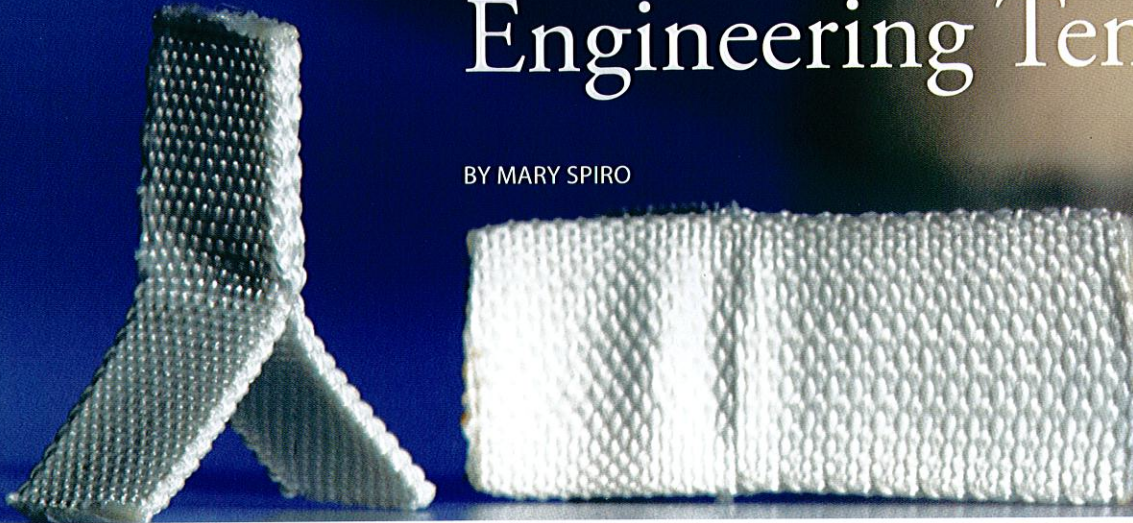


Weaving Novel Tissue Engineering Templates

BY MARY SPIRO



Secant's woven spacer fabric designed for use in spinal stabilization.

Imagine a fabric based on centuries old weaving, knitting, and braiding methods, but which coaxes tissue or bone to grow where needed. Secant Medical® pushes the boundaries of biomedical textiles, helping device engineers transform their ideas into prototypes and solve myriad clinical challenges.

Located outside Philadelphia in Perkasie, Pa., a town steeped in textiles manufacturing tradition, Secant Medical's engineers consult with researchers at universities and in industry to develop advanced biomaterials that resemble fabrics you might find in a craft store, except these fabrics use filaments on the nano- and micro-scale.

"Most clients don't know the difference between a woven or knitted textile," said Jeff Koslosky, Secant Medical's director of technology and product development, "but fabrics do a nice job of mimicking tendons, ligaments and tissues in addition to having the ability to shape transform. Our job is to educate the client as to what's possible."

Secant Medical's expertise in textiles manufacturing dates back to 1943 and their parent company Prodesco Inc. "We take good, basic, fundamental, elegant design to create really interesting applications that can potentially save lives and improve the quality of life," Koslosky said.

Secant Medical develops textiles for both tissue engineering and medical devices.

"Textiles used for tissue engineering scaffolds possess a high surface area (similar to terry cloth or velour) and promote rapid regeneration and repair," Koslosky said. This kind of textile might be found in an "annular cuff" used to prevent leakage around a replacement heart valve.

Other medical fabrics promote ordered, controlled tissue regeneration. "Textiles with an open weave work well for localizing osteobiologic inducing (bone-growing) materials in a confined area, yet are porous enough to allow for cellular and tissue integration," Koslosky added. This results in bone regeneration that retains the bone shape.

Some of Secant Medical's biomedical textiles allow part or all of its material to dissolve in vivo. So-called "hybrid" biomaterials pair biodegradable polymer with stable filament, creating a product that serves a purpose, but is later subsumed by a patient's own tissue. The company also seeks to develop textiles that combine filaments that degrade at different rates, that include cell growth factors or that can deliver drugs. ■

Secant Medical is among INBT's corporate partners. To learn about INBT's Corporate Partnership Program, contact Tom Fekete at 410-516-8891 or at tfekete1@jhu.edu. To learn more about Secant Medical LLC, visit www.secantmedical.com.