

## Prof David Lee

BSc (Hons), MA, PhD

School of Engineering and Materials Science  
Queen Mary University of London  
Mile End Road  
London E1 4NS

tel: +44 (0)20 7882 8874

email: d.a.lee@qmul.ac.uk web: www.sems.qmul.ac.uk/d.a.lee

---

### 2021

#### **G Protein-Coupled Estrogen Receptor Regulates Actin Cytoskeleton Dynamics to Impair Cell Polarization.**

Lachowski D, Cortes E, Matellan C, Rice A, Lee DA, Thorpe SD and del R  -o Hern  ndez AE. *Frontiers in Cell and Developmental Biology* vol. 8, 592628-592628. *Frontiers Media*.

### 2020

#### **GPER activation inhibits cancer cell mechanotransduction and basement membrane invasion via RhoA.**

Rice A, Cortes E, Lachowski D, Oertle P, Matellan C, Thorpe SD, Ghose R, Wang H, Lee DA, Plodinec M and Del R  -o Hern  ndez AE. *Cancers* vol. 12, (2). *Mdpi Ag*.

#### **Syndecan-4 tunes cell mechanics by activating the kindlin-integrin-RhoA pathway.**

Thorpe S, Chronopoulos A, Cortes E, Lachowski D, Rice A, Mykuliak V, R  g T, Lee D, Hytonen V and del R  -o Hern  ndez A. *Nature Materials. Nature Research*.

### 2019

#### **Tamoxifen mechanically reprograms the tumor microenvironment via HIF-1A and reduces cancer cell survival.**

Cortes E, Lachowski D, Robinson B, Sarper M, Teppo JS, Thorpe SD, Lieberthal TJ, Iwamoto K, Lee DA, Okada-Hatakeyama M, Varjosalo MT and del R  -o Hern  ndez AE. *Embo Reports* vol. 20, (1).

#### **GPER is a mechanoregulator of pancreatic stellate cells and the tumor microenvironment.**

Cortes E, Sarper M, Robinson B, Lachowski D, Chronopoulos A, Thorpe SD, Lee DA and del R  -o Hern  ndez AE. *Embo Reports* vol. 20, (1).

### 2018

#### **Tamoxifen mechanically deactivates hepatic stellate cells via the G protein-coupled estrogen receptor.**

Cortes E, Lachowski D, Rice A, THORPE SD, Robinson B, Yeldag G, LEE DA, Ghemtio L, Rombouts K and del R  -o Hern  ndez AE. *Oncogene. Springer Nature [Academic Journals On Nature.Com]*.

#### **RAR-? is downregulated in HCC & cirrhosis and its expression inhibits myosin-driven activation and durotaxis in hepatic stellate cells.**

Cortes E, Lachowski D, Rice A, Chronopoulos A, Robinson B, THORPE SD, LEE DA, Possamai LA, Wang H, Pinato DJ and del Rio Hern  ndez AE. *Hepatology. Wiley*.

### 2017

#### **Development of a two-stage gene selection method that incorporates a novel hybrid approach using the cuckoo optimization algorithm and harmony search for cancer classification.**

Elyasigomari V, Lee DA, Screen HRC and SHAHEED MH. *Journal of Biomedical Informatics* vol. 67, (2017) 11-20.

#### **Dynamic regulation of nuclear architecture and mechanics--a rheostatic role for the nucleus in tailoring cellular mechanosensitivity.**

THORPE SD and Lee DA. *Nucleus* vol. 8, (3) 287-300. *Taylor & Francis*.

---

## 2016

### **Differentiation alters stem cell nuclear architecture, mechanics, and mechano-sensitivity.**

Heo S-J, Driscoll TP, Thorpe SD, Nerurkar NL, Baker BM, Yang MT, Chen CS, Lee DA and Mauck RL. *Elife* vol. 5, *Elife Sciences Publications Ltd*.

### **Oxygen tension modulates the effects of TNF? in compressed chondrocytes.**

Tilwani RK, Vessillier S, Pinguan-Murphy B, Lee DA, Bader DL and Chowdhury TT. *Inflamm Res*.

### **Mechanically Induced Chromatin Condensation Requires Cellular Contractility in Mesenchymal Stem Cells.**

Heo SJ, Han WM, Szczesny SE, Cosgrove BD, Elliott DM, Lee DA, Duncan RL and Mauck RL. *Biophysical Journal* vol. 111, (4) 864-874.

### **Bioenergetic reprogramming of articular chondrocytes by exposure to exogenous and endogenous reactive oxygen species and its role in the anabolic response to low oxygen.**

Heywood HK and Lee DA. *Journal of Tissue Engineering and Regenerative Medicine* vol. 11, (8) 2286-2294.

### **Chondrocyte dedifferentiation increases cell stiffness by strengthening membrane-actin adhesion.**

Sliogeryte K, Botto L, Lee DA and Knight MM. *Osteoarthritis and Cartilage* vol. 24, (5) 912-920. Elsevier.

### **Type VI collagen regulates dermal matrix assembly and fibroblast motility.**

Theocharidis G, Drymoussi Z, Kao AP, Barber AH, Lee DA, Braun KM and Connelly JT. *Journal of Investigative Dermatology* vol. 136, (1) 74-83.

### **Type VI Collagen Regulates Dermal Matrix Assembly and Fibroblast Motility.**

Theocharidis G, Drymoussi Z, Kao AP, Barber AH, Lee DA, Braun KM and Connelly JT. *J Invest Dermatol* vol. 136, (1) 74-83.

## 2015

### **Biophysical regulation of chromatin architecture instills a mechanical memory in mesenchymal stem cells.**

Heo SJ, Thorpe SD, Driscoll TP, Duncan RL, Lee DA and Mauck RL. *Scientific Reports* vol. 5,.

### **FINITE ELEMENT ANALYSIS of MECHANICAL DEFORMATION of CHONDROCYTE to 2D SUBSTRATE and 3D SCAFFOLD.**

Chen J, Bader DL, Lee DA and Knight MM. *Journal of Mechanics in Medicine and Biology* vol. 15, (5).

## 2014

### **Quantification of chromatin condensation level by image processing.**

Irianto J, Lee DA and Knight MM. *Med Eng Phys* vol. 36, (3) 412-417.

### **Culture expansion in low-glucose conditions preserves chondrocyte differentiation and enhances their subsequent capacity to form cartilage tissue in three-dimensional culture.**

Heywood HK, Nalesso G, Lee DA and Dell'accio F. *Biores Open Access* vol. 3, (1) 9-18.

### **Stem cell differentiation increases membrane-actin adhesion regulating cell blebability, migration and mechanics.**

Sliogeryte K, Thorpe SD, Lee DA, Botto L and Knight MM. *Scientific Reports* vol. 4,.

## 2013

### **Osmotic challenge drives rapid and reversible chromatin condensation in chondrocytes.**

Irianto J, Swift J, Martins RP, McPhail GD, Knight MM, Discher DE and Lee DA. *Biophys J* vol. 104, (4) 759-769.

### **Continuous and Uninterrupted Oxygen Tension Influences the Colony Formation and Oxidative Metabolism of Human Mesenchymal Stem Cells.**

Pattappa G, Thorpe SD, Jegard NC, Heywood HK, de Bruijn JD and Lee DA. *Tissue Engineering Part C-Methods* vol. 19, (1).

## 2012

### **Cell mechanics, structure, and function are regulated by the stiffness of the three-dimensional microenvironment.**

Chen J, Irianto J, Inamdar S, Pravin Kumar P, Lee DA, Bader DL and Knight MM. *Biophys J* vol. 103, (6) 1188-1197.

**Dynamic compressive strain influences chondrogenic gene expression in human periosteal cells: a case study.**  
Bonzani IC, Campbell JJ, Knight MM, Williams A, Lee DA, Bader DL and Stevens MM. *J Mech Behav Biomed Mater* vol. 11, 72-81.

**The mechanics of flexor tendon adhesions.**

Branford OA, Lee DA, Bader DL and Grobbelaar AO. *Journal of Hand Surgery: European Volume* vol. 37, (6) 555-563.

**The attachment of intrinsic and extrinsic, mobilized and immobilized adhesion cells to collagen and fibronectin.**

Branford OA, Lee DA, Rolfe KJ and Grobbelaar AO. *Journal of Hand Surgery: European Volume* vol. 37, (6) 564-572.

**Gap junction permeability between tenocytes within tendon fascicles is suppressed by tensile loading.**

Maeda E, Ye S, Wang W, Bader DL, Knight MM and Lee DA. *Biomechanics and Modeling in Mechanobiology* vol. 11, (3-4) 439-447.

**Single photon counting fluorescence lifetime detection of pericellular oxygen concentrations.**

Hosny NA, Lee DA and Knight MM. *J Biomed Opt* vol. 17, (1).

**Mechanical regulation of nuclear structure and function.**

Martins RP, Finan JD, Guilak F and Lee DA. *Annu Rev Biomed Eng* vol. 14, 431-455.

## 2011

**The metabolism of human mesenchymal stem cells during proliferation and differentiation.**

Pattappa G, Heywood HK, de Bruijn JD and Lee DA. *J Cell Physiol* vol. 226, (10) 2562-2570.

**Anisotropic strain transfer through the aortic valve and its relevance to the cellular mechanical environment.**

Lewinsohn AD, Anssari-Benham A, Lee DA, Taylor PM, Chester AH, Yacoub MH and Screen HRC. *Proc Inst Mech Eng H* vol. 225, (8) 821-830.

**Gap junction permeability between tenocytes within tendon fascicles is suppressed by tensile loading.**

Maeda E, Ye S, Wang W, Bader DL, Knight MM and Lee DA. *Biomechanics and Modeling in Mechanobiology* 1-9.

**Anisotropic strain transfer through the aortic valve and its relevance to the cellular mechanical environment.**

Lewinsohn AD, Anssari-Benham A, Lee DA, Taylor PM, Chester AH, Yacoub MH and Screen HRC. *P I Mech Eng H* vol. 225, (H8) 821-830.

**Electrospray deposited fibronectin retains the ability to promote cell adhesion.**

Martyn SV, Heywood HK, Rockett P, Paine MD, Wang MJ, Dobson PJ, Sheard SJ, Lee DA and Stark JPW. *Journal of Biomedical Materials Research - Part B Applied Biomaterials* vol. 96 B, (1) 110-118.

**Stem cell mechanobiology.**

Lee DA, Knight MM, Campbell JJ and Bader DL. *J Cell Biochem* vol. 112, (1) 1-9.

**Quantification of mRNA using real-time PCR and Western blot analysis of MAPK events in chondrocyte/agarose constructs.**

Lee DA, Brand J, Salter D, Akanji O-O and Chowdhury TT. *Methods Mol Biol* vol. 695, 77-97.

## 2010

**The metabolism of human mesenchymal stem cells during proliferation and differentiation.**

Pattappa G, Heywood HK, de Bruijn JD and Lee DA. *J Cell Physiol*.

**Functional analysis of tenocytes gene expression in tendon fascicles subjected to cyclic tensile strain.**

Maeda E, Fleischmann C, Mein CA, Shelton JC, Bader DL and Lee DA. *Connective Tissue Research* vol. 51, (6) 434-444.

**Electrospray deposited fibronectin retains the ability to promote cell adhesion.**

Martyn SV, Heywood HK, Rockett P, Paine MD, Wang MJ, Dobson PJ, Sheard SJ, Lee DA and Stark JPW. *Journal of Biomedical Materials Research Part B Applied Biomaterials* vol. 96B, (1) 110-118.

**Both superficial and deep zone articular chondrocyte subpopulations exhibit the crabtree effect but have different basal oxygen consumption rates.**

Heywood HK, Knight MM and Lee DA. *Journal of Cellular Physiology* vol. 223, (3) 630-639.

**Low oxygen reduces the modulation to an oxidative phenotype in monolayer-expanded chondrocytes.**

Heywood HK and Lee DA. *J Cell Physiol* vol. 222, (1) 248-253.

## 2009

**Effect of intermittent cyclic tensile strain on collagen synthesis by tenocytes in isolated fascicles.**

Maeda E, Shelton JC, Bader DL and Lee DA. *Journal of Biomechanical Science and Engineering* vol. 4, (4) 510-517.

**The effect of oxygen tension on the proliferation and differentiation of human mesenchymal stem cells.**

Pattappa G, Jegard NC, Lee DA and de Bruijn JD. *European Cells and Materials* vol. 18, (SUPPL. 1).

**Osteogenic differentiation of human mesenchymal stem cells within a perfused bioreactor system.**

Campbell JJ, Maeda E, Ye SJ, Wang W and Lee DA. *European Cells and Materials* vol. 18, (SUPPL. 2).

**The influence of oxygen tension on the colony formation and proliferation of human mesenchymal stem cells.**

Pattappa G, Jegard NC, de Bruijn JD and Lee DA. *European Cells and Materials* vol. 18, (SUPPL. 2).

**Differential regulation of gene expression in isolated tendon fascicles exposed to cyclic tensile strain in vitro.**

Maeda E, Shelton JC, Bader DL and Lee DA. *Journal of Applied Physiology* vol. 106, (2) 506-512.

**The development of a bioreactor to perfuse radially-confined hydrogel constructs: design and characterization of mass transport properties.**

Eniwumide JO, Lee DA and Bader DL. *Biorheology* vol. 46, (5) 417-437.

**Cell-generated forces influence the viability, metabolism and mechanical properties of fibroblast-seeded collagen gel constructs.**

Berry CC, Shelton JC and Lee DA. *J Tissue Eng Regen Med* vol. 3, (1) 43-53.

## 2008

**Monolayer expansion induces an oxidative metabolism and ROS in chondrocytes.**

Heywood HK and Lee DA. *Biochem Biophys Res Commun* vol. 373, (2) 224-229.

**Collagen synthesis by tenocytes in fascicles subjected to intermittent cyclic strain.**

Maeda E, Shelton JC, Bader DL and Lee DA. *European Cells and Materials* vol. 16, (SUPPL. 3).

**The effect of oxygen supply on chondrocyte metabolic phenotype during monolayer culture.**

Heywood HK and Lee DA. *European Cells and Materials* vol. 16, (SUPPL. 3).

**Signal transduction pathways involving p38 MAPK, JNK, NF kappa B and AP-1 influences the response of chondrocytes cultured in agarose constructs to IL-1 beta and dynamic compression.**

Chowdhury TT, Salter DM, Bader DL and Lee DA. *Inflamm Res* vol. 57, (7) 306-313.

**Mechanical loading modulates intracellular calcium signaling in human mesenchymal stem cells.**

Campbell JJ, Bader DL and Lee DA. *J Appl Biomater Biom* vol. 6, (1) 9-15.

**Dynamic compression counteracts IL-1beta induced inducible nitric oxide synthase and cyclo-oxygenase-2 expression in chondrocyte/agarose constructs.**

Chowdhury TT, Arghandawi S, Brand J, Akanji OO, Bader DL, Salter DM and Lee DA. *Arthritis Res Ther* vol. 10, (2).

**Dynamic compression influences interleukin-1 beta-induced nitric oxide and prostaglandin E-2 release by articular chondrocytes via alterations in iNOS and COX-2 expression.**

Chowdhury TT, Akanji OO, Salter DM, Bader DL and Lee DA. *Biorheology* vol. 45, (3-4) 257-274.

## 2007

**52 REAL-TIME PCR USING MOLECULAR BEACONS TO DETECT INOS AND COX-2 EXPRESSION IN CHONDROCYTE/AGAROSE CONSTRUCTS SUBJECTED TO IL-1? AND DYNAMIC COMPRESSION.**

Chowdhury TT, Akanji OO, Arghandawi S, Salter DM, Bader DL and Lee DA. *Osteoarthritis and Cartilage* vol. 15, c42-c43.

**Time dependence of cyclic tensile strain on collagen production in tendon fascicles.**

Maeda E, Shelton JC, Bader DL and Lee DA. *Biochem Biophys Res Commun* vol. 362, (2) 399-404.

**2006**

**The influence of swelling and matrix degradation on the microstructural integrity of tendon.**

Screen HRC, Chhaya VH, Greenwald SE, Bader DL, Lee DA and Shelton JC. *Acta Biomater* vol. 2, (5) 505-513.

**Direct current influences Ca<sup>2+</sup> signalling in chondrocytes.**

Akanji OO, Bader DL and Lee DA. *European Cells and Materials* vol. 11, (SUPPL.2).

**Chondrocyte deformation induces mitochondrial distortion and heterogeneous intracellular strain fields.**

Knight MM, Bomzon Z, Kimmel E, Sharma AM, Lee DA and Bader DL. *Biomech Model Mechan* vol. 5, (2-3) 180-191.

**Integrin-mediated mechanotransduction in IL-1 beta stimulated chondrocytes.**

Chowdhury TT, Appleby RN, Salter DM, Bader DA and Lee DA. *Biomech Model Mechanobiol* vol. 5, (2-3) 192-201.

**Concentration and M/G ratio influence the physiochemical and mechanical properties of alginate constructs for tissue engineering.**

Enobakhare B, Bader DL and Lee DA. *J Appl Biomater Biomech* vol. 4, (2) 87-96.

**Rate of oxygen consumption by isolated articular chondrocytes is sensitive to medium glucose concentration.**

Heywood HK, Bader DL and Lee DA. *Journal of Cellular Physiology* vol. 206, (2) 402-410.

**Anti-inflammatory effects of IL-4 and dynamic compression in IL-1beta stimulated chondrocytes.**

Chowdhury TT, Bader DL and Lee DA. *Biochem Biophys Res Commun* vol. 339, (1) 241-247.

**Mechanical compression and hydrostatic pressure induce reversible changes in actin cytoskeletal organisation in chondrocytes in agarose.**

Knight MM, Toyoda T, Lee DA and Bader DL. *J Biomech* vol. 39, (8) 1547-1551.

**Dynamic compression counteracts IL-1beta induced iNOS and COX-2 activity by human chondrocytes cultured in agarose constructs.**

Chowdhury TT, Bader DL and Lee DA. *Biorheology* vol. 43, (3,4) 413-429.

**2005**

**Cyclic mechanical conditioning of isolated tendon fascicles results in an upregulation of collagen production.**

Screen HRC, Bader DL, Shelton JC and Lee DA. *Proceedings of The 2005 Summer Bioengineering Conference* vol. 2005, 193-194.

**Dynamic compression counteracts IL-1-induced iNOS and COX-2 activity by human chondrocytes cultured in agarose constructs.**

Chowdhury TT, Bader DL and Lee DA. *Proceedings of The 2005 Summer Bioengineering Conference* vol. 2005, 251-252.

**Integrin mediated mechanotransduction in IL-1 stimulated bovine chondrocytes cultured in agarose constructs.**

Chowdhury TT, Appleby RN, Salter DA, Bader DL and Lee DA. *Proceedings of The 2005 Summer Bioengineering Conference* vol. 2005, 545-546.

**Identification and characterization of deposited fibronectin on biocompatible materials: Comparison of electrospray and wetting methods.**

Wang MJ, Heywood HK, Bader DL, Paine MD, Stark JPW and Lee DA. *Proceedings of The 2005 Summer Bioengineering Conference* vol. 2005, 439-440.

**Mechanical conditioning of cell-seeded constructs for soft tissue repair - Are optimisation strategies possible?.**

Bader DL and Lee DA.

**Activation of chondrocytes calcium signalling by dynamic compression is independent of number of cycles.**

Pingguan-Murphy B, Lee DA, Bader DL and Knight MM. *Arch Biochem Biophys* vol. 444, (1) 45-51.

**Cyclic tensile strain upregulates collagen synthesis in isolated tendon fascicles.**

Screen HRC, Shelton JC, Bader DL and Lee DA. *Biochem Biophys Res Commun* vol. 336, (2) 424-429.

**Nutrient utilization by bovine articular chondrocytes: a combined experimental and theoretical approach.**

Sengers BG, Heywood HK, Lee DA, Oomens CWJ and Bader DL. *J Biomech Eng* vol. 127, (5) 758-766.

**The influence of noncollagenous matrix components on the micromechanical environment of tendon fascicles.**

Screen HRC, Shelton JC, Chhaya VH, Kayser MV, Bader DL and Lee DA. *Ann Biomed Eng* vol. 33, (8) 1090-1099.

**Dynamic compression counteracts IL-1 $\beta$  induced INOS and COX-2 activity by human chondrocytes cultured in agarose constructs.**

Chowdhury TT, Bader DL and Lee DA. *European Cells and Materials* vol. 10, (SUPPL.2).

**Dynamic compression influences the biochemical response of human mesenchymal stem cells cultured in agarose constructs.**

Catuogno C, Chowdhury TT, Bader DL and Lee DA. *European Cells and Materials* vol. 10, (SUPPL.2).

**Perfusion-Enhancement of molecular transport within 3D scaffolds.**

Eniwumide JO, Lee DA and Bader DL. *European Cells and Materials* vol. 10, (SUPPL.2).

**Superficial and deep chondrocyte subpopulations both express the crabtree effect but exhibit differences in oxygen consumption rate.**

Heywood HK, Bader DL and Lee DA. *European Cells and Materials* vol. 10, (SUPPL.2).

**British society for matrix biology autumn meeting.**

Sudre L, Cheung F, Kevorkian L, Young DA, Darrah C, Donell ST, Shepstone L, Porter S, Brockbank S, Edwards DR, Parker AE, Clark IM, Boubriak OA, Urban JPG, Cui Z, Tew SR, Li Y, Tweats LM, Hawkins RE, Hardingham TE, Green D, Partridge KA, Leveque I, Mann S, Oreffo ROC, Ball SG, Kielty CM, Qin M, Tai G and Polak JM. *International Journal of Experimental Pathology* vol. 86, (3).

**Compression-induced damage in a muscle cell model in vitro.**

Wang Y-N, Bouten CVC, Lee DA and Bader DL. *Proc Inst Mech Eng H* vol. 219, (1) 1-12.

**Autologous chondrocyte implantation. Culture in a TGF-beta-containing medium enhances the re-expression of a chondrocytic phenotype in passaged human chondrocytes in pellet culture.**

Goldberg AJ, Lee DA, Bader DL and Bentley G. *J Bone Joint Surg Br* vol. 87, (1) 128-134.

## 2004

**Local Strain Measurement within Tendon.**

Bader DL, Shelton JC, Lee DA and SCREEN HRC. *Strain* vol. 40, (4) 157-163.

**Crosslinking density influences the morphology of chondrocytes photoencapsulated in PEG hydrogels during the application of compressive strain.**

Bryant SJ, Anseth KS, Lee DA and Bader DL. *J Orthop Res* vol. 22, (5) 1143-1149.

**Cellular utilization determines viability and matrix distribution profiles in chondrocyte-seeded alginate constructs.**

Heywood HK, Sembi PK, Lee DA and Bader DL. *Tissue Eng* vol. 10, (9-10) 1467-1479.

**Mechanical Loading of Chondrocytes Embedded in 3D Constructs.**

Lee DA and Knight MM. *Cartilage and Osteoarthritis*.

**Integrin-mediated mechanotransduction processes in TGFbeta-stimulated monolayer-expanded chondrocytes.**

Chowdhury TT, Salter DM, Bader DL and Lee DA. *Biochem Biophys Res Commun* vol. 318, (4) 873-881.

**Crosslinking density influences chondrocyte metabolism in dynamically loaded photocrosslinked poly(ethylene glycol) hydrogels.**

Bryant SJ, Chowdhury TT, Lee DA, Bader DL and Anseth KS. *Ann Biomed Eng* vol. 32, (3) 407-417.

**Extracellular matrix influences the response of chondrocytes to dynamic compression.**

LEE DA, van Osch G, Verhaar JAN, Mandl EW, van der Linden JC, van der Breevaart Bravenboer J and Weinans H. *Trans. Orthop.Rev. Soc* vol. 29, 839-839.

**Mechanical loading of chondrocytes embedded in 3D constructs: in vitro methods for assessment of morphological and metabolic response to compressive strain.**

Lee DA and Knight MM. *Methods Mol Med* vol. 100, 307-324.

**An investigation into the effects of the hierarchical structure of tendon fascicles on micromechanical properties.**

Screen HRC, Lee DA, Bader DL and Shelton JC. *Proc Inst Mech Eng H* vol. 218, (2) 109-119.

**Increased presence of cells with multiple elongated processes in osteoarthritic femoral head cartilage.**

Bader DL, KNIGHT MM, Bentley G, Kayser M and Holloway I. *Osteoarthritis Cartilage* vol. 12, (1) 17-24.

**Passage in monolayer influences the response of chondrocytes to dynamic compression.**

Wiseman M, Bader DL, Reisler T and Lee DA. *Biorheology* vol. 41, (3-4) 283-298.

**Increased presence of cells with multiple elongated processes in osteoarthritic femoral head cartilage.**

Holloway I, Kayser M, Lee DA, Bader DL, Bentley G and Knight MM. *Osteoarthritis Cartilage* vol. 12, (1) 17-24.

## 2003

**Temporal regulation of chondrocyte metabolism in agarose constructs subjected to dynamic compression.**

Chowdhury TT, Bader DL, Shelton JC and Lee DA. *Arch Biochem Biophys* vol. 417, (1) 105-111.

**Dynamic compression counteracts IL-1 beta-induced release of nitric oxide and PGE2 by superficial zone chondrocytes cultured in agarose constructs.**

Chowdhury TT, Bader DL and Lee DA. *Osteoarthritis Cartilage* vol. 11, (9) 688-696.

**Influence of external uniaxial cyclic strain on oriented fibroblast-seeded collagen gels.**

Berry CC, Shelton JC, Bader DL and Lee DA. *Tissue Eng* vol. 9, (4) 613-624.

**Dynamic compressive strain inhibits nitric oxide synthesis by equine chondrocytes isolated from different areas of the cartilage surface.**

Wiseman M, Henson F, Lee DA and Bader DL. *Equine Vet J* vol. 35, (5) 451-456.

**Live cell imaging using confocal microscopy induces intracellular calcium transients and cell death.**

Knight MM, Roberts SR, Lee DA and Bader DL. *Am J Physiol Cell Physiol* vol. 284, (4) C1083-C1089.

**Expansion of chondrocytes for tissue engineering in alginate beads enhances chondrocytic phenotype compared to conventional monolayer techniques.**

Lee DA, Reisler T and Bader DL. *Acta Orthop Scand* vol. 74, (1) 6-15.

**Mechanical conditioning influences the metabolic response of cell-seeded constructs.**

Shelton JC, Bader DL and Lee DA. *Cells Tissues Organs* vol. 175, (3) 140-150.

**Trimethylaminuria and a human FMO3 mutation database.**

Hernandez D, Addou S, Lee D, Orengo C, Shephard EA and Phillips IR. *Hum Mutat* vol. 22, (3) 209-213.

**Dermal fibroblasts respond to mechanical conditioning in a strain profile dependent manner.**

Berry CC, Cacou C, Lee DA, Bader DL and Shelton JC. *Biorheology* vol. 40, (1-3) 337-345.

**Development of a technique to determine strains in tendons using the cell nuclei.**

Screen HRC, Lee DA, Bader DL and Shelton JC. *Biorheology* vol. 40, (1-3) 361-368.

**alpha5beta1 integrin mediates mechanotransduction processes in TGFbeta-stimulated human chondrocyte / agarose constructs and subjected to dynamic compression.**

Chowdhury TT, LEE DA, Salter DM, Shelton JC and Bader DL. *Osteoarthritis Cartilage* vol. 11, (Suppl 1) S2-S3.

**Control of mechanotrasduction processes in dynamically stimulated human and bovine chondrocytes cultured in agarose constructs.**

Chowdhury TT, Shelton JC, Bader DL and LEE DA. *Internat. J. Artificial Organs* vol. 26, (9) 858-858.

**Experimental and theoretical analysis of glucose dependent oxygen utilization by bovine articular chondrocytes.**

LEE DA, Heywood HK, Baaijens FPT, Oomens CWJ and Sengers BG. *Internat. J. Artificial Organs* vol. 26, 875-875.

## 2002

### **The influence of uniaxial cyclic strain on orientated fibroblast seeded collagen gels.**

Berry CC, Shelton JC, Bader DL and Lee DA. *Third Smith and Nephew International Symposium - Translating Tissue Engineering Into Products*.

### **The design of bioreactor systems for cartilage tissue engineering.**

Lee DA. *Third Smith and Nephew International Symposium - Translating Tissue Engineering Into Products*.

### **Cell and nucleus deformation in compressed chondrocyte-alginate constructs: temporal changes and calculation of cell modulus.**

Knight MM, van de Breevaart Bravenboer J, Lee DA, van Osch GJVM, Weinans H and Bader DL. *Biochim Biophys Acta vol. 1570, (1) 1-8*.

### **Development of a technique to determine strains in tendons using the cell nuclei.**

BADER DL, Shelton JC, Lee DA and Screen HRC. *Biorheology vol. 40, 361-368*.

### **Non-collagenous matrix components influence the micromechanical environment of tenocytes within tendon fascicles subjected to tensile strain.**

Bader DL, Shelton JC, Lee DA and SCREEN HRC. *Eur. Cells Mat. vol. 4:S1, 41-42*.

## 2001

### **Dynamic compression inhibits the synthesis of nitric oxide and PGE(2) by IL-1beta-stimulated chondrocytes cultured in agarose constructs.**

Chowdhury TT, Bader DL and Lee DA. *Biochem Biophys Res Commun vol. 285, (5) 1168-1174*.

### **Chondrocyte deformation within mechanically and enzymatically extracted chondrons compressed in agarose.**

Knight MM, Ross JM, Sherwin AF, Lee DA, Bader DL and Poole CA. *Biochim Biophys Acta vol. 1526, (2) 141-146*.

### **Temporal changes in cytoskeletal organisation within isolated chondrocytes quantified using a novel image analysis technique.**

Knight MM, Idowu BD, Lee DA and Bader DL. *Med Biol Eng Comput vol. 39, (3) 397-404*.

### **Mechanical compression influences intracellular Ca<sup>2+</sup> signaling in chondrocytes seeded in agarose constructs.**

Roberts SR, Knight MM, Lee DA and Bader DL. *J Appl Physiol (1985) vol. 90, (4) 1385-1391*.

### **Compressive deformation and damage of muscle cell subpopulations in a model system.**

Bouten CV, Knight MM, Lee DA and Bader DL. *Ann Biomed Eng vol. 29, (2) 153-163*.

### **Compressive deformation and damage of muscle cell subpopulations in a model system.**

Bader DL, KNIGHT MM, Lee DA and Bouten CV. *Ann. Biomed. Eng. vol. 29, (2) 153-163*.

### **Embryonic stem cells: scientific possibilities, ethical considerations, and regulation in the UK.**

Lee DA. *Interdiscipl Sci Rev vol. 26, (2) 112-124*.

## 2000

### **Biological response of cyclic strain on developed cell seeded collagen gel model.**

Berry CC, Cacou C, Shelton JC, Bader DL and Lee DA. *Second Smith and Nephew International Symposium - Tissue Engineering 2000: Advances in Tissue Engineering, Biomaterials and Cell*.

### **Physiochemical, biochemical and mechanical characterisation of chondrocyte-alginate constructs.**

Enobakhare BO, Bader DL and Lee DA. *Second Smith and Nephew International Symposium - Tissue Engineering 2000: Advances in Tissue Engineering, Biomaterials and Cell*.

### **Dynamic compression inhibits the synthesis of nitric oxide by IL-1 $\beta$ stimulated chondrocytes cultured in agarose constructs.**

Chowdhury TT, Bader DL and Lee DA. *Second Smith and Nephew International Symposium - Tissue Engineering 2000: Advances in Tissue Engineering, Biomaterials and Cell*.



**A system for monitoring the response of uniaxial strain on cell seeded collagen gels.**

Cacou C, Palmer D, Lee DA, Bader DL and Shelton JC. *Med Eng Phys* vol. 22, (5) 327-333.

**Confocal analysis of cytoskeletal organisation within isolated chondrocyte sub-populations cultured in agarose.**

Idowu BD, Knight MM, Bader DL and Lee DA. *Histochem J* vol. 32, (3) 165-174.

**Chondrocyte deformation within compressed agarose constructs at the cellular and sub-cellular levels.**

Lee DA, Knight MM, Bolton JF, Idowu BD, Kayser MV and Bader DL. *J Biomech* vol. 33, (1) 81-95.

**The influence of mechanical loading on isolated chondrocytes seeded in agarose constructs.**

Lee DA, Noguchi T, Frean SP, Lees P and Bader DL. *Biorheology* vol. 37, (1-2) 149-161.

## 1999

**The effects of storage temperature on the composition, metabolism acid biomechanical properties of human articular cartilage.**

White AET, Bentley G, Stephens MD, Bader DL, Giddins GEB and Lee DA. *Knee* vol. 6, (3) 197-205.

## 1998

**Measurement of the deformation of isolated chondrocytes in agarose subjected to cyclic compression.**

Knight MM, Ghori SA, Lee DA and Bader DL. *Med Eng Phys* vol. 20, (9) 684-688.

**Response of chondrocyte subpopulations cultured within unloaded and loaded agarose.**

Lee DA, Noguchi T, Knight MM, O'Donnell L, Bentley G and Bader DL. *J Orthop Res* vol. 16, (6) 726-733.

**The influence of elaborated pericellular matrix on the deformation of isolated articular chondrocytes cultured in agarose.**

Knight MM, Lee DA and Bader DL. *Biochim Biophys Acta* vol. 1405, (1-3) 67-77.

**Dynamic mechanical compression influences nitric oxide production by articular chondrocytes seeded in agarose.**

Lee DA, Frean SP, Lees P and Bader DL. *Biochem Biophys Res Co* vol. 251, (2) 580-585.

**A specific quantitative assay for collagen synthesis by cells seeded in collagen-based biomaterials using sirius red F3B precipitation.**

Lee DA, Assoku E and Doyle V. *J Mater Sci-Mater M* vol. 9, (1) 47-51.

## 1997

**Compressive strains at physiological frequencies influence the metabolism of chondrocytes seeded in agarose.**

Lee DA and Bader DL. *J Orthop Res* vol. 15, (2) 181-188.

## 1996

**Quantification of sulfated glycosaminoglycans in chondrocyte/alginate cultures, by use of 1,9-dimethylmethylene blue.**

Enobakhare BO, Bader DL and Lee DA. *Anal Biochem* vol. 243, (1) 189-191.

**An investigation of the growth of human dermal fibroblasts on poly-L-lactic acid in vitro.**

Doyle V, Pearson R, Lee D, Wolowacz S and Mc Taggart S. *Journal of Materials Science: Materials in Medicine* vol. 7, (6) 381-385.

## 1995

**The development and characterization of an in vitro system to study strain-induced cell deformation in isolated chondrocytes.**

Lee DA and Bader DL. *In Vitro Cell Dev-An* vol. 31, (11) 828-835.