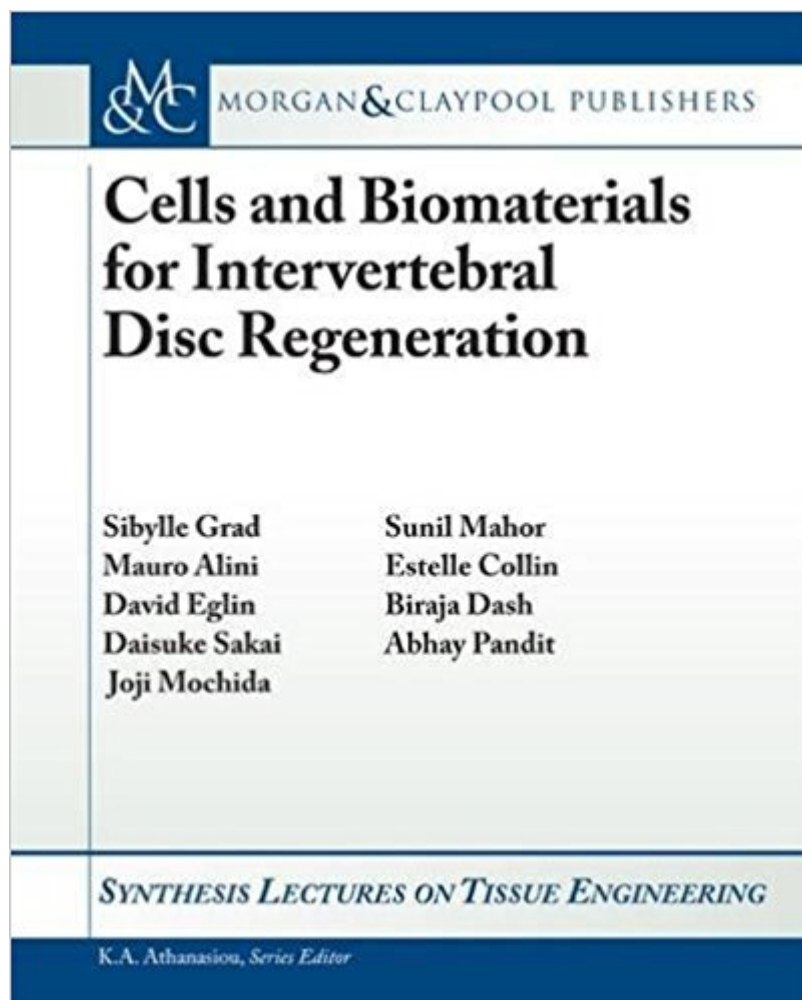




The book was found

# Cells And Biomaterials For Intervertebral Disc Regeneration (Synthesis Lectures On Tissue Engineering)



## Synopsis

In Western societies IVD related pain and disability account for enormous health care costs as a result of work absenteeism and thus lost production, disability benefits, medical and insurance expenses. Although only a small percentage of patients with disc disorders finally will undergo surgery, spinal surgery has been one of the fastest growing disciplines in the musculoskeletal field in recent years. Nevertheless, current treatment options are still a matter of controversial discussion. In particular, they hardly can restore normal spine biomechanics and prevent degeneration of adjacent tissues. While degeneration affects all areas of the IVD, the most constant and noticeable changes occur in the gel-like central part, the nucleus pulposus (NP). Recent emphasis has therefore been put in biological ways to regenerate the NP; however, there are a number of obstacles to overcome, considering the exceptional biological and biomechanical environment of this tissue. Different biological approaches such as molecular, gene, and cell based therapies have been investigated and have shown promising results in both in vitro and in vivo studies. Nonetheless, considerable hurdles still exist in their application for IVD regeneration in human patients. The choice of the cells and the choice of the cell carrier suitable for implantation pose major challenges for research and development activities. This lecture recapitulates the basics of IVD structure, function, and degeneration mechanisms. The first part reviews the recent progress in the field of disc and stem cell based regenerative approaches. In the second part, most appropriate biomaterials that have been evaluated as cell or molecule carrier to cope with degenerative disc disease are outlined. The potential and limitations of cell- and biomaterial-based treatment strategies and perspectives for future clinical applications are discussed.

## Book Information

Series: Synthesis Lectures on Tissue Engineering

Paperback: 104 pages

Publisher: Morgan and Claypool Publishers; 1 edition (July 12, 2010)

Language: English

ISBN-10: 1608454649

ISBN-13: 978-1608454648

Product Dimensions: 7.5 x 0.2 x 9.2 inches

Shipping Weight: 9.1 ounces (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #8,213,542 in Books (See Top 100 in Books) #67 in [Books > Textbooks >](#)

Medicine & Health Sciences > Medicine > Special Topics > Prosthesis #404 in [Books](#) > Medical Books > Medicine > Prosthesis #1731 in [Books](#) > Textbooks > Medicine & Health Sciences > Medicine > Biotechnology

[Download to continue reading...](#)

Cells and Biomaterials for Intervertebral Disc Regeneration (Synthesis Lectures on Tissue Engineering) The intervertebral foramina in man: The morphology of the intervertebral foramina in man, including a description of their contents and adjacent parts ... (supplement to "The intervertebral formamen") Tissue Engineering II: Basics of Tissue Engineering and Tissue Applications (Advances in Biochemical Engineering/Biotechnology) Emerging Biomaterials and Techniques in Tissue Regeneration, An Issue of Oral and Maxillofacial Surgery Clinics of North America, 1e (The Clinics: Surgery) Tissue Engineering I: Scaffold Systems for Tissue Engineering (Advances in Biochemical Engineering/Biotechnology) (v. 1) Landmarking and Segmentation of 3D CT Images (Synthesis Lectures on Biomedical Engineering Synthesis Lectu) Wound Healing Biomaterials - Volume 1: Therapies and Regeneration Biomechanics and Mechanobiology of Aneurysms (Studies in Mechanobiology, Tissue Engineering and Biomaterials) (Volume 7) Handbook of Reagents for Organic Synthesis: Reagents for Heteroarene Synthesis (Hdbk of Reagents for Organic Synthesis) Stem Cells, Tissue Engineering and Regenerative Medicine Culture of Cells for Tissue Engineering Regulatory Affairs for Biomaterials and Medical Devices (Woodhead Publishing Series in Biomaterials) Dental Biomaterials: Imaging, Testing and Modelling (Woodhead Publishing Series in Biomaterials) Sterilisation of Biomaterials and Medical Devices (Woodhead Publishing Series in Biomaterials) Perspectives in Total Hip Arthroplasty: Advances in Biomaterials and their Tribological Interactions (Woodhead Publishing Series in Biomaterials) Wound Healing Biomaterials - Volume 2: Functional Biomaterials Bio-Implant Interface: Improving Biomaterials and Tissue Reactions Biomaterials Regulating Cell Function and Tissue Development: Volume 530 (MRS Proceedings) Herniated Disc: A Survival Guide: Everything you need to know to manage your lumbar disc herniation without surgery Enjoy Your Cells (Enjoy Your Cells Series Book 1)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)