Using rAAV-TIMP3 Vectors for the Improvement of Osteoarthritis in an Ovine Model

Presented By
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Outline

What is osteoarthritis?  Current Treatments  Pilot Study

Treatment Approach  Methods  Summary
Osteoarthritis

Causes

- Age and Genetics
- Injury and Excessive Use
- Obesity
- Menopause

http://www.humanillnesses.com
Osteoarthritis

- Pain and Inflammation
- Swelling and Stiffness
- Reduced Range of Motion
- Deformed Joints

http://www.firstaidforfree.com
Current Treatments

- Lifestyle Changes
- Topical Pain Relievers
- NSAIDS
- Corticosteroid Injections
- Physical Therapy
- Surgery
Pilot Study
(Hill et al. 2017)

- Developed a female ovine model for osteoarthritis
- CCLD (ACLT)/ovariectomy surgeries
- Oblique-angle forced exercise
- Foundational protocols and procedures for my project
<table>
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<tr>
<th>Treatment Approach</th>
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<tr>
<td>Decreases the effects of aggrecanase-preserved aggrecan</td>
<td>Viral DNA is modified to prevent replication</td>
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<td>Cells in joint transduced to rebalance cartilage homeostasis</td>
<td>rAAV-TIMP3</td>
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<td>Predicted to slow the progression of disease</td>
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Study Design

- Sheep underwent CCLD or Ovariectomy surgery – December 2017
- 6 of 15 were injected with the virus
- Collecting serum and urine every 3 weeks to measure biomarkers
Study Design

- Began treadmill running in March 2018
- Taking 4 sets of radiographs on each sheep every 6 weeks
- Tracking gait in collaboration with Kinesiology department
- Sheep are to be collected in July 2018
Summary

The most common joint disease on earth.

23 Million Americans

630 Million People Worldwide
Questions?

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