State started a Bachelor of Science degree program in biotechnology two years ago. The program currently has six students.

"We want to continue to grow and hope to have 20 students in the fall," says Donna Pierre, chairwoman of the life sciences department at the university. "We are just starting to make high school students aware of the program and the opportunities we have to offer."

The university worked with local biotech

industries to develop the curriculum and offer required summer internships.

Wake Forest University's efforts to move intellectual property into the marketplace rank high among the state's largest universities. And Winston-Salem State offers one of the few undergraduate degrees in biotechnology across the nation.

Wake Forest's technology transfer program tops the three largest universities in the state in terms of licensing revenue for 2004, according to an annual survey by the Association of University Technology Managers.

Duke, UNC-Chapel Hill and N.C. State University — each of which spends more annually on research than Wake Forest — all reported net licensing income of around \$4 million each.

By contrast, Wake Forest's licensing revenue climbed from \$19 million in 2003 to \$34.3 million in 2004 while the university spent \$137 million on research. The success is due in large part to a vacuum-assisted, wound-healing device licensed about two years ago to San Antonio-based Kinetic Concepts Inc. (Wake Forest does not disclose specific royalty information.)

While licensing revenue is often used as a common matrix to gauge the usefulness of the university's efforts, those in technology transfer circles say many other factors — from the types of research to the long-term viability of the companies created — should be considered.

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For three years, Michael Batalia has been the director of the Office of Technology Asset Management at Wake Forest. Previously he was the assistant director of N.C. State's technology transfer office.

For 2005, Batalia estimates the university's licensing revenue will be about \$50 million.

"We have been very successful at moving the technology out of the laboratories for the public good," he says. "Universities are responsible for bringing technology to the marketplace that could really help save millions of lives."

In the past five years, Wake Forest's technology transfer office has had 181 invention disclosures and filed 58 patent applications, of which 50 patents were issued and licensed.

Advising other schools

Batalia also is managing Seed Stage Associates, a wholly owned for-profit subsidiary of Wake Forest University Health Services, that is providing technology transfer services to 11 of the campuses in the University of North Carolina system.

"There is a lot of interest but often there is not the (availability of) resources to get the necessary information on some campuses," Batalia says. "Many have their own tech transfer offices, and we just

provide support and educational services as needed."

Since 2003, Seed Stage has provided assistance in commercializing technologies and educational materials developed by the faculties on the Triad campuses of Winston-Salem State, the N.C. School of the Arts, N.C. A&T State University and UNC-Greensboro.

For schools that are just establishing technology transfer offices, Seed Stage provides education, assistance and training in creating these services.

For schools with established offices, Seed Stage helps with evaluation, licensing and marketing of new technologies.

UNCG and A&T both have smaller and newer technology transfer offices and much smaller amounts of research.

Neither has yet yielded much specifically related to biotech development, but local leaders are hopeful that they will as their tech transfer programs mature.

Doug Speight, the director of A&T's Office of Technology Transfer and Commercialization, says working in co-development of products with area companies is a growing niche for the university, he says.

Campus researchers have partnered to help develop air bags for racecars and nutritional products for cereal companies.

"Smaller offices like ours just don't

have the revenue stream to invest that comes at the larger universities," Speight says. "It is a challenge for the university to take the technology to the point where a company could pick up the product."

Lisa Goble, licensing associate at UNCG's Office of Technology Transfer, says the small office has used Batalia's Seed Stage to help train graduate students working there.

In 2003, UNCG created two companies: EcoGenomic, a small firm developing a microchip to monitor water-quality safety, emerged from research in the biology department. But, the firm met limited success and has since been folded back into the university. Serve Inc. was created to sell K-12 curriculum and teacher training products.

Triad business, civic and academic leaders hope to bring more university-focused programs to the region. Providing more interaction between the Triad's universities and industries was among the 21 goals issued by a Triad biotechnology advisory committee last year.

"Creating partnerships between industries and universities is a key to the development of more biotechnology companies and jobs," says Tindall with the state's Biotech Center. "We already have a lot of leadership in the Triad that can help make this happen."

JANE PAIGE is a free-lance contributor