

Medical Technology | Technology Offer

„Biocompatible Implant as Intervertebral Disc Replacement“

Medical Indication

This novel technology is relevant to intervertebral disc diseases involving defects of the annulus fibrosus (intervertebral ring) and degeneration of the nucleus pulposus (intervertebral nucleus).

Current Status of Technology / Problems

Intervertebral disc diseases like lumbar disc herniations are initially treated conservatively. With persistent pain or neurological deficits microsurgical sequestrectomy is performed. In Germany alone, approximately 70,000 surgical interventions per year are reported. In both, conservative and surgical treatment approaches, two major problems complicate the healing process:

1. *Increasing back pain*
 - Biomechanical instability leads to painful degenerative changes of the vertebral segment concerned.
2. *Recurrent disc herniations*
 - Recurrent intervertebral disc herniations at the same level occur in 7-21% of the patients.

Currently, there is no routinely used therapeutic strategy that counters degenerative processes. Artificial nucleus pulposus prostheses and techniques to close the annulus using solid materials have shown potential problems in initial trials. For example migration of implants, inadequate integration of the material with native tissue and failing biomechanical characteristics.

A regenerative treatment approach is being adopted with autologous disc cell transplantation. This trend-setting method has shown some initial success. However, the sole introduction of disc cells does not provide a prompt re-establishment of biomechanical stability. Moreover, the problem of recurrent disc herniations is not addressed with this approach.

Innovation

Researchers at the Medical Faculty Mannheim of Heidelberg University have now developed a biocompatible implant which allows combining the patient's own intervertebral disc cells, adult stem cells or growth factors with components that promote the regeneration of defect intervertebral discs. This implant is supposed to restore biomechanical stability immediately after surgery and at the same time to seal the annulus fibrosus to prevent recurrent disc herniations. The innovative implant may be introduced by means of a minimally invasive technique which was developed specifically for this intervention.

Your Advantages at a Glance:

- ✓ Biological regrowth of the intervertebral disc
- ✓ High initial biomechanical stability immediately after the intervention
- ✓ Minimally invasive implantation feasible
- ✓ Biocompatible implant
- ✓ No danger of recurrence or re-herniation

Patent Portfolio

A European patent application and PCT application are pending.

Technology Transfer

The Technologie-Lizenz-Büro GmbH is charged with the commercialization of this break-through and now offers companies the opportunity to obtain a license to exploit this new and promising technology.

For further information on this promising technology, or other TLB Technologies on offer, please contact:

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