BIOINSPIRED HYDROGELS FOR THE TREATMENT OF VOLUMETRIC MUSCLE LOSS INJURY

Tech ID: 29542 / UC Case 2018-209-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20210252192	08/19/2021	2018-209

BRIEF DESCRIPTION

Injuries that involve a degree of muscle tissue loss that exceeds the endogenous regenerative capacity of muscle, resulting in permanent cosmetic and functional deficits of either the injured muscle or the muscle unit, are referred to as volumetric muscle loss (VML) injuries. Current treatment for VML injury involves surgical muscle transfer, although these procedures are often associated with poor engraftment and donor site
morbidity.

UC Berkeley and U.Va researchers have developed a new technology for the treatment of VML injuries that overcomes the limitations associated with current treatments for VML injury. The Matrix Assisted Cell Transplantation (MACT) technology developed by the researchers employs “bioinspired” materials designed to emulate regulatory processes that modulate cell function in the stem/progenitor cell microenvironment. The technology includes: 1) peptide ligands to imitate the natural extracellular matrix (ECM); 2) proteolytic remodeling via matrix metalloproteinase (MMP) sensitive peptide crosslinks; and, 3) growth factors with engineered density and presentation.

The technology and the materials used have been shown to significantly improve donor survival after transplantation, promote angiogenesis, and encourage donor cell integration with the host tissue.

SUGGESTED USES

» transplantation

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Universal Coating Compound
- Design And Fabrication Of Polymeric Pillar Arrays As Diffusion Barriers
- Growth Factor Sequestering and Presenting Hydrogels
- Isolation Of Cardiac Stem/Progenitor Cells Expressing Islet-1
- Formation Of Porous Scaffolds Of Growth Factor Sequesting Hydrogels By Cryogelation
- Novel Solid Lipid Nanoparticle To Improve Heart Cardio Protection

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

» **Medical**

» Rehabilitation

» Therapeutics

RELATED CASES

2018-209-0

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