Decellularized cartilage-based scaffold promotes bone regeneration at fracture site

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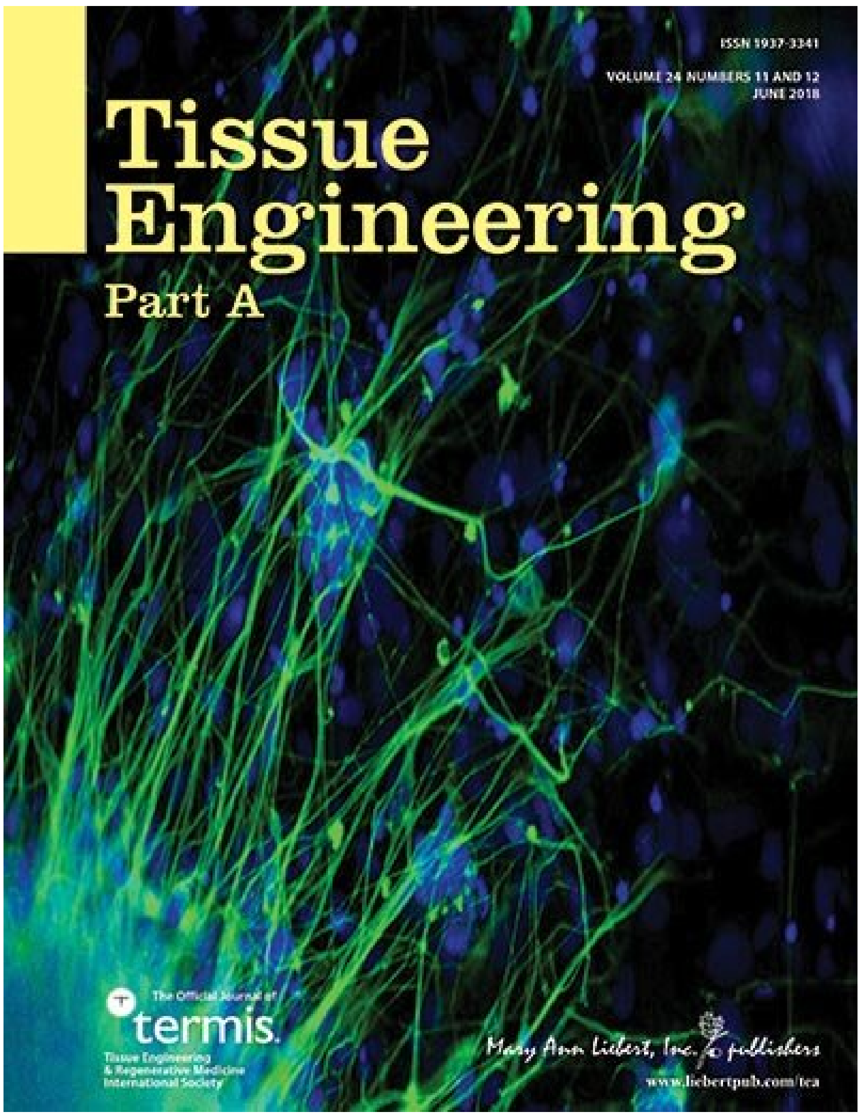

Credit: Mary Ann Liebert, Inc., publishers

To help prevent possible complications such as nonunion at large fracture sites, researchers have developed a cartilage matrix that mimics the early stages of repair and provides the essential structural and biological properties needed by bone-forming cells to divide and grow. A new study describing the methods used for matrix decellularization and optimization to promote bone regeneration is published in *Tissue Engineering, Part A*.

Coauthors Wollis Vas, Mittal Shah, Thomas Blacker, Michael Duchen, and Scott Roberts, University College London, U.K. and Paul Sibbons, Northwick Park Hospital, London, U.K. validate their methodology and report on regenerative results achieved in a mouse model in the article entitled "Decellularized Cartilage Directs Chondrogenic Differentiation: Creation of a Fracture Callus Mimetic." The researchers describe the effectiveness of a vacuum-assisted osmotic shock approach to remove the decellular material—including DNA and immunogenic material—from a xenogeneic hyaline cartilage matrix while retaining the extracellular matrix (ECM), which can support the growth and development of bone tissue.

"The approach by Roberts and his team, utilizing costal cartilage—accessible from the ribs and particularly well suited as the basis for an endochondral ossification bone repair mechanism—is an innovative approach that may be quickly translated into clinical use," says *Tissue Engineering* Co-Editor-in-Chief John P. Fisher, Ph.D., Fischell Family Distinguished Professor & Department Chair, and Director of the NIH Center for Engineering Complex Tissues at the University of Maryland.

More information: Wollis J. Vas et al, Decellularized Cartilage Directs Chondrogenic Differentiation: Creation of a Fracture Callus Mimetic, *Tissue Engineering Part A* (2018). DOI: 10.1089/ten.tea.2017.0450