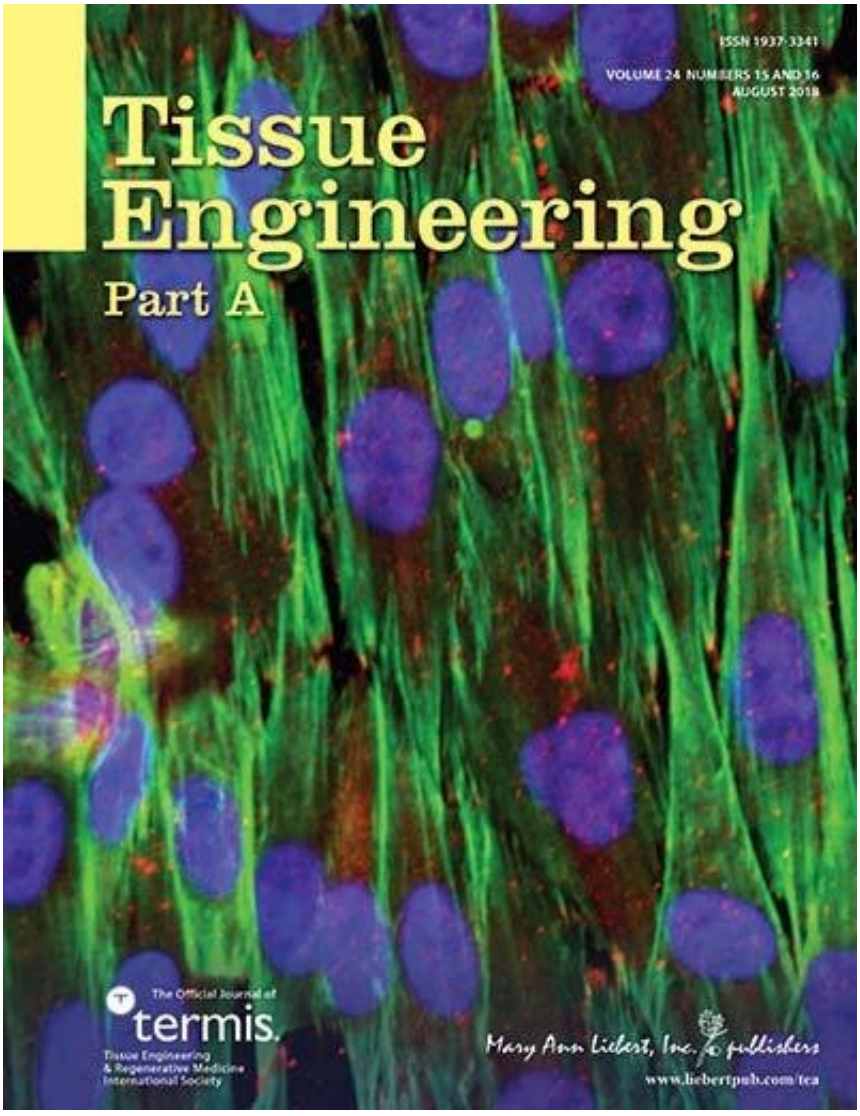
Factor to boost MSCs and collagen II activity in intervertebral disc degeneration identified

September 5 2018



Tissue Engineering brings together scientific and medical experts in the fields of biomedical engineering, material science, molecular and cellular biology, and genetic engineering. Credit: Mary Ann Liebert, Inc., publishers

A new study has demonstrated the tissue regenerative potential of a chemoattractant delivery system that can draw mesenchymal stem cells (MSCs) to the site of intervertebral disc (IVD) degeneration. The study, carried out in a cow model of IVD degeneration, not only showed the recruitment of regenerative cells, but also reported increased collagen production, as described in an article published in *Tissue Engineering Part A*.

Raquel Madeira Gonçalves, Ph.D., Universidade do Porto, Portugal and a team of researchers from Universidade do Porto and the AO Research Institute Davos, Switzerland, described the hyaluronan based-chemoattractant delivery system they developed in the article entitled "Stromal Cell Derived Factor-1-Mediated Migration of Mesenchymal Stem Cells Enhances Collagen Type II Expression in Intervertebral Disc." In the presence of the system, which contained stromal cell derived factor-1 (SDF-1), migration of MSCs to the degenerative site was enhanced. In addition, the researchers measured higher levels of collagen type II and of pro-catabolic factors produced by the MSCs that would contribute to enhanced remodeling of the extracellular matrix.

"This study exemplifies the impact of drug delivery on enhancing a specific cellular activity and thus reverting a tissue degenerative process," says *Tissue Engineering* Co-Editor-in-Chief Antonios G. Mikos, Ph.D., Louis Calder Professor at Rice University, Houston, TX.

More information: Catarina Leite Pereira et al, Stromal Cell Derived Factor-1-Mediated Migration of Mesenchymal Stem Cells Enhances Collagen Type II Expression in Intervertebral Disc, *Tissue Engineering Part A* (2018). DOI: 10.1089/ten.tea.2018.0131