

Title: Composite Material and Delivery System for Attachment to Damaged or Diseased Tissue to Deliver Nutrients, Growth Factors and Stem Cells

Invention Summary	A composite patch material is under development that will be attached to a diseased or damaged tissue to deliver nutrients, growth factors and stem cells. The material consists of a structural portion which is supplied for attachment and durability along with a gel-like portion to be used as a substrate for delivery of therapeutic biomolecules and cells.
Market Applications	The invention provides a robust system for delivering biological substances to diseased or damaged tissues, particularly demanding organ and muscle locations such as the beating heart. It is a complementary technology to current research and development efforts to identify, isolate and reproduce these substances for therapeutic purposes. The system will, in effect, track and support the technology development and utilization of these important biomolecules and cells. Upon completion, this delivery system will be immediately available to researchers conducting animal studies and will subsequently be available to researchers and clinicians for use in humans.
Features, Benefits & Advantages	Current methods of delivering cells, growth factors and nutrients to diseased muscles and organs consist of needle injections, polymeric substrates, hydrogels, scaffolds and other monolithic material constructs. This invention combines heterogeneous materials into a provisional substrate, scaffold and attachment mechanism to provide therapeutic delivery of biological materials to demanding organ and muscle locations such as the beating heart.
Intellectual Property & Development Status	This concept-stage invention is the basis for one of the design projects for the Bioengineering 3801/4801 Design Class sequence, and will be further developed in that context. It is available for developmental research support/licensing under either exclusive or non-exclusive terms.
Related Research	<ul style="list-style-type: none"> • http://www.bioen.utah.edu/research/research_initiatives.php?op=show&id=5 • http://clinicaltrials.gov/ct/gui/show/NCT00463853;jsessionid=3E6FC6198B3671C063C90389483D900E?order=17
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