

FEATURE ARTICLE

# BioNetwork: Cultivating Entrepreneurs

“North Carolina has made natural product development a focus. Companies in the region of my type are being drawn to that . . . .”

– Randy Beavers, OrganiPharm, LLC

**Jon Lawrie**, manager of the BioNetwork BioBusiness Center, recognizes that there are unique opportunities for entrepreneurs in the bioscience field. An entrepreneur himself, he knows the formula to building a successful company.

Lawrie started five biotechnology companies before settling down with his family in the Asheville area. The companies range from stem cell research to medical devices to vaccines. Three are located in the Research Triangle Park, one in San Francisco and one in Boston. He joined the BioBusiness Center two years ago. He now applies his expertise to helping small businesses launch their big, bioscience ideas.

Lawrie estimates that he and his three staff members mentor an average of 20 companies a year in traditional biotechnology, biofuels and natural products. “One of the reasons the BioBusiness Center focuses on biodiesel and natural products is that it is the brand of biotech here. You don’t have to be a Ph.D.,” Lawrie said. “The key is to identify an entrepreneur who, with less than 10 people, can create a company that will make a million dollars in revenue.”

That differs from Lawrie’s experience and the model in the state’s biotech and life sciences capital, the Research Triangle Park. “In RTP, the model is to get 20, 30 or 40 people and make a company that can make a billion dollars a year in revenue,” he said. “We want to shoot for a company that is interested in making products with medicinal herbs to sell over the Internet, to local food stores or through a national distributor with just a few people. With biofuels companies, they’ll have dominance only in a small geographic area but can generate a couple of million dollars of sales a year.”

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– Jon Lawrie, manager, BioNetwork BioBusiness Center

The BioBusiness Center is a tenant and service provider in the Technology Commercialization Center, an incubator for small businesses, on the Enka Campus of Asheville-Buncombe Technical Community College (A-B Tech). The facility has bioscience, light manufacturing and high tech companies renting offices, warehouse space and laboratories. Start-up companies housed in the incubator include a scientific equipment distributor, a DNA analysis company and a medicinal herbs manufacturer.

“The key is to identify what the entrepreneur needs and deliver it to them,” Lawrie said. “If they need classes, we give it to them. If they need access to a laboratory, we can give them that. If they need a referral to another agency, we can give that to them as well. It all comes together here.”

Any bioscience company anywhere in the state can seek the assistance of the BioBusiness Center. They provide a natural products analytical lab, mentoring and classes on marketing, market feasibility, regulatory issues and distribution. They also offer assistance with



**Hydrastis Canadensis or golden seal is a plant valued for its antimicrobial properties.**

intellectual property issues, capital formation and business planning and management.

## IN THE LAB

Incubator tenants and non-tenants have access to the BioBusiness Center's laboratory for nominal hourly fees, \$9 for tenants and \$18 for non-tenants plus deposits for cleaning and supplies. "If you have an idea but you don't have the instrumentation to move forward, you can work on it here," said BioNetwork Technical Specialist Sarah Schober. "Not everyone can work on everything immediately. It depends on their knowledge base."

Growers of herbs and other small scale farmers depend on Schober for testing active ingredients in their plants through High Pressure Liquid Chromatography (HPLC). Schober concentrates herbs and medicinal plants to samples of less than an ounce. The samples are mixed in the HPLC with a chemical reagent and passed through a stationary phase of carbon and silica. The stationary phase attracts the molecules of the active ingredient that is being tested. The length of time the molecules cling to the stationary phase is detected and the end result is a chromatogram, a color-coded graph, which indicates the concentration levels of the active ingredients.

"Based on what I get on the readout of the chromatogram, I know how much of the active ingredient is in the sample," Schober said. "If you grow herbs and don't make products with it, buyers give you the price. They base it on how much active ingredient is in the plant. We help growers verify that they are getting good prices."

The HPLC testing service is entering its second year and costs \$20 a sample for 50 or less samples and \$15 a sample for over 50 samples of the same herb. Schober knows of labs that charge hundreds of dollars for similar tests. "I get so excited about it. It's almost free," she said. "We get big rushes after the spring and fall harvests, and it slows down in the summer and winter. We get people off the street. We get organized groups that are growing herbs under different conditions and want to test samples."

Schober keeps samples of everything she tests, which is creating a botanical reference file. She is working on a grant in partnership with a researcher at Pennsylvania State University to establish what she describes as "the HPLC fingerprints for plants" to distinguish between farm grown and wild-crafted or those gathered in the forests.



**Randy Beavers (left), OrganiPharm, LLC, a client of the BioBusiness Center, shows visitors golden seal growing on his farm.**

Schober has worked full-time with the BioBusiness Center since May 2008. Before that she was a student in the biotechnology program. She's had various careers and earned several associate degrees. "I've done a little bit of everything," she said. "This is my love. I love it because it's not the same every day. It's always interesting, and there's always more to learn."

## STATEWIDE BIOBUSINESS SUPPORT

Supporting the growth of small, life science companies in Western North Carolina is only part of the BioBusiness Center's mission. Their work supports the 58 community colleges in the North Carolina system and their small business centers. "In the past," Lawrie said, "most small business centers had little interaction with bioscience companies. Our goal is to increase the knowledge and outreach capabilities of each one of those centers."

Nick Meacham, BioNetwork communications specialist, promotes the BioBusiness Center and all of BioNetwork's programs statewide through media relations, publications and assisting with program coordination. Paul Knott, the BioBusiness Center curriculum coordinator, is the one responsible for developing specific courses and seminars that community colleges across the state use to educate the public about biotechnology, train existing workers and support entrepreneurs.

"My job is to develop or to organize others to develop programs," Knott said. "Our programs are in the two to 10-hour range. Since our primary targets are the small business centers and continuing education tracks, most programs are workshops or seminars not full courses."

Biotechnology for Non-Scientists is an example of a public education course developed through the BioBusiness Center. “People can say biotechnology and spell it, but they don’t know what it is,” Knott said. “They don’t know that biotechnology goes back thousands of years to the first making of a fermented beverage to horse breeding and agriculture. I tell people all of the time, ‘you may not recognize it, but there’s life science everywhere in the state, in every county.’”



Technical Specialist Sarah Schober in the natural products analytical laboratory.

Through grants won in partnership with A-B Tech, the BioBusiness Center has a number of programs on natural products as well as courses on technology commercialization, intellectual property and investment opportunities and resources. They are beginning to develop a selection of courses on biodiesel fuels. All of their courses are available to North Carolina’s community colleges. They’ve sponsored regional conferences around the state and helped the producers of biodiesel organize the NC Biodiesel Association.

*“They are wonderful in providing educational tools that will help develop the workforce.”*

– Cheryl McMurry, executive director, Bent Creek Institute.

BioBusiness Hubs are another way the BioBusiness Center supports entrepreneurs throughout the state. Eight community colleges in the Charlotte area formed the Charlotte Region Biotechnology Service Hub to work jointly and to engage business, education and government partners to support the growing biotech industry in their region. On the coast, Carteret

Community College leads a consortium of public and private organizations that are identifying and providing support to biomarine start-up companies.

In the Western region that is investing heavily in creating the research capacity to spawn new markets for biotech companies to grow, the BioBusiness Center plays a crucial role in workforce development. “As a part of the community college system, their mission is in part to develop a workforce that supports these industries,” said Cheryl McMurry, executive director of the Bent Creek Institute, Western North Carolina’s newly formed translational research institute dedicated to discovering, developing and validating natural medicines and integrative health and wellness strategies. “They’ve done a magnificent job of putting together training programs that have been incredibly well attended and are now distributed through community colleges across the state. They are wonderful in providing educational tools that will help develop the workforce.”

A workforce needed for continued economic growth in Western North Carolina and every region in North Carolina. **i**

#### ABOUT BIONETWORK



NCCCS BioNetwork is a statewide initiative that connects community colleges across North Carolina, providing specialized training, curricula and equipment to develop a world-class workforce for the biotechnology, pharmaceutical and life sciences industries. All Community Colleges serving the pharmaceutical and biotechnology sector are part of BioNetwork. BioNetwork offers specific programs and services through the Capstone Center and Validation Academy, Raleigh; Bioprocessing Center, Greenville; Pharmaceutical Center, Winston-Salem; BioAgriculture Center, Lumberton; BioEducation Center, Gastonia; and BioBusiness Center, Asheville. For more information about BioNetwork, please visit [www.ncbionetwork.org](http://www.ncbionetwork.org).