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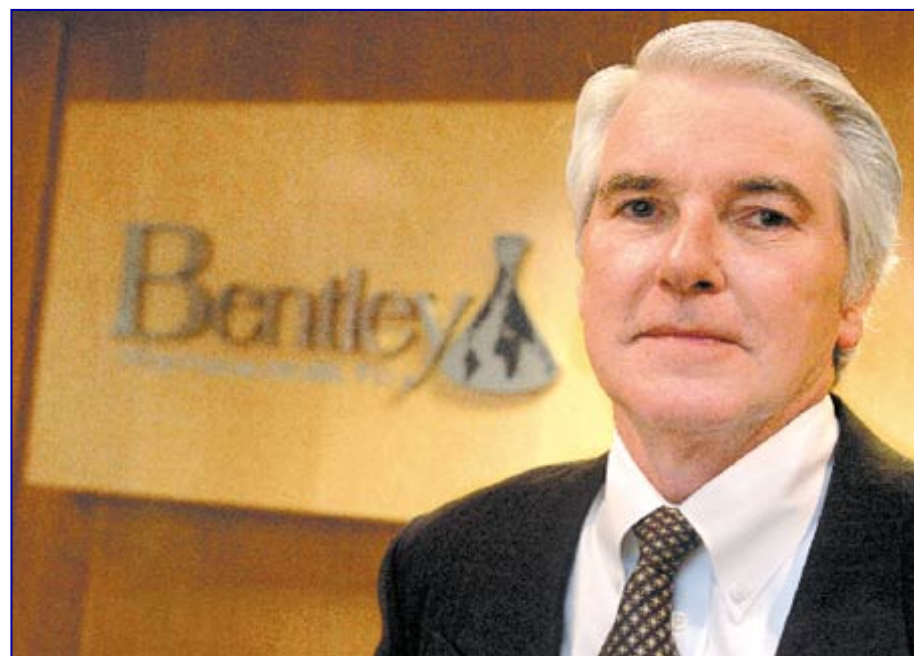
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James Murphy is chief executive officer of Bentley Pharmaceuticals, an Exeter company that formed a research partnership with the University of New Hampshire.
Photo by Jamie Cohen

Exeter company's drug-delivery technology ready to go global

By Andrew Leibs
business@seacoastonline.com

Complete Business Index

Bentley Pharmaceuticals of Exeter is thinking big with technology far thinner than a human hair. The company, which specializes in drug-delivery technologies, recently announced a 40 percent increase in first-quarter revenues to \$24.2 million. Revenues twice what analysts forecasted, making Bentley a top gainer on the New York Stock Exchange and giving chairman and CEO James

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Murphy confidence his firm is entering a global phase.

"The rise in our stock is a signal of what's going to transpire for the rest of 2005 and into 2006," Murphy said. "We are entering new markets in Europe and the Far East, and it will not be long before we are recognized as a global player in the pharmaceutical industry."

Driving Bentley's revenues were increased product sales in Spain, where the bulk of the company's sales and production infrastructure is based, and the strengthening of the euro against the U.S. dollar.

Back home, however, Bentley recently announced significant breakthroughs in delivery technologies (it also markets generic and branded products) that could strengthen its market position across the pharmaceutical and healthcare industries.

Giant leap for small capsules

One of Bentley's recent breakthroughs came during a research partnership with the University of New Hampshire. That research effort led to the discovery and synthesis of a stable, submicroscopic particle that can be used to deliver drugs at the molecular level.

The new Nanocaplet is a major advance in the development of sub-micro therapies: the vesicle is hollow, protects the contents of the active ingredients, and is biodegradable. The Nanocaplet measures 1/600th the diameter of a human hair and is visible only with an electron microscope.

"Our technology is far different than previous nanocapsules," Murphy said. "The ability to deliver substances at the molecular level means lower doses might be administered for the same therapeutic effect."

Nanocaplets can be injected, swallowed or absorbed through the skin, Murphy explained. In addition, chemical tags, or ligands, can be affixed to the outside of the nanocapsules for targeted delivery, such as carrying molecules to specific cells in the brain.

"I have seen many drug-delivery technologies, and this technology holds promise to be a fundamental and far-reaching drug-delivery system," said Robert Gyurik, Bentley's vice president of pharmaceutical development, about Nanocaplet technology. "It may prove to be a core-enabling technology that can change the way drugs are administered."

The race for insulin

The Nanocaplet testing, conducted at UNH's Nanostructured Polymers Research Center, proved the new particle both encapsulated and delivered insulin through the intestine. Pharmaceutical companies, according to Murphy, are racing to develop new ways to deliver insulin to diabetics, which number 25 million in the United States alone.



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"There's a big demand for less-invasive technologies," Murphy said. "Patients with Type II diabetes don't want to take injections, but their quality of life would increase if they could better manage their insulin levels."

One alternative is an oral inhaler that pumps an aerosol mist into the lungs; a method Murphy says is inefficient.

"There's a concern about products that introduce foreign particles into the lungs that are not readily reabsorbed," he explained.

Bentley's solution is an intranasal spray. Insulin is absorbed through the mucous in the nose. Phase II test results released in December showed the spray formulation CPE-215 successfully delivered insulin in diabetic patients.

"Our device delivered a much higher percentage of insulin into the bloodstream," Murphy said.

In addition, what isn't absorbed is eliminated naturally through the nose or through digestion. The spray also offers convenience and discretion, according to Murphy.

Bentley recently signed its first strategic partner for its intranasal spray, Seoul-based Dong Sung Pharm. Co. Ltd., which will conduct Phase III testing - in which a drug is tested on a diverse set of patients to prove reliability - toward regulatory compliance and to develop markets in South Korea.

"We're on track for a breakthrough," Murphy said. "We feel that our spray technology can be used to deliver other peptides, including Epogen."

Murphy could not say when the intranasal spray would hit the U.S. market, but said regulatory submission and market certification are relatively quick following successful Phase III testing.

Local growth?

Bentley's logo is the imprint of a globe on a chemical flask, but to date the company sells little in the United States. One exception is Testin, a topical testosterone gel for male hormone replacement therapy licensed to Pennsylvania-based Auxilium Pharmaceuticals.

Bentley is still seeking a partner for its other proprietary product, a lacquer for nail fungus.

The majority of Bentley's employees are based in Spain. About 20 work at its world headquarters on Holland Way in Exeter. The company relocated from Tampa, Fla., in 1999 to access the Boston area's hub of health care, education and technology resources.

The proximity to UNH has already borne fruit. "Outstanding" is how UNH President Ann Weaver Hart described the partnership between Bentley and UNH. The four-year program that yielded the Nanocaplet gives Bentley commercial rights to develop a core technology with major growth potential in this sector of the market.

Victories in research and development and spikes in share value won't translate into local job growth right away, but there will be some, according to Murphy.

"We are growing faster than expected," Murphy said. "We'll be hiring employees throughout the year, especially in accounting and finance."

The most vital indicator for Bentley is what's happening around the globe.

"We're a small company, but the kinds of growth that will make us a global player are well under way," he said.

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