

Research Contributions for Dr. Christopher Hunter

Peer-reviewed journal papers

- Desmoulin GT, Reno C, and Hunter CJ, "Free axial vibrations at 0-200 Hz positively affect extracellular matrix mRNA expression in bovine nucleus pulposi" *Spine* (In review)
- Hill TE, Desmoulin GT, and Hunter CJ, "Review: is vibration truly an injurious stimuli in the human spine?" *J Biomech* (In review).
- Malekian M, Owoc JS, Park SS, and Hunter CJ, "Experimental Comparison between Intervertebral Disc (IVD) and Fused Joint Dynamics" *ASME J Biomech Eng* (In revision)
- Louman-Gardiner KL, Coombe D, and Hunter CJ, "Computational models used to simulate the aging of an intervertebral disc from grade 1 to 2" *J Biomech* (In revision)
- Eggum TJ and Hunter CJ. "'Educated' cells for IVD therapy: differential response of MSC to oxygen, glucose, notochord conditioned medium, and dynamic hydrostatic pressure" *Tissue Engineering* (In revision for resubmission)
- Schwab JH, Boland PJ, Agaram NP, Socci ND, Guo T, O'Toole GC, Block JA, Ostroumov E, Hunter CJ, Doty S, Ferrone S, Healey JH, Antonescu CR. "High Transcriptional Expression of Extracellular Matrix Genes By Both Human Chordoma and Chondrosarcoma Tumors." *Cancer Immunology Immunotherapy*, 2008 58(3):339-49.
- Ostroumov E and Hunter CJ. "Identifying mechanisms for therapeutic intervention in chordoma: c-Met oncoprotein." *Spine* 2008 33(25):p. 2774-80.
- Eggum TJ and Hunter CJ. "A novel system for application of hydrostatic pressure to growing cells and tissues." *ASME J Biomech*, 2008 130(6): 064501.
- Hunter CJ, Bianchi S, Chen P, Muldrew K. "A Novel Osmoregulatory Organelle Found in Notochordal Cells of the Intervertebral Disc." *Molecular and Cellular Biomechanics* 2007 4(4): p.227-38.
- Ostroumov E and Hunter CJ. "Aspects of phenotype characterization of human chordoma cells in vitro" *Spine*, 2007 32(26): p. 2957-64 .
- Mwale F, Wang HT, Petit A, Girard-Lauriault P-L, Hunter CJ, Antoniou J, Wertheimer MR. "The effect of novel nitrogen-rich plasma polymer coatings on the phenotypic profile of notochordal cells." *Biomedical Engineering Online*, 2007 6(33).
- Shao X and Hunter CJ. "Developing an alginate/chitosan hybrid fiber scaffold for annulus fibrosus cells." *Journal of Biomedical Materials Research Part A*, 2007 82(3): p. 701-10.
- Hunter CJ, Matyas JR, Duncan NA. "Cytomorphology of notochordal and chondrocytic cells from the nucleus pulposus: a species comparison." *Journal of Anatomy*, 2004. 205: p. 357-62
- Hunter CJ, Matyas JR, Duncan NA. "Functional aspects of cellular structures in the notochordal nucleus pulposus: survival and cellular signaling in the canine intervertebral disc." *Spine*, 2004 29(10): p. 1099-1104.
- Hunter CJ, Levenston ME. "Maturation and integration of tissue engineered cartilages within an *in vitro* defect repair model." *Tissue Engineering*, 2004 10(5-6): p. 736-746.
- Hunter CJ, Mouw JK, Levenston ME. "Dynamic compression of chondrocyte-seeded fibrin gels inhibits matrix accumulation and the development of mechanical properties." *Osteoarthritis and Cartilage*, 2004. 12(2): p. 117-30.
- Hunter CJ, Matyas JR, Duncan NA. "The notochordal cell in the nucleus pulposus: a review in the context of tissue engineering." *Tissue Engineering*, 2003. 9(4): p. 667-77.

- Hunter CJ, Matyas JR, Duncan NA. "The three-dimensional architecture of the notochordal nucleus pulposus: novel observations on cell structures in the canine nucleus pulposus." *Journal of Anatomy*, 2003. 202(3): p. 279-92.
- Hunter CJ, Levenston ME. "The influence of repair tissue maturation on the response to oscillatory compression in a cartilage defect repair model" *Biorheology*, 2002. 39(1-2): p. 79-88.
- Hunter CJ, Imler SM, Malaviya PM, Nerem RM, Levenston ME. "Mechanical compression alters gene expression and extracellular matrix synthesis by chondrocytes cultured in collagen-I gels." *Biomaterials*, 2002. 23(4): p. 1249-59.
- Waniewski TA, Hunter CJ, and Brennen CE, "Bubble measurements downstream of hydraulic jumps." *International Journal of Multiphase Flow*, 2001. 27(7): p. 1271-84.
- Neitzel GP, Nerem RM, Sambanis A, Smith MK, Wick TM, Brown JB, Hunter CJ, Jovanovic I, Malaviya P, Saini S, Tan S. "Cell function and tissue growth in bioreactors: fluid-mechanical and chemical environments." *J Jpn Soc Microgravity Appl*, 1998. 15(Supplement II): p. 602-7.

Invited posters/abstracts

- Ostroumov E and Hunter CJ, "Human chordoma cell phenotype *in vitro*" *First International Chordoma Research Workshp*, May 3-4, 2007.
- Hunter CJ, "Towards cellular regeneration of the intervertebral disc" *Canadian Arthritis Network Restoration of Joint Function Workshop*, June 8, 2006.

Peer-reviewed full conference papers

- Swamy G, Salo P, Hunter CJ, Matyas JR, Jirik F. "Pinprick Injury Of Mouse Intervertebral Disc Mimics Rabbit Pinprick" *55th Annual Meeting of the Orthopaedic Research Society*. Feb 2009. Las Vegas, NV.
- Greaves, C.Y., Gilchrist, S., Morris, T., Cripton P.A., Hunter C.J. "Impact properties of bovine tail intervertebral discs" *Northwest Biomechanics Symposium*. May 2008. Boise, ID.
- Malekian M, Park S, Hunter CJ. "Experimental Modal Analysis of Intervertebral Disc Joint Dynamics." *ASME Summer Bioengineering Conference*. June 2008. San Marco Island, FL.
- Malekian M, Park S, Hunter CJ, Xiao X. "Identification of Intervertebral Disc (IVD) Joint Dynamics Using Experimental Modal Analysis." *Canadian Society for Mechanical Engineering*. June 2008. Ottawa, ON.
- Ostroumov E and Hunter CJ. "c-Met oncogene in human chordoma cells." *54th Annual Meeting of the Orthopaedic Research Society*. March 2008. San Francisco, CA.
- Ostroumov E, Swamy G, and Hunter CJ. "Phenotype characterization of human chordoma cells." *29th Canadian Medical and Biological Engineering Conference*. June 2006. Vancouver, BC.
- Eggum T and Hunter CJ. "'Educated' cells for IVD therapy: differential response of mscs to oxygen, glucose, and notochord conditioned medium." *52nd Annual Meeting of the Orthopaedic Research Society*. March 2006. Chicago, IL.
- Shao X and Hunter CJ. "Developing an alginate/chitosan hybrid fiber scaffold for intervertebral disc annulus fibrosus cells." *52nd Annual Meeting of the Orthopaedic Research Society*. March 2006. Chicago, IL.

- Bianchi S, Chen P, Muldrew K, Hunter CJ. "An experimental and computational examination of osmotic stress response in adult canine nucleus pulposus cells." *51st Annual Meeting of the Orthopaedic Research Society*. February 2005. Washington, DC.
- Chung J, Hunter CJ. "Gene expression response of annulus fibrosus fibrocytes, articular chondrocytes and bone marrow stromal cells to influence by adult nucleus pulposus cells." *51st Annual Meeting of the Orthopaedic Research Society*. February 2005. Washington, DC.
- Shao X, Hunter CJ. "Evaluation of a 3-D alginate scaffold for intervertebral disc annulus fibrosus cells tissue engineering." *51st Annual Meeting of the Orthopaedic Research Society*. February 2005. Washington, DC.
- Chung J, Hunter CJ. "Gene expression response of annulus fibrosus fibrocytes, articular chondrocytes, and bone marrow stromal cells to influence by adult nucleus pulposus cells." *5th Combined Meeting of the Orthopaedic Research Societies*. October 2004. Banff, AB, Canada.
- Hunter CJ, Matyas JR, Duncan NA. "Gene expression in an endplate perforation model of intervertebral disc degeneration." *50th Annual Meeting of the Orthopaedic Research Society*. March 2004. San Francisco, CA.
- Hunter CJ, Matyas JR, Duncan NA. "Hypoosmotic stress induces changes in intracellular compartmentalization in notochordal cells from adult canine nuclei pulposi." *50th Annual Meeting of the Orthopaedic Research Society*. March 2004. San Francisco, CA.
- Hunter CJ, Matyas JR, Duncan NA. "The comparative cytomorphology of nucleus pulposus cells." *49th Annual Meeting of the Orthopaedic Research Society*. February 2003. New Orleans, LA.
- Hunter CJ, Matyas JR, Duncan NA. "Cellular architecture of the canine nucleus pulposus." *49th Annual Meeting of the Orthopaedic Research Society*. February 2003. New Orleans, LA.
- Hunter CJ, Levenston ME. "Oscillatory compression of articular cartilage: release of cell signaling molecules and the effect of conditioned medium on chondrocytes in agarose gel culture." *Fourth World Congress of Biomechanics*. August 2002. Calgary, AB.
- Imler SM, Hunter CJ, Vanderploeg EJ, and Levenston ME. "Matrix biosynthesis due to exogenous stimuli differs for cartilage and fibrocartilage." *Fourth World Congress of Biomechanics*. August 2002. Calgary, AB.
- Hunter CJ, Levenston ME. "Oscillatory compression stimulates matrix production in an *in vitro* articular cartilage repair model." *48th Annual Meeting of the Orthopaedic Research Society*. February 2002. Dallas, TX.
- Hunter CJ, Levenston ME. "Native/engineered cartilage adhesion varies with scaffold material and does not correlate to gross biochemical content." *48th Annual Meeting of the Orthopaedic Research Society*. February 2002. Dallas, TX.
- Hunter CJ, Mouw JK, Levenston ME. "Oscillatory compression inhibits matrix accumulation by chondrocytes in fibrin gel culture." *48th Annual Meeting of the Orthopaedic Research Society*. February 2002. Dallas, TX.
- Imler SM, Vanderploeg EJ, Hunter CJ, Levenston ME. "IGF-1 stimulation of meniscal biosynthesis." *48th Annual Meeting of the Orthopaedic Research Society*. February 2002. Dallas, TX.

Mouw JK, Hunter CJ, Levenston ME. "Modulation of porcine tendon biosynthesis by *in vitro* mechanical load." *48th Annual Meeting of the Orthopaedic Research Society*. February 2002. Dallas, TX.

Other Evidence of Impact

Hunter CJ. "The notochordal cell in the intervertebral disc." *World Forum for Spine Research*. January 2008. Kyoto, Japan.

Hunter CJ. "The notochordal cell in the intervertebral disc." *International Cartilage Repair Society*. October 2007. Warsaw, Poland.

Hunter CJ. "The notochordal cell in the postnatal intervertebral disc." *ECM VI Spinal Motion Segment: From Basic Science to Clinical Application*. July 2005. Davos, Switzerland.

Hunter CJ. "Biological repair of the intervertebral disc." *Canadian Orthopaedic Association*. May 2003. Toronto, Ontario, Canada. (Conference cancelled due to SARS outbreak)

Delays in Research

None

Contributions to HQP

As evidenced in HQP section of CV module.