
Pluripotent stem cell-derived chondrocytes for articular cartilage repair

Grant Award Details

Pluripotent stem cell-derived chondrocytes for articular cartilage repair

Grant Type: Therapeutic Translational Research Projects

Grant Number: TRAN1-09288

Project Objective: To enable an FDA pre-IND meeting for an allogeneic "off-the-shelf" human embryonic stem cell (hESC)-derived chondrocyte treatment for articular cartilage repair

Investigator:

Name:	Denis Evseenko
Institution:	University of Southern California
Type:	PI

Disease Focus: Bone or Cartilage Disease

Human Stem Cell Use: Embryonic Stem Cell

Award Value: \$2,503,104

Status: Closed

Progress Reports

Reporting Period: Final Operational Milestone #5

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Grant Application Details

Application Title: Pluripotent stem cell-derived chondrocytes for articular cartilage repair

Public Abstract:**Translational Candidate**

We propose to develop a universal, off-the-shelf treatment for articular cartilage repair based on pluripotent stem cell (PSC)-derived chondrospheres

Area of Impact

The proposed therapy could treat the major cartilage lesions present in more than 10% of people under 50; which often result in pain and arthritis

Mechanism of Action

Untreated cartilage defects often lead to joint pain and degeneration over time, often requiring joint replacement. The proposed candidate is a universal cell therapy designed to generate new articular cartilage in these defects and interrupt the cycle of degeneration.

Unmet Medical Need

Approximately 10% of people under 50 have at least a single, high-grade defect in their knee cartilage; these lesions have a high probability of promoting subsequent degenerative processes, often resulting in arthritis. Currently, there are no effective treatments for altering this progression.

Project Objective

Pre-IND meeting

Major Proposed Activities

- Optimization of large-scale production, preservation and quality control of pluripotent stem cell-derived chondrocytes
- Conduct nonclinical safety and stability tests in small and large animal models
- Develop a draft clinical protocol and synopsis and conduct a successful pre-IND meeting

Statement of Benefit to California:

The work described in this proposal is designed to produce a universal treatment for articular cartilage lesions. If successfully validated, this cellular therapy will likely help reduce joint pain and reduce further degeneration of joints that leads to arthritis. The proposed treatment may be of major public benefit, as it would represent the first curative strategy for cartilage injury and subsequent degeneration, likely decreasing economic burden on the state and its people.

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