

Fiber Firm Targets Tissue Engineering, Orthopedics

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**Concordia
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Established in 1920, Concordia has been producing engineered fibers for such diverse products as tennis rackets and BMW air bags. But it was a customer's request for a collagen-based hemostatic fabric and the cleanroom built for the associated operations in 2003 that piqued the company's interest in the medical device industry as a viable target market.

Acquiring seed money through a Rhode Island economic development fund, Concordia launched Concordia Medical (Coventry, RI) in 2005 with the intent of focusing on biodegradable fibers suited for medical implants. Further buttressing the new business venture was the acquisition of nonwoven felt business Albany International that year.

The cornerstone of Concordia Medical is BioFelt, the company's brand of nonwoven felt engineered from a biodegradable polymeric fiber similar to those used in sutures and some orthopedic applications. "We are reproducing the felt from fibers that are processed in a very unique way, which creates this porous, three-dimensional structure that is very hospitable to cells," says Art Burghouwt, executive vice president of Concordia Medical.

BioFelt promotes the growth of cells and autologous tissues into organized structures of continuous tissues both in vivo and in vitro, according to Burghouwt. "There's a series of clinical trials under way involving human implantation of organs, like bladders, that have been formed and grown on our BioFelt, so there's clearly some human use in that sense," he adds. It also could be used in cardiovascular applications for growing arteries and heart valves, for example.

Currently, Concordia Medical derives a significant portion of its business from the orthopedics sector. The company has been involved with the development of fiber-based implants for such applications as rotator cuff and ACL repair. In the future, Concordia anticipates possibly expanding to cartilage regeneration and meniscus repair. Furthermore, BioFelt has already been approved for a dental application and is in preclinical phases for a variety of advanced research projects.

The company's core business stems from contract development and manufacturing, using its proprietary processes to cater to medical device OEMs. In addition to polymer science and material testing know-how, the company offers a strong engineering background and a broad fiber and fiber-processing skill set, Burghouwt says. Beyond BioFelt, Concordia Medical also provides knitted meshes, braided structures, fibers and polymers, and a variety of other fiber-based materials.

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