October 2012

This edition of *Medtech Ventures* profiles prostate cancer diagnostics company Chundsell Medicals and two firms in the regenerative space: Regentis Biomaterials, which is targeting the cartilage repair market and our Hot Pick company, Xeltis, focused on cardiovascular applications

REGENTIS BIOMATERIALS

Specialty area(s): Biomaterials for tissue repair
Based in: Or-Akiva, Israel
Founded in: 2004
No. of employees: 16 employees
Total investment received to date: $18m
Investors: Medica Venture Partners, SPCVitalife, DSM Ventures, TRDF, Crossroad Fund

Regenerative medicine may still be at a nascent stage, with many of potential technologies still under development or in clinical trials. However one area in which such products have made some headway is orthopaedics, in particular cartilage repair of the knee. Here, there are already a number of technologies approved and on the market. These include both cell-based therapies such as Sanofi's Carticel and TiGenix's ChondroCelect, and biomaterials that encourage the body's natural healing properties, such as Orteq's Actifit biodegradable scaffold, which is used to repair injuries to fibrocartilage such as the meniscus.

One company that is hoping to bring to the cartilage repair market what it describes as "the first in a new breed of materials" is Regentis Biomaterials. Regentis has developed a proprietary polymer GelrinC which comprises a matrix of a synthetic material, polyethylene glycol diacrylate (PEG-DA) together with a natural biomaterial, denatured fibrinogen. According to Alastair Clemow, Regentis' president and CEO, while PEGs have been around for a long time, the issue is that in the body, they degrade by undergoing hydrolysis and this limits their suitability for use in a number of applications. "The presence of the fibrinogen in GelrinC, on the other hand, provides sites for the material to be broken down by natural enzymes, resulting in a unique combination of properties". "GelrinC degrades from the surface inwards," says Dr Clemow, "so that it shrinks like an ice cube rather than all at once."

With GelrinC, the material is injected into the cartilage defect as a liquid which is then exposed *in situ* to ultraviolet light for 90 seconds which turns it into a soft elastomeric solid. Over time, the GelrinC shrinks allowing new cartilage to regrow behind the receding implant. This gradual and controlled degradation of the polymer means that the scaffold provides the necessary mechanical support during the healing process, says Dr Clemow. "It's somewhat like a hole in the sand where if one presses the side, the walls tend to crumble. What we found in our bench testing is that GelrinC provides the mechanical support to stop the cartilage defect from crumbling and allows it to repair."