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, Jonathan 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, Rosban 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
Cathryn 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 Bortbakur

Paper No. 282
Mechanical, Compositional and Structural Properties of the Neonatal Mouse Achilles Tendon
Heather Ansorge, David Birk, Louis Soslowsky

Paper No. 315
Sliding Contact Enhances Mesenchymal Stem Cell Chondrogenesis in 3D Culture
Alice Huang, Brendon Baker, Gerard Atesbian, 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, Rosban 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, Rosban 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, Rosban 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