Hydrogel Scaffolding Matrix

The innovation

Understanding the Challenge

Cartilage damages in ankle, knee, shoulder, hip etc. are often caused directly from injury, e.g. as a result of working outs. There is no standard approach to manage these defects. Cartilage lacks blood and nerve supplies and therefore has a limited ability to repair itself. Available surgical techniques (such as ACT or the Mosaique-Transplant) are not providing a solution to the poor quality of the regenerated fibrocartilage. Therefore, treated patients suffer reduced mobility and/or require secondary surgical interventions. For this reason the potential market size for a technology delivering high quality cartilage is significant.

Presenting our Solution

Our Hydrogel Scaffolding Matrix aims at providing a solution to the regrowth of high mechanical load bearing cartilage. The production process of the Hydrogel Scaffolding Matrix offers the potential of creating spacially directed pore structures of desired dimensions. This provides an ingrowth of chondrocytes and a directed growth of hyaline cartilage. The material is biodegradable and durable in its structure reproducing all natural mechanical characteristics needed. It is sterile and can be produced in a variety of shapes and dimensions according to the need. Additionally, the scaffolding matrix offers the potential to carry different substances of biological and non-biological nature, ranging from anti-inflammatory drugs to autologous cells, extending the possible range of use beyond the original challenge.

Development Plan and Status

The development plan foresees two basic steps:

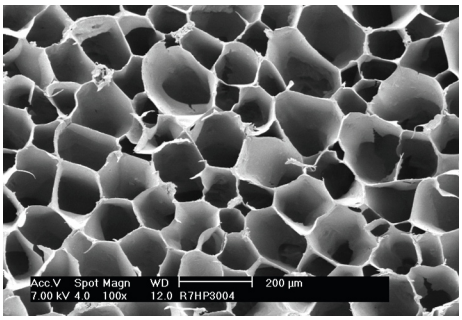
- Small Animal Study (rats) providing the proof for biocompatibility and degradation times.
- Large Animal Study (goats) providing the proof of cartilage regeneration in primary and secondary joint defects under mechanical stress.

All documentation follows international registration standards.

The current goal is to finalize animal testing and prepare the protocol for a first human study. Toxicology and Small Animal Study were successfully completed.

The Commercial Opportunity

We offer an artificial scaffolding matrix answering a relevant market need in the cartilage damage treatment area. A corporate partner can participate in the already funded R&D project securing individual tailored development targets. The growing number of incidences and the highly adaptable solution for cartilage repair grant an attractive and significantly expanding market for our technology.



Advantages at a glance

- Directed Scaffolding System
- High Ingrowth Quality
- High Stress Resilience of Joint during Healing Phase
- Reduction of Surgical Impact
- Reduced Risk of Secondary Surgical Interventions
- Potential to Enrich the Scaffolding Matrix with Anti-inflammatory and/or Cell-proliferating Substances
- High Flexibility of Shape

To acquire a licence for this new technology, please don't hesitate to contact us!

Keywords

- **Primary and Secondary Cartilage Defects**
- **Chondral Defects**
- **Scaffolding Matrix**
- **Hydrogel**
- **Cell Proliferation Support**
- **Joints**

Areas of application

- **Cartilage regeneration in primary or secondary ankle and knee joint defects**

Potential additional use:

- **Drug delivery systems**

Patent status

The invention is filed internationally. It is owned by Dritte Patentportfolio Beteiligungsgesellschaft mbH & Co. KG. The application was filed in November 2003.

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