



56th Annual Meeting of the Orthopaedic Research Society

Papers and Posters from the McKay Orthopaedic Laboratory

March 6-9, 2010



Paper No. 11

Discectomy Alters the Internal Strains of the Intervertebral Disc

Grace O'Connell, Neil Malhotra, Edward Vresilovic, Dawn Elliott

Paper No. 21

Evaluating Human Supraspinatus Tendon Structure-Function Relationships Using a Model of Fiber Crimp and Angular Distribution

Daniel Cortes, Spencer Lake, Jennifer Kadlowec, Louis Soslowsky, Dawn Elliott

Paper No. 30

Evaluation of Integrative Cartilage Repair with Scaffold-Free Constructs

Minwook Kim, Isaac Erickson, Jonathon Yoder, Robert Mauck, Walter Witschey, Matthew Fenty, Ravinder Reddy, George Dodge

Paper No. 105

Time-Dependent and Anisotropic Nuclear Deformations on Aligned Nanofibrous Scaffolds

Ashwin Nathan, Brendon Baker, Nandan Nerurkar, Robert Mauck

Paper No. 121

Functional Maturation of Engineered Composites that Mimic the Hierarchical Organization of the Intervertebral Disc

Nandan Nerurkar, Sounok Sen, Alice Huang, Dawn Elliott, Robert Mauck

Paper No. 178

Selective Removal of Extracellular Matrix Components Reveals Homologous Structure-Function Relationships Between Engineered And Native Fibrocartilage

Nandan Nerurkar, Sounok Sen, Robert Mauck, Dawn Elliott

Paper No. 179

Dynamic Tension Improves the Mechanical Properties of Nanofiber-Based Engineered Meniscus Constructs

Brendon Baker, Roshan Shab, Amy Silverstein, Robert Mauck

Paper No. 182

Long Head of the Biceps Tendon Changes Begin at the Insertion Site Following Altered Loading after Rotator Cuff Tendon Tears in a Rat Model

Catbryn Peltz, Miltiadis Zgonis, Nicholas Trasolini, David Glaser, Louis Soslowsky

Paper No. 186

T1 -weighted MRI and Opening Discography Pressure are Quantitative Biomarkers of Disc Degeneration in Patients

Dawn Elliott, Matthew Fenty, Walter Witschey, Jonathan Yoder, A Singh, Phillip Maurer, Ari Borthakur

Paper No. 282

Mechanical, Compositional and Structural Properties of the Neonatal Mouse Achilles Tendon

Heather Ansoerge, David Birk, Louis Soslowsky

Paper No. 315

Sliding Contact Enhances Mesenchymal Stem Cell Chondrogenesis in 3D Culture

Alice Huang, Brendon Baker, Gerard Ateshian, Robert Mauck

Paper No. 420

Developmental Origins of the Annulus Fibrosus Lamellar Cross Bridge Network

Lachlan Smith, Thomas Schaer, Kenneth Liechty, Dawn Elliott

Poster No. 927

In Vitro Meniscus Integration is Age Dependent

Lara Ionescu, Grant Garcia, Isaac Erickson, Jose Guevara, Roshan Shab, Brian Sennett, Robert Mauck

Poster No. 1165

Effect of Joint Position, Supraspinatus Tendon Load, Tear Size and Repair Technique on Infraspinatus and Supraspinatus Tendon Strain Using Multiple Regression Models

Nelly Andarawis-Puri, Andrew Kuntz, Abbas Jawad, Louis Soslowsky

Poster No. 1277

Dynamic Culture Enhances Cellular Infiltration and Matrix Deposition in Aligned Nanofibrous Scaffolds

Nandan Nerurkar, Sounok Sen, Brendon Baker, Tiffany Zachary, Dawn Elliott, Robert Mauck

Poster No. 1278

Combinatorial Drug Delivery From An Aligned Nanofiber/Microsphere Composite for Fibrous Tissue Engineering

Lara Ionescu, Greg Lee, Brian Sennett, Jason Burdick, Robert Mauck

Poster No. 1286**Macromer Density Mediates Mesenchymal Stem Cell Response to Dynamic Compression in Photo-Crosslinked Hyaluronic Acid Hydrogels**

Isaac Erickson, Sydney Kestle, Megan Farrell, Jason Burdick, Robert Mauck

Poster No. 1288**Fabrication and Evaluation of Biomimetic-Biosynthetic Nanofibrous Composites**

Albert Gee, Brendon Baker, Giana Montero, Amy Silverstein, Robert Mauck

Poster No. 1308**In Vivo Meniscus Repair with Anatomic Nanofibrous Scaffolds: A Preliminary Report**

Ryan DeCoons, Roshan Shab, Albert Gee, Brendon Baker, Jose Guevara, Rolf Modesto, Thomas Schaefer, Robert Mauck

Poster No. 1312**Matrix Deposition Modulates Dynamic Mechanical Behavior of Nanofiber-Based Fibrocartilage**

Brendon Baker, Amy Silverstein, Roshan Shab, Robert Mauck

Poster No. 1323**Micromechanical Heterogeneity of Chondrogenic Mesenchymal Stem Cell Subpopulations in 3D Culture**

Megan Farrell, Jeffrey Perreira, Robert Mauck

Poster No. 1336**Dynamic Compression Initiated After Chondrogenesis Improves Mechanical Properties of Mesenchymal Stem Cell-Seeded Hydrogel Constructs**

Alice Huang, Megan Farrell, Robert Mauck

Poster No. 1337**In Vitro Cartilage Integration of MSC-Seeded Hyaluronic Acid Constructs**

Isaac Erickson, Sydney Kestle, Jason Burdick, Robert Mauck

Poster No. 1370**Intervertebral Disc Axial Compression Does Not Alter the T1rho Relaxation Time**

Jonathon Yoder, Matthew Fenty, Valerie Walters, Ari Borthakur, Dawn Elliott

Poster No. 1478**Lumbar Spine Segment Mechanical Properties, Composition and Gene Expression in Mucopolysaccharidosis VII Dogs Following Neonatal Gene Therapy**

Lachlan Smith, Katherine Ponder, John Martin, Mark Haskins, Dawn Elliott

Poster No. 1550**Annulus Fibrosus Shear Mechanical Properties and the Contributions of Glycosaminoglycan and Elastic Fiber to Shear are Anisotropic**

Nathan Jacobs, Jeffrey Morelli, Lachlan Smith, Jonathon Yoder, Dawn Elliott

Poster No. 1569**Human Annulus Fibrosus Dynamic Tensile Modulus Increases with Degeneration**

Sounok Sen, Nathan Jacobs, John Boxberger, Dawn Elliott

Poster No. 1570**Biaxial Mechanics are Inhomogeneous and Altered with Degeneration in the Human Annulus Fibrosus**

Grace O'Connell, Sounok Sen, Daniel Cortes, Dawn Elliott

Poster No. 1571**Direct Effects of Intervertebral Disc Needle Puncture Injury on Mouse Lumbar and Caudal Motion Segment Mechanical Function**

John Martin, Jessica Balderston, Katherine Gerasimowicz, Lachlan Smith, Nader Hebela, Dawn Elliott