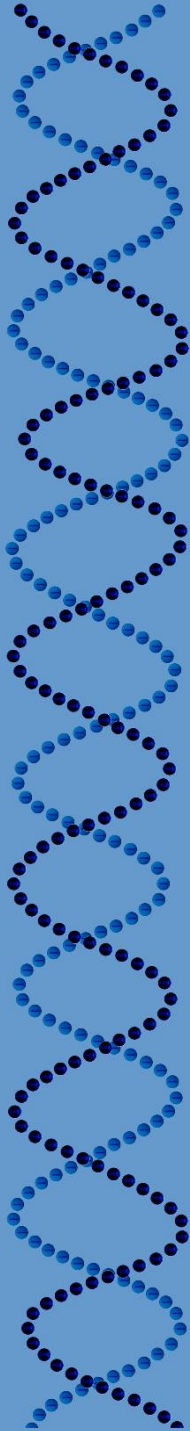




# PUBLICATION DATABASE



## RESEARCH ARTICLES USING FLEXCELL® EQUIPMENT

世联博研（北京）科技有限公司—专注细胞力学和3D细胞打印  
电话：010-67529703  
手机：18618101725  
联系人：李胜亮  
单位地址：北京市海淀区西三旗上奥世纪中心A座9层906.  
网址：[www.bio-goods.com](http://www.bio-goods.com)

**TABLE OF CONTENTS**

<u>Tension System</u> .....	1
<u>Bladder</u> .....	1
<u>Bladder smooth muscle cells</u> .....	1
<u>Urothelial &amp; uroepithelial cells</u> .....	2
<u>Bone</u> .....	2
<u>Cardiovasculature</u> .....	6
<u>Cardiomyocytes and fibroblasts</u> .....	6
<u>Cardiovascular endothelial cells</u> .....	12
<u>Cardiovascular smooth muscle cells</u> .....	17
<u>Other cardiovascular cells</u> .....	23
<u>Cartilage</u> .....	25
<u>Articular chondrocytes</u> .....	25
<u>Other cartilage cells</u> .....	27
<u>Dermal Fibroblasts</u> .....	28
<u>Endothelial Cells</u> .....	28
<u>Cardiovascular endothelial cells</u> .....	28
<u>Pulmonary endothelial cells</u> .....	28
<u>Other endothelial cells</u> .....	29
<u>Epithelial Cells</u> .....	29
<u>Caco-2 intestinal epithelial cells</u> .....	29
<u>Eye epithelial cells</u> .....	30
<u>Gastric epithelial cells</u> .....	30
<u>Pulmonary epithelial cells</u> .....	30
<u>Renal epithelial cells</u> .....	30
<u>Other epithelial cells</u> .....	30
<u>Eye</u> .....	30
<u>Eye epithelial cells</u> .....	31
<u>Trabecular meshwork cells</u> .....	32
<u>Gingival Fibroblasts</u> .....	32
<u>Intervertebral Disc</u> .....	33
<u>Keratinocytes</u> .....	34
<u>Kidney</u> .....	34
<u>Mesangial cells</u> .....	36
<u>Renal epithelial cells</u> .....	38
<u>Ligament</u> .....	38
<u>Periodontal ligament</u> .....	38
<u>Knee ligaments</u> .....	41
<u>Other ligament cells</u> .....	41
<u>Liver</u> .....	42
<u>Lung</u> .....	42
<u>Alveolar macrophages</u> .....	42
<u>Lung fibroblasts</u> .....	42
<u>Mesothelial cells</u> .....	43
<u>Pulmonary endothelial cells</u> .....	43
<u>Pulmonary epithelial cells</u> .....	44
<u>Pulmonary smooth muscle cells</u> .....	48
<u>Other pulmonary cells</u> .....	50
<u>Meniscus</u> .....	50
<u>Neurons, Astrocytes, &amp; Brain</u> .....	50
<u>Skeletal Muscle</u> .....	51
<u>Smooth Muscle Cells</u> .....	54
<u>Bladder smooth muscle cells</u> .....	54
<u>Cardiovascular smooth muscle cells</u> .....	54



<a href="#">Pulmonary smooth muscle cells</a> .....	54
<a href="#">Uterine/myometrial smooth muscle cells</a> .....	54
<a href="#">Other smooth muscle cells</a> .....	54
<a href="#">Stem &amp; Progenitor Cells</a> .....	54
<a href="#">Synovial</a> .....	59
<a href="#">Tendon</a> .....	59
<a href="#">Uterine</a> .....	62
<a href="#">Uterine/myometrial smooth muscle cells</a> .....	62
<a href="#">Other Cell Types</a> .....	63
<a href="#">Reviews &amp; Commentaries</a> .....	65
<a href="#">UniFlex® and Uniaxial Tension</a> .....	67
<a href="#">Tissue Train® and 3D Culture System</a> .....	68
<a href="#">Tension System Strain Profiles</a> .....	71
<a href="#">Application of Tension System</a> .....	71
<a href="#">BioPress™ and Compression System</a> .....	71
<a href="#">Application of Compression System</a> .....	73
<a href="#">FlexFlow™ and Streamer® Fluid Shear Stress Systems</a> .....	73
<a href="#">Application of Culture Plates and Slides</a> .....	76
<a href="#">Customer-Modified Units</a> .....	82

*\*This list is categorized by Flexcell® system and/or tissue & cell type used in the research article.*

**TENSION SYSTEM****BLADDER****BLADDER SMOOTH MUSCLE CELLS**

1. **Adam RM, Eaton SH, Estrada C, Nimgaonkar A, Shih SC, Smith LE, Kohane IS, Bagli D, Freeman MR.** Mechanical stretch is a highly selective regulator of gene expression in human bladder smooth muscle cells. *Physiol Genomics* 20(1):36-44, 2004.
2. **Adam RM, Roth JA, Cheng HL, Rice DC, Khoury J, Bauer SB, Peters CA, Freeman MR.** Signaling through PI3K/Akt mediates stretch and PDGF-BB-dependent DNA synthesis in bladder smooth muscle cells. *J Urol* 169(6):2388-2393, 2003.
3. **Aitken KJ, Block G, Lorenzo A, Herz D, Sabha N, Dessouki O, Fung F, Szybowska M, Craig L, Bagli DJ.** Mechanotransduction of extracellular signal-regulated kinases 1 and 2 mitogen-activated protein kinase activity in smooth muscle is dependent on the extracellular matrix and regulated by matrix metalloproteinases. *Am J Pathol* 169(2):459-470, 2006.
4. **Aitken KJ, Tolg C, Panchal T, Leslie B, Yu J, Elkelini M, Sabha N, Tse DJ, Lorenzo AJ, Hassouna M, Bägli DJ.** Mammalian target of rapamycin (mTOR) induces proliferation and de-differentiation responses to three coordinate pathophysiologic stimuli (mechanical strain, hypoxia, and extracellular matrix remodeling) in rat bladder smooth muscle. *Am J Pathol* 176(1):304-319, 2010.
5. **Chaqour B, Yang R, Sha Q.** Mechanical stretch modulates the promoter activity of the profibrotic factor CCN2 through increased actin polymerization and NF- $\kappa$ B activation. *J Biol Chem* 281(29):20608-20622, 2006.
6. **Estrada CR, Adam RM, Eaton SH, Bägli DJ, Freeman MR.** Inhibition of EGFR signaling abrogates smooth muscle proliferation resulting from sustained distension of the urinary bladder. *Lab Invest* 86(12):1293-1302, 2006.
7. **Galvin DJ, Watson RW, Gillespie JJ, Brady H, Fitzpatrick JM.** Mechanical stretch regulates cell survival in human bladder smooth muscle cells in vitro. *Am J Physiol Renal Physiol* 283(6):F1192-F1199, 2002.
8. **Halachmi S, Aitken KJ, Szybowska M, Sabha N, Dessouki S, Lorenzo A, Tse D, Bagli DJ.** Role of signal transducer and activator of transcription 3 (STAT3) in stretch injury to bladder smooth muscle cells. *Cell Tissue Res* 326(1):149-158, 2006.
9. **Hubschmid U, Leong-Morgenthaler PM, Basset-Dardare A, Ruault S, Frey P.** In vitro growth of human urinary tract smooth muscle cells on laminin and collagen type I-coated membranes under static and dynamic conditions. *Tissue Engineering* 11(1-2):161-171, 2005.
10. **Kushida N, Kabuyama Y, Yamaguchi O, Homma Y.** Essential role for extracellular Ca<sup>2+</sup> in JNK activation by mechanical stretch in bladder smooth muscle cells. *Am J Physiol Cell Physiol* 281(4):C1165-C1172, 2001.
11. **Nguyen HT, Adam RM, Bride SH, Park JM, Peters CA, Freeman MR.** Cyclic stretch activates p38 SAPK2-, ErbB2-, and AT1-dependent signaling in bladder smooth muscle cells. *Am J Physiol Cell Physiol* 279(4):C1155-C1167, 2000.
12. **Orsola A, Adam RM, Peters CA, Freeman MR.** The decision to undergo DNA or protein synthesis is determined by the degree of mechanical deformation in human bladder muscle cells. *Urology* 59(5):779-783, 2002.
13. **Orsola A, Estrada CR, Nguyen HT, Retik AB, Freeman MR, Peters CA, Adam RM.** Growth and stretch response of human exstrophy bladder smooth muscle cells: molecular evidence of normal intrinsic function. *BJU Int* 95(1):144-148, 2005.
14. **Park JM, Adam RM, Peters CA, Guthrie PD, Sun Z, Klagsbrun M, Freeman MR.** AP-1 mediates stretch-induced expression of HB-EGF in bladder smooth muscle cells. *Am J Physiol Cell Physiol* 277:C294-C301, 1999.
15. **Park JM, Borer JG, Freeman MR, Peters CA.** Stretch activates heparin-binding EGF-like growth factor expression in bladder smooth muscle cells. *Am J Physiol Cell Physiol* 275:C1247-C1254, 1998.
16. **Park JM, Yang T, Arend LJ, Schnermann JB, Peters CA, Freeman MR, Briggs JP.** Obstruction stimulates COX-2 expression in bladder smooth muscle cells via increased mechanical stretch. *Am J Physiol Renal Physiol* 276:F129-F136, 1999.
17. **Persson K, Sando JJ, Tuttle JB, Steers WD.** Protein kinase C in cyclic stretch-induced nerve growth factor production by urinary tract smooth muscle cells. *Am J Physiol Cell Physiol* 269:C1018-C1024, 1995.



18. **Steers WD, Broder SR, Persson K, Bruns DE, Ferguson JE 2nd, Bruns ME, Tuttle JB.** Mechanical stretch increases secretion of parathyroid hormone-related protein by cultured bladder smooth muscle cells. *J Urol* 160(3 Pt 1):908-912, 1998.
19. **Upadhyay J, Aitken KJ, Damdar C, Bolduc S, Bagli DJ.** Integrins expressed with bladder extracellular matrix after stretch injury in vivo mediate bladder smooth muscle cell growth in vitro. *J Urol* 169(2):750-755, 2003.
20. **Wang Y, Xiong Z, Gong W, Zhou P, Xie Q, Zhou Z, Lu G.** Expression of heat shock protein 27 correlates with actin cytoskeletal dynamics and contractility of cultured human bladder smooth muscle cells. *Exp Cell Res* 338(1):39-44, 2015.
21. **Yang R, Amir J, Liu H, Chaqour B.** Mechanical strain activates a program of genes functionally involved in paracrine signaling of angiogenesis. *Physiol Genomics* 36(1):1-14, 2008.
22. **Yu G, Bo S, Xiyu J, Enqing X.** Effect of bladder outlet obstruction on detrusor smooth muscle cell: an in vitro study. *Journal of Surgical Research* 114(2):202-209, 2003.
23. **Zhou D, Herrick DJ, Rosenbloom J, Chaqour B.** Cyr61 mediates the expression of VEGF,  $\alpha_v$ -integrin, and  $\alpha$ -actin genes through cytoskeletally based mechanotransduction mechanisms in bladder smooth muscle cells. *J Appl Physiol* 98(6):2344-2354, 2005.

#### UROTHELIAL & UROEPITHELIAL CELLS

24. **Jerde TJ, Mellon WS, Bjorling DE, Nakada SY.** Evaluation of urothelial stretch-induced cyclooxygenase-2 expression in novel human cell culture and porcine in vivo ureteral obstruction models. *J Pharmacol Exp Ther* 317(3):965-972, 2006.
25. **Jerde TJ, Mellon WS, Bjorling DE, Checura CM, Owusu-Ofori K, Parrish JJ, Nakada SY.** Stretch induction of cyclooxygenase-2 expression in human urothelial cells is calcium- and protein kinase C  $\zeta$ -dependent. *Mol Pharmacol* 73(1):18-26, 2008. Erratum in: *Mol Pharmacol* 74(2):539, 2008.
26. **Sun Y, Chai TC.** Effects of dimethyl sulphoxide and heparin on stretch-activated ATP release by bladder urothelial cells from patients with interstitial cystitis. *BJU Int* 90(4):381-385, 2002.
27. **Sun Y, Chai TC.** Up-regulation of P2X3 receptor during stretch of bladder urothelial cells from patients with interstitial cystitis. *J Urol* 171(1):448-452, 2004.
28. **Sun Y, Keay S, De Deyne PG, Chai TC.** Augmented stretch activated adenosine triphosphate release from bladder uroepithelial cells in patients with interstitial cystitis. *Journal of Urology* 166(5):1951-1956, 2001.
29. **Sun Y, Keay S, DeDeyne P, Chai T.** Stretch-activated release of adenosine triphosphate by bladder uroepithelia is augmented in interstitial cystitis [abstract]. *Urology* 57(6 Suppl 1):131, 2001.
30. **Sun Y, MaLossi J, Jacobs SC, Chai TC.** Effect of doxazosin on stretch-activated adenosine triphosphate release in bladder urothelial cells from patients with benign prostatic hyperplasia. *Urology* 60(2):351-356, 2002.

#### **BONE**

1. **Acosta FL, Pham M, Safai Y, Buser Z.** Improving bone formation in osteoporosis through in vitro mechanical stimulation compared to biochemical stimuli. *Journal of Nature and Science* 1(4):e63, 2015.
2. **Aguirre JI, Plotkin LI, Gortazar AR, Millan MM, O'Brien CA, Manolagas SC, Bellido T.** A novel ligand-independent function of the estrogen receptor is essential for osteocyte and osteoblast mechanotransduction. *J Biol Chem* 282(35):25501-25508, 2007.
3. **Bellido T, Plotkin LI.** Detection of apoptosis of bone cells in vitro. *Methods in Molecular Biology, Vol. 455: Osteoporosis: Methods and Protocols.* Edited by Westendorf JJ. Humana Press: Totowa, 51-75, 2008.
4. **Bhatt KA, Chang EI, Warren SM, Lin SE, Bastidas N, Ghali S, Thibboneir A, Capla JM, McCarthy JG, Gurtner GC.** Uniaxial mechanical strain: an in vitro correlate to distraction osteogenesis. *J Surg Res* 143(2):329-36, 2007.
5. **Boutahar N, Guignandon A, Vico L, Lafage-Proust MH.** Mechanical strain on osteoblasts activates autophosphorylation of focal adhesion kinase and proline-rich tyrosine kinase 2 tyrosine sites involved in ERK activation. *J Biol Chem* 279(29):30588-30599, 2004.
6. **Buckley MJ, Banes AJ, Jordan RD.** The effects of mechanical strain on osteoblasts in vitro. *J Oral Maxillofac Surg* 48(3):276-282, 1990.



7. **Buckley MJ, Banes AJ, Levin LG, Sumpio BE, Sato M, Jordan R, Gilbert J, Link GW, Tran Son Tay R.** Osteoblasts increase their rate of division and align in response to cyclic, mechanical tension in vitro. *Bone Miner* 4(3):225-236, 1988.
8. **Calvalho RS, Bumann A, Schwarzer C, Scott E, Yen EH.** A molecular mechanism of integrin regulation from bone cells stimulated by orthodontic forces. *Eur J Orthod* 18(3):227-235, 1996.
9. **Carvalho RS, Scott JE, Suga DM, Yen EH.** Stimulation of signal transduction pathways in osteoblasts by mechanical strain potentiated by parathyroid hormone. *J Bone Miner Res* 9(7):999-1011, 1994.
10. **Carvalho RS, Scott JE, Yen EH.** The effects of mechanical stimulation on the distribution of  $\beta 1$  integrin and expression of  $\beta 1$ -integrin mRNA in TE-85 human osteosarcoma cells. *Arch Oral Biol* 40(3):257-264, 1995.
11. **Case N, Ma M, Sen B, Xie Z, Gross TS, Rubin J.**  $\beta$ -catenin levels influence rapid mechanical responses in osteoblasts. *J Biol Chem* 283(43):29196-29205, 2008.
12. **Chen X, Macica CM, Ng KW, Broadus AE.** Stretch-induced PTH-related protein gene expression in osteoblasts. *J Bone Miner Res* 20(8):1454-61, 2005.
13. **Chen YJ, Chang MC, Yao CC, Lai HH, Chang J, Jeng JH.** Mechanoregulation of osteoblast-like MG-63 cell activities by cyclic stretching. *J Formos Med Assoc* 113(7):447-53, 2014.
14. **Chung E, Sampson AC, Rylander MN.** Influence of heating and cyclic tension on the induction of heat shock proteins and bone-related proteins by MC3T3-E1 cells. *Biomed Res Int* 2014:354260, 2014.
15. **Cillo JE Jr, Gassner R, Koepsel RR, Buckley MJ.** Growth factor and cytokine gene expression in mechanically strained human osteoblast-like cells: implications for distraction osteogenesis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 90(2):147-154, 2000.
16. **Delaine-Smith RM, Javaheri B, Helen Edwards J, Vazquez M, Rumney RM.** Preclinical models for in vitro mechanical loading of bone-derived cells. *Bonekey Rep* 4:728, 2015.
17. **Duncan RL, Hruska KA.** Chronic, intermittent loading alters mechanosensitive channel characteristics in osteoblast-like cells. *Am J Physiol Renal Physiol* 267:F909-F916, 1994.
18. **Fan X, Rahnert JA, Murphy TC, Nanes MS, Greenfield EM, Rubin J.** Response to mechanical strain in an immortalized pre-osteoblast cell is dependent on ERK1/2. *J Cell Physiol* 207(2):454-460, 2006.
19. **Faure C, Linossier MT, Malaval L, Lafage-Proust MH, Peyroche S, Vico L, Guignandon A.** Mechanical signals modulated vascular endothelial growth factor-A (VEGF-A) alternative splicing in osteoblastic cells through actin polymerisation. *Bone* 42(6):1092-1101, 2008.
20. **Faure C, Vico L, Tracqui P, Laroche N, Vanden-Bossche A, Linossier MT, Rattner A, Guignandon A.** Functionalization of matrices by cyclically stretched osteoblasts through matrix targeting of VEGF. *Biomaterials* 31(25):6477-6484, 2010.
21. **Gao J, Fu S, Zeng Z, Li F, Niu Q, Jing D, Feng X.** Cyclic stretch promotes osteogenesis-related gene expression in osteoblast-like cells through a cofilin-associated mechanism. *Mol Med Rep* 14(1):218-24, 2016.
22. **Geng WD, Boskovic G, Fultz ME, Li C, Niles RM, Ohno S, Wright GL.** Regulation of expression and activity of four PKC isozymes in confluent and mechanically stimulated UMR-108 osteoblastic cells. *J Cell Physiol* 189(2):216-228, 2001.
23. **Gortazar AR, Martin-Millan M, Bravo B, Plotkin LI, Bellido T.** Crosstalk between caveolin-1/extracellular signal-regulated kinase (ERK) and  $\beta$ -catenin survival pathways in osteocyte mechanotransduction. *J Biol Chem* 288(12):8168-8175, 2013.
24. **Granet C, Boutahar N, Vico L, Alexandre C, Lafage-Proust MH.** MAPK and SRC-kinases control EGR-1 and NF- $\kappa$ B inductions by changes in mechanical environment in osteoblasts. *Biochem Biophys Res Commun* 284(3):622-631, 2001.
25. **Granet C, Vico AG, Alexandre C, Lafage-Proust MH.** MAP and src kinases control the induction of AP-1 members in response to changes in mechanical environment in osteoblastic cells. *Cellular Signaling* 14(8):679-688, 2002.
26. **Grimston SK, Screen J, Haskell JH, Chung DJ, Brodt MD, Silva MJ, Civitelli R.** Role of connexin43 in osteoblast response to physical load. *Ann N Y Acad Sci* 1068:214-224, 2006.
27. **Guignandon A, Akhouayri O, Usson Y, Rattner A, Laroche N, Lafage-Proust MH, Alexandre C, Vico L.** Focal contact clustering in osteoblastic cells under mechanical stresses: microgravity and cyclic deformation. *Cell Commun Adhes* 10(2):69-83, 2003.
28. **Guignandon A, Boutahar N, Rattner A, Vico L, Lafage-Proust MH.** Cyclic strain promotes shuttling of PYK2/Hic-5 complex from focal contacts in osteoblast-like cells. *Biochem Biophys Res Commun* 343(2):407-14, 2006.
29. **Han L, Zhang X, Tang G.** Indian Hedgehog signaling is involved in the stretch induced proliferation of osteoblast. *Hua Xi Kou Qiang Yi Xue Za Zhi* 30(3):234-8, 2012.



30. **Hara F, Fukuda K, Asada S, Matsukawa M, Hamanishi C.** Cyclic tensile stretch inhibition of nitric oxide release from osteoblast-like cells is both G protein and actin-dependent. *Journal of Orthopaedic Research* 19(1):126-131, 2001.
31. **Hara F, Fukuda K, Ueno M, Hamanishi C, Tanaka S.** Pertussis toxin-sensitive G proteins as mediators of stretch-induced decrease in nitric-oxide release of osteoblast-like cells. *J Orthop Res* 17(4):593-597, 1999.
32. **Hens JR, Wilson KM, Dann P, Chen X, Horowitz MC, Wysolmerski JJ.** TOPGAL mice show that the canonical Wnt signaling pathway is active during bone development and growth and is activated by mechanical loading in vitro. *J Bone Miner Res* 20(7):1103-1113, 2005.
33. **Ho AM, Marker PC, Peng H, Quintero AJ, Kingsley DM, Huard J.** Dominant negative Bmp5 mutation reveals key role of BMPs in skeletal response to mechanical stimulation. *BMC Dev Biol* 8:35, 2008.
34. **Jansen JH, Weyts FA, Westbroek I, Jahr H, Chiba H, Pols HA, Verhaar JA, van Leeuwen JP, Weinans H.** Stretch-induced phosphorylation of ERK1/2 depends on differentiation stage of osteoblasts. *Journal of Cellular Biochemistry* 93:542-551, 2004.
35. **Kameyama S, Yoshimura Y, Kameyama T, Kikuri T, Matsuno M, Deyama Y, Suzuki K, Iida J.** Short-term mechanical stress inhibits osteoclastogenesis via suppression of DC-STAMP in RAW264.7 cells. *Int J Mol Med* 31(2):292-8, 2013.
36. **Kao CT, Chen CC, Cheong UI, Liu SL, Huang TH.** Osteogenic gene expression of murine osteoblastic (MC3T3-E1) cells under cyclic tension. *Laser Phys* 24:8, 085605, 2014.
37. **Karasawa Y, Tanaka H, Nakai K, Tanabe N, Kawato T, Maeno M, Shimizu N.** Tension force downregulates matrix metalloproteinase expression and upregulates the expression of their inhibitors through MAPK signaling pathways in MC3T3-E1 cells. *Int J Med Sci* 12(11):905-13, 2015.
38. **Kariya T, Tanabe N, Shionome C, Kawato T, Zhao N, Maeno M, Suzuki N, Shimizu N.** Tension force-induced ATP promotes osteogenesis through P2X7 receptor in osteoblasts. *J Cell Biochem* 116(1):12-21, 2015.
39. **Kim DW, Lee HJ, Karmin JA, Lee SE, Chang SS, Tolchin B, Lin S, Cho SK, Kwon A, Ahn JM, Lee FY.** Mechanical loading differentially regulates membrane-bound and soluble RANKL availability in MC3T3-E1 cells. *Ann N Y Acad Sci* 1068:568-72, 2006.
40. **Knoll B, McCarthy TL, Centrella M, Shin J.** Strain-dependent control of transforming growth factor- $\beta$  function in osteoblasts in an in vitro model: biochemical events associated with distraction osteogenesis. *Plastic & Reconstructive Surgery* 116(1):224-233, 2005.
41. **Li L, Chen M, Deng L, Mao Y, Wu W, Chang M, Chen H.** The effect of mechanical stimulation on the expression of  $\alpha 2$ ,  $\beta 1$ ,  $\beta 3$  integrins and the proliferation, synthetic function in rat osteoblasts. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi* 20(2):187-192, 2003.
42. **Li L, Deng L, Chen M, Wu W, Mao Y, Chen H.** The effect of mechanical stimulation on the proliferation and synthetic function of osteoblasts from osteoporotic rat. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi* 21(3):341-346, 349, 2004.
43. **Li X, Zhang XL, Shen G, Tang GH.** Effects of tensile forces on serum deprivation-induced osteoblast apoptosis: expression analysis of caspases, Bcl-2, and Bax. *Chin Med J (Engl)* 125(14):2568-2573, 2012.
44. **Li Y, Tang L, Duan Y, Ding Y.** Upregulation of MMP-13 and TIMP-1 expression in response to mechanical strain in MC3T3-E1 osteoblastic cells. *BMC Res Notes* 3:309, 2010.
45. **Liegibel UM, Sommer U, Tomakidi P, Hilscher U, Van Den Heuvel L, Pirzer R, Hillmeier J, Nawroth P, Kasperk C.** Concerted action of androgens and mechanical strain shifts bone metabolism from high turnover into an osteoanabolic mode. *J Exp Med* 196(10):1387-1392, 2002.
46. **Lima F, Vico L, Lafage-Proust MH, van der Saag P, Alexandre C, Thomas T.** Interactions between estrogen and mechanical strain effects on U2OS human osteosarcoma cells are not influenced by estrogen receptor type. *Bone* 35(5):1127-1135, 2004.
47. **Liu X, Zhang X, Luo ZP.** Strain-related collagen gene expression in human osteoblast-like cells. *Cell Tissue Res* 322(2):331-334, 2005.
48. **Narutomi M, Nishiura T, Sakai T, Abe K, Ishikawa H.** Cyclic mechanical strain induces interleukin-6 expression via prostaglandin E2 production by cyclooxygenase-2 in MC3T3-E1 osteoblast-like cells. *J Oral Biosci* 49(1):65-73, 2007.
49. **Miyauchi A, Gotoh M, Kamioka H, Notoya K, Sekiya H, Takagi Y, Yoshimoto Y, Ishikawa H, Chihara K, Takano-Yamamoto T, Fujita T, Mikuni-Takagaki Y.**  $\alpha V\beta 3$  integrin ligands enhance volume-sensitive calcium influx in mechanically stretched osteocytes. *J Bone Miner Metab* 24(6):498-504, 2006.
50. **Motokawa M, Kaku M, Tohma Y, Kawata T, Fujita T, Kohno S, Tsutsui K, Ohtani J, Tenjo K, Shigekawa M, Kamada H, Tanne K.** Effects of cyclic tensile forces on the expression of vascular



- endothelial growth factor (VEGF) and macrophage-colony-stimulating factor (M-CSF) in murine osteoblastic MC3T3-E1 cells. *J Dent Res* 84(5):422-427, 2005.
51. **Myers KA, Rattner JB, Shrive NG, Hart DA.** Osteoblast-like cells and fluid flow: cytoskeleton-dependent shear sensitivity. *Biochem Biophys Res Commun* 364(2):214-219, 2007.
  52. **Plotkin LI, Mathov I, Aguirre JI, Parfitt AM, Manolagas SC, Bellido T.** Mechanical stimulation prevents osteocyte apoptosis: requirement of integrins, Src kinases, and ERKs. *Am J Physiol Cell Physiol* 289(3):C633-643, 2005.
  53. **Qi J, Chi L, Faber J, Koller B, Banes AJ.** ATP reduces gel compaction in osteoblast-populated collagen gels. *J Appl Physiol* 102(3):1152-60, 2007.
  54. **Qi J, Chi L, Wang J, Sumanasinghe R, Wall M, Tsuzaki M, Banes AJ.** Modulation of collagen gel compaction by extracellular ATP is MAPK and NF- $\kappa$ B pathways dependent. *Exp Cell Res* 315(11):1990-2000, 2009.
  55. **Rath B, Springorum HR, Deschner J, Luring C, Tingart M, Grifka J, Schaumburger J, Grassel S.** Regulation of gene expression in articular cells is influenced by biomechanical loading. *Central European Journal of Medicine* 2012.
  56. **Robinson JA, Chatterjee-Kishore M, Yaworsky PJ, Cullen DM, Zhao W, Li C, Kharode Y, Sauter L, Babij P, Brown EL, Hill AA, Akhter MP, Johnson ML, Recker RR, Komm BS, Bex FJ.** Wnt/ $\beta$ -catenin signaling is a normal physiological response to mechanical loading in bone. *J Biol Chem* 281(42):31720-31728, 2006.
  57. **Sano S, Okawa A, Nakajima A, Tahara M, Fujita K, Wada Y, Yamazaki M, Moriya H, Sasho T.** Identification of Pip4k2 $\beta$  as a mechanical stimulus responsive gene and its expression during musculoskeletal tissue healing. *Cell Tissue Res* 323(2):245-252, 2006.
  58. **Shi GX, Zheng XF, Zhu C, Li B, Wang YR, Jiang SD, Jiang LS.** Evidence of the role of R-spondin 1 and its receptor Lgr4 in the transmission of mechanical stimuli to biological signals for bone formation. *Int J Mol Sci* 18(3), pii: E564, 2017.
  59. **Siddhivarn C, Banes A, Champagne C, Riche EL, Weerapradist W, Offenbacher S.** Prostaglandin D2 pathway and peroxisome proliferator-activated receptor  $\gamma$ -1 expression are induced by mechanical loading in an osteoblastic cell line. *J Periodontal Res* 41(2):92-100, 2006.
  60. **Siddhivarn C, Banes A, Champagne C, Riche EL, Weerapradist W, Offenbacher S.** Mechanical loading and  $\Delta$ 12prostaglandin J2 induce bone morphogenetic protein-2, peroxisome proliferator-activated receptor  $\gamma$ -1, and bone nodule formation in an osteoblastic cell line. *J Periodontal Res* 42(5):383-392, 2007.
  61. **Stanford CM, Stevens JW, Brand RA.** Cellular deformation reversibly depresses RT-PCR detectable levels of bone-related mRNA. *Journal of Biomechanics* 28(12):1419-1427, 1995.
  62. **Sun Z, Tee BC.** Molecular variations related to the regional differences in periosteal growth at the mandibular ramus. *Anat Rec (Hoboken)* 294(1):79-87, 2011.
  63. **Suzuki N, Yoshimura Y, Deyama Y, Suzuki K, Kitagawa Y.** Mechanical stress directly suppresses osteoclast differentiation in RAW264.7 cells. *Int J Mol Med* 21(3):291-296, 2008.
  64. **Tang L, Lin Z, Li YM.** Effects of different magnitudes of mechanical strain on osteoblasts in vitro. *Biochem Biophys Res Commun* 344(1):122-128, 2006.
  65. **Thompson MS, Epari DR, Bieler F, Duda GN.** In vitro models for bone mechanobiology: applications in bone regeneration and tissue engineering. *Proc Inst Mech Eng H* 224(12):1533-1541, 2010.
  66. **Tomlinson RE, Li Z, Li Z, Minichiello L, Riddle RC, Venkatesan A, Clemens TL.** NGF-TrkA signaling in sensory nerves is required for skeletal adaptation to mechanical loads in mice. *Proc Natl Acad Sci U S A* 114(18):E3632-E3641, 2017.
  67. **Toyoshita Y, Iida S, Koshino H, Hirai T, Yokoyama A.** CYP24 promoter activity is affected by mechanical stress and mitogen-activated protein kinase in MG63 osteoblast-like cells. *Nihon Hotetsu Shika Gakkai Zasshi* 52(2):171-174, 2008.
  68. **Vadiakas GP, Banes AJ.** Verapamil decreases cyclic load-induced calcium incorporation in ROS 17/2.8 osteosarcoma cell cultures. *Matrix* 12(6):439-447, 1992.
  69. **Visconti LA, Yen EH, Johnson RB.** Effect of strain on bone nodule formation by rat osteogenic cells in vitro. *Archives of Oral Biology* 49(6):485-492, 2004.
  70. **Wang H, Sun W, Ma J, Pan Y, Wang L, Zhang W.** Polycystin-1 mediates mechanical strain-induced osteoblastic mechanoresponses via potentiation of intracellular calcium and Akt/ $\beta$ -catenin pathway. *PLoS One* 9(3):e91730, 2014.





71. **Wu Y, Zhang X, Zhang P, Fang B, Jiang L.** Intermittent traction stretch promotes the osteoblastic differentiation of bone mesenchymal stem cells by the ERK1/2-activated Cbfa1 pathway. *Connect Tissue Res* 53(6):451-9, 2012.
72. **Yamamoto N, Fukuda K, Matsushita T, Matsukawa M, Hara F, Hamanishi C.** Cyclic tensile stretch stimulates the release of reactive oxygen species from osteoblast-like cells. *Calcif Tissue Int* 76(6):433-8, 2005.
73. **Yu HC, Wu TC, Chen MR, Liu SW, Chen JH, Lin Xiao LW, Yang M, Dong J, Xie H, Sui GL, He YL, Lei JX, Liao EY, Yuan X.** Stretch-inducible expression of connective tissue growth factor (CTGF) in human osteoblasts-like cells is mediated by PI3K-JNK pathway. *Cell Physiol Biochem* 28(2):297-304, 2011.
74. **Yu KW, Yao CC, Jeng JH, Shieh HY, Chen YJ.** Periostin inhibits mechanical stretch-induced apoptosis in osteoblast-like MG-63 cells. *J Formos Med Assoc* 2018 Jan 3. pii: S0929-6646(17)30820-3. doi: 10.1016/j.jfma.2017.12.008. [Epub ahead of print].
75. **Zeng Z, Jing D, Zhang X, Duan Y, Xue F.** Cyclic mechanical stretch promotes energy metabolism in osteoblast-like cells through an mTOR signaling-associated mechanism. *Int J Mol Med* 36(4):947-56, 2015.
76. **Zeng Z, Yin X, Zhang X, Jing D, Feng X.** Cyclic stretch enhances bone morphogenetic protein-2-induced osteoblastic differentiation through the inhibition of Hey1. *Int J Mol Med* 36(5):1273-1281, 2015.
77. **Zhang C, Liang G, Zhang Y, Hu Y.** Response to dynamic strain in human periosteal cells grown in vitro. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi* 23(3):546-550, 2006.
78. **Zhu J, Zhang X, Wang C, Peng X, Zhang X.** Different magnitudes of tensile strain induce human osteoblasts differentiation associated with the activation of ERK1/2 phosphorylation. *Int J Mol Sci* 9(12):2322-2332, 2008.
79. **Ziambaras K, Lecanda F, Steinberg TH, Civitelli R.** Cyclic stretch enhances gap junctional communication between osteoblastic cells. *J Bone Miner Res* 13(2):218-28, 1998.
80. **Zuo B, Zhu J, Li J, Wang C, Zhao X, Cai G, Li Z, Peng J, Wang P, Shen C, Huang Y, Xu J, Zhang X, Chen X.** microRNA-103a functions as a mechanosensitive microRNA to inhibit bone formation through targeting Runx2. *J Bone Miner Res* 30(2):330-45, 2015.

## CARDIOVASCULATURE

### CARDIOMYOCYTES AND FIBROBLASTS

1. **Alibin CP, Kopilas MA, Anderson HD.** Suppression of cardiac myocyte hypertrophy by conjugated linoleic acid: role of peroxisome proliferator-activated receptors  $\alpha$  and  $\gamma$ . *J Biol Chem* 283(16):10707-10715, 2008.
2. **Anderson HD, Wang F, Gardner DG.** Role of the epidermal growth factor receptor in signaling strain-dependent activation of the brain natriuretic peptide gene. *J Biol Chem* 279(10):9287-9297, 2004.
3. **Argento G, de Jonge N, Söntjens SH, Oomens CW, Bouten CV, Baaijens FP.** Modeling the impact of scaffold architecture and mechanical loading on collagen turnover in engineered cardiovascular tissues. *Biomech Model Mechanobiol* 14(3):603-13, 2015.
4. **Askevold ET, Aukrust P, Nymo SH, Lunde IG, Kaasbøll OJ, Aakhus S, Florholmen G, Ohm IK, Strand ME, Attramadal H, Fiane A, Dahl CP, Finsen AV, Vinge LE, Christensen G, Yndestad A, Gullestad L, Latini R, Masson S, Tavazzi L; GISSI-HF Investigators, Ueland T.** The cardiokine secreted Frizzled-related protein 3, a modulator of Wnt signalling, in clinical and experimental heart failure. *J Intern Med* 275(6):621-30, 2014.
5. **Baba HA, Stypmann J, Grabellus F, Kirchhof P, Sokoll A, Schafers M, Takeda A, Wilhelm MJ, Scheld HH, Takeda N, Breithardt G, Levkau B.** Dynamic regulation of MEK/Erks and Akt/GSK-3 $\beta$  in human end-stage heart failure after left ventricular mechanical support: myocardial mechanotransduction-sensitivity as a possible molecular mechanism. *Cardiovascular Research* 59(2):390-399, 2003.
6. **Boateng SY, Belin RJ, Geenen DL, Margulies KB, Martin JL, Hoshijima M, de Tombe PP, Russell B.** Cardiac dysfunction and heart failure are associated with abnormalities in the subcellular distribution and amounts of oligomeric muscle LIM protein. *Am J Physiol Heart Circ Physiol* 292(1):H259-H269, 2007.
7. **Boateng SY, Lateef SS, Mosley W, Hartman TJ, Hanley L, Russell B.** RGD and YIGSR synthetic peptides facilitate cellular adhesion identical to that of laminin and fibronectin but alter the physiology of neonatal cardiac myocytes. *Am J Physiol Cell Physiol* 288(1):C30-C38, 2005.
8. **Boateng SY, Senyo SE, Qi L, Goldspink PH, Russell B.** Myocyte remodeling in response to hypertrophic stimuli requires nucleocytoplasmic shuttling of muscle LIM protein. *J Mol Cell Cardiol* 47(4):426-35, 2009.



9. **Boerboom RA, Rubbens MP, Driessen NJ, Bouten CV, Baaijens FP.** Effect of strain magnitude on the tissue properties of engineered cardiovascular constructs. *Annals of Biomedical Engineering* 36(2):244–253, 2008.
10. **Boerma M, van der Wees CG, Vrieling H, Svensson JP, Wondergem J, van der Laarse A, Mullenders LH, van Zeeland AA.** Microarray analysis of gene expression profiles of cardiac myocytes and fibroblasts after mechanical stress, ionising or ultraviolet radiation. *BMC Genomics* 6(1):6, 2005.
11. **Blaauw E, van Nieuwenhoven FA, Willemsen P, Delhaas T, Prinzen FW, Snoeckx LH, van Bilsen M, van der Vusse GJ.** Stretch-induced hypertrophy of isolated adult rabbit cardiomyocytes. *Am J Physiol Heart Circ Physiol* 299(3):H780-H787, 2010.
12. **Cao L, Gardner DG.** Natriuretic peptides inhibit DNA synthesis in cardiac fibroblasts. *Hypertension* 25(2):227-234, 1995.
13. **Cheng WP, Wang BW, Lo HM, Shyu KG.** Mechanical stretch induces apoptosis regulator TRB3 in cultured cardiomyocytes and volume-overloaded heart. *PLoS One* 10(4):e0123235, 2015.
14. **Choudhary R, Palm-Leis A, Scott RC 3rd, Guleria RS, Rachut E, Baker KM, Pan J.** All-trans retinoic acid prevents development of cardiac remodeling in aortic banded rats by inhibiting the renin-angiotensin system. *Am J Physiol Heart Circ Physiol* 294(2):H633-H644, 2008.
15. **Chua SK, Wang BW, Lien LM, Lo HM, Chiu CZ, Shyu KG.** Mechanical stretch inhibits microRNA499 via p53 to regulate calcineurin-A expression in rat cardiomyocytes. *PLoS One* 11(2):e0148683, 2016.
16. **de Jonge HW, Dekkers DH, Tilly BC, Lamers JM.** Cyclic stretch and endothelin-1 mediated activation of chloride channels in cultured neonatal rat ventricular myocytes. *Clin Sci (Lond)* 103(48):148S-151S, 2002.
17. **de Jonge N, Kanters FM, Baaijens FP, Bouten CV.** Strain-induced collagen organization at the micro-level in fibrin-based engineered tissue constructs. *Ann Biomed Eng* 41(4):763-74, 2013.
18. **De Jong AM, Maass AH, Oberdorf-Maass SU, De Boer RA, Van Gilst WH, Van Gelder IC.** Cyclical stretch induces structural changes in atrial myocytes. *J Cell Mol Med* 17(6):743-53, 2013.
19. **Dhein S, Schreiber A, Steinbach S, Apel D, Salameh A, Schlegel F, Kostelka M, Dohmen PM, Mohr FW.** Mechanical control of cell biology. Effects of cyclic mechanical stretch on cardiomyocyte cellular organization. *Prog Biophys Mol Biol* 115(2-3):93-102, 2014.
20. **Drolet MC, Desbiens-Brassard V, Roussel E, Tu V, Couet J, Arsenault M.** Blockade of the acute activation of mTOR complex 1 decreases hypertrophy development in rats with severe aortic valve regurgitation. *Springerplus* 4:435, 2015.
21. **Espinoza-Derout J, Wagner M, Shahmiri K, Mascareno E, Chaqour B, Siddiqui MA.** Pivotal role of cardiac lineage protein-1 (CLP-1) in transcriptional elongation factor P-TEFb complex formation in cardiac hypertrophy. *Cardiovasc Res* 75(1):129-138, 2007.
22. **Facundo HT, Brainard RE, Watson LJ, Ngoh GA, Hamid T, Prabhu SD, Jones SP.** O-GlcNAc signaling is essential for NFAT-mediated transcriptional reprogramming during cardiomyocyte hypertrophy. *Am J Physiol Heart Circ Physiol* 302(10):H2122-30, 2012.
23. **Fan D, Takawale A, Basu R, Patel V, Lee J, Kandalam V, Wang X, Oudit GY, Kassiri Z.** Differential role of TIMP2 and TIMP3 in cardiac hypertrophy, fibrosis, and diastolic dysfunction. *Cardiovasc Res* 103(2):268-80, 2014.
24. **Fan D, Takawale A, Shen M, Samokhvalov V, Basu R, Patel V, Wang X, Fernandez-Patron C, Seubert JM, Oudit GY, Kassiri Z.** A disintegrin and metalloprotease-17 regulates pressure overload-induced myocardial hypertrophy and dysfunction through proteolytic processing of integrin  $\beta$ 1. *Hypertension* 68(4):937-48, 2016.
25. **Feng H, Gerilechaogetu F, Golden HB, Nizamutdinov D, Foster DM, Glaser SS, Dostal DE.** p38 $\alpha$  MAPK inhibits stretch-induced JNK activation in cardiac myocytes through MKP-1. *Int J Cardiol* 203:145-55, 2016.
26. **Földes G, Mioulane M, Wright JS, Liu AQ, Novak P, Merkely B, Gorelik J, Schneider MD, Ali NN, Harding SE.** Modulation of human embryonic stem cell-derived cardiomyocyte growth: a testbed for studying human cardiac hypertrophy? *J Mol Cell Cardiol* 50(2):367-376, 2011.
27. **Fu L, Wei CC, Powell PC, Bradley WE, Ahmad S, Ferrario CM, Collawn JF, Dell'Italia LJ.** Increased fibroblast chymase production mediates procollagen autophagic digestion in volume overload. *J Mol Cell Cardiol* 92:1-9, 2016.
28. **Funari BJ, Witt MR, Clause KM, Keller BB, Tobita K, Ralphe JC.** The impact of energy substrate on contractile performance in a neonatal rat engineered cardiac tissue model [abstract]. *Pediatric Academic Societies Annual Meeting*, Toronto, Canada, 2007.
29. **Gardner DG, Newman ED, Nakamura KK, Nguyen KP.** Endothelin increases the synthesis and secretion of atrial natriuretic peptide in neonatal rat cardiocytes. *Am J Physiol Endocrinol Metab* 261:E177-E182, 1991.



30. **Guichard JL, Benavides GA, Ballinger S, Darley-USmar VM, Dell'Italia LJ.** Mitochondrial genetic background modulates the mitochondrial and cytoskeletal response to cyclical stretch in isolated adult cardiomyocytes [abstract]. *Journal of the American College of Cardiology* 63(12):A869, 2014.
31. **Gupta S, Sen S.** Myotrophin-kB DNA interaction in the initiation process of cardiac hypertrophy. *Biochimica et Biophysica Acta (BBA)/Molecular Cell Research* 1589(3):247-260, 2002.
32. **Harada M, Saito Y, Nakagawa O, Miyamoto Y, Ishikawa M, Kuwahara K, Ogawa E, Nakayama M, Kamitani S, Hamanaka I, Kajiyama N, Masuda I, Itoh H, Tanaka I, Nakao K.** Role of cardiac nonmyocytes in cyclic mechanical stretch-induced myocyte hypertrophy. *Heart Vessels Suppl* 12:198-200, 1997.
33. **Hariharan N, Ikeda Y, Hong C, Alcendor RR, Usui S, Gao S, Maejima Y, Sadoshima J.** Autophagy plays an essential role in mediating regression of hypertrophy during unloading of the heart. *PLoS One* 8(1):e51632, 2013.
34. **Heineke J, Ruetten H, Willenbockel C, Gross SC, Naguib M, Schaefer A, Kempf T, Hilfiker-Kleiner D, Caroni P, Kraft T, Kaiser RA, Molkentin JD, Drexler H, Wollert KC.** Attenuation of cardiac remodeling after myocardial infarction by muscle LIM protein-calcineurin signaling at the sarcomeric Z-disc. *Proc Natl Acad Sci U S A* 102(5):1655-1660, 2005.
35. **Hilfiker-Kleiner D, Kaminski K, Kaminska A, Fuchs M, Klein G, Podewski E, Grote K, Kiian I, Wollert KC, Hilfiker A, Drexler H.** Regulation of proangiogenic factor CCN1 in cardiac muscle: impact of ischemia, pressure overload, and neurohumoral activation. *Circulation* 109(18):2227-2233, 2004.
36. **Hooper CL, Dash PR, Boateng SY.** Lipoma preferred partner is a mechanosensitive protein regulated by nitric oxide in the heart. *FEBS Open Bio* 2:135-44, 2012.
37. **Husse B, Sopart A, Isenberg G.** Cyclical mechanical stretch-induced apoptosis in myocytes from young rats but necrosis in myocytes from old rats. *Am J Physiol Heart Circ Physiol* 285:1521-1527, 2003.
38. **Kartasalo K, Pölonen RP, Ojala M, Rasku J, Lekkala J, Aalto-Setälä K, Kallio P.** CytoSpectre: a tool for spectral analysis of oriented structures on cellular and subcellular levels. *BMC Bioinformatics* 16:344, 2015.
39. **Kasmi KE, Myers C, Flockton A, Riddle S, McKeon BA, Frid M, Brodsky K, Eltzschig H, Stenmark KR.** Mechanical stretch combines with adventitial fibroblast-derived signals to promote macrophage activation through metabolic reprogramming in vascular remodeling [abstract]. *Am J Respir Crit Care Med* 193:A2227, 2016.
40. **Koitabashi N, Arai M, Kogure S, Niwano K, Watanabe A, Aoki Y, Maeno T, Nishida T, Kubota S, Takigawa M, Kurabayashi M.** Increased connective tissue growth factor relative to brain natriuretic peptide as a determinant of myocardial fibrosis. *Hypertension* 49(5):1120-1127, 2007.
41. **Koivisto E, Jurado Acosta A, Moilanen AM, Tokola H, Aro J, Pennanen H, Säkkinen H, Kaikkonen L, Ruskoaho H, Rysä J.** Characterization of the regulatory mechanisms of activating transcription factor 3 by hypertrophic stimuli in rat cardiomyocytes. *PLoS One* 9(8):e105168, 2014.
42. **Lal H, Verma SK, Golden HB, Foster DM, Smith M, Dostal DE.** Stretch-induced regulation of angiotensinogen gene expression in cardiac myocytes and fibroblasts: opposing roles of JNK1/2 and p38 $\alpha$  MAP kinases. *J Mol Cell Cardiol* 45(6):770-778, 2008.
43. **Lal H, Verma SK, Smith M, Guleria RS, Lu G, Foster DM, Dostal DE.** Stretch-induced MAP kinase activation in cardiac myocytes: differential regulation through  $\beta$ 1-integrin and focal adhesion kinase. *J Mol Cell Cardiol* 43(2):137-147, 2007.
44. **Lateef SS, Boateng S, Ahluwalia N, Hartman TJ, Russell B, Hanley L.** Three-dimensional chemical structures by protein functionalized micron-sized beads bound to polylysine-coated silicone surfaces. *J Biomed Mater Res A* 72(4):373-380, 2005.
45. **Lateef SS, Boateng S, Hartman TJ, Crot CA, Russell B, Hanley L.** GRGDSP peptide-bound silicone membranes withstand mechanical flexing in vitro and display enhanced fibroblast adhesion. *Biomaterials* 23(15):3159-3168, 2002.
46. **Lee EL, Watson KC, von Recum HA.** Contractile protein and extracellular matrix secretion of cell monolayer sheets following cyclic stretch. *Cardiovascular Engineering and Technology* 3(3):302-310, 2012.
47. **Liang F, Atakilit A, Gardner DG.** Integrin dependence of brain natriuretic peptide gene promoter activation by mechanical strain. *J Biol Chem* 275(27):20355-20360, 2000.
48. **Liang F, Gardner DG.** Autocrine/paracrine determinants of strain-activated brain natriuretic peptide gene expression in cultured cardiac myocytes. *J Biol Chem* 273(23):14612-14619, 1998.
49. **Liang F, Gardner DG.** Mechanical strain activates BNP gene transcription through a p38/NF- $\kappa$ B-dependent mechanism. *J Clin Invest* 104(11):1603-1612, 1999.



50. **Liang F, Kovacic-Milivojevic B, Chen S, Cui J, Roediger F, Intengan H, Gardner DG.** Signaling mechanisms underlying strain-dependent brain natriuretic peptide gene transcription. *Can J Physiol Pharmacol* 79(8):640-645, 2001.
51. **Liang F, Lu S, Gardner DG.** Endothelin-dependent and -independent components of strain-activated brain natriuretic peptide gene transcription require extracellular signal regulated kinase and p38 mitogen-activated protein kinase. *Hypertension* 35(1 Pt 2):188-192, 2000.
52. **Liang F, Wu J, Garami M, Gardner DG.** Mechanical strain increases expression of the brain natriuretic peptide gene in rat cardiac myocytes. *J Biol Chem* 272(44):28050-28056, 1997.
53. **Liang YJ, Lai LP, Wang BW, Juang SJ, Chang CM, Leu JG, Shyu KG.** Mechanical stress enhances serotonin 2B receptor modulating brain natriuretic peptide through nuclear factor- $\kappa$ B in cardiomyocytes. *Cardiovasc Res* 72(2):303-12, 2006.
54. **Lin YH, Swanson ER, Li J, Mkrtschjan MA, Russell B.** Cyclic mechanical strain of myocytes modifies CapZ $\beta$ 1 post translationally via PKC $\epsilon$ . *J Muscle Res Cell Motil* 36(4-5):329-37, 2015.
55. **Lindahl GE, Chambers RC, Papakrivopoulou J, Dawson SJ, Jacobsen MC, Bishop JE, Laurent GJ.** Activation of fibroblast procollagen  $\alpha$ 1(I) transcription by mechanical strain is transforming growth factor- $\beta$ -dependent and involves increased binding of CCAAT-binding factor (CBF/NF-Y) at the proximal promoter. *J Biol Chem* 277(8):6153-6161, 2002.
56. **Malhotra R, D'Souza KM, Staron ML, Birukov KG, Bodi I, Akhter SA.** G $\alpha$ q-mediated activation of GRK2 by mechanical stretch in cardiac myocytes: the role of protein kinase C. *J Biol Chem* 285(18):13748-13760, 2010.
57. **Marin TM, Clemente CF, Santos AM, Picardi PK, Pascoal VD, Lopes-Cendes I, Saad MJ, Franchini KG.** Shp2 negatively regulates growth in cardiomyocytes by controlling focal adhesion kinase/Src and mTOR pathways. *Circ Res* 103(8):813-824, 2008.
58. **Mauretti A, Bax NA, van Marion MH, Goumans MJ, Sahlgren C, Bouten CV.** Cardiomyocyte progenitor cell mechanoresponse unrevealed: strain avoidance and mechanosome development. *Integr Biol (Camb)* 8(9):991-1001, 2016.
59. **Miller CE, Donlon KJ, Toia L, Wong CL, Chess PR.** Cyclic strain induces proliferation of cultured embryonic heart cells. *In Vitro Cell Dev Biol Anim* 36(10):633-639, 2000.
60. **Nadruz W Jr, Corat MA, Marin TM, Guimaraes Pereira GA, Franchini KG.** Focal adhesion kinase mediates MEF2 and c-Jun activation by stretch: role in the activation of the cardiac hypertrophic genetic program. *Cardiovasc Res* 68(1):87-97, 2005.
61. **Nguyen MD, Tinney JP, Ye F, Elnakib AA, Yuan F, El-Baz A, Sethu P, Keller BB, Giridharan GA.** Effects of physiologic mechanical stimulation on embryonic chick cardiomyocytes using a microfluidic cardiac cell culture model. *Anal Chem* 87(4):2107-13, 2015.
62. **Niu A, Wang B, Li YP.** TNF $\alpha$  shedding in mechanically stressed cardiomyocytes is mediated by Src activation of TACE. *J Cell Biochem* 116(4):559-65, 2015.
63. **Palm-Leis A, Singh US, Herbelin BS, Olsovsky GD, Baker KM, Pan J.** Mitogen-activated protein kinases and mitogen-activated protein kinase phosphatases mediate the inhibitory effects of all-trans retinoic acid on the hypertrophic growth of cardiomyocytes. *J Biol Chem* 279(52):54905-54917, 2004.
64. **Pan J, Singh US, Takahashi T, Oka Y, Palm-Leis A, Herbelin BS, Baker KM.** PKC mediates cyclic stretch-induced cardiac hypertrophy through Rho family GTPases and mitogen-activated protein kinases in cardiomyocytes. *J Cell Physiol* 202(2):536-553, 2005.
65. **Pedrozo Z, Criollo A, Battiprolu PK, Morales CR, Contreras-Ferrat A, Fernández C, Jiang N, Luo X, Caplan MJ, Somlo S, Rothermel BA, Gillette TG, Lavandero S, Hill JA.** Polycystin-1 is a cardiomyocyte mechanosensor that governs L-type Ca $^{2+}$  channel protein stability. *Circulation* 131(24):2131-42, 2015.
66. **Persoon-Rothert M, van der Wees KG, van der Laarse A.** Mechanical overload-induced apoptosis: a study in cultured neonatal ventricular myocytes and fibroblasts. *Mol Cell Biochem* 241(1-2):115-24, 2002.
67. **Pikkarainen S, Tokola H, Kerkela R, Ilves M, Mäkinen M, Orzechowski HD, Paul M, Vuolteenaho O, Ruskoaho H.** Inverse regulation of preproendothelin-1 and endothelin-converting enzyme-1 $\beta$  genes in cardiac cells by mechanical load. *Am J Physiol Regul Integr Comp Physiol* 290(6):R1639-R1645, 2006.
68. **Pikkarainen S, Tokola H, Kerkela R, Majalahti-Palviainen T, Vuolteenaho O, Ruskoaho H.** Endothelin-1-specific activation of B-type natriuretic peptide gene via p38 mitogen-activated protein kinase and nuclear ETS factors. *J Biol Chem* 278(6):3969-3975, 2003.
69. **Pikkarainen S, Tokola H, Majalahti-Palviainen T, Kerkela R, Hautala N, Bhalla SS, Charron F, Nemer M, Vuolteenaho O, Ruskoaho H.** GATA-4 is a nuclear mediator of mechanical stretch-activated hypertrophic program. *J Biol Chem* 278(26):23807-23816, 2003.



70. **Pimentel DR, Amin JK, Xiao L, Miller T, Viereck J, Oliver-Krasinski J, Baliga R, Wang J, Siwik DA, Singh K, Pagano P, Colucci WS, Sawyer DB.** Reactive oxygen species mediate amplitude-dependent hypertrophic and apoptotic responses to mechanical stretch in cardiac myocytes. *Circ Res* 89(5):453-460, 2001.
71. **Prante C, Milting H, Kassner A, Farr M, Ambrosius M, Schön S, Seidler DG, Banayosy AE, Körfer R, Kuhn J, Kleesiek K, Götting C.** Transforming growth factor  $\beta$ 1-regulated xylosyltransferase I activity in human cardiac fibroblasts and its impact for myocardial remodeling. *J Biol Chem* 282(36):26441-26449, 2007.
72. **Raval KK, Tao R, White BE, De Lange WJ, Koonce CH, Yu J, Kishnani PS, Thomson JA, Mosher DF, Ralphe JC, Kamp TJ.** Pompe disease results in a Golgi-based glycosylation deficit in human induced pluripotent stem cell-derived cardiomyocytes. *J Biol Chem* 290(5):3121-36, 2015.
73. **Rubbens MP, Driessen-Mol A, Boerboom RA, Koppert MM, van Assen HC, TerHaar Romeny BM, Baaijens FP, Bouten CV.** Quantification of the temporal evolution of collagen orientation in mechanically conditioned engineered cardiovascular tissues. *Ann Biomed Eng* 37(7):1263-1272, 2009.
74. **Ruwhof C, van Wamel AE, Egas JM, van der Laarse A.** Cyclic stretch induces the release of growth promoting factors from cultured neonatal cardiomyocytes and cardiac fibroblasts. *Mol Cell Biochem* 208(1-2):89-98, 2000.
75. **Ruwhof C, van Wamel AE, van der Valk LJ, Schrier PI, van der Laarse A.** Direct, autocrine and paracrine effects of cyclic stretch on growth of myocytes and fibroblasts isolated from neonatal rat ventricles. *Arch Physiol Biochem* 109(1):10-17, 2001.
76. **Ruwhof C, van Wamel JT, Noordzij LA, Aydin S, Harper JC, van der Laarse A.** Mechanical stress stimulates phospholipase C activity and intracellular calcium ion levels in neonatal rat cardiomyocytes. *Cell Calcium* 29(2):73-83, 2001.
77. **Säkkinen H, Aro J, Kaikkonen L, Ohukainen P, Näpänkangas J, Tokola H, Ruskoaho H, Rysä J.** Mitogen-activated protein kinase p38 target regenerating islet-derived 3 $\gamma$  expression is upregulated in cardiac inflammatory response in the rat heart. *Physiol Rep* 4(20), 2016. pii: e12996.
78. **Salameh A, Apel D, Gonzalez Casanova J, von Salisch S, Mohr FW, Daehnert I, Dhein S.** On the different roles of AT1 and AT2 receptors in stretch-induced changes of connexin43 expression and localisation. *Pflugers Arch* 464(5):535-47, 2012.
79. **Senyo SE, Koshman YE, Russell B.** Stimulus interval, rate and direction differentially regulate phosphorylation for mechanotransduction in neonatal cardiac myocytes. *FEBS Lett* 581(22):4241-4247, 2007.
80. **Shyu KG, Ko WH, Yang WS, Wang BW, Kuan P.** Insulin-like growth factor-1 mediates stretch-induced upregulation of myostatin expression in neonatal rat cardiomyocytes. *Cardiovascular Research* 68(3):405-414, 2005.
81. **Sil P, Gupta S, Young D, Sen S.** Regulation of myotrophin gene by pressure overload and stretch. *Mol Cell Biochem* 262(1-2):79-89, 2004.
82. **Simmons CA, Nikolovski J, Thornton AJ, Matlis S, Mooney DJ.** Mechanical stimulation and mitogen-activated protein kinase signaling independently regulate osteogenic differentiation and mineralization by calcifying vascular cells. *Journal of Biomechanics* 37(10):1531-1541, 2004.
83. **Skurk C, Izumiya Y, Maatz H, Razeghi P, Shiojima I, Sandri M, Sato K, Zeng L, Schiekofer S, Pimentel D, Lecker S, Taegtmeier H, Goldberg AL, Walsh K.** The FOXO3a transcription factor regulates cardiac myocyte size downstream of AKT signaling. *J Biol Chem* 280(21):20814-20823, 2005.
84. **Sun X, Nunes SS.** Bioengineering approaches to mature human pluripotent stem cell-derived cardiomyocytes. *Front Cell Dev Biol* 5:19, 2017.
85. **Swildens J, de Vries AA, Li Z, Umar S, Atsma DE, Schalijs MJ, van der Laarse A.** Integrin stimulation favors uptake of macromolecules by cardiomyocytes in vitro. *Cell Physiol Biochem* 26(6):999-1010, 2010.
86. **Tobita K, Garrison JB, Keller BB.** Differential effects of cyclic stretch on embryonic ventricular cardiomyocyte and non-cardiomyocyte orientation. In: *Cardiovascular Development and Congenital Malformations: Molecular & Genetic Mechanisms*, Edited by Artman M, Benson DW, Srivastava D, Nakazawa M. Blackwell Futura Publishing:177-179, 2005.
87. **Tomanek RJ, Zheng W.** Role of growth factors in coronary morphogenesis. *Tex Heart Inst J* 29(4):250-254, 2002.
88. **Tornatore TF, Dalla Costa AP, Clemente CF, Judice C, Rocco SA, Calegari VC, Cardoso L, Cardoso AC, Gonçalves A Jr, Franchini KG.** A role for focal adhesion kinase in cardiac mitochondrial biogenesis induced by mechanical stress. *Am J Physiol Heart Circ Physiol* 300(3):H902-H912, 2011.



89. **Torsoni AS, Constancio SS, Nadruz W, Hanks SK, Franchini KG.** Focal adhesion kinase is activated and mediates the early hypertrophic response to stretch in cardiac myocytes. *Circ Res* 93(2):140-147, 2003.
90. **Torsoni AS, Marin TM, Velloso LA, Franchini KG.** RhoA/ROCK signaling is critical to FAK activation by cyclic stretch in cardiac myocytes. *Am J Physiol Heart Circ Physiol* 289(4):H1488-H1496, 2005.
91. **Tsai CT, Chiang FT, Tseng CD, Yu CC, Wang YC, Lai LP, Hwang JJ, Lin JL.** Mechanical stretch of atrial myocyte monolayer decreases sarcoplasmic reticulum calcium adenosine triphosphatase expression and increases susceptibility to repolarization alternans. *J Am Coll Cardiol* 58(20):2106-2115, 2011.
92. **Tulloch NL, Muskheli V, Razumova MV, Korte FS, Regnier M, Hauch KD, Pabon L, Reinecke H, Murry CE.** Growth of engineered human myocardium with mechanical loading and vascular coculture. *Circ Res* 109(1):47-59, 2011.
93. **Tyagi SC, Lewis K, Pikes D, Marcello A, Mujumdar VS, Smiley LM, Moore CK.** Stretch-induced membrane type matrix metalloproteinase and tissue plasminogen activator in cardiac fibroblast cells. *J Cell Physiol* 176(2):374-382, 1998.
94. **van Kesteren CA, Saris JJ, Dekkers DH, Lamers JM, Saxena PR, Schalekamp MA, Danser AH.** Cultured neonatal rat cardiac myocytes and fibroblasts do not synthesize renin or angiotensinogen: evidence for stretch-induced cardiomyocyte hypertrophy independent of angiotensin II. *Cardiovascular Research* 43(1):148-156, 1999.
95. **van Wamel AJ, Ruw Hof C, van der Valk-Kokshoom LE, Schrier PI, van der Laarse A.** The role of angiotensin II, endothelin-1 and transforming growth factor- $\beta$  as autocrine/paracrine mediators of stretch-induced cardiomyocyte hypertrophy. *Mol Cell Biochem* 218(1-2):113-124, 2001.
96. **van Wamel AJ, Ruw Hof C, van der Valk-Kokshoorn LJ, Schrier PI, van der Laarse A.** Stretch-induced paracrine hypertrophic stimuli increase TGF- $\beta$ 1 expression in cardiomyocytes. *Mol Cell Biochem* 236(1-2):147-153, 2002.
97. **van Wamel JE, Ruw Hof C, van der Valk-Kokshoorn EJ, Schrier PI, van der Laarse A.** Rapid gene transcription induced by stretch in cardiac myocytes and fibroblasts and their paracrine influence on stationary myocytes and fibroblasts. *Pflugers Arch* 439(6):781-788, 2000.
98. **Wang BW, Hung HF, Chang H, Kuan P, Shyu KG.** Mechanical stretch enhances the expression of resistin gene in cultured cardiomyocytes via tumor necrosis factor- $\alpha$ . *Am J Physiol Heart Circ Physiol* 293(4):H2305-H2312, 2007.
99. **Wang B, Wu G, Cheng K, Shyue K.** Mechanical stretch via transforming growth factor- $\beta$ 1 activates microRNA-208a to regulate hypertrophy in cultured rat cardiac myocytes. *Journal of the Formosan Medical Association*, 2013. (10.1016/j.jfma.2013.01.002).
100. **Watson CJ, Phelan D, Collier P, Horgan S, Glezeva N, Cooke G, Xu M, Ledwidge M, McDonald K, Baugh JA.** Extracellular matrix sub-types and mechanical stretch impact human cardiac fibroblast responses to transforming growth factor  $\beta$ . *Connect Tissue Res* 55(3):248-56, 2014.
101. **Watson CJ, Phelan D, Xu M, Collier P, Neary R, Smolenski A, Ledwidge M, McDonald K, Baugh J.** Mechanical stretch up-regulates the B-type natriuretic peptide system in human cardiac fibroblasts: a possible defense against transforming growth factor- $\beta$  mediated fibrosis. *Fibrogenesis Tissue Repair* 5(1):9, 2012.
102. **Wei CC, Chen Y, Powell LC, Zheng J, Shi K, Bradley WE, Powell PC, Ahmad S, Ferrario CM, Dell'Italia LJ.** Cardiac kallikrein-kinin system is upregulated in chronic volume overload and mediates an inflammatory induced collagen loss. *PLoS One* 7(6):e40110, 2012.
103. **Wu CK, Su MY, Lee JK, Chiang FT, Hwang JJ, Lin JL, Chen JJ, Liu FT, Tsai CT.** Galectin-3 level and the severity of cardiac diastolic dysfunction using cellular and animal models and clinical indices. *Sci Rep* 5:17007, 2015.
104. **Wu CK, Wang YC, Lee JK, Chang SN, Su MY, Yeh HM, Su MJ, Chen JJ, Chiang FT, Hwang JJ, Lin JL, Tsai CT.** Connective tissue growth factor and cardiac diastolic dysfunction: human data from the Taiwan diastolic heart failure registry and molecular basis by cellular and animal models. *Eur J Heart Fail* 16(2):163-72, 2014.
105. **Xi YT, Bai XJ, Wu GR, Ma AQ.** Centrifugal force stretcher a new of in vitro mechanical cell stimulator. *Sheng Li Xue Bao* 56(3):419-423, 2004.
106. **Yokoyama T, Sekiguchi K, Tanaka T, Tomaru K, Arai M, Suzuki T, Nagai R.** Angiotensin II and mechanical stretch induce production of tumor necrosis factor in cardiac fibroblasts. *Am J Physiol Heart Circ Physiol* 276:H1968-H1976, 1999.
107. **Zheng W, Seftor EA, Meininger CJ, Hendrix MJ, Tomanek RJ.** Mechanisms of coronary angiogenesis in response to stretch: role of VEGF and TGF- $\beta$ . *Am J Physiol Heart Circ Physiol* 280(2):H909-H917, 2001.



108. **Zhou C, Ziegler C, Birder LA, Stewart AF, Levitan ES.** Angiotensin II and stretch activate NADPH oxidase to destabilize cardiac Kv4.3 channel mRNA. *Circ Res* 98(8):1040-1047, 2006.

#### CARDIOVASCULAR ENDOTHELIAL CELLS

109. **Ali MH, Pearlstein DP, Mathieu CE, Schumacker PT.** Mitochondrial requirement for endothelial responses to cyclic strain: implications for mechanotransduction. *Am J Physiol Lung Cell Mol Physiol* 287(3):L486-L496, 2004.
110. **Altalhi W, Sun X, Sivak JM, Husain M, Nunes SS.** Diabetes impairs arterio-venous specification in engineered vascular tissues in a perivascular cell recruitment-dependent manner. *Biomaterials* 119:23-32, 2017.
111. **Awolesi MA, Sessa WC, Sumpio BE.** Cyclic strain upregulates nitric oxide synthase in cultured bovine aortic endothelial cells. *J Clin Invest* 96(3):1449-1454, 1995.
112. **Azuma N, Duzgun SA, Ikeda M, Kito H, Akasaka N, Sasajima T, Sumpio BE.** Endothelial cell response to different mechanical forces. *J Vasc Surg* 32(4):789-794, 2000.
113. **Baker PN, Stranko CP, Davidge ST, Davies PS, Roberts JM.** Mechanical stress eliminates the effects of plasma from patients with preeclampsia on endothelial cells. *Am J Obstet Gynecol* 174(2):730-6, 1996.
114. **Brophy CM, Mills I, Rosales O, Isales C, Sumpio BE.** Phospholipase C: a putative mechanotransducer for endothelial cell response to acute hemodynamic changes. *Biochem Biophys Res Commun* 190(2):576-581, 1993.
115. **Cevallos M, Riha GM, Wang X, Yang H, Yan S, Li M, Chai H, Yao Q, Chen C.** Cyclic strain induces expression of specific smooth muscle cell markers in human endothelial cells. *Differentiation* 74(9-10):552-561, 2006.
116. **Chang H, Wang BW, Kuan P, Shyu KG.** Cyclical mechanical stretch enhances angiopoietin-2 and Tie2 receptor expression in cultured human umbilical vein endothelial cells. *Clin Sci (Lond)* 104(4):421-428, 2003.
117. **Cheng JJ, Chao YJ, Wang DL.** Cyclic strain activates redox-sensitive proline-rich tyrosine kinase 2 (PYK2) in endothelial cells. *J Biol Chem* 277(50):48152-48157, 2002.
118. **Cheng JJ, Wung BS, Chao YJ, Wang DL.** Cyclic strain enhances adhesion of monocytes to endothelial cells by increasing intercellular adhesion molecule-1 expression. *Hypertension* 28(3):386-391, 1996.
119. **Cheng JJ, Wung BS, Chao YJ, Wang DL.** Cyclic strain-induced reactive oxygen species involved in ICAM-1 gene induction in endothelial cells. *Hypertension* 31(1):125-30, 1998.
120. **Cheng JJ, Wung BS, Chao YJ, Wang DL.** Sequential activation of protein kinase C (PKC)- $\alpha$  and PKC- $\epsilon$  contributes to sustained Raf/ERK1/2 activation in endothelial cells under mechanical strain. *J Biol Chem* 276(33):31368-31375, 2001.
121. **Coen P, Cummins P, Birney Y, Devery R, Cahill P.** Modulation of nitric oxide and 6-keto-prostaglandin F(1 $\alpha$ ) production in bovine aortic endothelial cells by conjugated linoleic acid. *Endothelium* 11(3-4):211-20, 2004.
122. **Cohen CR, Mills I, Du W, Kamal K, Sumpio BE.** Activation of the adenylyl cyclase/cyclic AMP/protein kinase A pathway in endothelial cells exposed to cyclic strain. *Exp Cell Res* 231(1):184-189, 1997.
123. **Cummins PM, Cotter EJ, Cahill PA.** Hemodynamic regulation of metalloproteinases within the vasculature. *Protein Pept Lett* 11(5):433-442, 2004.
124. **Cummins PM, von Offenbergsweeney N, Killeen MT, Birney YA, Redmond EM, Cahill PA.** Cyclic strain-mediated matrix metalloproteinase regulation within the vascular endothelium: a force to be reckoned with. *Am J Physiol Heart Circ Physiol* 292:H28-H42, 2007.
125. **Dekker RJ, van Thienen JV, Rohlena J, de Jager SC, Elderkamp YW, Seppen J, de Vries CJ, Biessen EA, van Berkel TJ, Pannekoek H, Horrevoets AJ.** Endothelial KLF2 links local arterial shear stress levels to the expression of vascular tone-regulating genes. *Am J Pathol* 167(2):609-618, 2005.
126. **Dong R, Zhang K, Wang YL, Zhang F, Cao J, Zheng JB, Zhang HJ.** MiR-551b-5p contributes to pathogenesis of vein graft failure via upregulating early growth response-1 expression. *Chin Med J (Engl)* 130(13):1578-1585, 2017.
127. **Du W, Mills I, Sumpio BE.** Cyclic strain causes heterogeneous induction of transcription factors, AP-1, CRE binding protein and NF- $\kappa$ B, in endothelial cells: species and vascular bed diversity. *Journal of Biomechanics* 28(12):1485-149, 1995.
128. **Evans L, Frenkel L, Brophy CM, Rosales O, Sudhaker CB, Li G, Du W, Sumpio BE.** Activation of diacylglycerol in cultured endothelial cells exposed to cyclic strain. *Am J Physiol* 272(2 Pt 1):C650-C656, 1997.



129. **Fisslthaler B, Boengler K, Fleming I, Schaper W, Busse R, Deindl E.** Identification of a cis-element regulating transcriptional activity in response to fluid shear stress in bovine aortic endothelial cells. *Endothelium* 10(4-5):267-75, 2003.
130. **Fisslthaler B, Popp R, Michaelis UR, Kiss L, Fleming I, Busse R.** Cyclic stretch enhances the expression and activity of coronary endothelium-derived hyperpolarizing factor synthase. *Hypertension* 38(6):1427-1432, 2001.
131. **Freese C, Anspach L, Deller RC, Richards SJ, Gibson MI, Kirkpatrick CJ, Unger RE.** Gold nanoparticle interactions with endothelial cells cultured under physiological conditions. *Biomater Sci* 5(4):707-717, 2017.
132. **Fujioka K, Azuma N, Kito H, Gahtan V, Esato K, Sumpio BE.** Role of caveolin in hemodynamic force-mediated endothelial changes. *J Surg Res* 92(1):7-10, 2000.
133. **Gawlak G, Tian Y, O'Donnell JJ 3rd, Tian X, Birukova AA, Birukov KG.** Paxillin mediates stretch-induced Rho signaling and endothelial permeability via assembly of paxillin-p42/44MAPK-GEF-H1 complex. *FASEB J* 28(7):3249-60, 2014.
134. **Ghosh K, Thodeti CK, Dudley AC, Mammoto A, Klagsbrun M, Ingber DE.** Tumor-derived endothelial cells exhibit aberrant Rho-mediated mechanosensing and abnormal angiogenesis in vitro. *Proc Natl Acad Sci U S A* 105(32):11305-11310, 2008.
135. **Goettsch C, Goettsch W, Arsov A, Hofbauer LC, Bornstein SR, Morawietz H.** Long-term cyclic strain downregulates endothelial Nox4. *Antioxid Redox Signal* 11(10):2385-2397, 2009.
136. **Grigoryev DN, Ma SF, Irizarry RA, Ye SQ, Quackenbush J, Garcia JG.** Orthologous gene-expression profiling in multi-species models: search for candidate genes. *Genome Biol* 5(5):R34, 2004.
137. **Haga M, Chen A, Gortler D, Dardik A, Sumpio BE.** Shear stress and cyclic strain may suppress apoptosis in endothelial cells by different pathways. *Endothelium* 10(3):149-57, 2003.
138. **Hishikawa K, Luscher TF.** Pulsatile stretch stimulates superoxide production in human aortic endothelial cells. *Circulation* 96(10):3610-3616, 1997.
139. **Hoshino Y, Nishimura K, Sumpio BE.** Phosphatase PTEN is inactivated in bovine aortic endothelial cells exposed to cyclic strain. *J Cell Biochem* 100(2):515-526, 2007.
140. **Howard AB, Alexander RW, Nerem RM, Griendling KK, Taylor WR.** Cyclic strain induces an oxidative stress in endothelial cells. *Am J Physiol Cell Physiol* 272(2):C421-C427, 1997.
141. **Hu J, Liu Y.** Cyclic strain enhances cellular uptake of nanoparticles. *Journal of Nanomaterials* 2015:953584, 2015.
142. **Iba T, Mills I, Sumpio BE.** Intracellular cyclic AMP levels in endothelial cells subjected to cyclic strain in vitro. *J Surg Res* 52(6):625-630, 1992.
143. **Iba T, Shin T, Sonoda T, Rosales O, Sumpio BE.** Stimulation of endothelial secretion of tissue-type plasminogen activator by repetitive stretch. *J Surg Res* 50(5):457-460, 1991.
144. **Iba T, Sumpio BE.** Morphological response of human endothelial cells subjected to cyclic strain in vitro. *Microvasc Res* 42(3):245-254, 1991.
145. **Ikeda M, Kito H, Sumpio BE.** Phosphatidylinositol-3 kinase dependent MAP kinase activation via p21ras in endothelial cells exposed to cyclic strain. *Biochem Biophys Res Commun* 257(3):668-671, 1999.
146. **Ikeda M, Takei T, Mills I, Kito H, Sumpio BE.** Extracellular signal-regulated kinases 1 and 2 activation in endothelial cells exposed to cyclic strain. *Am J Physiol Heart Circ Physiol* 276:H614-H622, 1999.
147. **Ikeda M, Takei T, Mills I, Sumpio BE.** Calcium-independent activation of extracellular signal-regulated kinases 1 and 2 by cyclic strain. *Biochem Biophys Res Commun* 247(2):462-465, 1998.
148. **Jiang J, Qi YX, Zhang P, Gu WT, Yan ZQ, Shen BR, Yao QP, Kong H, Chien S, Jiang ZL.** Involvement of Rab28 in NF- $\kappa$ B nuclear transport in endothelial cells. *PLoS One* 8(2):e56076, 2013.
149. **Jiang Y, Wang Y, Tang G.** Cyclic tensile strain promotes the osteogenic differentiation of a bone marrow stromal cell and vascular endothelial cell co-culture system. *Arch Biochem Biophys* 607:37-43, 2016.
150. **Juan SH, Chen JJ, Chen CH, Lin H, Cheng CF, Liu JC, Hsieh MH, Chen YL, Chao HH, Chen TH, Chan P, Cheng TH.** 17 $\beta$ -estradiol inhibits cyclic strain-induced endothelin-1 gene expression within vascular endothelial cells. *Am J Physiol Heart Circ Physiol* 287(3):H1254-H1261, 2004.
151. **Kim JI, Cordova AC, Hirayama Y, Madri JA, Sumpio BE.** Differential effects of shear stress and cyclic strain on Sp1 phosphorylation by protein kinase C  $\zeta$  modulates membrane type 1-matrix metalloproteinase in endothelial cells. *Endothelium* 15(1):33-42, 2008.
152. **Kito H, Yokoyama C, Inoue H, Tanabe T, Nakajima N, Sumpio BE.** Cyclooxygenase expression in bovine aortic endothelial cells exposed to cyclic strain. *Endothelium* 6(2):107-112, 1998.





153. **Kobayashi K, Tanaka M, Nebuya S, Kokubo K, Fukuoka Y, Harada Y, Kobayashi H, Noshiro M, Inaoka H.** Temporal change in IL-6 mRNA and protein expression produced by cyclic stretching of human pulmonary artery endothelial cells. *Int J Mol Med* 30(3):509-13, 2012.
154. **Korff T, Aufgebauer K, Hecker M.** Cyclic stretch controls the expression of CD40 in endothelial cells by changing their transforming growth factor- $\beta$ 1 response. *Circulation* 116(20):2288-2297, 2007.
155. **Korff T, Ernst E, Nobiling R, Feldner A, Reiss Y, Plate KH, Fiedler U, Augustin HG, Hecker M.** Angiotensin-1 mediates inhibition of hypertension-induced release of angiotensin-2 from endothelial cells. *Cardiovasc Res* 94(3):510-8, 2012.
156. **Kou B, Zhang J, Singer DR.** Effects of cyclic strain on endothelial cell apoptosis and tubulogenesis are dependent on ROS production via NAD(P)H subunit p22phox. *Microvasc Res* 77(2):125-133, 2009.
157. **Kuk H, Arnold C, Meyer R, Hecker M, Korff T.** Magnolol inhibits venous remodeling in mice. *Sci Rep* 7(1):17820, 2017. doi: 10.1038/s41598-017-17910-0.
158. **Lauth M, Cattaruzza M, Hecker M.** ACE inhibitor and AT1 antagonist blockade of deformation-induced gene expression in the rabbit jugular vein through B2 receptor activation. *Arterioscler Thromb Vasc Biol* 21(1):61-6, 2001.
159. **Lauth M, Wagner AH, Cattaruzza M, Orzechowski HD, Paul M, Hecker M.** Transcriptional control of deformation-induced preproendothelin-1 gene expression in endothelial cells. *J Mol Med* 78(8):441-450, 2000.
160. **Lee T, Kim SJ, Sumpio BE.** Role of PP2A in the regulation of p38 MAPK activation in bovine aortic endothelial cells exposed to cyclic strain. *J Cell Physiol* 194(3):349-355, 2003.
161. **Li W, Sumpio BE.** Strain-induced vascular endothelial cell proliferation requires PI3K-dependent mTOR-4E-BP1 signal pathway. *Am J Physiol Heart Circ Physiol* 288(4):H1591-1597, 2005.
162. **Loperena R, Chen W, Kirabo A, Harrison DG.** Hypertensive mechanical stretch: A model for monocyte-derived dendritic cell differentiation [abstract]. *The FASEB Journal* 30(1):723.4, 2016.
163. **Mai J, Hu Q, Xie Y, Su S, Qiu Q, Yuan W, Yang Y, Song E, Chen Y, Wang J.** Dyssynchronous pacing triggers endothelial-mesenchymal transition through heterogeneity of mechanical stretch in a canine model. *Circ J* 79(1):201-9, 2015.
164. **Martin FA, McLoughlin A, Rochford KD, Davenport C, Murphy RP, Cummins PM.** Regulation of thrombomodulin expression and release in human aortic endothelial cells by cyclic strain. *PLoS One* 9(9):e108254, 2014.
165. **Mascarenhas JB, Tchourbanov AY, Fan H, Danilov SM, Wang T, Garcia JG.** Mechanical stress and single nucleotide variants regulate alternative splicing of the MYLK gene. *Am J Respir Cell Mol Biol* 56(1):29-37, 2017. doi: 10.1165/rcmb.2016-0053OC.
166. **McIntosh CT, Warnock JN.** Side-specific characterization of aortic valve endothelial cell adhesion molecules under cyclic strain. *The Journal of Heart Valve Disease* 22:631-639, 2013.
167. **Metzler SA, Pregonero CA, Butcher JT, Burgess SC, Warnock JN.** Cyclic strain regulates pro-inflammatory protein expression in porcine aortic valve endothelial cells. *J Heart Valve Dis* 17(5):571-577, 2008.
168. **Moldobaeva A, Jenkins J, Wagner E.** Effects of distension on airway inflammation and venular P-selectin expression. *Am J Physiol Lung Cell Mol Physiol* 295(5):L941-L948, 2008.
169. **Morrow D, Cullen JP, Cahill PA, Redmond EM.** Cyclic strain regulates the Notch/CBF-1 signaling pathway in endothelial cells: role in angiogenic activity. *Arterioscler Thromb Vasc Biol* 27:1289-1296, 2007.
170. **Murata K, Mills I, Sumpio BE.** Protein phosphatase 2A in stretch-induced endothelial cell proliferation. *J Cell Biochem* 63(3):311-319, 1996.
171. **Neto F, Klaus-Bergmann A, Ong YT, Alt S, Vion AC, Szymborska A, Carvalho JR, Hollfinger I, Bartels-Klein E, Franco CA, Potente M, Gerhardt H.** YAP and TAZ regulate adherens junction dynamics and endothelial cell distribution during vascular development. *Elife* 2018 Feb 5;7. pii: e31037. doi: 10.7554/eLife.31037. [Epub ahead of print]
172. **Nishimura K, Li W, Hoshino Y, Kadohama T, Asada H, Ohgi S, Sumpio BE.** Role of AKT in cyclic strain-induced endothelial cell proliferation and survival. *Am J Physiol Cell Physiol* 290(3):C812-C821, 2006.
173. **Okada M, Matsumori A, Ono K, Furukawa Y, Shioi T, Iwasaki A, Matsushima K, Sasayama S.** Cyclic stretch upregulates production of interleukin-8 and monocyte chemoattractant and activating factor/monocyte chemoattractant protein-1 in human endothelial cells. *Arterioscler Thromb Vasc Biol* 18(6):894-901, 1998.
174. **Pikkarainen S, Tokola H, Kerkela R, Ilves M, Mäkinen M, Orzechowski HD, Paul M, Vuolteenaho O, Ruskoaho H.** Inverse regulation of preproendothelin-1 and endothelin-converting enzyme-1 $\beta$  genes in cardiac cells by mechanical load. *Am J Physiol Regul Integr Comp Physiol* 290(6):R1639-R1645, 2006.



175. **Rakugi H, Yu H, Kamitani A, Nakamura Y, Ohishi M, Kamide K, Nakata Y, Takami S, Higaki J, Ogihara T.** Links between hypertension and myocardial infarction. *American Heart Journal* 132(1 Pt 2 Su):213-221, 1996.
176. **Regnault V, Perret-Guillaume C, Kearney-Schwartz A, Max JP, Labat C, Louis H, Wahl D, Pannier B, Lecompte T, Weryha G, Challande P, Safar ME, Benetos A, Lacolley P.** Tissue factor pathway inhibitor: a new link among arterial stiffness, pulse pressure, and coagulation in postmenopausal women. *Arterioscler Thromb Vasc Biol* 31(5):1226-1232, 2011.
177. **Rosales OR, Isales CM, Barrett PQ, Brophy C, Sumpio BE.** Exposure of endothelial cells to cyclic strain induces elevations of cytosolic Ca<sup>2+</sup> concentration through mobilization of intracellular and extracellular pools. *Biochem J* 326(Pt 2):385-92, 1997.
178. **Rosales OR, Sumpio BE.** Changes in cyclic strain increase inositol trisphosphate and diacylglycerol in endothelial cells. *Am J Physiol Cell Physiol* 262(4):C956-C962, 1992.
179. **Schneider SW, Yano Y, Sumpio BE, Jena BP, Geibel JP, Gekle M, Oberleithner H.** Rapid aldosterone-induced cell volume increase of endothelial cells measured by the atomic force microscope. *Cell Biol Int* 21(11):759-768, 1997.
180. **Segurola RJ Jr, Oluwole B, Mills I, Yokoyama C, Tanabe T, Kito H, Nakajima N, Sumpio BE.** Cyclic strain is a weak inducer of prostacyclin synthase expression in bovine aortic endothelial cells. *J Surg Res* 69(1):135-138, 1997.
181. **Sheikh AQ, Kuesel C, Taghian T, Hurley JR, Huang W, Wang Y, Hinton RB, Narmoneva DA.** Angiogenic microenvironment augments impaired endothelial responses under diabetic conditions. *Am J Physiol Cell Physiol* 306(8):C768-78, 2014.
182. **Steadman E, Meza D, Rubenstein DA, Yin W.** Endothelial cell mechanical responses are dependent on both fluid shear stress and tensile strain. *The FASEB Journal* 31(1 Supplement), 689-16, 2017.
183. **Sumpio BE, Banas AJ, Buckley M, Johnson G Jr.** Alterations in aortic endothelial cell morphology and cytoskeletal protein synthesis during cyclic tensional deformation. *J Vasc Surg* 7(1):130-138, 1988.
184. **Sumpio BE, Banas AJ, Levin LG, Johnson G Jr.** Mechanical stress stimulates aortic endothelial cells to proliferate. *J Vasc Surg* 6(3):252-256, 1987.
185. **Sumpio BE, Banas AJ, Link GW, Iba T.** Modulation of endothelial cell phenotype by cyclic stretch: inhibition of collagen production. *J Surg Res* 48(5):415-420, 1990.
186. **Sumpio BE, Banas AJ.** Prostacyclin synthetic activity in cultured aortic endothelial cells undergoing cyclic mechanical deformation. *Surgery* 104(2):383-389, 1988.
187. **Sumpio BE, Chang R, Xu WJ, Wang XJ, Du W.** Regulation of tPA in endothelial cells exposed to cyclic strain: role of CRE, AP-2, and SSRE binding sites. *Am J Physiol Cell Physiol* 273:C1441-C1448, 1997.
188. **Sumpio BE, Du W, Gallagher G, Wang X, Khachigian LM, Collins T, Gimbrone MA Jr, Resnick N.** Regulation of PDGF-B in endothelial cells exposed to cyclic strain. *Arterioscler Thromb Vasc Biol* 18(3):349-355, 1998.
189. **Sun X, Elangovan VR, Mapes B, Camp SM, Sammani S, Saadat L, Ceco E, Ma SF, Flores C, MacDougall MS, Quijada H, Liu B, Kempf CL, Wang T, Chiang ET, Garcia JG.** The NAMPT promoter is regulated by mechanical stress, signal transducer and activator of transcription 5, and acute respiratory distress syndrome-associated genetic variants. *Am J Respir Cell Mol Biol* 51(5):660-7, 2014.
190. **Thodeti CK, Matthews B, Ravi A, Mammoto A, Ghosh K, Bracha AL, Ingber DE.** TRPV4 channels mediate cyclic strain-induced endothelial cell reorientation through integrin-to-integrin signaling. *Circ Res* 104(9):1123-1130, 2009.
191. **Tomanek RJ, Zheng W.** Role of growth factors in coronary morphogenesis. *Tex Heart Inst J* 29(4):250-254, 2002.
192. **Ulfhammer E, Ridderstrale W, Andersson M, Karlsson L, Hrafnkelsdottir T, Jern S.** Prolonged cyclic strain impairs the fibrinolytic system in cultured vascular endothelial cells. *J Hypertens* 23(8):1551-1557, 2005.
193. **Upchurch GR Jr, Loscalzo J, Banas AJ.** Changes in the amplitude of cyclic load biphasically modulate endothelial cell DNA synthesis and division. *Vasc Med* 2(1):19-24, 1997.
194. **van Wamel AJ, Ruw Hof C, van der Valk-Kokshoom LE, Schrier PI, van der Laarse A.** The role of angiotensin II, endothelin-1 and transforming growth factor- $\beta$  as autocrine/paracrine mediators of stretch-induced cardiomyocyte hypertrophy. *Mol Cell Biochem* 218(1-2):113-124, 2001.
195. **van Wamel AJ, Ruw Hof C, van der Valk-Kokshoorn LJ, Schrier PI, van der Laarse A.** Stretch-induced paracrine hypertrophic stimuli increase TGF- $\beta$ 1 expression in cardiomyocytes. *Mol Cell Biochem* 236(1-2):147-153, 2002.



196. **Vion AC, Birukova AA, Boulanger CM, Birukov KG.** Mechanical forces stimulate endothelial microparticle generation via caspase-dependent apoptosis-independent mechanism. *Pulm Circ* 3(1):95-9, 2013.
197. **Vollmer T, Hinse D, Kleesiek K, Dreier J.** Interactions between endocarditis-derived Streptococcus gallolyticus subsp. Gallolyticus isolates and human endothelial cells. *BMC Microbiology* 10:78, 2010.
198. **von Offenberg Sweeney N, Cummins PM, Birney YA, Cullen JP, Redmond EM, Cahill PA.** Cyclic strain-mediated regulation of endothelial matrix metalloproteinase-2 expression and activity. *Cardiovascular Research* 63(4):625-634, 2004.
199. **von Offenberg Sweeney N, Cummins PM, Birney YA, Redmond EM, Cahill PA.** Cyclic strain-induced endothelial MMP-2: role in vascular smooth muscle cell migration. *Biochemical and Biophysical Research Communications* 320:325-333, 2004.
200. **von Offenberg Sweeney, Cummins PM, Cotter EJ, Fitzpatrick PA, Birney YA, Redmond EM, Cahill PA.** Cyclic strain-mediated regulation of vascular endothelial cell migration and tube formation. *Biochemical and Biophysical Research Communications* 329:573-582, 2005.
201. **Wang C, Jiao C, Hanlon HD, Zheng W, Tomanek RJ, Schatteman GC.** Mechanical, cellular, and molecular factors interact to modulate circulating endothelial cell progenitors. *Am J Physiol Heart Circ Physiol* 286(5):H1985-H1993, 2004.
202. **Wang DL, Wung BS, Peng YC, Wang JJ.** Mechanical strain increases endothelin-1 gene expression via protein kinase C pathway in human endothelial cells. *J Cell Physiol* 163(2):400-406, 1995.
203. **Wang DL, Wung BS, Shyy YJ, Lin CF, Chao YJ, Usami S, Chien S.** Mechanical strain induces monocyte chemotactic protein-1 gene expression in endothelial cells. Effects of mechanical strain on monocyte adhesion to endothelial cells. *Circ Res* 77(2):294-302, 1995.
204. **Wang L, Bao H, Wang KX, Zhang P, Yao QP, Chen XH, Huang K, Qi YX, Jiang ZL.** Secreted miR-27a induced by cyclic stretch modulates the proliferation of endothelial cells in hypertension via GRK6. *Sci Rep* 7:41058, 2017.
205. **Widmann MD, Letsou GV, Phan S, Baldwin JC, Sumpio BE.** Isolation and characterization of rabbit cardiac endothelial cells: response to cyclic strain and growth factors in vitro. *Journal of Surgical Research* 53(4):331-334, 1992.
206. **Wilson CJ, Kasper G, Schütz MA, Duda GN.** Cyclic strain disrupts endothelial network formation on Matrigel. *Microvasc Res* 78(3):358-63, 2009.
207. **Woodell JE, LaBerge M, Langan EM 3rd, Hilderman RH.** In vitro strain-induced endothelial cell dysfunction determined by DNA synthesis. *Proc Inst Mech Eng [H]* 217(1):13-20, 2003.
208. **Woodell JE, LaBerge M, Langan EM 3rd, Hilderman RH.** P1,P4-diadenosine 5'-tetrphosphate induced DNA synthesis in mechanically injured cultured endothelial cells. *Proc Inst Mech Eng [H]* 217(1):21-26, 2003.
209. **Wung BS, Cheng JJ, Chao YJ, Hsieh HJ, Wang DL.** Modulation of Ras/Raf/extracellular signal-regulated kinase pathway by reactive oxygen species is involved in cyclic strain-induced early growth response-1 gene expression in endothelial cells. *Circ Res* 84(7):804-812, 1999.
210. **Wung BS, Cheng JJ, Chao YJ, Lin J, Shyy YJ, Wang DL.** Cyclical strain increases monocyte chemotactic protein-1 secretion in human endothelial cells. *Am J Physiol Heart Circ Physiol* 270(4):H1462-H1468, 1996.
211. **Wung BS, Cheng JJ, Hsieh HJ, Shyy YJ, Wang DL.** Cyclic strain-induced monocyte chemotactic protein-1 gene expression in endothelial cells involves reactive oxygen species activation of activator protein 1. *Circ Res* 81(1):1-7, 1997.
212. **Wung BS, Cheng JJ, Shyue SK, Wang DL.** NO modulates monocyte chemotactic protein-1 expression in endothelial cells under cyclic strain. *Arterioscler Thromb Vasc Biol* 21(12):1941-1947, 2001.
213. **Yamaguchi S, Yamaguchi M, Yatsuyanagi E, Yun SS, Nakajima N, Madri JA, Sumpio BE.** Cyclic strain stimulates early growth response gene product 1-mediated expression of membrane type 1 matrix metalloproteinase in endothelium. *Lab Invest* 82(7):949-956, 2002.
214. **Yano Y, Geibel J, Sumpio BE.** Cyclic strain induces reorganization of integrin  $\alpha 5\beta 1$  and  $\alpha 2\beta 1$  in human umbilical vein endothelial cells. *J Cell Biochem* 64(3):505-513, 1997.
215. **Yano Y, Geibel J, Sumpio BE.** Tyrosine phosphorylation of pp125FAK and paxillin in aortic endothelial cells induced by mechanical strain. *Am J Physiol Cell Physiol* 271:C635-C649, 1996.
216. **Yano Y, Saito Y, Narumiya S, Sumpio BE.** Involvement of rho p21 in cyclic strain-induced tyrosine phosphorylation of focal adhesion kinase (pp125FAK), morphological changes and migration of endothelial cells. *Biochem Biophys Res Commun* 224(2):508-515, 1996.



217. **Zheng W, Christensen LP, Tomanek RJ.** Stretch induces upregulation of key tyrosine kinase receptors in microvascular endothelial cells. *Am J Physiol Heart Circ Physiol* 287(6):H2739-H2745, 2004.
218. **Zheng W, Seftor EA, Meininger CJ, Hendrix MJ, Tomanek RJ.** Mechanisms of coronary angiogenesis in response to stretch: role of VEGF and TGF- $\beta$ . *Am J Physiol Heart Circ Physiol* 280(2):H909-H917, 2001.
219. **Zheng W, Christensen LP, Tomanek RJ.** Differential effects of cyclic and static stretch on coronary microvascular endothelial cell receptors and vasculogenic/angiogenic responses. *Am J Physiol Heart Circ Physiol* 295:H794-H800, 2008.

#### CARDIOVASCULAR SMOOTH MUSCLE CELLS

220. **Allison DA, Wight TN, Ripp NJ, Braun KR, Grande-Allen KJ.** Endogenous overexpression of hyaluronan synthases within dynamically cultured collagen gels: implications for vascular and valvular disease. *Biomaterials* 29:2969-2976, 2008.
221. **Arnold C, Demirel E, Feldner A, Genové G, Zhang H, Sticht C, Wieland T, Hecker M, Heximer S, Korff T.** Hypertension-evoked RhoA activity in vascular smooth muscle cells requires RGS5. *FASEB J* 2018 Jan 5:fj201700384RR. doi: 10.1096/fj.201700384RR. [Epub ahead of print]
222. **Arnold C, Feldner A, Pfisterer L, Hödebeck M, Troidl K, Genové G, Wieland T, Hecker M, Korff T.** RGS5 promotes arterial growth during arteriogenesis. *EMBO Mol Med* 6(8):1075-89, 2014.
223. **Bai X, Mangum KD, Dee RA, Stouffer GA, Lee CR, Oni-Orisan A, Patterson C, Schisler JC, Viera AJ, Taylor JM, Mack CP.** Blood pressure-associated polymorphism controls ARHGAP42 expression via serum response factor DNA binding. *J Clin Invest* 127(2):670-680, 2017.
224. **Birukov KG, Shirinsky VP, Stepanova OV, Tkachuk VA, Hahn AW, Resink TJ, Smirnov VN.** Stretch affects phenotype and proliferation of vascular smooth muscle cells. *Mol Cell Biochem* 144(2):131-139, 1995.
225. **Capers Q 4th, Alexander RW, Lou P, De Leon H, Wilcox JN, Ishizaka N, Howard AB, Taylor WR.** Monocyte chemoattractant protein-1 expression in aortic tissues of hypertensive rats. *Hypertension* 30(6):1397-1402, 1997.
226. **Cattaruzza M, Berger MM, Ochs M, Fayyazi A, Fuzesi L, Richter J, Hecker M.** Deformation-induced endothelin B receptor-mediated smooth muscle cell apoptosis is matrix-dependent. *Cell Death Differ* 9(2):219-226, 2002.
227. **Cattaruzza M, Dimigen C, Ehrenreich H, Hecker M.** Stretch-induced endothelin B receptor-mediated apoptosis in vascular smooth muscle cells. *FASEB J* 14(7):991-998, 2000.
228. **Chang H, Shyu KG, Wang BW, Kuan P.** Regulation of hypoxia-inducible factor-1 $\alpha$  by cyclical mechanical stretch in rat vascular smooth muscle cells. *Clin Sci (Lond)* 105(4):447-456, 2003.
229. **Chapman GB, Durante W, Hellums JD, Schafer AI.** Physiological cyclic stretch causes cell cycle arrest in cultured vascular smooth muscle cells. *Am J Physiol Heart Circ Physiol* 278:H748-H754, 2000.
230. **Chen AH, Gortler DS, Kilaru S, Araith O, Frangos SG, Sumpio BE.** Cyclic strain activates the pro-survival Akt protein kinase in bovine aortic smooth muscle cells. *Surgery* 130(2):378-381, 2001.
231. **Chen Q, Li W, Quan Z, Sumpio BE.** Modulation of vascular smooth muscle cell alignment by cyclic strain is dependent on reactive oxygen species and P38 mitogen-activated protein kinase. *J Vasc Surg* 37(3):660-668, 2003.
232. **Cheng J, Du J.** Mechanical stretch simulates proliferation of venous smooth muscle cells through activation of the insulin-like growth factor-1 receptor. *Arterioscler Thromb Vasc Biol* 27(8):1744-1751, 2007.
233. **Cheng J, Zhang J, Merched A, Zhang L, Zhang P, Truong L, Boriek AM, Du J.** Mechanical stretch inhibits oxidized low density lipoprotein-induced apoptosis in vascular smooth muscle cells by up-regulating integrin  $\alpha$ V $\beta$ 3 and stabilization of PINCH-1. *J Biol Chem* 282(47):34268-34275, 2007.
234. **Cheng WP, Hung HF, Wang BW, Shyu KG.** The molecular regulation of GADD153 in apoptosis of cultured vascular smooth muscle cells by cyclic mechanical stretch. *Cardiovascular Research* 77:551-559, 2008.
235. **Cheng WP, Wang BW, Chen SC, Chang H, Shyu KG.** Mechanical stretch induces the apoptosis regulator PUMA in vascular smooth muscle cells. *Cardiovasc Res* 93(1):181-9, 2012.
236. **Chiu CZ, Wang BW, Shyu KG.** Effects of cyclic stretch on the molecular regulation of myocardin in rat aortic vascular smooth muscle cells. *J Biomed Sci* 20:50, 2013.
237. **Clements ML, Banes AJ, Faber JE.** Effect of mechanical loading on vascular  $\alpha$ 1D- and  $\alpha$ 1B-adrenergic receptor expression. *Hypertension* 29(5):1156-1164, 1997.
238. **Clements ML, Faber JE.** Mechanical load opposes angiotensin-mediated decrease in vascular  $\alpha$ 1-adrenoceptors. *Hypertension* 29(5):1165-1172, 1997.



239. **Colombo A, Guha S, Mackle JN, Cahill PA, Lally C.** Cyclic strain amplitude dictates the growth response of vascular smooth muscle cells in vitro: role in in-stent restenosis and inhibition with a sirolimus drug-eluting stent. *Biomech Model Mechanobiol* 12(4):671-83, 2013.
240. **Cunningham JJ, Linderman JJ, Mooney DJ.** Externally applied cyclic strain regulates localization of focal contact components in cultured smooth muscle cells. *Ann Biomed Eng* 30(7):927-935, 2002.
241. **Dangers M, Kiyon J, Grote K, Schieffer B, Haller H, Dumler I.** Mechanical stress modulates SOCS-1 expression in human vascular smooth muscle cells. *J Vasc Res* 47(5):432-440, 2010.
242. **Davis MG, Ali S, Leikauf GD, Dorn GW 2nd.** Tyrosine kinase inhibition prevents deformation-stimulated vascular smooth muscle growth. *Hypertension* 24(6):706-713, 1994.
243. **Dethlefsen SM, Shepro D, D'Amore PA.** Comparison of the effects of mechanical stimulation on venous and arterial smooth muscle cells in vitro. *J Vasc Res* 33(5):405-413, 1996.
244. **de Waard V, Arkenbout EK, Vos M, Mocking AI, Niessen HW, Stooker W, de Mol BA, Quax PH, Bakker EN, VanBavel E, Pannekoek H, de Vries CJ.** TR3 nuclear orphan receptor prevents cyclic stretch-induced proliferation of venous smooth muscle cells. *Am J Pathol* 168:2027-2035, 2006.
245. **Dinardo CL, Venturini G, Zhou EH, Watanabe IS, Campos LC, Darioli R, da Motta-Leal-Filho JM, Carvalho VM, Cardozo KH, Krieger JE, Alencar AM, Pereira AC.** Variation of mechanical properties and quantitative proteomics of VSMC along the arterial tree. *Am J Physiol Heart Circ Physiol* 306(4):H505-16, 2014.
246. **Eschrich J, Meyer R, Kuk H, Wagner AH, Noppene T, Debus S, Hecker M, Korff T.** Varicose remodeling of veins is suppressed by 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors. *J Am Heart Assoc* 5(2), pii: e002405, 2016.
247. **Faber JE, Yang N, Xin X.** Expression of  $\alpha$ -adrenoceptor subtypes by smooth muscle cells and adventitial fibroblasts in rat aorta and in cell culture. *J Pharmacol Exp Ther* 298(2):441-452, 2001.
248. **Ghosh S, Kollar B, Nahar T, Suresh Babu S, Wojtowicz A, Sticht C, Gretz N, Wagner AH, Korff T, Hecker M.** Loss of the mechanotransducer zyxin promotes a synthetic phenotype of vascular smooth muscle cells. *J Am Heart Assoc* 4(6):e001712, 2015.
249. **Granata A, Serrano F, Bernard WG, McNamara M, Low L, Sastry P, Sinha S.** An iPSC-derived vascular model of Marfan syndrome identifies key mediators of smooth muscle cell death. *Nat Genet* 49(1):97-109, 2017. doi: 10.1038/ng.3723. Epub 2016 Nov 28.
250. **Grote K, Bavendiek U, Grothusen C, Flach I, Hilfiker-Kleiner D, Drexler H, Schieffer B.** Stretch-inducible expression of the angiogenic factor CCN1 in vascular smooth muscle cells is mediated by Egr-1. *J Biol Chem* 279(53):55675-55681, 2004.
251. **Grote K, Flach I, Luchtefeld M, Akin E, Holland SM, Drexler H, Schieffer B.** Mechanical stretch enhances mRNA expression and proenzyme release of matrix metalloproteinase-2 (MMP-2) via NAD(P)H oxidase-derived reactive oxygen species. *Circ Res* 92(11):e80-86, 2003.
252. **Hamada K, Takuwa N, Yokoyama K, Takuwa Y.** Stretch activates Jun N-terminal kinase/stress-activated protein kinase in vascular smooth muscle cells through mechanisms involving autocrine ATP stimulation of purinoceptors. *J Biol Chem* 273(11):6334-6340, 1998.
253. **Han O, Takei T, Basson M, Sumpio BE.** Translocation of PKC isoforms in bovine aortic smooth muscle cells exposed to strain. *J Cell Biochem* 80(3):367-372, 2001.
254. **Hipper A, Isenberg G.** Cyclic mechanical strain decreases the DNA synthesis of vascular smooth muscle cells. *Pflugers Arch* 440(1):19-27, 2000.
255. **Hishikawa K, Omar BS, Yang Z, Luscher TF.** Pulsatile stretch stimulates superoxide production and activates nuclear factor- $\kappa$ B in human coronary smooth muscle. *Circ Res* 81(5):797-803, 1997.
256. **Hitomi H, Fukui T, Moriwaki K, Matsubara K, Sun GP, Rahman M, Nishiyama A, Kiyomoto H, Kimura S, Ohmori K, Abe Y, Kohno M.** Synergistic effect of mechanical stretch and angiotensin II on superoxide production via NADPH oxidase in vascular smooth muscle cells. *J Hypertens* 24(6):1097-1104, 2006.
257. **Hödebeck M, Scherer C, Wagner AH, Hecker M, Korff T.** TonEBP/NFAT5 regulates ACTBL2 expression in biomechanically activated vascular smooth muscle cells. *Front Physiol* 5:467, 2014.
258. **Hoffmann SE, Kuriakose M, Songu-Mize E.** Stretch-induced downregulation of TRPC4 does not decrease capacitative calcium entry in vascular smooth muscle cells [abstract]. *Hypertension* 46:P80, 2005.
259. **Hoffmann SE, Kuriakose M, Songu-Mize E.** Stretch-induced TRPC4 downregulation in RASM cells may be due to changes in intracellular calcium [abstract]. *FASEB J* 20:699.17, 2006.
260. **Howard AB, Alexander RW, Nerem RM, Griendling KK, Taylor WR.** Cyclic strain induces an oxidative stress in endothelial cells. *Am J Physiol Cell Physiol* 272(2):C421-C427, 1997.



261. **Hu B, Song JT, Qu HY, Bi CL, Huang XZ, Liu XX, Zhang M.** Mechanical stretch suppresses microRNA-145 expression by activating extracellular signal-regulated kinase 1/2 and upregulating angiotensin-converting enzyme to alter vascular smooth muscle cell phenotype. *PLoS One* 9(5):e96338, 2014.
262. **Hu Y, Bock G, Wick G, Xu Q.** Activation of PDGF receptor  $\alpha$  in vascular smooth muscle cells by mechanical stress. *FASEB J* 12(12):1135-1142, 1998.
263. **Huang K, Bao H, Yan ZQ, Wang L, Zhang P, Yao QP, Shi Q, Chen XH, Wang KX, Shen BR, Qi YX, Jiang ZL.** MicroRNA-33 protects against neointimal hyperplasia induced by arterial mechanical stretch in the grafted vein. *Cardiovasc Res* 113(5):488-497, 2017.
264. **Iwasaki H, Eguchi S, Ueno H, Marumo F, Hirata Y.** Mechanical stretch stimulates growth of vascular smooth muscle cells via epidermal growth factor receptor. *Am J Physiol Heart Circ Physiol* 278(2):H521-H529, 2000.
265. **Iwasaki H, Yoshimoto T, Sugiyama T, Hirata Y.** Activation of cell adhesion kinase  $\beta$  by mechanical stretch in vascular smooth muscle cells. *Endocrinology* 144(6):2304-2310, 2003.
266. **Jia LX, Zhang WM, Li TT, Liu Y, Piao CM, Ma YC, Lu Y, Wang Y, Liu TT, Qi YF, Du J.** ER stress dependent microparticles derived from smooth muscle cells promote endothelial dysfunction during thoracic aortic aneurysm and dissection. *Clin Sci (Lond)* 131(12):1287-1299, 2017.
267. **Jia LX, Zhang WM, Zhang HJ, Li TT, Wang YL, Qin YW, Gu H, Du J.** Mechanical stretch-induced endoplasmic reticulum stress, apoptosis and inflammation contribute to thoracic aortic aneurysm and dissection. *J Pathol* 236(3):373-83, 2015.
268. **Jiang J, Qi YX, Zhang P, Gu WT, Yan ZQ, Shen BR, Yao QP, Kong H, Chien S, Jiang ZL.** Involvement of Rab28 in NF- $\kappa$ B nuclear transport in endothelial cells. *PLoS One* 8(2):e56076, 2013.
269. **Jiang MJ, Yu YJ, Chen YL, Lee YM, Hung LS.** Cyclic strain stimulates monocyte chemotactic protein-1 mRNA expression in smooth muscle cells. *J Cell Biochem* 76(2):303-310, 2000.
270. **Jiang WJ, Ren WH, Liu XJ, Liu Y, Wu FJ, Sun LZ, Lan F, Du J, Zhang HJ.** Disruption of mechanical stress in extracellular matrix is related to Stanford type A aortic dissection through down-regulation of Yes-associated protein. *Aging (Albany NY)* 8(9):1923-1939, 2016.
271. **Kakisis JD, Pradhan S, Cordova A, Liapis CD, Sumpio BE.** The role of STAT-3 in the mediation of smooth muscle cell response to cyclic strain. *Int J Biochem Cell Biol* 37(7):1396-1406, 2005.
272. **Kawabe J, Okumura S, Lee MC, Sadoshima J, Ishikawa Y.** Translocation of caveolin regulates stretch-induced ERK activity in vascular smooth muscle cells. *Am J Physiol Heart Circ Physiol* 286(5):H1845-1852, 2004.
273. **Kim BS, Nikolovski J, Bonadio J, Mooney DJ.** Cyclic mechanical strain regulates the development of engineered smooth muscle tissue. *Nat Biotech* 17(10):979-983, 1999.
274. **Kogata N, Tribe RM, Fässler R, Way M, Adams RH.** Integrin-linked kinase controls vascular wall formation by negatively regulating Rho/ROCK-mediated vascular smooth muscle cell contraction. *Genes Dev* 23(19):2278-2283, 2009.
275. **Kona S, Chellamuthu P, Xu H, Hills SR, Nguyen KT.** Effects of cyclic strain and growth factors on vascular smooth muscle cell responses. *Open Biomed Eng J* 3:28-38, 2009.
276. **Kozai T, Eto M, Yang Z, Shimokawa H, Luscher TF.** Statins prevent pulsatile stretch-induced proliferation of human saphenous vein smooth muscle cells via inhibition of Rho/Rho-kinase pathway. *Cardiovasc Res* 68(3):475-482, 2005.
277. **Kurpinski K, Park J, Thakar RG, Li S.** Regulation of vascular smooth muscle cells and mesenchymal stem cells by mechanical strain. *Mol Cell Biomech* 3(1):21-34, 2006.
278. **Lee EL, Bendre HH, Kalmykov A, Wong JY.** Surface modification of uniaxial cyclic strain cell culture platform with temperature-responsive polymer for cell sheet detachment. *J Mater Chem B Mater Biol Med* 3(40):7899-7902, 2015.
279. **Li C, Hu Y, Mayr M, Xu Q.** Cyclic strain stress-induced mitogen-activated protein kinase (MAPK) phosphatase 1 expression in vascular smooth muscle cells is regulated by Ras/Rac-MAPK pathways. *J Biol Chem* 274(36):25273-25280, 1999.
280. **Li C, Hu Y, Sturm G, Wick G, Xu Q.** Ras/Rac-Dependent activation of p38 mitogen-activated protein kinases in smooth muscle cells stimulated by cyclic strain stress. *Arterioscler Thromb Vasc Biol* 20(3):E1-E9, 2000.
281. **Li Q, Muragaki Y, Hatamura I, Ueno H, Ooshima A.** Stretch-induced collagen synthesis in cultured smooth muscle cells from rabbit aortic media and a possible involvement of angiotensin II and transforming growth factor- $\beta$ . *J Vasc Res* 35(2):93-103, 1998.



282. **Li W, Chen Q, Mills I, Sumpio BE.** Involvement of S6 kinase and p38 mitogen activated protein kinase pathways in strain-induced alignment and proliferation of bovine aortic smooth muscle cells. *J Cell Physiol* 195(2):202-209, 2003.
283. **Licht AH, Nübel T, Feldner A, Jurisch-Yaksi N, Marcello M, Demicheva E, Hu JH, Hartenstein B, Augustin HG, Hecker M, Angel P, Korff T, Schorpp-Kistner M.** Junb regulates arterial contraction capacity, cellular contractility, and motility via its target Myl9 in mice. *J Clin Invest* 120(7):2307-2318, 2010.
284. **Lindsey-Hoffmann SE, Songu-Mize E.** Cyclic stretch decreases capacitative calcium entry in vascular smooth muscle cells from resistance and conduit vessels [abstract]. *Experimental Biology*, 2007.
285. **Ling S, Deng G, Ives HE, Chatterjee K, Rubanyi GM, Komesaroff PA, Sudhir K.** Estrogen inhibits mechanical strain-induced mitogenesis in human vascular smooth muscle cells via down-regulation of Sp-1. *Cardiovascular Research* 50(1):108-114, 2001.
286. **Liu B, Qu MJ, Qin KR, Li H, Li ZK, Shen BR, Jiang ZL.** Role of cyclic strain frequency in regulating the alignment of vascular smooth muscle cells in vitro. *Biophys J* 94:1497-1507, 2008.
287. **Liu G, Hitomi H, Hosomi N, Lei B, Pelisch N, Nakano D, Kiyomoto H, Ma H, Nishiyama A.** Mechanical stretch potentiates angiotensin II-induced proliferation in spontaneously hypertensive rat vascular smooth muscle cells. *Hypertens Res* 33(12):1250-1257, 2010.
288. **Liu X, Hymel LJ, Songu-Mize E.** Involvement of intracellular Ca<sup>2+</sup> and Na<sup>+</sup> in stretch-regulated Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$  isoform expression in cultured vascular smooth muscle cells [abstract]. *FASEB J* 11:A263, 1526, 1997.
289. **Liu X, Hymel LJ, Songu-Mize E.** Mechanosensitivity of Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$  subunit expression in aortic smooth muscle cells [abstract]. *Biophys J* 70:A348, Tu-Pos 497, 1996.
290. **Liu X, Hymel LJ, Songu-Mize E.** Role of Na<sup>+</sup> and Ca<sup>2+</sup> in stretch-induced Na<sup>+</sup>-K<sup>+</sup>-ATPase  $\alpha$ -subunit regulation in aortic smooth muscle cells. *Am J Physiol Heart Circ Physiol* 274:H83-H89, 1998.
291. **Liu X, Hymel LJ, Songu-Mize E.** Sodium entry through stretch-activated channels mediates upregulation of Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$  isoforms in aortic smooth muscle cells [abstract]. *Hypertension* 30(Part 1):512, P175, 1997.
292. **Lundberg MS, Sadhu DN, Grumman VE, Chilian WM, Ramos KS.** Actin isoform and  $\alpha$ 1B-adrenoceptor gene expression in aortic and coronary smooth muscle is influenced by cyclical stretch. *In Vitro Cell Dev Biol Anim* 31(8):595-600, 1995.
293. **Mantella LE, Quan A, Verma S.** Variability in vascular smooth muscle cell stretch-induced responses in 2D culture. *Vasc Cell* 7:7, 2015
294. **Mayr M, Li C, Zou Y, Huemer U, Hu Y, Xu Q.** Biomechanical stress-induced apoptosis in vein grafts involves p38 mitogen-activated protein kinases. *FASEB J* 14(2):261-270, 2000.
295. **Metzler B, Abia R, Ahmad M, Wernig F, Pachinger O, Hu Y, Xu Q.** Activation of heat shock transcription factor 1 in atherosclerosis. *Am J Pathol* 162(5):1669-1676, 2003.
296. **Mills I, Cohen CR, Kamal K, Li G, Shin T, Du W, Sumpio BE.** Strain activation of bovine aortic smooth muscle cell proliferation and alignment: study of strain dependency and the role of protein kinase A and C signaling pathways. *J Cell Physiol* 170(3):228-34, 1997.
297. **Mills I, Murata K, Packer CS, Sumpio BE.** Cyclic strain stimulates dephosphorylation of the 20kDa regulatory myosin light chain in vascular smooth muscle cells. *Biochem Biophys Res Commun* 205(1):79-84, 1994. Erratum in: *Biochem Biophys Res Commun* 207(3):1058, 1995.
298. **Mohanty MJ, Li X.** Stretch-induced Ca<sup>2+</sup> release via an IP<sub>3</sub>-insensitive Ca<sup>2+</sup> channel. *Am J Physiol Cell Physiol* 283(2):C456-C462, 2002.
299. **Molostvov G, Hiemstra TF, Fletcher S, Bland R, Zehnder D.** Arterial expression of the calcium-sensing receptor is maintained by physiological pulsation and protects against calcification. *PLoS One* 10(10):e0138833, 2015.
300. **Morawietz H, Ma YH, Vives F, Wilson E, Sukhatme VP, Holtz J, Ives HE.** Rapid induction and translocation of Egr-1 in response to mechanical strain in vascular smooth muscle cells. *Circ Res* 84(6):678-687, 1999.
301. **Morrow D, Scheller A, Birney YA, Sweeney C, Guha S, Cummins PM, Murphy R, Walls D, Redmond EM, Cahill PA.** Notch-mediated CBF-1/RBP-J $\kappa$ -dependent regulation of human vascular smooth muscle cell phenotype in vitro. *Am J Physiol Cell Physiol* 289(5):C1188-C1196, 2005.
302. **Morrow D, Sweeney C, Birney YA, Cummins PM, Walls D, Redmond EM, Cahill PA.** Cyclic strain inhibits Notch receptor signaling in vascular smooth muscle cells in vitro. *Circ Res* 96(5):567-575, 2005.



303. **Morrow D, Sweeney C, Birney YA, Guha S, Collins N, Cummins PM, Murphy R, Walls D, Redmond EM, Cahill PA.** Biomechanical regulation of hedgehog signaling in vascular smooth muscle cells in vitro and in vivo. *Am J Physiol Cell Physiol* 292(1):C488-C496, 2007.
304. **Noda M, Katoh T, Takuwa N, Kumada M, Kurokawa K, Takuwa Y.** Synergistic stimulation of parathyroid hormone-related peptide gene expression by mechanical stretch and angiotensin II in rat aortic smooth muscle cells. *J Biol Chem* 269(27):17911-17917, 1994.
305. **Noda M, Takuwa Y, Katoh T, Kurokawa K.** Stretch-induced parathyroid hormone-related peptide gene expression: implication in the regulation of myogenic tone. *Curr Opin Nephrol Hypertens* 4(5):383-387, 1995.
306. **Numaguchi K, Eguchi S, Yamakawa T, Motley ED, Inagami T.** Mechanotransduction of rat aortic vascular smooth muscle cells requires RhoA and intact actin filaments. *Circ Res* 85(1):5-11, 1999.
307. **O'Callaghan CJ, Williams B.** Mechanical strain-induced extracellular matrix production by human vascular smooth muscle cells: role of TGF- $\beta$ 1. *Hypertension* 36(3):319-324, 2000.
308. **Pfisterer L, Feldner A, Hecker M, Korff T.** Hypertension impairs myocardium function: a novel mechanism facilitating arterial remodelling. *Cardiovasc Res* 96(1):120-9, 2012.
309. **Ping S, Li Y, Liu S, Zhang Z, Wang J, Zhou Y, Liu K, Huang J, Chen D, Wang J, Li C.** Simultaneous increases in proliferation and apoptosis of vascular smooth muscle cells accelerate diabetic mouse venous atherosclerosis. *PLoS One* 10(10):e0141375, 2015.
310. **Putnam AJ, Cunningham JJ, Dennis RG, Linderman JJ, Mooney DJ.** Microtubule assembly is regulated by externally applied strain in cultured smooth muscle cells. *J Cell Sci* 111(Pt 22):3379-3387, 1998.
311. **Pyle AL, Atkinson JB, Pozzi A, Reese J, Eckes B, Davidson JM, Crimmins DL, Young PP.** Regulation of the atheroma-enriched protein, SPRR3, in vascular smooth muscle cells through cyclic strain is dependent on integrin  $\alpha$ 1 $\beta$ 1/collagen interaction. *Am J Pathol* 173(5):1577-1588, 2008.
312. **Qi YX, Yao QP, Huang K, Shi Q, Zhang P, Wang GL, Han Y, Bao H, Wang L, Li HP, Shen BR, Wang Y, Chien S, Jiang ZL.** Nuclear envelope proteins modulate proliferation of vascular smooth muscle cells during cyclic stretch application. *Proc Natl Acad Sci U S A* 113(19):5293-8, 2016.
313. **Qu M, Liu B, Jiang Z.** Effect of frequency of cyclic tensile strain on extracellular matrix of rat vascular smooth muscle cells in vitro. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi* 25(4):826-830, 2008.
314. **Qu MJ, Liu B, Qi YX, Jiang ZL.** Role of Rac and Rho-GDI  $\alpha$  in the frequency-dependent expression of h1-calponin in vascular smooth muscle cells under cyclic mechanical strain. *Ann Biomed Eng* 36(9):1481-1488, 2008.
315. **Qu MJ, Liu B, Wang HQ, Yan ZQ, Shen BR, Jiang ZL.** Frequency-dependent phenotype modulation of vascular smooth muscle cells under cyclic mechanical strain. *J Vasc Res* 44(5):345-353, 2007.
316. **Rakugi H, Yu H, Kamitani A, Nakamura Y, Ohishi M, Kamide K, Nakata Y, Takami S, Higaki J, Ogihara T.** Links between hypertension and myocardial infarction. *American Heart Journal* 132(1 Pt 2 Su):213-221, 1996.
317. **Regnault V, Perret-Guillaume C, Kearney-Schwartz A, Max JP, Labat C, Louis H, Wahl D, Pannier B, Lecompte T, Weryha G, Challande P, Safar ME, Benetos A, Lacolley P.** Tissue factor pathway inhibitor: a new link among arterial stiffness, pulse pressure, and coagulation in postmenopausal women. *Arterioscler Thromb Vasc Biol* 31(5):1226-1232, 2011.
318. **Reusch P, Wagdy H, Reusch R, Wilson E, Ives HE.** Mechanical strain increases smooth muscle and decreases nonmuscle myosin expression in rat vascular smooth muscle cells. *Circ Res* 79(5):1046-1053, 1996.
319. **Reyna SV, Ensenat D, Johnson FK, Wang H, Schafer AI, Durante W.** Cyclic strain stimulates L-proline transport in vascular smooth muscle cells. *American Journal of Hypertension* 17(8):712-717, 2004.
320. **Richard MN, Deniset JF, Kneesh AL, Blackwood D, Pierce GN.** Mechanical stretching stimulates smooth muscle cell growth, nuclear protein import, and nuclear pore expression through mitogen-activated protein kinase activation. *J Biol Chem* 282(32):23081-23088, 2007.
321. **Ruiz-Velasco V, Mayer MB, Hymel LJ.** Dihydropyridine-sensitive  $\text{Ca}^{2+}$  influx modulated by stretch in A7r5 vascular smooth muscle cells. *European Journal of Pharmacology* 296(3):327-334, 1996.
322. **Schad JF, Meltzer KR, Hicks MR, Beutler DS, Cao TV, Standley PR.** Cyclic strain upregulates VEGF and attenuates proliferation of vascular smooth muscle cells. *Vasc Cell* 3:21, 2011.
323. **Scherer C, Pfisterer L, Wagner AH, Hödebeck M, Cattaruzza M, Hecker M, Korff T.** Arterial wall stress controls NFAT5 activity in vascular smooth muscle cells. *J Am Heart Assoc* 3(2):e000626, 2014.
324. **Sedding DG, Hermsen J, Seay U, Eickelberg O, Kummer W, Schwencke C, Strasser RH, Tillmanns H, Braun-Dullaeus RC.** Caveolin-1 facilitates mechanosensitive protein kinase B (Akt) signaling in vitro and in vivo. *Circ Res* 96(6):635-642, 2005.





325. **Sedding DG, Homann M, Seay U, Tillmanns H, Preissner KT, Braun-Dullaeus RC.** Calpain counteracts mechanosensitive apoptosis of vascular smooth muscle cells in vitro and in vivo. *FASEB J* 22(2):579-589, 2008.
326. **Sedding DG, Widmer-Teske R, Mueller A, Stieger P, Daniel JM, Gündüz D, Pullamsetti S, Nef H, Moellmann H, Troidl C, Hamm C, Braun-Dullaeus R.** Role of the phosphatase PTEN in early vascular remodeling. *PLoS One* 8(3):e55445, 2013.
327. **Seo KW, Lee SJ, Kim YH, Bae JU, Park SY, Bae SS, Kim CD.** Mechanical stretch increases MMP-2 production in vascular smooth muscle cells via activation of PDGFR- $\beta$ /Akt signaling pathway. *PLoS One* 8(8):e70437, 2013.
328. **Sevieux N, Alam J, Songu-Mize E.** Effect of cyclic stretch on  $\alpha$ -subunit mRNA expression of Na<sup>+</sup>-K<sup>+</sup>-ATPase in aortic smooth muscle cells. *Am J Physiol Cell Physiol* 280(6):C1555-C1560, 2001.
329. **Sevieux N, Alam J, Songu-Mize E.** Effect of cyclic stretch on transcriptional regulation of the  $\alpha$  subunits of Na<sup>+</sup>, K<sup>+</sup>-ATPase in aortic smooth muscle cells [abstract]. *FASEB J* 14:A331, 272.5, 2000.
330. **Sevieux N, Alam J, Wiltse S, Songu-Mize E.** Expression of the  $\alpha$  subunit mRNA of Na<sup>+</sup>, K<sup>+</sup>-ATPase in response to cyclic stretch in aortic smooth muscle cells [abstract]. *FASEB J* 13:351.4, 1999.
331. **Sevieux N, Ark M, Hornick C, Songu-Mize E.** Short-term stretch translocates the  $\alpha$ -1-subunit of the Na pump to plasma membrane. *Cell Biochem Biophys* 38(1):23-32, 2003.
332. **Shah MR, Wedgwood S, Czech L, Kim GA, Lakshminrusimha S, Schumacker PT, Steinhorn RH, Farrow KN.** Cyclic stretch induces inducible nitric oxide synthase and soluble guanylate cyclase in pulmonary artery smooth muscle cells. *Int J Mol Sci* 14(2):4334-48, 2013.
333. **Shyu KG, Chao YM, Wang BW, Kuan P.** Regulation of discoidin domain receptor 2 by cyclic mechanical stretch in cultured rat vascular smooth muscle cells. *Hypertension* 46(3):614-621, 2005.
334. **Shyu KG, Wang BW, Kuan P, Chang H.** RNA interference for discoidin domain receptor 2 attenuates neointimal formation in balloon injured rat carotid artery. *Arterioscler Thromb Vasc Biol* 28(8):1447-1453, 2008.
335. **Songu-Mize E, Jacobs M, Shreves A.** Acute cyclic stretch induces upregulation of the Na-pump of aortic smooth muscle cells in culture by cytoplasmic translocation [abstract]. *FASEB J* 13:351.5, 1999.
336. **Songu-Mize E, Jacobs M.** Effect of cyclic in vitro stretch on aortic smooth muscle cell p42 and p44 mitogen activated kinases [abstract]. *FASEB J* 12(Part I):A403, 2342, 1998.
337. **Songu-Mize E, Liu X, Hymel LJ.** Effect of mechanical strain on expression of Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$  subunits in rat aortic smooth muscle cells. *Amer J Med Sci* 316(3):196-199, 1998.
338. **Songu-Mize E, Liu X, Stones JE, Hymel LJ.** Regulation of Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$ -subunit expression by mechanical strain in aortic smooth muscle cells. *Hypertension* 27:827-832, 1996.
339. **Songu-Mize E, Liu X.** Effect of cyclic mechanical strain on expression of Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$  subunits in rat aortic smooth muscle cells [abstract]. *Cellular Deformation: Mechanics and Mechanisms of Physiological Response Meeting*, Atlanta GA, October 1997.
340. **Songu-Mize E, Sevieux N, Liu X, Jacobs M.** Effect of short-term cyclic stretch on sodium pump activity in aortic smooth muscle cells. *Amer J Physiol Heart Circ Physiol* 281:H2072-H2078, 2001.
341. **Standley PR, Camaratta A, Nolan BP, Purgason CT, Stanley MA.** Cyclic stretch induces vascular smooth muscle cell alignment via NO signaling. *Am J Physiol Heart Circ Physiol* 283(5):H1907-H1914, 2002.
342. **Standley PR, Obards TJ, Martina CL.** Cyclic stretch regulates autocrine IGF-I in vascular smooth muscle cells: implications in vascular hyperplasia. *Am J Physiol Endocrinol Metab* 276:E697-E705, 1999.
343. **Standley PR, Stanley MA, Senechal P.** Activation of mitogenic and antimitogenic pathways in cyclically stretched arterial smooth muscle. *Am J Physiol Endocrinol Metab* 281(6):E1165-E1171, 2001.
344. **Stanley AG, Knight AL, Williams B.** Mechanical strain sensitizes human vascular smooth muscle cells to angiotensin II. *American Journal of Hypertension* 13(4 Suppl 1):S12, 2000.
345. **Stanley AG, Patel H, Knight AL, Williams B.** Mechanical strain-induced human vascular matrix synthesis: the role of angiotensin II. *J Renin Angiotensin Aldosterone Syst* 1(1):32-35, 2000.
346. **Stones J, Liu X, Hymel L, Songu-Mize E.** Upregulation of Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\alpha$ -1 subunit in aortic smooth muscle cells stretched in culture [abstract]. *Hypertension* 26:578, P158, 1995.
347. **Su BY, Shontz KM, Flavahan NA, Nowicki PT.** The effect of phenotype on mechanical stretch-induced vascular smooth muscle cell apoptosis. *J Vasc Res* 43(3):229-237, 2006.
348. **Sumpio BE, Banes AJ, Link WG, Johnson G Jr.** Enhanced collagen production by smooth muscle cells during repetitive mechanical stretching. *Arch Surg* 123(10):1233-1236, 1988.



349. **Sumpio BE, Banes AJ.** Response of porcine aortic smooth muscle cells to cyclic tensional deformation in culture. *J Surg Res* 44(6):696-701, 1988.
350. **Tamura K, Chen YE, Lopez-Illasaca M, Daviet L, Tamura N, Ishigami T, Akishita M, Takasaki I, Tokita Y, Pratt RE, Horiuchi M, Dzau VJ, and Umemura S.** Molecular mechanism of fibronectin gene activation by cyclic stretch in vascular smooth muscle cells. *J Biol Chem* 275(44):34619-34627, 2000.
351. **Tan W, Scott D, Belchenko D, Qi HJ, Xiao L.** Development and evaluation of microdevices for studying anisotropic biaxial cyclic stretch on cells. *Biomed Microdevices* 10(6):869-882, 2008.
352. **Tock J, Van Putten V, Stenmark KR, Nemenoff RA.** Induction of SM- $\alpha$ -actin expression by mechanical strain in adult vascular smooth muscle cells is mediated through activation of JNK and p38 MAP kinase. *Biochem Biophys Res Commun* 301(4):1116-1121, 2003.
353. **van Wamel AJ, Ruwhof C, van der Valk-Kokshoom LE, Schrier PI, van der Laarse A.** The role of angiotensin II, endothelin-1 and transforming growth factor- $\beta$  as autocrine/paracrine mediators of stretch-induced cardiomyocyte hypertrophy. *Mol Cell Biochem* 218(1-2):113-124, 2001.
354. **van Wamel AJ, Ruwhof C, van der Valk-Kokshoorn LJ, Schrier PI, van der Laarse A.** Stretch-induced paracrine hypertrophic stimuli increase TGF- $\beta$ 1 expression in cardiomyocytes. *Mol Cell Biochem* 236(1-2):147-153, 2002.
355. **von Offenberg Sweeney N, Cummins PM, Birney YA, Redmond EM, Cahill PA.** Cyclic strain-induced endothelial MMP-2: role in vascular smooth muscle cell migration. *Biochemical and Biophysical Research Communications* 320:325-333, 2004.
356. **Walker-Caprioglio HM, Hunter DD, McGuire PG, Little SA, McGuffee LJ.** Composition in situ and in vitro of vascular smooth muscle laminin in the rat. *Cell Tissue Res* 281(1):187-196, 1995.
357. **Wedgwood S, Lakshminrusimha S, Schumacker PT, Steinhorn RH.** Hypoxia inducible factor signaling and experimental persistent pulmonary hypertension of the newborn. *Front Pharmacol* 6:47, 2015.
358. **Wernig F, Mayr M, Xu Q.** Mechanical stretch-induced apoptosis in smooth muscle cells is mediated by  $\beta$ 1-integrin signaling pathways. *Hypertension* 41(4):903-911, 2003.
359. **Wiersbitzky M, Mills I, Sumpio BE, Gewirtz H.** Chronic cyclic strain reduces adenylate cyclase activity and stimulatory G protein subunit levels in coronary smooth muscle cells. *Exp Cell Res* 210(1):52-55, 1994.
360. **Wilson E, Mai Q, Sudhir K, Weiss RH, Ives HE.** Mechanical strain induces growth of vascular smooth muscle cells via autocrine action of PDGF. *J Cell Biol* 123(3):741-747, 1993.
361. **Wilson E, Vives F, Collins T, Ives HE.** Strain-responsive regions in the platelet-derived growth factor-A gene promoter. *Hypertension* 31(1 Pt 2):170-175, 1998.
362. **Yang Z, Noll G, Luscher TF.** Calcium antagonists differently inhibit proliferation of human coronary smooth muscle cells in response to pulsatile stretch and platelet-derived growth factor. *Circulation* 88:832-836, 1993.
363. **Yao QP, Xie ZW, Wang KX, Zhang P, Han Y, Qi YX, Jiang ZL.** Profiles of long noncoding RNAs in hypertensive rats: long noncoding RNA XR007793 regulates cyclic strain-induced proliferation and migration of vascular smooth muscle cells. *J Hypertens* 35(6):1195-1203, 2017.
364. **Yao QP, Zhang P, Qi YX, Chen SG, Shen BR, Han Y, Yan ZQ, Jiang ZL.** The role of SIRT6 in the differentiation of vascular smooth muscle cells in response to cyclic strain. *Int J Biochem Cell Biol* 49:98-104, 2014.
365. **Zampetaki A, Zhang Z, Hu Y, Xu Q.** Biomechanical stress induces IL-6 expression in smooth muscle cells via Ras/Rac1-p38 MAPK-NF- $\kappa$ B signaling pathways. *Am J Physiol Heart Circ Physiol* 288(6):H2946-H2954, 2005.

#### OTHER CARDIOVASCULAR CELLS

366. **Balguid A, Rubbens MP, Mol A, Bank RA, Bogers AJ, van Kats JP, de Mol BA, Baaijens FP, Bouten CV.** The role of collagen cross-links in biomechanical behavior of human aortic heart valve leaflets - relevance for tissue engineering. *Tissue Eng* 13(7):1501-1511, 2007.
367. **Ballotta V, Driessen-Mol A, Bouten CV, Baaijens FP.** Strain-dependent modulation of macrophage polarization within scaffolds. *Biomaterials* 35(18):4919-28, 2014.
368. **Boerboom RA, Rubbens MP, Driessen NJ, Bouten CV, Baaijens FP.** Effect of strain magnitude on the tissue properties of engineered cardiovascular constructs. *Annals of Biomedical Engineering* 36(2):244-253, 2008.



369. **Clause KC, Tinney JP, Liu JL, Keller BB, Huard J, Tobita K.** p38MAP-kinase regulates cardiomyocyte proliferation and contractile properties of engineered early embryonic cardiac tissue [abstract]. *Weinstein Cardiovascular Development Research Conference*, Indianapolis, IN, 2007.
370. **Clause KC, Tinney JP, Liu LJ, Keller BB, Tobita K.** Engineered early embryonic cardiac tissue increases cardiomyocyte proliferation by cyclic mechanical stretch via p38-MAP kinase phosphorylation. *Tissue Engineering Part A* 15(6):1373-1380, 2009.
371. **Fisher CI, Chen J, Merryman WD.** Calcific nodule morphogenesis by heart valve interstitial cells is strain dependent. *Biomech Model Mechanobiol* 12(1):5-17, 2013.
372. **Foolen J, Baaijens F.** Stress-fiber remodeling in 3D: 'contact guidance vs stretch avoidance.' *J Biomech* 45(Suppl 1):S422, 2012.
373. **French KM, Maxwell JT, Bhutani S, Ghosh-Choudhary S, Fierro MJ, Johnson TD, Christman KL, Taylor WR, Davis ME.** Fibronectin and cyclic strain improve cardiac progenitor cell regenerative potential in vitro. *Stem Cells Int* 2016:8364382, 2016.
374. **Gupta V, Grande-Allen KJ.** Effects of static and cyclic loading in regulating extracellular matrix synthesis by cardiovascular cells. *Cardiovasc Res* 72(3):375-383, 2006.
375. **Hutcheson JD, Chen J, Sewell-Loftin MK, Ryzhova LM, Fisher CI, Su YR, Merryman WD.** Cadherin-11 regulates cell-cell tension necessary for calcific nodule formation by valvular myofibroblasts. *Arterioscler Thromb Vasc Biol* 33(1):114-20, 2013.
376. **Hutcheson JD, Venkataraman R, Baudenbacher FJ, Merryman WD.** Intracellular Ca(2+) accumulation is strain-dependent and correlates with apoptosis in aortic valve fibroblasts. *J Biomech* 45(5):888-94, 2012.
377. **Kapur NK, Deming CB, Kapur S, Bian C, Champion HC, Donahue JK, Kass DA, Rade JJ.** Hemodynamic modulation of endocardial thromboresistance. *Circulation* 115(1):67-75, 2007.
378. **Carrion K, Dyo J, Patel V, Sasik R, Mohamed SA, Hardiman G, Nigam V.** The long non-coding HOTAIR is modulated by cyclic stretch and WNT/ $\beta$ -CATENIN in human aortic valve cells and is a novel repressor of calcification genes. *PLoS One* 9(5):e96577, 2014.
379. **Klein G, Schaefer A, Hilfiker-Kleiner D, Oppermann D, Shukla P, Quint A, Podewski E, Hilfiker A, Schroder F, Leitges M, Drexler H.** Increased collagen deposition and diastolic dysfunction but preserved myocardial hypertrophy after pressure overload in mice lacking PKC $\epsilon$ . *Circ Res* 96(7):748-755, 2005.
380. **Krishnamurthy VK, Stout AJ, Sapp MC, Matuska B, Lauer ME, Grande-Allen KJ.** Dysregulation of hyaluronan homeostasis during aortic valve disease. *Matrix Biol* 62:40-57, 2017.
381. **Ku CH, Johnson PH, Batten P, Sarathchandra P, Chambers RC, Taylor PM, Yacoub MH, Chester AH.** Collagen synthesis by mesenchymal stem cells and aortic valve interstitial cells in response to mechanical stretch. *Cardiovasc Res* 71(3):548-556, 2006.
382. **Patel V, Carrion K, Hollands A, Hinton A, Gallegos T, Dyo J, Sasik R, Leire E, Hardiman G, Mohamed SA, Nigam S, King CC, Nizet V, Nigam V.** The stretch responsive microRNA miR-148a-3p is a novel repressor of IKK $\beta$ , NF- $\kappa$ B signaling, and inflammatory gene expression in human aortic valve cells. *FASEB J* 29(5):1859-68, 2015.
383. **Rakesh K, Yoo B, Kim IM, Salazar N, Kim KS, Rockman HA.**  $\beta$ -Arrestin-biased agonism of the angiotensin receptor induced by mechanical stress. *Sci Signal* 3(125):ra46, 2010.
384. **Tamiello C, Bouten CV, Baaijens FP.** Competition between cap and basal actin fiber orientation in cells subjected to contact guidance and cyclic strain. *Sci Rep* 5:8752, 2015.
385. **Throm Quinlan AM, Sierad LN, Capulli AK, Firstenberg LE, Billiar KL.** Combining dynamic stretch and tunable stiffness to probe cell mechanobiology in vitro. *PLoS ONE* 6(8):e23272, 2011.
386. **Tobita K, Garrison JB, Keller BB.** Differential effects of cyclic stretch on embryonic ventricular cardiomyocyte and non-cardiomyocyte orientation. In: *Cardiovascular Development and Congenital Malformations: Molecular & Genetic Mechanisms*, Edited by Artman M, Benson DW, Srivastava D, Nakazawa M. Blackwell Futura Publishing:177-179, 2005.
387. **Tobita K, Liu LJ, Janczewski AM, Tinney JP, Nonemaker JM, Augustine S, Stolz DB, Shroff SG, Keller BB.** Engineered early embryonic cardiac tissue retains proliferative and contractile properties of developing embryonic myocardium. *Am J Physiol Heart Circ Physiol* 291(4):H1829-37, 2006.
388. **van Geemen D, Driessen-Mol A, Baaijens FP, Bouten CV.** Understanding strain-induced collagen matrix development in engineered cardiovascular tissues from gene expression profiles. *Cell Tissue Res* 352(3):727-37, 2013.
389. **Ye F, Yuan F, Li X, Cooper N, Tinney JP, Keller BB.** Gene expression profiles in engineered cardiac tissues respond to mechanical loading and inhibition of tyrosine kinases. *Physiol Rep* 1(5):e00078, 2013.

**CARTILAGE****ARTICULAR CHONDROCYTES**

1. **Agarwal S, Deschner J, Long P, Verma A, Hofman C, Evans CH, Piesco N.** Role of NF- $\kappa$ B transcription factors in antiinflammatory and proinflammatory actions of mechanical signals. *Arthritis Rheum* 50(11):3541-3548, 2004.
2. **Al-Sabah A, Stadnik P, Gilbert SJ, Duance VC, Blain EJ.** Importance of reference gene selection for articular cartilage mechanobiology studies. *Osteoarthritis Cartilage* 24(4):719-30, 2016.
3. **Beckmann R, Houben A, Tohidnezhad M, Kweider N, Fragoulis A, Wruck CJ, Brandenburg LO, Hermanns-Sachweh B, Goldring MB, Pufe T, Jahr H.** Mechanical forces induce changes in VEGF and VEGFR-1/sFlt-1 expression in human chondrocytes. *Int J Mol Sci* 15(9):15456-74, 2014.
4. **Bleuel J, Zaucke F, Brüggemann GP, Niehoff A.** Effects of cyclic tensile strain on chondrocyte metabolism: a systematic review. *PLoS One* 10(3):e0119816, 2015.
5. **Carvalho RS, Yen EH, Suga DM.** Glycosaminoglycan synthesis in the rat articular disk in response to mechanical stress. *American Journal of Orthodontics & Dentofacial Orthopedics* 107(4):401-410, 1995.
6. **Chen C, Wei X, Lv Z, Sun X, Wang S, Zhang Y, Jiao Q, Wang X, Li Y, Wei L.** Cyclic equibiaxial tensile strain alters gene expression of chondrocytes via histone deacetylase 4 shuttling. *PLoS One* 11(5):e0154951, 2016.
7. **Chen K, Yan Y, Li C, Yuan J, Wang F, Huang P, Qian N, Qi J, Zhou H, Zhou Q, Deng L, He C, Guo L.** Increased 15-lipoxygenase-1 expression in chondrocytes contributes to the pathogenesis of osteoarthritis. *Cell Death Dis* 8(10):e3109, 2017. doi: 10.1038/cddis.2017.511.
8. **Doi H, Nishida K, Yorimitsu M, Komiyama T, Kadota Y, Tetsunaga T, Yoshida A, Kubota S, Takigawa M, Ozaki T.** Interleukin-4 downregulates the cyclic tensile stress-induced matrix metalloproteinases-13 and cathepsin B expression by rat normal chondrocytes. *Acta Med Okayama* 62(2):119-126, 2008.
9. **Dossumbekova A, Anghelina M, Madhavan S, He L, Quan N, Knobloch T, Agarwal S.** Biomechanical signals inhibit IKK activity to attenuate NF- $\kappa$ B transcriptional activity in inflamed chondrocytes. *Arthritis Rheum* 56(10):3284–3296, 2007.
10. **Fujisawa T, Hattori T, Takahashi K, Kuboki T, Yamashita A, Takigawa M.** Cyclic mechanical stress induces extracellular matrix degradation in cultured chondrocytes via gene expression of matrix metalloproteinases and interleukin-1. *J Biochem* 125(5):966-975, 1999.
11. **Fukuda K, Asada S, Kumano F, Saitoh M, Otani K, Tanaka S.** Cyclic tensile stretch on bovine articular chondrocytes inhibits protein kinase C activity. *Journal of Laboratory and Clinical Medicine* 130(2):209-215, 1997.
12. **Gassner R, Buckley MJ, Georgescu H, Studer R, Stefanovich-Racic M, Piesco NP, Evans CH, Agarwal S.** Cyclic tensile stress exerts antiinflammatory actions on chondrocytes by inhibiting inducible nitric oxide synthase. *The Journal of Immunology* 163:2187–2192, 1999.
13. **Gassner R, Buckley MJ, Piesco N, Evans C, Agarwal S.** Cytokine-induced nitric oxide production of joint cartilage cells in continuous passive movement. Anti-inflammatory effect of continuous passive movement on chondrocytes: in vitro study. *Mund Kiefer Gesichtschir* 4(Suppl 2):S479-S484, 2000.
14. **Gassner RJ, Buckley MJ, Studer RK, Evans CH, Agarwal S.** Interaction of strain and interleukin-1 in articular cartilage: effects on proteoglycan synthesis in chondrocytes. *International Journal of Oral & Maxillofacial Surgery* 29(5):389-394, 2000.
15. **Hdud IM, Mobasheri A, Loughna PT.** Effects of cyclic equibiaxial mechanical stretch on  $\alpha$ -BK and TRPV4 expression in equine chondrocytes. *Springerplus* 3:59, 2014.
16. **Holmvall K, Camper L, Johansson S, Kimura JH, Lundgren-Akerlund E.** Chondrocyte and chondrosarcoma cell integrins with affinity for collagen type II and their response to mechanical stress. *Exp Cell Res* 221(2):496-503, 1995.
17. **Honda K, Ohno S, Tanimoto K, Ijuin C, Tanaka N, Doi T, Kato Y, Tanne K.** The effects of high magnitude cyclic tensile load on cartilage matrix metabolism in cultured chondrocytes. *Eur J Cell Biol* 79(9):601-609, 2000.
18. **Huang J, Ballou LR, Hasty KA.** Cyclic equibiaxial tensile strain induces both anabolic and catabolic responses in articular chondrocytes. *Gene* 404:101–109, 2007.
19. **Huang J, Eckstein E, Hasty KA.** Increased production of MMP-2 induced by cyclic tensile strain from porcine articular chondrocytes is not suppressed by iNOS and COX inhibitors [abstract]. *Transactions of the 51st Annual Meeting Orthopaedic Research Society* 30:1468, 2005.



20. **Huang J, Rho JY, Eckstein E, Hasty KA.** Cyclic tension stress on porcine articular chondrocytes increases the production of nitric oxide and prostaglandin E2 in a coordinated manner [abstract]. *Transactions of the 50th Annual Meeting Orthopaedic Research Society* 29:825, 2004.
21. **Huang J, Rho JY, Hasty KA.** Cyclic tension stress regulates the metabolism of articular chondrocytes via different pathways [abstract]. *Transactions of the 49th Annual Meeting Orthopaedic Research Society* 28:640, 2003.
22. **Imoto S, Watanabe S, Takahashi T, Shimizu A, Yamamoto H.** The influence of Celecoxib on matrix synthesis by chondrocytes under mechanical stress in vitro. *Int J Mol Med* 16(6):1083-1088, 2005.
23. **Kawakita K, Nishiyama T, Fujishiro T, Hayashi S, Kanzaki N, Hashimoto S, Takebe K, Iwasa K, Sakata S, Nishida K, Kuroda R, Kurosaka M.** Akt phosphorylation in human chondrocytes is regulated by p53R2 in response to mechanical stress. *Osteoarthritis Cartilage* 20(12):1603-9, 2012.
24. **Lahiji K, Polotsky A, Hungerford DS, Frondoza CG.** Cyclic strain stimulates proliferative capacity,  $\alpha 2$  and  $\alpha 5$  integrin, gene marker expression by human articular chondrocytes propagated on flexible silicone membranes. *In Vitro Cell Dev Biol Anim* 40(5-6):138-142, 2004.
25. **Li XF, Zhang Z, Chen ZK, Cui ZW, Zhang HN.** Piezo1 protein induces the apoptosis of human osteoarthritis-derived chondrocytes by activating caspase-12, the signaling marker of ER stress. *Int J Mol Med* 40(3):845-853, 2017.
26. **Liu Q, Hu X, Zhang X, Dai L, Duan X, Zhou C, Ao Y.** The TMSB4 pseudogene LncRNA functions as a competing endogenous RNA to promote cartilage degradation in human osteoarthritis. *Mol Ther* 24(10):1726-1733, 2016.
27. **Liu Q, Hu X, Zhang X, Duan X, Yang P, Zhao F, Ao Y.** Effects of mechanical stress on chondrocyte phenotype and chondrocyte extracellular matrix expression. *Sci Rep* 6:37268, 2016.
28. **Liu Q, Zhang X, Hu X, Yuan L, Cheng J, Jiang Y, Ao Y.** Emerging roles of circRNA related to the mechanical stress in human cartilage degradation of osteoarthritis. *Mol Ther Nucleic Acids* 7:223-230, 2017.
29. **Long P, Gassner R, Agarwal S.** Tumor necrosis factor  $\alpha$ -dependent proinflammatory gene induction is inhibited by cyclic tensile strain in articular chondrocytes in vitro. *Arthritis Rheum* 44(10):2311-9, 2001.
30. **Madhavan S, Anghelina M, Rath-Deschner B, Wypasek E, John A, Deschner J, Piesco N, Agarwal S.** Biomechanical signals exert sustained attenuation of proinflammatory gene induction in articular chondrocytes. *Osteoarthritis Cartilage* 14(10):1023-32, 2006.
31. **Marques MR, Hajjar D, Franchini KG, Moriscot AS, Santos MF.** Mandibular appliance modulates condylar growth through integrins. *J Dent Res* 87(2):153-158, 2008.
32. **Matsukawa M, Fukuda K, Yamasaki K, Yoshida K, Munakata H, Hamanishi C.** Enhancement of nitric oxide and proteoglycan synthesis due to cyclic tensile strain loaded on chondrocytes attached to fibronectin. *Inflamm Res* 53(6):239-44, 2004.
33. **Matsushita T, Fukuda K, Yamamoto H, Yamazaki K, Tomiyama T, Oh M, Hamanishi C.** Effect of ebselen, a scavenger of reactive oxygen species, on chondrocyte metabolism. *Mod Rheumatol* 14(1):25-30, 2004.
34. **Nishida K, Doi H, Shimizu A, Yorimitsu M, Takigawa M, Inoue H.** The role of IL-4 in the control of mechanical stress-induced inflammatory mediators by rat chondrocytes [abstract]. *Arthritis Res Ther* 5(Suppl 3):57, 2003.
35. **Rath B, Springorum HR, Deschner J, Luring C, Tingart M, Grifka J, Schaumburger J, Grassel S.** Regulation of gene expression in articular cells is influenced by biomechanical loading. *Central European Journal of Medicine* 2012, doi: 10.2478/s11536-012-0008-x.
36. **Shelton JC, Bader DL, Lee DA.** Mechanical conditioning influences the metabolic response of cell-seeded constructs. *Cells Tissues Organs* 175(3):140-150, 2003.
37. **Shimizu A, Watanabe S, Imoto S, Yamamoto H.** Interleukin-4 protects matrix synthesis in chondrocytes under excessive mechanical stress in vitro. *Modern Rheumatology* 14(4):296-300, 2004.
38. **Su SC, Tanimoto K, Tanne Y, Kunimatsu R, Hirose N, Mitsuyoshi T, Okamoto Y, Tanne K.** Celecoxib exerts protective effects on extracellular matrix metabolism of mandibular condylar chondrocytes under excessive mechanical stress. *Osteoarthritis Cartilage* 22(6):845-51, 2014.
39. **Tanaka S, Hamanishi C, Kikuchi H, Fukuda K.** Factors related to degradation of articular cartilage in osteoarthritis: a review. *Semin Arthritis Rheum* 27(6):392-399, 1998.
40. **Thomas RS, Clarke AR, Duance VC, Blain EJ.** Effects of Wnt3A and mechanical load on cartilage chondrocyte homeostasis. *Arthritis Res Ther* 13(6):R203, 2011.



41. **Thompson CL, Chapple JP, Knight MM.** Primary cilia disassembly down-regulates mechanosensitive hedgehog signalling: a feedback mechanism controlling ADAMTS-5 expression in chondrocytes. *Osteoarthritis Cartilage* 22(3):490-8, 2014.
42. **Xu HG, Zhang XH, Wang H, Liu P, Wang LT, Zuo CJ, Tong WX, Zhang XL.** Intermittent cyclic mechanical tension-induced calcification and downregulation of ank gene expression of end plate chondrocytes. *Spine (Phila Pa 1976)* 37(14):1192-1197, 2012.
43. **Xu HG, Zheng Q, Song JX, Li J, Wang H, Liu P, Wang J, Wang CD, Zhang XL.** Intermittent cyclic mechanical tension promotes endplate cartilage degeneration via canonical Wnt signaling pathway and E-cadherin/ $\beta$ -catenin complex cross-talk. *Osteoarthritis Cartilage* 24(1):158-68, 2016.
44. **Yamazaki K, Fukuda K, Matsukawa M, Hara F, Matsushita T, Yamamoto N, Yoshida K, Munakata H, Hamanishi C.** Cyclic tensile stretch loaded on bovine chondrocytes causes depolymerization of hyaluronan: involvement of reactive oxygen species. *Arthritis Rheum* 48(11):3151-3158, 2003.
45. **Yan L, Zhao L, Li S, Habibou Z.** Effects of hedgehog pathway genes on the response to tensile force and inflammatory cytokines in rat condylar cartilage cells. *Int J Clin Exp Pathol* 9(8):7793-7799, 2016.

#### OTHER CARTILAGE CELLS

46. **Agarwal S, Long P, Gassner R, Piesco NP, Buckley MJ.** Cyclic tensile strain suppresses catabolic effects of interleukin-1 $\beta$  in fibrochondrocytes from the temporomandibular joint. *Arthritis Rheum* 44(3):608-617, 2001.
47. **Chano T, Tanaka M, Hukuda S, Saeki Y.** Mechanical stress induces the expression of high molecular mass heat shock protein in human chondrocytic cell line CS-OKB. *Osteoarthritis Cartilage* 8(2):115-119, 2000.
48. **Chu F, Feng Q, Hu Z, Shen G.** Appropriate cyclic tensile strain promotes biological changes of cranial base synchondrosis chondrocytes. *Orthod Craniofac Res* 20(3):177-182, 2017.
49. **Deschner J, Rath-Deschner B, Agarwal S.** Regulation of matrix metalloproteinase expression by dynamic tensile strain in rat fibrochondrocytes. *Osteoarthritis Cartilage* 14(3):264-272, 2006.
50. **Deschner J, Rath-Deschner B, Wypasek E, Anghelina M, Sjostrom D, Agarwal S.** Biomechanical strain regulates TNFR2 but not TNFR1 in TMJ cells. *J Biomech* 40(7):1541-1549, 2007.
51. **Madhavan S, Anghelina M, Sjostrom D, Dossumbekova A, Guttridge DC, Agarwal S.** Biomechanical signals suppress TAK1 activation to inhibit NF- $\kappa$ B transcriptional activation in fibrochondrocytes. *J Immunol* 179(9):6246-6254, 2007.
52. **Ohno S, Tanaka N, Ueki M, Honda K, Tanimoto K, Yoneno K, Ohno-Nakahara M, Fujimoto K, Kato Y, Tanne K.** Mechanical regulation of terminal chondrocyte differentiation via RGD-CAP/ $\beta$  ig-h3 induced by TGF- $\beta$ . *Connect Tissue Res* 46(4-5):227-234, 2005.
53. **Rath B, Springorum HR, Deschner J, Luring C, Tingart M, Grifka J, Schaumburger J, Grassel S.** Regulation of gene expression in articular cells is influenced by biomechanical loading. *Central European Journal of Medicine* 2012, doi: 10.2478/s11536-012-0008-x.
54. **Ru-song Z, Zhu-li Y, Yan-xiao D, Chong-ying Y, Ping-ping J, Xiao Y.** Effect of tensile stress on type II collagen and aggrecan expression in rat condylar chondrocytes. *Chinese Journal of Tissue Engineering Research* 16(20):3649-3653, 2012.
55. **Steinecker-Frohnwieser B, Kaltenecker H, Weigl L, Mann A, Kullich W, Leithner A, Lohberger B.** Pharmacological treatment with diacerein combined with mechanical stimulation affects the expression of growth factors in human chondrocytes. *Biochemistry and Biophysics Reports* 11:154-160, 2017.
56. **Tanaka N, Ohno S, Honda K, Tanimoto K, Doi T, Ohno-Nakahara M, Tafolla E, Kapila S, Tanne K.** Cyclic mechanical strain regulates the PTHrP expression in cultured chondrocytes via activation of the Ca<sup>2+</sup> channel. *J Dent Res* 84(1):64-68, 2005.
57. **Tanimoto K, Kamiya T, Tanne Y, Kunimatsu R, Mitsuyoshi T, Tanaka E, Tanne K.** Superficial zone protein affects boundary lubrication on the surface of mandibular condylar cartilage. *Cell Tissue Res* 344(2):333-340, 2011.
58. **Ueki M, Tanaka N, Tanimoto K, Nishio C, Honda K, Lin YY, Tanne Y, Ohkuma S, Kamiya T, Tanaka E, Tanne K.** The effect of mechanical loading on the metabolism of growth plate chondrocytes. *Ann Biomed Eng* 36(5):793-800, 2008.
59. **Xu H, Zhang X, Wang H, Zhang Y, Shi Y, Zhang X.** Continuous cyclic mechanical tension increases ank expression in endplate chondrocytes through the TGF- $\beta$ 1 and p38 pathway. *Eur J Histochem* 57(3):e28, 2013.



## DERMAL FIBROBLASTS

1. **Cao TV, Hicks MR, Standley PR.** In vitro biomechanical strain regulation of fibroblast wound healing. *J Am Osteopath Assoc* 113(11):806-18, 2013.
2. **Hicks MR, Cao TV, Campbell DH, Standley PR.** Mechanical strain applied to human fibroblasts differentially regulates skeletal myoblast differentiation. *J Appl Physiol (1985)* 113(3):465-72, 2012.
3. **Kessler D, Dethlefsen S, Haase I, Plomann M, Hirche F, Krieg T, Eckes B.** Fibroblasts in mechanically stressed collagen lattices assume a "synthetic" phenotype. *J Biol Chem* 276(39):36575-36585, 2001.
4. **Kim YM, Kang YG, Park SH, Han MK, Kim JH, Shin JW, Shin JW.** Effects of mechanical stimulation on the reprogramming of somatic cells into human-induced pluripotent stem cells. *Stem Cell Res Ther* 8(1):139, 2017.
5. **Kuang R, Wang Z, Xu Q, Liu S, Zhang W.** Influence of mechanical stimulation on human dermal fibroblasts derived from different body sites. *Int J Clin Exp Med* 8(5):7641-7, 2015.
6. **Lee E, Kim do Y, Chung E, Lee EA, Park KS, Son Y.** Transplantation of cyclic stretched fibroblasts accelerates the wound-healing process in streptozotocin-induced diabetic mice. *Cell Transplant* 23(3):285-301, 2014.
7. **Liu W, Yin L, Yan X, Cui J, Liu W, Rao Y, Sun M, Wei Q, Chen F.** Directing the differentiation of parthenogenetic stem cells into tenocytes for tissue-engineered tendon regeneration. *Stem Cells Transl Med* 6(1):196-208, 2017.
8. **Meltzer KR, Cao TV, Schad JF, King H, Stoll ST, Standley PR.** In vitro modeling of repetitive motion injury and myofascial release. *J Bodyw Mov Ther* 14(2):162-171, 2010.
9. **Meltzer KR, Standley PR.** Modeled repetitive motion strain and indirect osteopathic manipulative techniques in regulation of human fibroblast proliferation and interleukin secretion. *J Am Osteopath Assoc* 107(12):527-536, 2007.
10. **Parsons M, Kessler E, Laurent GJ, Brown RA, Bishop JE.** Mechanical load enhances procollagen processing in dermal fibroblasts by regulating levels of procollagen C-proteinase. *Exp Cell Res* 252(2):319-331, 1999.
11. **Peters AS, Brunner G, Krieg T, Eckes B.** Cyclic mechanical strain induces TGF $\beta$ 1-signalling in dermal fibroblasts embedded in a 3D collagen lattice. *Arch Dermatol Res* 307(2):191-7, 2015.
12. **Rolin GL, Binda D, Tissot M, Viennet C, Saas P, Muret P, Humbert P.** In vitro study of the impact of mechanical tension on the dermal fibroblast phenotype in the context of skin wound healing. *J Biomech* 47(14):3555-61, 2014.
13. **Schmidt JB, Chen K, Tranquillo RT.** Effects of intermittent and incremental cyclic stretch on ERK signaling and collagen production in engineered tissue. *Cellular and Molecular Bioengineering* 1-10, 2015.
14. **Shelton JC, Bader DL, Lee DA.** Mechanical conditioning influences the metabolic response of cell-seeded constructs. *Cells Tissues Organs* 175(3):140-150, 2003.
15. **Shu Q, Tan J, Ulrike VD, Zhang X, Yang J, Yang S, Hu X, He W, Luo G, Wu J.** Involvement of eIF6 in external mechanical stretch-mediated murine dermal fibroblast function via TGF- $\beta$ 1 pathway. *Sci Rep* 6:36075, 2016.
16. **Weinbaum JS, Schmidt JB, Tranquillo RT.** Combating adaptation to cyclic stretching by prolonging activation of extracellular signal-regulated kinase. *Cellular and Molecular Bioengineering* 6(3):279-286, 2013.
17. **Zein-Hammoud M, Standley PR.** Modeled osteopathic manipulative treatments: a review of their in vitro effects on fibroblast tissue preparations. *J Am Osteopath Assoc* 115(8):490-502, 2015.

## ENDOTHELIAL CELLS

### [CARDIOVASCULAR ENDOTHELIAL CELLS](#)

See page 12

### [PULMONARY ENDOTHELIAL CELLS](#)

See page 43



## OTHER ENDOTHELIAL CELLS

1. **Freese C, Schreiner D, Anspach L, Bantz C, Maskos M, Unger RE, Kirkpatrick CJ.** In vitro investigation of silica nanoparticle uptake into human endothelial cells under physiological cyclic stretch. *Part Fibre Toxicol* 11:68, 2014.
2. **Hierck BP, Van der Heiden K, Alkemade FE, Van de Pas S, Van Thienen JV, Groenendijk BC, Bax WH, Van der Laarse A, Deruiter MC, Horrevoets AJ, Poelmann RE.** Primary cilia sensitize endothelial cells for fluid shear stress. *Dev Dyn* 237(3):725-35, 2008.
3. **Milkiewicz M, Doyle JL, Fudalewski T, Ispanovic E, Aghasi M, Haas TL.** HIF-1 $\alpha$  and HIF-2 $\alpha$  play a central role in stretch-induced but not shear-stress-induced angiogenesis in rat skeletal muscle. *J Physiol* 583(Pt 2):753-766, 2007.
4. **Milkiewicz M, Mohammadzadeh F, Ispanovic E, Gee E, Haas TL.** Static strain stimulates expression of matrix metalloproteinase-2 and VEGF in microvascular endothelium via JNK- and ERK-dependent pathways. *J Cell Biochem* 100(3):750-761, 2007.
5. **Suzuma I, Hata Y, Clermont A, Pokras F, Rook SL, Suzuma K, Feener EP, Aiello L.** Cyclic stretch and hypertension induce retinal expression of vascular endothelial growth factor and vascular endothelial growth factor receptor-2: potential mechanisms for exacerbation of diabetic retinopathy by hypertension. *Diabetes* 50:444-454, 2001.
6. **Vollmer T, Hinse D, Kleesiek K, Dreier J.** Interactions between endocarditis-derived Streptococcus gallolyticus subsp. gallolyticus isolates and human endothelial cells. *BMC Microbiol* 10:78, 2010.
7. **Wang Z, do Carmo JM, Aberdein N, Fang T, Hall JE.** The role of TRPC6 channels in glomerular capillary endothelial cell injury induced by mechanic stretch and high glucose. *The FASEB Journal* 31(1 Supplement):1031-4, 2017.
8. **Yun S, Dardik A, Haga M, Yamashita A, Yamaguchi S, Koh Y, Madri JA, Sumpio BE.** Transcription factor Sp1 phosphorylation induced by shear stress inhibits membrane type 1-matrix metalloproteinase expression in endothelium. *J Biol Chem* 277(38):34808-34814, 2002.

## EPITHELIAL CELLS

### CACO-2 INTENSTINAL EPITHELIAL CELLS

1. **Basson MD, Li GD, Hong F, Han O, Sumpio BE.** Amplitude-dependent modulation of brush border enzymes and proliferation by cyclic strain in human intestinal Caco-2 monolayers. *J Cell Physiol* 168(2):476-488, 1996.
2. **Chaturvedi LS, Marsh HM, Shang X, Zheng Y, Basson MD.** Repetitive deformation activates focal adhesion kinase and ERK mitogenic signals in human Caco-2 intestinal epithelial cells through Src and Rac1. *J Biol Chem* 282(1):14-28, 2007.
3. **Chaturvedi LS, Gayer CP, Marsh HM, Basson MD.** Repetitive deformation activates Src-independent FAK-dependent ERK motogenic signals in human Caco-2 intestinal epithelial cells. *Am J Physiol Cell Physiol* 294:C1350-C1361, 2008.
4. **Craig DH, Zhang J, Basson MD.** Cytoskeletal signaling by way of  $\alpha$ -actinin-1 mediates ERK1/2 activation by repetitive deformation in human Caco2 intestinal epithelial cells. *Am J Surg* 194(5):618-622, 2007.
5. **Gayer CP, Chaturvedi LS, Wang S, Craig DH, Flanigan T, Basson MD.** Strain-induced proliferation requires the phosphatidylinositol 3-kinase/AKT/glycogen synthase kinase pathway. *J Biol Chem* 284:2001-2011, 2009.
6. **Gayer CP, Chaturvedi LS, Wang S, Alston B, Flanigan TL, Basson MD.** Delineating the signals by which repetitive deformation stimulates intestinal epithelial migration across fibronectin. *Am J Physiol Gastrointest Liver Physiol* 296(4):G876-G885, 2009.
7. **Han O, Li GD, Sumpio BE, Basson MD.** Strain induces Caco-2 intestinal epithelial proliferation and differentiation via PKC and tyrosine kinase signals. *Am J Physiol* 275(3 Pt 1):G534-G541, 1998.
8. **Han O, Sumpio BE, Basson MD.** Mechanical strain rapidly redistributes tyrosine phosphorylated proteins in human intestinal Caco-2 cells. *Biochem Biophys Res Commun* 250(3):668-673, 1998.
9. **Kim HJ, Lee J, Choi JH, Bahinski A, Ingber DE.** Co-culture of living microbiome with microengineered human intestinal villi in a gut-on-a-chip microfluidic device. *J Vis Exp* 114, 2016.
10. **Kim HJ, Li H, Collins JJ, Ingber DE.** Contributions of microbiome and mechanical deformation to intestinal bacterial overgrowth and inflammation in a human gut-on-a-chip. *Proc Natl Acad Sci U S A* 113(1):E7-15, 2016.





11. **Li W, Duzgun A, Sumpio BE, Basson MD.** Integrin and FAK-mediated MAPK activation is required for cyclic strain mitogenic effects in Caco-2 cells. *Am J Physiol Gastrointest Liver Physiol* 280(1):G75-G87, 2001.
12. **Zhang J, Li W, Sanders MA, Sumpio BE, Panja A, Basson MD.** Regulation of the intestinal epithelial response to cyclic strain by extracellular matrix proteins. *FASEB J* 17(8):926-928, 2003.
13. **Zhang J, Li W, Sumpio BE, Basson MD.** Fibronectin blocks p38 and jnk activation by cyclic strain in Caco-2 cells. *Biochem Biophys Res Commun* 306(3):746-749, 2003.

#### EYE EPITHELIAL CELLS

See page 31

#### GASTRIC EPITHELIAL CELLS

14. **Alcamo AM, Schanbacher BL, Huang H, Nankervis CA, Bauer JA, Giannone PJ.** Cellular strain amplifies LPS-induced stress signaling in immature enterocytes: potential implications for preterm infant NCPAP. *Pediatr Res* 72(3):256-61, 2012.
15. **Osada T, Iijima K, Tanaka H, Hirose M, Yamamoto J, Watanabe S.** Effect of temperature and mechanical strain on gastric epithelial cell line GSM06 wound restoration in vitro. *J Gastroenterol Hepatol* 14(5):489-494, 1999.

#### PULMONARY EPITHELIAL CELLS

See page 44

#### RENAL EPITHELIAL CELLS

See page 38

#### OTHER EPITHELIAL CELLS

16. **Amura CR, Brodsky KS, Gitomer B, McFann K, Lazennec G, Nichols MT, Jani A, Schrier RW, Doctor RB.** CXCR2 agonists in ADPKD liver cyst fluids promote cell proliferation. *Am J Physiol Cell Physiol* 294(3):C786-C796, 2008.
17. **Dutta S, Mana-Capelli S, Paramasivam M, Dasgupta I, Cirka H, Billiar K, McCollum D.** TRIP6 inhibits Hippo signaling in response to tension at adherens junctions. *EMBO Rep.* 2017 Dec 8. pii: e201744777. doi: 10.15252/embr.201744777. [Epub ahead of print]
18. **Freeman SA, Christian S, Austin P, Iu I, Graves ML, Huang L, Tang S, Coombs D, Gold MR, Roskelley CD.** Applied stretch initiates directional invasion through the action of Rap1 GTPase as a tension sensor. *J Cell Sci* 130(1):152-163, 2017.
19. **Gurbuz I, Ferralli J, Roloff T, Chiquet-Ehrismann R, Asparuhova MB.** SAP domain-dependent Mkl1 signaling stimulates proliferation and cell migration by induction of a distinct gene set indicative of poor prognosis in breast cancer patients. *Mol Cancer* 13:22, 2014.
20. **Haku K, Muramatsu T, Hara A, Kikuchi A, Hashimoto S, Inoue T, Shimono M.** Epithelial cell rests of Malassez modulate cell proliferation, differentiation and apoptosis via gap junctional communication under mechanical stretching in vitro. *Bull Tokyo Dent Coll* 52(4):173-182, 2011.
21. **Hegarty PK, Watson RW, Coffey RN, Webber MM, Fitzpatrick JM.** Effects of cyclic stretch on prostatic cells in culture. *J Urol* 168(5):2291-2295, 2002.
22. **Koshihara T, Matsuzaka K, Sato T, Inoue T.** Effect of stretching force on the cells of epithelial rests of malassez in vitro. *Int J Dent* 2010:458408, 2010.
23. **Mohan AR, Sooranna SR, Lindstrom TM, Johnson MR, Bennett PR.** The effect of mechanical stretch on cyclooxygenase type 2 expression and activator protein-1 and nuclear factor-κB activity in human amnion cells. *Endocrinology* 148(4):1850-1857, 2007.
24. **Wang J, Liu L, Xia Y, Wu D.** Silencing of poly(ADP-ribose) polymerase-1 suppresses hyperstretch-induced expression of inflammatory cytokines in vitro. *Acta Biochim Biophys Sin (Shanghai)* 46(7):556-64, 2014.

#### EYE

1. **Du GL, Chen WY, Li XN, He R, Feng PF.** Induction of MMP-1 and -3 by cyclical mechanical stretch is mediated by IL-6 in cultured fibroblasts of keratoconus. *Mol Med Rep* 15(6):3885-3892, 2017.



2. **Feng P, Li X, Chen W, Liu C, Rong S, Wang X, Du G.** Combined effects of interleukin-1 $\beta$  and cyclic stretching on metalloproteinase expression in corneal fibroblasts in vitro. *Biomed Eng Online* 15(1):63, 2016.
3. **Fujikura H, Seko Y, Tokoro T, Mochizuki M, Shimokawa H.** Involvement of mechanical stretch in the gelatinolytic activity of the fibrous sclera of chicks, in vitro. *Japanese Journal of Ophthalmology* 46(1):24-30, 2002.
4. **Jobling AI, Gentle A, Metlapally R, McGowan BJ, McBrien NA.** Regulation of scleral cell contraction by transforming growth factor- $\beta$  and stress: competing roles in myopic eye growth. *J Biol Chem* 284(4):2072-2079, 2009.
5. **Kinoshita H, Suzuma K, Maki T, Maekawa Y, Matsumoto M, Kusano M, Uematsu M, Kitaoka T.** Cyclic stretch and hypertension increase retinal succinate: potential mechanisms for exacerbation of ocular neovascularization by mechanical stress. *Invest Ophthalmol Vis Sci* 55(7):4320-6, 2014.
6. **Kirwan RP, Crean JK, Fenerty CH, Clark AF, O'Brien CJ.** Effect of cyclical mechanical stretch and exogenous transforming growth factor- $\beta$ 1 on matrix metalloproteinase-2 activity in lamina cribrosa cells from the human optic nerve head. *J Glaucoma* 13(4):327-334, 2004.
7. **Kirwan RP, Fenerty CH, Crean J, Wordinger RJ, Clark AF, O'Brien CJ.** Influence of cyclical mechanical strain on extracellular matrix gene expression in human lamina cribrosa cells in vitro. *Mol Vis* 11:798-810, 2005.
8. **Qu J, Chen H, Zhu L, Ambalavanan N, Girkin CA, Murphy-Ullrich JE, Downs JC, Zhou Y.** High-magnitude and/or high-frequency mechanical strain promotes peripapillary scleral myofibroblast differentiation. *Invest Ophthalmol Vis Sci* 56(13):7821-30, 2015.
9. **Quill B, Docherty NG, Clark AF, O'Brien CJ.** The effect of graded cyclic stretching on extracellular matrix-related gene expression profiles in cultured primary human lamina cribrosa cells. *Invest Ophthalmol Vis Sci* 52(3):1908-1915, 2011.
10. **Rogers R, Dharsee M, Ackloo S, Flanagan JG.** Proteomics analyses of activated human optic nerve head lamina cribrosa cells following biomechanical strain. *Invest Ophthalmol Vis Sci* 53(7):3806-16, 2012.
11. **Shelton L, Rada JS.** Effects of cyclic mechanical stretch on extracellular matrix synthesis by human scleral fibroblasts. *Exp Eye Res* 84(2):314-322, 2007.
12. **Suzuma I, Hata Y, Clermont A, Pokras F, Rook SL, Suzuma K, Feener EP, Aiello L.** Cyclic stretch and hypertension induce retinal expression of vascular endothelial growth factor and vascular endothelial growth factor receptor-2: potential mechanisms for exacerbation of diabetic retinopathy by hypertension. *Diabetes* 50:444-454, 2001.
13. **Suzuma I, Suzuma K, Takagi H, Kaneto H, Aiello L, Honda Y.** 1P-0151 Cyclic stretch induced reactive oxygen species (ROS) enhances apoptosis in porcine retinal pericytes (PRPC) through JNK/SAPK activation [abstract]. *Atherosclerosis Supplements* 4(2):53, 2003.
14. **Suzuma I, Suzuma K, Ueki K, Hata Y, Feener EP, King GL, Aiello LP.** Stretch-induced retinal vascular endothelial growth factor expression is mediated by phosphatidylinositol 3-kinase and protein kinase C (PKC)- $\zeta$  but not by stretch-induced ERK1/2, Akt, Ras, or classical/novel PKC pathways. *J Biol Chem* 277(2):1047-1057, 2002.
15. **Wang G, Chen W.** Effects of mechanical stimulation on viscoelasticity of rabbit scleral fibroblasts after posterior scleral reinforcement. *Exp Biol Med* 237(10):1150-1154, 2012.
16. **Wang G, Hao S, Deng A.** Effects of mechanical stimulation on TGF- $\beta$ 1 and bFGF expression of scleral fibroblasts after posterior sclera reinforcement. *Complex Medical Engineering (CME), 2013 ICME International Conference on*, 399-402, 2013.
17. **Zhang W, Chen J, Backman LJ, Malm AD, Danielson P.** Surface topography and mechanical strain promote keratocyte phenotype and extracellular matrix formation in a biomimetic 3D corneal model. *Adv Healthc Mater* 6(5), 2017.

#### EYE EPITHELIAL CELLS

18. **Gao M, Wu S, Ji J, Zhang J, Liu Q, Yue Y, Liu L, Liu X, Liu W.** The influence of actin depolymerization induced by Cytochalasin D and mechanical stretch on interleukin-8 expression and JNK phosphorylation levels in human retinal pigment epithelial cells. *BMC Ophthalmol* 17(1):43, 2017.
19. **Oh JY, Jung KA, Kim MK, Wee WR, Lee JH.** Effect of mechanical strain on human limbal epithelial cells in vitro. *Curr Eye Res* 31(12):1015-20, 2006.
20. **Seko Y, Seko Y, Fujikura H, Pang J, Tokoro T, Shimokawa H.** Induction of vascular endothelial growth factor after application of mechanical stress to retinal pigment epithelium of the rat in vitro. *Invest Ophthalmol Vis Sci* 40:3287-3291, 1999.



### TRABECULAR MESHWORK CELLS

21. **Aga M, Bradley JM, Keller KE, Kelley MJ, Acott TS.** Specialized podosome- or invadopodia-like structures (PILS) for focal trabecular meshwork extracellular matrix turnover. *Invest Ophthalmol Vis Sci* 49(12):5353-5365, 2008.
22. **Baetz NW, Hoffman EA, Yool AJ, Stamer WD.** Role of aquaporin-1 in trabecular meshwork cell homeostasis during mechanical strain. *Exp Eye Res* 89(1):95-100, 2009.
23. **Chow J, Liton PB, Luna C, Wong F, Gonzalez P.** Effect of cellular senescence on the P2Y-receptor mediated calcium response in trabecular meshwork cells. *Mol Vis* 13:1926-1933, 2007.
24. **Chudgar SM, Deng P, Maddala R, Epstein DL, Rao PV.** Regulation of connective tissue growth factor expression in the aqueous humor outflow pathway. *Mol Vis* 12:1117-1126, 2006.
25. **Elliott MH, Ashpole NE, Gu X, Herrnberger L, McClellan ME, Griffith GL, Reagan AM, Boyce TM, Tanito M, Tamm ER, Stamer WD.** Caveolin-1 modulates intraocular pressure: implications for caveolae mechanoprotection in glaucoma. *Sci Rep* 6:37127, 2016.
26. **Iyer P, Lalane R 3rd, Morris C, Challa P, Vann R, Rao PV.** Autotaxin-lysophosphatidic Acid axis is a novel molecular target for lowering intraocular pressure. *PLoS One* 7(8):e42627, 2012.
27. **Liton PB, Liu X, Challa P, Epstein DL, Gonzalez P.** Induction of TGF- $\beta$ 1 in the trabecular meshwork under cyclic mechanical stress. *J Cell Physiol* 205(3):364-71, 2005.
28. **Liton PB, Li G, Luna C, Gonzalez P, Epstein DL.** Cross-talk between TGF- $\beta$ 1 and IL-6 in human trabecular meshwork cells. *Mol Vis* 15:326-334, 2009.
29. **Liu KC, Li G, Overby DR, Stamer WD.** Role of VEGF in conventional outflow homeostasis. *Investigative Ophthalmology & Visual Science* 55(13):2910, 2014.
30. **Luna C, Li G, Liton PB, Epstein DL, Gonzalez P.** Alterations in gene expression induced by cyclic mechanical stress in trabecular meshwork cells. *Mol Vis* 15:534-544, 2009.
31. **Luna C, Li G, Qiu J, Epstein DL, Gonzalez P.** MicroRNA-24 regulates the processing of latent TGF $\beta$ 1 during cyclic mechanical stress in human trabecular meshwork cells through direct targeting of FURIN. *J Cell Physiol* 226(5):1407-1414, 2011.
32. **Muralidharan AR, Maddala R, Skiba NP, Rao PV.** Growth differentiation factor-15-induced contractile activity and extracellular matrix production in human trabecular meshwork cells. *Invest Ophthalmol Vis Sci* 57(15):6482-6495, 2016.
33. **Porter KM, Jeyabalan N, Liton PB.** MTOR-independent induction of autophagy in trabecular meshwork cells subjected to biaxial stretch. *Biochim Biophys Acta* 1843(6):1054-62, 2014.
34. **Reina-Torres E, Wen JC, Liu KC, Li G, Sherwood JM, Chang JY, Challa P, Flügel-Koch CM, Stamer WD, Allingham RR, Overby DR.** VEGF as a paracrine regulator of conventional outflow facility. *Invest Ophthalmol Vis Sci* 58(3):1899-1908, 2017.
35. **Ryskamp DA, Frye AM, Phuong TT, Yarishkin O, Jo AO, Xu Y, Lakk M, Iuso A, Redmon SN, Ambati B, Hageman G, Prestwich GD, Torrejon KY, Križaj D.** TRPV4 regulates calcium homeostasis, cytoskeletal remodeling, conventional outflow and intraocular pressure in the mammalian eye. *Sci Rep* 6:30583, 2016.
36. **Wu J, Li G, Luna C, Spasojevic I, Epstein DL, Gonzalez P.** Endogenous production of extracellular adenosine by trabecular meshwork cells: potential role in outflow regulation. *Invest Ophthalmol Vis Sci* 53(11):7142-8, 2012.
37. **Wu S, Lu Q, Wang N, Zhang J, Liu Q, Gao M, Chen J, Liu W, Xu L.** Cyclic stretch induced-retinal pigment epithelial cell apoptosis and cytokine changes. *BMC Ophthalmol* 17(1):208, 2017. doi: 10.1186/s12886-017-0606-0.
38. **WuDunn D.** The effect of mechanical strain on matrix metalloproteinase production by bovine trabecular meshwork cells. *Curr Eye Res* 22(5):394-397, 2001.

### GINGIVAL FIBROBLASTS

1. **Bolcato-Bellemin AL, Elkaim R, Abehsera A, Fausser JL, Haikel H, Tenenbaum H.** Expression of mRNAs encoding for  $\alpha$  and  $\beta$  integrin subunits, MMPs, and TIMPs in stretched human periodontal ligament and gingival fibroblasts. *J Dent Res* 79(9):1712-1716, 2000.
2. **Danciu TE, Gagari E, Adam RM, Damoulis PD, Freeman MR.** Mechanical strain delivers anti-apoptotic and proliferative signals to gingival fibroblasts. *J Dent Res* 83(8):596-601, 2004.



3. **Grunheid T, Zentner A.** Extracellular matrix synthesis, proliferation and death in mechanically stimulated human gingival fibroblasts in vitro. *Clin Oral Investig* 9(2):124-130, 2005.
4. **Guo F, Carter DE, Leask A.** Mechanical tension increases CCN2/CTGF expression and proliferation in gingival fibroblasts via a TGF $\beta$ -dependent mechanism. *PLoS One* 6(5):e19756, 2011.
5. **Kimoto S, Matsuzawa M, Matsubara S, Komatsu T, Uchimura N, Kawase T, Saito S.** Cytokine secretion of periodontal ligament fibroblasts derived from human deciduous teeth: effect of mechanical stress on the secretion of transforming growth factor- $\beta$ 1 and macrophage colony stimulating factor. *J Periodontal Res* 34(5):235-243, 1999.
6. **Morimoto T, Nishihira J, Kohgo T.** Immunohistochemical localization of macrophage migration inhibitory factor (MIF) in human gingival tissue and its pathophysiological functions. *Histochem Cell Biol* 120(4):293-298, 2003.
7. **Yoshino H, Morita I, Murota SI, Ishikawa I.** Mechanical stress induces production of angiogenic regulators in cultured human gingival and periodontal ligament fibroblasts. *J Periodontal Res* 38(4):405-410, 2003.

### INTERVERTEBRAL DISC

1. **Cho H, Seth A, Warmbold J, Robertson JT, Hasty KA.** Aging affects response to cyclic tensile stretch: paradigm for intervertebral disc degeneration. *Eur Cell Mater* 22:137-45; discussion 145-6, 2011.
2. **Chuah YJ, Lee WC, Wong HK, Kang Y, Hee HT.** Three-dimensional development of tensile pre-strained annulus fibrosus cells for tissue regeneration: an in-vitro study. *Exp Cell Res* 331(1):176-82, 2015.
3. **Gilbert HT, Hoyland JA, Freemont AJ, Millward-Sadler SJ.** The involvement of interleukin-1 and interleukin-4 in the response of human annulus fibrosus cells to cyclic tensile strain: an altered mechanotransduction pathway with degeneration. *Arthritis Res Ther* 13(1):R8, 2011.
4. **Gilbert HT, Hoyland JA, Millward-Sadler SJ.** The response of human annulus fibrosus cells to cyclic tensile strain is frequency-dependent and altered with disc degeneration. *Arthritis Rheum* 62(11):3385-3394, 2010.
5. **Gilbert HT, Nagra NS, Freemont AJ, Millward-Sadler SJ, Hoyland JA.** Integrin - dependent mechanotransduction in mechanically stimulated human annulus fibrosus cells: evidence for an alternative mechanotransduction pathway operating with degeneration. *PLoS One* 8(9):e72994, 2013.
6. **Li S, Jia X, Duance VC, Blain EJ.** The effects of cyclic tensile strain on the organisation and expression of cytoskeletal elements in bovine intervertebral disc cells: an in vitro study. *Eur Cell Mater* 21:508-22, 2011.
7. **Li XF, Leng P, Zhang Z, Zhang HN.** The Piezo1 protein ion channel functions in human nucleus pulposus cell apoptosis by regulating mitochondrial dysfunction and the endoplasmic reticulum stress signal pathway. *Exp Cell Res* 2017 Jul 10. pii: S0014-4827(17)30364-6. [Epub ahead of print]
8. **Matsumoto T, Kawakami M, Kuribayashi K, Takenaka T, Tamaki T.** Cyclic mechanical stretch stress increases the growth rate and collagen synthesis of nucleus pulposus cells in vitro. *Spine* 24(4):315-319, 1999.
9. **Miyamoto H, Doita M, Nishida K, Yamamoto T, Sumi M, Kurosaka M.** Effects of cyclic mechanical stress on the production of inflammatory agents by nucleus pulposus and annulus fibrosus derived cells in vitro. *Spine* 31(1):4-9, 2006.
10. **Rannou F, Richette P, Benallaoua M, Francois M, Genries V, Korwin-Zmijowska C, Revel M, Corvol M, Poiraudou S.** Cyclic tensile stretch modulates proteoglycan production by intervertebral disc annulus fibrosus cells through production of nitrite oxide. *J Cell Biochem* 90(1):148-157, 2003.
11. **Rannou F, Poiraudou S, Foltz V, Boiteux M, Corvol M, Revel M.** Monolayer annulus fibrosus cell cultures in a mechanically active environment: local culture condition adaptations and cell phenotype study. *J Lab Clin Med* 136(5):412-421, 2000.
12. **Tisherman R, Coelho P, Phillibert D, Wang D, Dong Q, Vo N, Kang J, Sowa G.** NF- $\kappa$ B signaling pathway in controlling intervertebral disk cell response to inflammatory and mechanical stressors. *Phys Ther* 96(5):704-11, 2016.
13. **Zhang YH, Zhao CQ, Jiang LS, Dai LY.** Lentiviral shRNA silencing of CHOP inhibits apoptosis induced by cyclic stretch in rat annular cells and attenuates disc degeneration in the rats. *Apoptosis* 16(6):594-605, 2011.
14. **Zhang Y, Zhao C, Jiang L, Dai L.** Cyclic stretch-induced apoptosis in rat annulus fibrosus cells is mediated in part by endoplasmic reticulum stress through nitric oxide production. *European Spine Journal* 20(8):1233-1243, 2011.



## KERATINOCYTES

1. **Cabral RM, Tattersall D, Patel V, McPhail GD, Hatzimasoura E, Abrams DJ, South AP, Kelsell DP.** The DSPII splice variant is crucial for desmosome-mediated adhesion in HaCaT keratinocytes. *J Cell Sci* 125(Pt 12):2853-61, 2012.
2. **Cherbuin T, Movahednia MM, Toh WS, Cao T.** Investigation of human embryonic stem cell-derived keratinocytes as an in vitro research model for mechanical stress dynamic response. *Stem Cell Rev* 11(3):460-73, 2015.
3. **Choi K, Mollapour E, Shears SB.** Signal transduction during environmental stress: InsP8 operates within highly restricted contexts. *Cellular Signalling* 17(12):1533-1541, 2005.
4. **Gupta A, Nitoiu D, Brennan-Crispi D, Addya S, Riobo NA, Kelsell DP, Mahoney MG.** Cell cycle- and cancer-associated gene networks activated by Dsg2: evidence of cystatin a deregulation and a potential role in cell-cell adhesion. *PLoS One* 10(3):e0120091, 2015.
5. **Le HQ, Ghatak S, Yeung CY, Tellkamp F, Günschmann C, Dieterich C, Yeroslaviz A, Habermann B, Pombo A, Niessen CM, Wickström SA.** Mechanical regulation of transcription controls Polycomb-mediated gene silencing during lineage commitment. *Nat Cell Biol* 18(8):864-75, 2016.
6. **Lin Z, Zhao J, Nitoiu D, Scott CA, Plagnol V, Smith FJ, Wilson NJ, Cole C, Schwartz ME, McLean WH, Wang H, Feng C, Duo L, Zhou EY, Ren Y, Dai L, Chen Y, Zhang J, Xu X, O'Toole EA, Kelsell DP, Yang Y.** Loss-of-function mutations in CAST cause peeling skin, leukonychia, acral punctate keratoses, cheilitis, and knuckle pads. *Am J Hum Genet* 96(3):440-7, 2015.
7. **Maruthappu T, Chikh A, Fell B, Delaney PJ, Brooke MA, Levet C, Moncada-Pazos A, Ishida-Yamamoto A, Blaydon D, Waseem A, Leigh IM, Freeman M, Kelsell DP.** Rhomboid family member 2 regulates cytoskeletal stress-associated Keratin 16. *Nat Commun* 8:14174, 2017.
8. **Pigors M, Sarig O, Heinz L, Plagnol V, Fischer J, Mohamad J, Malchin N, Rajpopat S, Kharfi M, Lestringant GG, Sprecher E, Kelsell DP, Blaydon DC.** Loss-of-function mutations in SERPINB8 linked to exfoliative ichthyosis with impaired mechanical stability of intercellular adhesions. *Am J Hum Genet* 99(2):430-6, 2016.
9. **Rosselli-Murai LK, Almeida LO, Zagni C, Galindo-Moreno P, Padial-Molina M, Volk SL, Murai MJ, Rios HF, Squarize CH, Castilho RM.** Periostin responds to mechanical stress and tension by activating the MTOR signaling pathway. *PLoS One* 8(12):e83580, 2013.
10. **Rouse JG, Haslauer CM, Loba EG, Monteiro-Riviere NA.** Cyclic tensile strain increases interactions between human epidermal keratinocytes and quantum dot nanoparticles. *Toxicology in Vitro* 22(2):491-497, 2008.
11. **Russell D, Andrews PD, James J, Lane EB.** Mechanical stress induces profound remodelling of keratin filaments and cell junctions in epidermolysis bullosa simplex keratinocytes. *J Cell Sci* 117(Pt 22):5233-5243, 2004.
12. **Shams K, Kurowska-Stolarska M, Schütte F, Burden AD, McKimmie CS, Graham GJ.** MicroRNA-146 and cell trauma downregulate expression of the psoriasis-associated atypical chemokine receptor ACKR2. *J Biol Chem.* 2017 Dec 26. pii: jbc.M117.809780. doi: 10.1074/jbc.M117.809780. [Epub ahead of print]
13. **Takei T, Han O, Ikeda M, Male P, Mills I, Sumpio BE.** Cyclic strain stimulates isoform-specific PKC activation and translocation in cultured human keratinocytes. *J Cell Biochem* 67(3):327-337, 1997.
14. **Takei T, Kito H, Du W, Mills I, Sumpio BE.** Induction of interleukin (IL)-1 $\alpha$  and  $\beta$  gene expression in human keratinocytes exposed to repetitive strain: their role in strain-induced keratinocyte proliferation and morphological change. *J Cell Biochem* 69(2):95-103, 1998.
15. **Takei T, Rivas-Gotz C, Delling CA, Koo JT, Mills I, McCarthy TL, Centrella M, Sumpio BE.** Effect of strain on human keratinocytes in vitro. *J Cell Physiol* 173(1):64-72, 1997.
16. **Zhou J, Wang J, Zhang N, Zhang Y, Li Q.** Identification of biomechanical force as a novel inducer of epithelial-mesenchymal transition features in mechanical stretched skin. *Am J Transl Res* 7(11):2187-2198, 2015.

## KIDNEY

1. **Alexander LD, Alagarsamy S, Douglas JG.** Cyclic stretch-induced cPLA2 mediates ERK 1/2 signaling in rabbit proximal tubule cells. *Kidney International* 65(2):551-563, 2004.



2. **Barutta F, Pinach S, Giunti S, Vittone F, Forbes JM, Chiarle R, Arnstein M, Perin PC, Camussi G, Cooper ME, Gruden G.** Heat shock protein expression in diabetic nephropathy. *Am J Physiol Renal Physiol* 295(6):F1817-F1824, 2008.
3. **Burger D, Thibodeau JF, Holterman CE, Burns KD, Touyz RM, Kennedy CR.** Urinary podocyte microparticles identify prealbuminuric diabetic glomerular injury. *J Am Soc Nephrol* 25(7):1401-7, 2014.
4. **Carey RM, McGrath HE, Pentz ES, Gomez RA, Barrett PQ.** Biomechanical coupling in renin-releasing cells. *J Clin Invest* 100(6):1566-1574, 1997.
5. **Delimont D, Dufek BM, Meehan DT, Zallochi M, Gratton MA, Phillips G, Cosgrove D.** Laminin  $\alpha$ 2-mediated focal adhesion kinase activation triggers Alport glomerular pathogenesis. *PLoS One* 9(6):e99083, 2014.
6. **Diamond JR, Kreisberg R, Evans R, Nguyen TA, Ricardo SD.** Regulation of proximal tubular osteopontin in experimental hydronephrosis in the rat. *Kidney International* 54(5):1501-1509, 1998.
7. **Durvasula RV, Petermann AT, Hiromura K, Blonski M, Pippin J, Mundel P, Pichler R, Griffin S, Couser WG, Shankland SJ.** Activation of a local tissue angiotensin system in podocytes by mechanical strain. *Kidney International* 65(1):30-39, 2004.
8. **Durvasula RV, Shankland SJ.** Mechanical strain increases SPARC levels in podocytes: implications for glomerulosclerosis. *Am J Physiol Renal Physiol* 289(3):F577-F584, 2005.
9. **El Chaar M, Attia E, Chen J, Hannafin J, Poppas DP, Felsen D.** Cyclooxygenase-2 inhibitor decreases extracellular matrix synthesis in stretched renal fibroblasts. *Nephron Exp Nephrol* 100(4):e150-155, 2005.
10. **Giunti S, Pinach S, Arnaldi L, Viberti G, Perin PC, Camussi G, Gruden G.** The MCP-1/CCR2 system has direct proinflammatory effects in human mesangial cells. *Kidney Int* 69(5):856-863, 2006.
11. **Hegarty NJ, Watson RW, Young LS, O'Neill AJ, Brady HR, Fitzpatrick JM.** Cytoprotective effects of nitrates in a cellular model of hydronephrosis. *Kidney International* 62(1):70-77, 2002.
12. **Kiley SC, Chevalier RL.** Species differences in renal Src activity direct EGF receptor regulation in life or death response to EGF. *Am J Physiol Renal Physiol* 293(3):F895-F903, 2007.
13. **Kiley SC, Thornhill BA, Tang SS, Ingelfinger JR, Chevalier RL.** Growth factor-mediated phosphorylation of proapoptotic BAD reduces tubule cell death in vitro and in vivo. *Kidney International* 63(1):33-42, 2003.
14. **Lee JS, Lim JY, Kim J.** Mechanical stretch induces angiotensinogen expression through PARP1 activation in kidney proximal tubular cells. *In Vitro Cell Dev Biol Anim* 51(1):72-8, 2015.
15. **Li D, Lu Z, Jia J, Zheng Z, Lin S.** Changes in microRNAs associated with podocytic adhesion damage under mechanical stress. *J Renin Angiotensin Aldosterone Syst* 14(2):97-102, 2013.
16. **Maier S, Lutz R, Gelman L, Sarasa-Renedo A, Schenk S, Grashoff C, Chiquet M.** Tenascin-C induction by cyclic strain requires integrin-linked kinase. *Biochim Biophys Acta* 1783(6):1150-1162, 2008.
17. **Martineau LC, McVeigh LI, Jasmin BJ, Kennedy CR.** p38 MAP kinase mediates mechanically induced COX-2 and PG EP4 receptor expression in podocytes: implications for the actin cytoskeleton. *Am J Physiol Renal Physiol* 286(4):F693-F701, 2004.
18. **Miyajima A, Chen J, Lawrence C, Ledbetter S, Soslow RA, Stern J, Jha S, Pigato J, Lemer ML, Poppas DP, Vaughan ED, Felsen D.** Antibody to transforming growth factor- $\beta$  ameliorates tubular apoptosis in unilateral ureteral obstruction. *Kidney International* 58(6):2301-2313, 2000.
19. **Miyajima A, Chen J, Poppas DP, Vaughan ED, Felsen D.** Role of nitric oxide in renal tubular apoptosis of unilateral ureteral obstruction. *Kidney International* 59(4):1290-1303, 2001.
20. **Morgera S, Schlenstedt J, Hambach P, Giessing M, Deger S, Hocher B, Neumayer HH.** Combined ETA/ETB receptor blockade of human peritoneal mesothelial cells inhibits collagen I RNA synthesis. *Kidney International* 64:2033-2040, 2003.
21. **Nguyen HT, Bride SH, Badawy AB, Adam RM, Lin J, Orsola A, Guthrie PD, Freeman MR, Peters CA.** Heparin-binding EGF-like growth factor is up-regulated in the obstructed kidney in a cell- and region-specific manner and acts to inhibit apoptosis. *American Journal of Pathology* 156:889-898, 2000.
22. **Orton DJ, Doucette AA, Maksym GN, Maclellan DL.** Proteomic analysis of rat proximal tubule cells following stretch-induced apoptosis in an in vitro model of kidney obstruction. *J Proteomics* 100:125-35, 2014.
23. **Ostergaard M, Christensen M, Nilsson L, Carlsen I, Frøkiær J, Nørregaard R.** ROS dependence of cyclooxygenase-2 induction in rats subjected to unilateral ureteral obstruction. *Am J Physiol Renal Physiol* 306(2):F259-70, 2014.
24. **Petermann AT, Hiromura K, Blonski M, Pippin J, Monkawa T, Durvasula R, Couser WG, Shankland SJ.** Mechanical stress reduces podocyte proliferation in vitro. *Kidney International* 61(1):40-50, 2002.



25. **Petermann AT, Pippin J, Durvasula R, Pichler R, Hiromura K, Monkawa T, Couser WG, Shankland SJ.** Mechanical stretch induces podocyte hypertrophy in vitro. *Kidney International* 67(1):157-166, 2005.
26. **Ricardo SD, Ding G, Eufemio M, Diamond JR.** Antioxidant expression in experimental hydronephrosis: role of mechanical stretch and growth factors. *Am J Physiol Renal Physiol* 272:F789-F798, 1997.
27. **Ricardo SD, Franzoni DF, Roesener CD, Crisman JM, Diamond JR.** Angiotensinogen and AT(1) antisense inhibition of osteopontin translation in rat proximal tubular cells. *Am J Physiol Renal Physiol* 278(5):F708-F716, 2000.
28. **Ryan MJ, Black TA, Gross KW, Hajduczuk G.** Cyclic mechanical distension regulates renin gene transcription in As4.1 cells. *Am J Physiol Endocrinol Metab* 279(4):E830-E837, 2000.
29. **Ryan MJ, Gross KW, Hajduczuk G.** Calcium-dependent activation of phospholipase C by mechanical distension in renin-expressing As4.1 cells. *Am J Physiol Endocrinol Metab* 279(4):E823-E829, 2000.
30. **Sato M, Muragaki Y, Saika S, Roberts AB, Ooshima A.** Targeted disruption of TGF- $\beta$ 1/Smad3 signaling protects against renal tubulointerstitial fibrosis induced by unilateral ureteral obstruction. *J Clin Invest* 112(10):1486-1494, 2003.
31. **Speight P, Kofler M, Szász K, Kapus A.** Context-dependent switch in chemo/mechanotransduction via multilevel crosstalk among cytoskeleton-regulated MRTF and TAZ and TGF $\beta$ -regulated Smad3. *Nat Commun* 7:11642, 2016.
32. **Sussman AN, Sun T, Krofft RM, Durvasula RV.** SPARC accelerates disease progression in experimental crescentic glomerulonephritis. *Am J Pathol* 174(5):1827-1836, 2009.
33. **Tanner GA, McQuillan PF, Maxwell MR, Keck JK, McAteer JA.** An in vitro test of the cell stretch-proliferation hypothesis of renal cyst enlargement. *J Am Soc Nephrol* 6(4):1230-1241, 1995.
34. **Wang Z, do Carmo JM, Aberdein N, Fang T, Hall JE.** The role of TRPC6 channels in glomerular capillary endothelial cell injury induced by mechanic stretch and high glucose. *The FASEB Journal* 31(1 Supplement):1031-4, 2017.

#### MESANGIAL CELLS

35. **Akai Y, Homma T, Burns KD, Yasuda T, Badr KF, Harris RC.** Mechanical stretch/relaxation of cultured rat mesangial cells induces protooncogenes and cyclooxygenase. *Am J Physiol Cell Physiol* 267(2):C482-C490, 1994.
36. **Barutta F, Pinach S, Giunti S, Vittone F, Forbes JM, Chiarle R, Arnstein M, Perin PC, Camussi G, Cooper ME, Gruden G.** Heat shock protein expression in diabetic nephropathy. *Am J Physiol Renal Physiol* 295(6):F1817-F1824, 2008.
37. **Chen G, Chen X, Sukumar A, Gao B, Curley J, Schnaper HW, Ingram AJ, Krepinsky JC.** TGF $\beta$  receptor I transactivation mediates stretch-induced Pak1 activation and CTGF upregulation in mesangial cells. *J Cell Sci* 126(Pt 16):3697-712, 2013.
38. **Clarkson MR, Murphy M, Gupta S, Lambe T, Mackenzie HS, Godson C, Martin F, Brady HR.** High glucose-altered gene expression in mesangial cells. Actin-regulatory protein gene expression is triggered by oxidative stress and cytoskeletal disassembly. *J Biol Chem* 277(12):9707-9712, 2002.
39. **Cortes P, Zhao X, Riser BL, Narins RG.** Role of glomerular mechanical strain in the pathogenesis of diabetic nephropathy. *Kidney International* 51(1):57-68, 1997.
40. **Dlugosz JA, Munk S, Kapor-Drezgic J, Goldberg HJ, Fantus IG, Scholey JW, Whiteside CI.** Stretch-induced mesangial cell ERK1/ERK2 activation is enhanced in high glucose by decreased dephosphorylation. *Am J Physiol Renal Physiol* 279:688-697, 2000.
41. **Giunti S, Pinach S, Arnaldi L, Viberti G, Perin PC, Camussi G, Gruden G.** The MCP-1/CCR2 system has direct proinflammatory effects in human mesangial cells. *Kidney Int* 69(5):856-863, 2006.
42. **Gruden G, Araf S, Zonca S, Burt D, Thomas S, Gnudi L, Viberti G.** IGF-I induces vascular endothelial growth factor in human mesangial cells via a Src-dependent mechanism. *Kidney International* 63(4):1249-1255, 2003.
43. **Gruden G, Setti G, Hayward A, Sugden D, Duggan S, Burt D, Buckingham RE, Gnudi L, Viberti G.** Mechanical stretch induces monocyte chemoattractant activity via an NF- $\kappa$ B-dependent monocyte chemoattractant protein-1-mediated pathway in human mesangial cells: inhibition by rosiglitazone. *J Am Soc Nephrol* 16(3):688-96, 2005.
44. **Gruden G, Thomas S, Burt D, Lane S, Chusney G, Sacks S, Viberti G.** Mechanical stretch induces vascular permeability factor in human mesangial cells: mechanisms of signal transduction. *Proc Natl Acad Sci U S A* 94(22):12112-12116, 1997.



45. **Gruden G, Thomas S, Burt D, Zhou W, Chusney G, Gnudi L, Viberti G.** Interaction of angiotensin II and mechanical stretch on vascular endothelial growth factor production by human mesangial cells. *J Am Soc Nephrol* 10(4):730-737, 1999.
46. **Hayashi Y, Katoh T, Asano K, Onozaki A, Sakurai K, Asahi K, Nakayama M, Watanabe T.** Mechanical stretch down-regulates expression of the Smad6 gene in cultured rat mesangial cells. *Clin Exp Nephrol* 16(5):690-696, 2012.
47. **Hirakata M, Kaname S, Chung UG, Joki N, Hori Y, Noda M, Takuwa Y, Okazaki T, Fujita T, Katoh T, Kurokawa K.** Tyrosine kinase dependent expression of TGF- $\beta$  induced by stretch in mesangial cells. *Kidney Int* 51(4):1028-36, 1997.
48. **Homma T, Akai Y, Burns KD, Harris RC.** Activation of S6 kinase by repeated cycles of stretching and relaxation in rat glomerular mesangial cells. Evidence for involvement of protein kinase C. *J Biol Chem* 267(32):23129-23135, 1992.
49. **Hori Y, Katoh T, Hirakata M, Joki N, Kaname S, Fukagawa M, Okuda T, Ohashi H, Fujita T, Miyazono K, Kurokawa K.** Anti-latent TGF- binding protein-1 antibody or synthetic oligopeptides inhibit extracellular matrix expression induced by stretch in cultured rat mesangial cells. *Kidney Int* 53:1616-1625, 1998.
50. **Ingram AJ, James L, Cai L, Thai K, Ly H, Scholey JW.** NO inhibits stretch-induced MAPK activity by cytoskeletal disruption. *J Biol Chem* 275(51):40301-40306, 2000.
51. **Ingram AJ, James L, Ly H, Thai K, Cai L, Scholey JW.** Nitric oxide modulates stretch activation of mitogen-activated protein kinases in mesangial cells. *Kidney International* 58(3):1067-1077, 2000.
52. **Ingram AJ, James L, Ly H, Thai K, Scholey JW.** Stretch activation of Jun N-terminal kinase/stress-activated protein kinase in mesangial cells. *Kidney International* 58(4):1431-1439, 2000.
53. **Ingram AJ, James L, Thai K, Ly H, Cai L, Scholey JW.** Nitric oxide modulates mechanical strain-induced activation of p38 MAPK in mesangial cells. *Am J Physiol Renal Physiol* 279(2):F243-F251, 2000.
54. **Ingram AJ, Ly H, Thai K, Kang M, Scholey JW.** Activation of mesangial cell signaling cascades in response to mechanical strain. *Kidney International* 55(2):476-485, 1999.
55. **Ingram AJ, Ly H, Thai K, Kang MJ, Scholey JW.** Mesangial cell signaling cascades in response to mechanical strain and glucose. *Kidney International* 56(5):1721-1728, 1999.
56. **Krepinsky J, Ingram AJ, James L, Ly H, Thai K, Cattran DC, Miller JA, Scholey JW.** 17 $\beta$ -Estradiol modulates mechanical strain-induced MAPK activation in mesangial cells. *J Biol Chem* 277(11):9387-9394, 2002.
57. **Krepinsky JC, Ingram AJ, Tang D, Wu D, Liu L, Scholey JW.** Nitric oxide inhibits stretch-induced MAPK activation in mesangial cells through RhoA inactivation. *J Am Soc Nephrol* 14(11):2790-2800, 2003.
58. **Krepinsky JC, Li Y, Chang Y, Liu L, Peng F, Wu D, Tang D, Scholey J, Ingram AJ.** Akt mediates mechanical strain-induced collagen production by mesangial cells. *J Am Soc Nephrol* 16(6):1661-1672, 2005.
59. **McMahon R, Murphy M, Clarkson M, Taal M, Mackenzie HS, Godson C, Martin F, Brady HR.** IHG-2, a mesangial cell gene induced by high glucose, is human gremlin. Regulation by extracellular glucose concentration, cyclic mechanical strain, and transforming growth factor- $\beta$ 1. *J Biol Chem* 275(14):9901-9904, 2000.
60. **Peng F, Wu D, Ingram AJ, Zhang B, Gao B, Krepinsky JC.** RhoA activation in mesangial cells by mechanical strain depends on caveolae and caveolin-1 interaction. *J Am Soc Nephrol* 18(1):189-198, 2007.
61. **Riser BL, Cortes P, Yee J, Sharba AK, Asano K, Rodriguez-Barbero A, Narins RG.** Mechanical strain- and high glucose-induced alterations in mesangial cell collagen metabolism: role of TGF- $\beta$ . *J Am Soc Nephrol* 9:827-836, 1998.
62. **Riser BL, Denichilo M, Cortes P, Baker C, Grondin JM, Yee J, Narins RG.** Regulation of connective tissue growth factor activity in cultured rat mesangial cells and its expression in experimental diabetic glomerulosclerosis. *J Am Soc Nephrol* 11(1):25-38, 2000.
63. **Riser BL, Ladson-Wofford S, Sharba A, Cortes P, Drake K, Guerin CJ, Yee J, Choi ME, Segarini PR, Narins RG.** TGF- $\beta$  receptor expression and binding in rat mesangial cells: modulation by glucose and cyclic mechanical strain. *Kidney International* 56(2):428-439, 1999.
64. **Riser BL, Varani J, Cortes P, Yee J, Dame M, Sharba AK.** Cyclic stretching of mesangial cells up-regulates intercellular adhesion molecule-1 and leukocyte adherence: a possible new mechanism for glomerulosclerosis. *Am J Pathol* 158(1):11-17, 2001.
65. **Yasuda T, Kondo S, Homma T, Harris RC.** Regulation of extracellular matrix by mechanical stress in rat glomerular mesangial cells. *J Clin Invest* 98(9):1991-2000, 1996.





66. **Yasuda T, Kondo S, Owada S, Ishida M, Harris RC.** Integrins and the cytoskeleton: focal adhesion kinase and paxillin. *Nephrol Dial Transplant* 14(Suppl 1):58-60, 1999.
67. **Yatabe J, Sanada H, Yatabe MS, Hashimoto S, Yoneda M, Felder RA, Jose PA, Watanabe T.** Angiotensin II type 1 receptor blocker attenuates the activation of ERK and NADPH oxidase by mechanical strain in mesangial cells in the absence of angiotensin II. *Am J Physiol Renal Physiol* 296(5):F1052-F1060, 2009.

#### RENAL EPITHELIAL CELLS

68. **Cachat F, Lange-Sperandio B, Chang AY, Kiley SC, Thornhill BA, Forbes MS, Chevalier RL.** Ureteral obstruction in neonatal mice elicits segment-specific tubular cell responses leading to nephron loss. *Kidney International* 63(2):564-575, 2003.
69. **Kiley SC, Thornhill BA, Belyea BC, Neale K, Forbes MS, Luetkeke NC, Lee DC, Chevalier RL.** Epidermal growth factor potentiates renal cell death in hydronephrotic neonatal mice, but cell survival in rats. *Kidney International* 68(2):504-514, 2005.
70. **Nguyen HT, Hsieh MH, Gaborro A, Tinloy B, Phillips C, Adam RM.** JNK/SAPK and p38 SAPK-2 mediate mechanical stretch-induced apoptosis via caspase-3 and -9 in NRK-52E renal epithelial cells. *Nephron Exp Nephrol* 102(2):e49-61, 2006.
71. **Power RE, Doyle BT, Higgins D, Brady HR, Fitzpatrick JM, Watson RW.** Mechanical deformation induced apoptosis in human proximal renal tubular epithelial cells is caspase dependent. *J Urol* 171(1):457-61, 2004.
72. **Sato M, Muragaki Y, Saika S, Roberts AB, Ooshima A.** Targeted disruption of TGF- $\beta$ 1/Smad3 signaling protects against renal tubulointerstitial fibrosis induced by unilateral ureteral obstruction. *J Clin Invest* 112(10):1486-1494, 2003.

#### LIGAMENT

##### PERIODONTAL LIGAMENT

1. **Agarwal S, Long P, Seyedain A, Piesco N, Shree A, Gassner R.** A central role for the nuclear factor- $\kappa$ B pathway in anti-inflammatory and proinflammatory actions of mechanical strain. *FASEB J* 17(8):899-901, 2003.
2. **Bolcato-Bellemin AL, Elkaim R, Abehsera A, Fausser JL, Haikel H, Tenenbaum H.** Expression of mRNAs encoding for  $\alpha$  and  $\beta$  integrin subunits, MMPs, and TIMPs in stretched human periodontal ligament and gingival fibroblasts. *J Dent Res* 79(9):1712-1716, 2000.
3. **Chang M, Lin H, Luo M, Wang J, Han G.** Integrated miRNA and mRNA expression profiling of tension force-induced bone formation in periodontal ligament cells. *In Vitro Cell Dev Biol Anim.* 51(8):797-807, 2015.
4. **Chen YJ, Jeng JH, Chang HH, Huang MY, Tsai FF, Yao CC.** Differential regulation of collagen, lysyl oxidase and MMP-2 in human periodontal ligament cells by low- and high-level mechanical stretching. *J Periodontal Res* 48(4):466-74, 2013.
5. **Chen Y, Mohammed A, Oubaidin M, Evans CA, Zhou X, Luan X, Diekwisch TG, Atsawasuwan P.** Cyclic stretch and compression forces alter microRNA-29 expression of human periodontal ligament cells. *Gene* 566(1):13-7, 2015.
6. **Chiba M, Mitani H.** Cytoskeletal changes and the system of regulation of alkaline phosphatase activity in human periodontal ligament cells induced by mechanical stress. *Cell Biochemistry and Function* 22(4):249-256, 2004.
7. **Cho JH, Lee SK, Lee JW, Kim EC.** The role of heme oxygenase-1 in mechanical stress- and lipopolysaccharide-induced osteogenic differentiation in human periodontal ligament cells. *Angle Orthod* 80(4):552-559, 2010.
8. **Doi T, Ohno S, Tanimoto K, Honda K, Tanaka N, Ohno-Nakahara M, Yoneno K, Suzuki A, Nakatani Y, Ueki M, Tanne K.** Mechanical stimuli enhances the expression of RGD-CAP/ $\beta$  ig-h3 in the periodontal ligament. *Archives of Oral Biology* 48(8):573-579, 2003.
9. **Duarte WR, Mikuni-Takagaki Y, Kawase T, Limura T, Oida S, Ohya K, Takenaga K, Ishikawa L, Kasugai S.** Effects of mechanical stress on the mRNA expression of S100A4 and cytoskeletal components by periodontal ligament cells. *J Med Dent Sci* 46(3):117-122, 1999.



10. **Enokiya Y, Hashimoto S, Muramatsu T, Jung HS, Tazaki M, Inoue T, Abiko Y, Shimono M.** Effect of stretching stress on gene transcription related to early-phase differentiation in rat periodontal ligament cells. *Bull Tokyo Dent Coll* 51(3):129-137, 2010.
11. **Han Y, Pan J, Wang X, Qi Y, Wang S, Yan Z.** Cyclic strain promotes migration and proliferation of human periodontal ligament cell via PI3K signaling pathway. *Cellular and Molecular Bioengineering* 3(4):369-375, 2010.
12. **Huelter-Hassler D, Tomakidi P, Steinberg T, Jung BA.** Orthodontic strain affects the Hippo-pathway effector YAP concomitant with proliferation in human periodontal ligament fibroblasts. *Eur J Orthod* 2017 Mar 17. doi: 10.1093/ejo/cjx012. [Epub ahead of print]
13. **Jacobs C, Walter C, Ziebart T, Dirks I, Schramm S, Grimm S, Krieger E, Wehrbein H.** Mechanical loading influences the effects of bisphosphonates on human periodontal ligament fibroblasts. *Clin Oral Investig* 19(3):699-708, 2015.
14. **Jacobs C, Walter C, Ziebart T, Grimm S, Meila D, Krieger E, Wehrbein H.** Induction of IL-6 and MMP-8 in human periodontal fibroblasts by static tensile strain. *Clin Oral Investig* 18(3):901-8, 2014.
15. **Kanzaki H, Chiba M, Sato A, Miyagawa A, Arai K, Nukatsuka S, Mitani H.** Cyclical tensile force on periodontal ligament cells inhibits osteoclastogenesis through OPG induction. *J Dent Res* 85(5):457-462, 2006.
16. **Kikuiri T, Hasegawa T, Yoshimura Y, Shirakawa T, Oguchi H.** Cyclic tension force activates nitric oxide production in cultured human periodontal ligament cells. *J Periodontol* 71(4):533-539, 2000.
17. **Kim HJ, Choi YS, Jeong MJ, KimBO, Lim SH, Kim DK, Kim CK, Park JC.** Expression of UNCL during development of periodontal tissue and response of periodontal ligament fibroblasts to mechanical stress in vivo and in vitro. *Cell Tissue Res* 327(1):25-31, 2007.
18. **Kim JH, Kang MS, Eltohamy M, Kim TH, Kim HW.** Dynamic mechanical and nanofibrous topological combinatory cues designed for periodontal ligament engineering. *PLoS One* 11(3):e0149967, 2016.
19. **Kimoto S, Matsuzawa M, Matsubara S, Komatsu T, Uchimura N, Kawase T, Saito S.** Cytokine secretion of periodontal ligament fibroblasts derived from human deciduous teeth: effect of mechanical stress on the secretion of transforming growth factor- $\beta$ 1 and macrophage colony stimulating factor. *J Periodontal Res* 34(5):235-243, 1999.
20. **Lee SI, Park KH, Kim SJ, Kang YG, Lee YM, Kim EC.** Mechanical stress-activated immune response genes via Sirtuin 1 expression in human periodontal ligament cells. *Clin Exp Immunol* 168(1):113-24, 2012.
21. **Liu J, Li Q, Liu S, Gao J, Qin W, Song Y, Jin Z.** Periodontal ligament stem cells in the periodontitis microenvironment are sensitive to static mechanical strain. *Stem Cells Int* 2017:1380851, 2017.
22. **Liu M, Dai J, Lin Y, Yang L, Dong H, Li Y, Ding Y, Duan Y.** Effect of the cyclic stretch on the expression of osteogenesis genes in human periodontal ligament cells. *Gene* 491(2):187-193, 2012.
23. **Long P, Hu J, Piesco N, Buckley M, Agarwal S.** Low magnitude of tensile strain inhibits IL-1 $\beta$ -dependent induction of pro-inflammatory cytokines and induces synthesis of IL-10 in human periodontal ligament cells in vitro. *J Dent Res* 80(5):1416-1420, 2001.
24. **Long P, Liu F, Piesco NP, Kapur R, Agarwal S.** Signaling by mechanical strain involves transcriptional regulation of proinflammatory genes in human periodontal ligament cells in vitro. *Bone* 30(4):547-552, 2002.
25. **Matsuda N, Yokoyama K, Takeshita S, Watanabe M.** Role of epidermal growth factor and its receptor in mechanical stress-induced differentiation of human periodontal ligament cells in vitro. *Arch Oral Biol* 43(12):987-997, 1998.
26. **Miura S, Yamaguchi M, Shimizu N, Abiko Y.** Mechanical stress enhances expression and production of plasminogen activator in aging human periodontal ligament cells. *Mechanisms of Ageing and Development* 112(3):217-231, 2000.
27. **Myokai F, Oyama M, Nishimura F, Ohira T, Yamamoto T, Arai H, Takashiba S, Murayama Y.** Unique genes induced by mechanical stress in periodontal ligament cells. *J Periodontal Res* 38(3):255-261, 2003.
28. **Nogueira AV, Nokhbehsaim M, Eick S, Bourauel C, Jäger A, Jepsen S, Cirelli JA, Deschner J.** Regulation of visfatin by microbial and biomechanical signals in PDL cells. *Clin Oral Investig* 18(1):171-8, 2014.
29. **Nokhbehsaim M, Deschner B, Winter J, Bourauel C, Jäger A, Jepsen S, Deschner J.** Anti-inflammatory effects of EMD in the presence of biomechanical loading and interleukin-1 $\beta$  in vitro. *Clin Oral Investig* 16(1):275-283, 2012.
30. **Nokhbehsaim M, Deschner B, Winter J, Bourauel C, Rath B, Jäger A, Jepsen S, Deschner J.** Interactions of regenerative, inflammatory and biomechanical signals on bone morphogenetic protein-2 in periodontal ligament cells. *J Periodontal Res* 46(3):374-381, 2011.



31. **Nokhbehsaim M, Deschner B, Winter J, Reimann S, Bourauel C, Jepsen S, Jäger A, Deschner J.** Contribution of orthodontic load to inflammation-mediated periodontal destruction. *J Orofac Orthop* 71(6):390-402, 2010.
32. **Ohzeki K, Yamaguchi M, Shimizu N, Abiko Y.** Effect of cellular aging on the induction of cyclooxygenase-2 by mechanical stress in human periodontal ligament cells. *Mechanisms of Ageing and Development* 108(2):151-163, 1999.
33. **Ozaki S, Kaneko S, Podyma-Inoue KA, Yanagishita M, Soma K.** Modulation of extracellular matrix synthesis and alkaline phosphatase activity of periodontal ligament cells by mechanical stress. *J Periodontal Res* 40(2):110-117, 2005.
34. **Ozawa Y, Shimizu N, Abiko Y.** Low-energy diode laser irradiation reduced plasminogen activator activity in human periodontal ligament cells. *Lasers Surg Med* 21(5):456-463, 1997.
35. **Pan J, Wang T, Wang L, Chen W, Song M.** Cyclic strain-induced cytoskeletal rearrangement of human periodontal ligament cells via the Rho signaling pathway. *PLoS One* 9(3):e91580, 2014.
36. **Rosselli-Murai LK, Almeida LO, Zagni C, Galindo-Moreno P, Padial-Molina M, Volk SL, Murai MJ, Rios HF, Squarize CH, Castilho RM.** Periostin responds to mechanical stress and tension by activating the MTOR signaling pathway. *PLoS One* 8(12):e83580, 2013.
37. **Saeki Y, Ohara A, Nishikawa M, Yamamoto T, Yamamoto G.** The presence of arachidonic acid-activated K<sup>+</sup> channel, TREK-1, in human periodontal ligament fibroblasts. *Drug Metab Rev* 39(2-3):457-465, 2007.
38. **Saminathan A, Vinoth KJ, Wescott DC, Pinkerton MN, Milne TJ, Cao T, Meikle MC.** The effect of cyclic mechanical strain on the expression of adhesion-related genes by periodontal ligament cells in two-dimensional culture. *J Periodontal Res* 47(2):212-221, 2012.
39. **Saminathan A, Vinoth KJ, Low HH, Cao T, Meikle MC.** Engineering three-dimensional constructs of the periodontal ligament in hyaluronan-gelatin hydrogel films and a mechanically active environment. *J Periodontal Res* 2013 Apr 15.
40. **Shen T, Qiu L, Chang H, Yang Y, Jian C, Xiong J, Zhou J, Dong S.** Cyclic tension promotes osteogenic differentiation in human periodontal ligament stem cells. *Int J Clin Exp Pathol* 7(11):7872-80, 2014.
41. **Shimizu N, Yamaguchi M, Uesu K, Goseki T, Abiko Y.** Stimulation of prostaglandin E2 and interleukin-1 $\beta$  production from old rat periodontal ligament cells subjected to mechanical stress. *J Gerontol A Biol Sci Med Sci* 55(10):B489-B495, 2000.
42. **Sun C, Liu F, Cen S, Chen L, Wang Y, Sun H, Deng H, Hu R.** Tensile strength suppresses the osteogenesis of periodontal ligament cells in inflammatory microenvironments. *Mol Med Rep* 16(1):666-672, 2017.
43. **Tsuji K, Uno K, Zhang GX, Tamura M.** Periodontal ligament cells under intermittent tensile stress regulate mRNA expression of osteoprotegerin and tissue inhibitor of matrix metalloprotease-1 and -2. *J Bone Miner Metab* 22(2):94-103, 2004.
44. **Wang L, Pan J, Wang T, Song M, Chen W.** Pathological cyclic strain-induced apoptosis in human periodontal ligament cells through the RhoGDI $\alpha$ /caspase-3/PARP pathway. *PLoS One* 8(10):e75973, 2013.
45. **Wei FL, Wang JH, Ding G, Yang SY, Li Y, Hu YJ, Wang SL.** Mechanical force-induced specific microRNA expression in human periodontal ligament stem cells. *Cells Tissues Organs* 199(5-6):353-63, 2014.
46. **Wen W, Chau E, Jackson-Boeters L, Elliott C, Daley TD, Hamilton DW.** TGF- $\beta$ 1 and FAK regulate periostin expression in PDL fibroblasts. *J Dent Res* 89(12):1439-1443, 2010.
47. **Wescott DC, Pinkerton MN, Gaffey BJ, Beggs KT, Milne TJ, Meikle MC.** Osteogenic gene expression by human periodontal ligament cells under cyclic tension. *J Dent Res* 86(12):1212-1216, 2007.
48. **Wu J, Song M, Li T, Zhu Z, Pan J.** The Rho-mDia1 signaling pathway is required for cyclic strain-induced cytoskeletal rearrangement of human periodontal ligament cells. *Exp Cell Res* 337(1):28-36, 2015.
49. **Yamaguchi M, Shimizu N, Goseki T, Shibata Y, Takiguchi H, Iwasawa T, Abiko Y.** Effect of different magnitudes of tension force on prostaglandin E2 production by human periodontal ligament cells. *Archives of Oral Biology* 39(10):877-884, 1994.
50. **Yamaguchi M, Shimizu N, Ozawa Y, Saito K, Miura S, Takiguchi H, Iwasawa T, Abiko Y.** Effect of tension-force on plasminogen activator activity from human periodontal ligament cells. *J Periodontal Res* 32(3):308-314, 1997.
51. **Yamaguchi M, Shimizu N.** Identification of factors mediating the decrease of alkaline phosphatase activity caused by tension-force in periodontal ligament cells. *General Pharmacology* 25(6):1229-1235, 1994.
52. **Yamaguchi N, Chiba M, Mitani H.** The induction of c-fos mRNA expression by mechanical stress in human periodontal ligament cells. *Archives of Oral Biology* 47(6):465-471, 2002.



53. Yamashiro K, Myokai F, Hiratsuka K, Yamamoto T, Senoo K, Arai H, Nishimura F, Abiko Y, Takashiba S. Oligonucleotide array analysis of cyclic tension-responsive genes in human periodontal ligament fibroblasts. *The International Journal of Biochemistry & Cell Biology* 39(5):910-921, 2007.
54. Yoshino H, Morita I, Murota SI, Ishikawa I. Mechanical stress induces production of angiogenic regulators in cultured human gingival and periodontal ligament fibroblasts. *J Periodontal Res* 38(4):405-410, 2003.

#### KNEE LIGAMENTS

55. Hannafin JA, Attia EA, Henshaw R, Warren RF, Bhargava MM. Effect of cyclic strain and plating matrix on cell proliferation and integrin expression by ligament fibroblasts. *J Orthop Res* 24(2):149-58, 2005.
56. Henshaw DR, Attia E, Bhargava M, Hannafin JA. Canine ACL fibroblast integrin expression and cell alignment in response to cyclic tensile strain in three-dimensional collagen gels. *J Orthop Res* 24(3):481-490, 2006.
57. Hsieh AH, Tsai CM, Ma QJ, Lin T, Banes AJ, Villarreal FJ, Akeson WH, Sung KL. Time-dependent increases in type-III collagen gene expression in medical collateral ligament fibroblasts under cyclic strains. *J Orthop Res* 18(2):220-227, 2000.
58. Jones BF, Wall ME, Carroll RL, Washburn S, Banes AJ. Ligament cells stretch-adapted on a microgrooved substrate increase intercellular communication in response to a mechanical stimulus. *J Biomech* 38(8):1653-1664, 2005.
59. Lee CH, Shin HJ, Cho IH, Kang YM, Kim IA, Park KD, Shin JW. Nanofiber alignment and direction of mechanical strain affect the ECM production of human ACL fibroblast. *Biomaterials* 26(11):1261-1270, 2005.
60. Lee CY, Liu X, Smith CL, Zhang X, Hsu HC, Wang DY, Luo ZP. The combined regulation of estrogen and cyclic tension on fibroblast biosynthesis derived from anterior cruciate. *Matrix Biology* 23(5):323-329, 2004.
61. Lee CY, Smith CL, Zhang X, Hsu HC, Wang DY, Luo ZP. Tensile forces attenuate estrogen-stimulated collagen synthesis in the ACL. *Biochemical and Biophysical Research Communications* 317:1221-1225, 2004.
62. Sun L, Qu L, Zhu R, Li H, Xue Y, Liu X, Fan J, Fan H. Effects of mechanical stretch on cell proliferation and matrix formation of mesenchymal stem cell and anterior cruciate ligament fibroblast. *Stem Cells Int* 2016:9842075 2016.
63. Wang C, Xie J, Jiang J, Huang W, Chen R, Xu C, Zhang Y, Fu C, Yang L, Chen PC, Sung KL. Differential expressions of the lysyl oxidase family and matrix metalloproteinases-1, 2, 3 in posterior cruciate ligament fibroblasts after being co-cultured with synovial cells. *Int Orthop* 39(1):183-91. 2015.
64. Xie J, Wang CL, Yang W, Wang J, Chen C, Zheng L, Sung KP, Zhou X. Modulation of MMP-2 and -9 through connected pathways and growth factors is critical for extracellular matrix balance of intra-articular ligaments. *J Tissue Eng Regen Med* 2016 Sep 29. doi: 10.1002/term.2325. [Epub ahead of print].

#### OTHER LIGAMENT CELLS

65. Chen D, Liu Y, Yang H, Chen D, Zhang X, Fernandes JC, Chen Y. Connexin 43 promotes ossification of the posterior longitudinal ligament through activation of the ERK1/2 and p38 MAPK pathways. *Cell Tissue Res* 363(3):765-73, 2016.
66. Ewies AA, Elshafie M, Li J, Stanley A, Thompson J, Styles J, White I, Al-Azzawi F. Changes in transcription profile and cytoskeleton morphology in pelvic ligament fibroblasts in response to stretch: the effects of estradiol and levormeloxifene. *Mol Hum Reprod* 14(2):127-135, 2008.
67. Nakatani T, Marui T, Hitora T, Doita M, Nishida K, Kurosaka M. Mechanical stretching force promotes collagen synthesis by cultured cells from human ligamentum flavum via transforming growth factor-1. *J Orthop Res* 20(6):1380-1386, 2002.
68. Ning S, Chen Z, Fan D, Sun C, Zhang C, Zeng Y, Li W, Hou X, Qu X, Ma Y, Yu H. Genetic differences in osteogenic differentiation potency in the thoracic ossification of the ligamentum flavum under cyclic mechanical stress. *Int J Mol Med* 39(1):135-143, 2017.
69. Yang HS, Lu XH, Chen DY, Yuan W, Yang LL, Chen Y, He HL. Mechanical strain induces Cx43 expression in spinal ligament fibroblasts derived from patients presenting ossification of the posterior longitudinal ligament. *Eur Spine J* 20(9):1459-1465, 2011.
70. Zhang W, Wei P, Chen Y, Yang L, Jiang C, Jiang P, Chen D. Down-regulated expression of vimentin induced by mechanical stress in fibroblasts derived from patients with ossification of the posterior longitudinal ligament. *Eur Spine J* 23(11):2410-5, 2014.



## LIVER

1. **Amura CR, Brodsky KS, Gitomer B, McFann K, Lazennec G, Nichols MT, Jani A, Schrier RW, Doctor RB.** CXCR2 agonists in ADPKD liver cyst fluids promote cell proliferation. *Am J Physiol Cell Physiol* 294(3):C786-C796, 2008.
2. **González-Avalos P, Mürnseer M, Deeg J, Bachmann A, Spatz J, Dooley S, Eils R, Gladilin E.** Quantification of substrate and cellular strains in stretchable 3D cell cultures: an experimental and computational framework. *J Microsc* 266(2):115-125, 2017.
3. **Peccerella T, Rausch V, Longerich T, Lasitschka F, Poth T, Mueller S.** Non-inflammatory liver congestion causes bridging fibrosis via biomechanical signaling of stellate cells: Evidence for pressure-induced cirrhosis. *Zeitschrift für Gastroenterologie* 55(08), KV-313, 2017.
4. **Sakata R, Ueno T, Nakamura T, Ueno H, Sata M.** Mechanical stretch induces TGF- $\beta$  synthesis in hepatic stellate cells. *Eur J Clin Invest* 34(2):129-136, 2004.

## LUNG

### ALVEOLAR MACROPHAGES

1. **Edwards YS, Sutherland LM, Murray AW.** NO protects alveolar type II cells from stretch-induced apoptosis. A novel role for macrophages in the lung. *Am J Physiol Lung Cell Mol Physiol* 279(6):L1236-L1242, 2000.
2. **Frank JA, Wray CM, McAuley DF, Schwendener R, Matthay MA.** Alveolar macrophages contribute to alveolar barrier dysfunction in ventilator-induced lung injury. *Am J Physiol Lung Cell Mol Physiol* 291(6):L1191-8, 2006.
3. **Wu J, Yan Z, Schwartz DE, Yu J, Malik AB, Hu G.** Activation of NLRP3 inflammasome in alveolar macrophages contributes to mechanical stretch-induced lung inflammation and injury. *J Immunol* 190(7):3590-9, 2013.

### LUNG FIBROBLASTS

4. **Aljamal-Naylor R, Wilson L, McIntyre S, Rossi F, Harrison B, Marsden M, Harrison DJ.** Allosteric modulation of  $\beta$ 1 integrin function induces lung tissue repair. *Adv Pharmacol Sci* 2012:768720, 2012.
5. **Breen EC, Fu Z, Norman H.** Calcylin gene expression is increased by mechanical strain in fibroblasts and lung. *Am J Respir Cell Mol Biol* 21:746-752, 1999.
6. **Breen EC.** Mechanical strain increases type I collagen expression in pulmonary fibroblasts in vitro. *J Appl Physiol* 88(1):203-209, 2000.
7. **Blaauboer ME, Boeijen FR, Emson CL, Turner SM, Zandieh-Doulabi B, Hanemaaijer R, Smit TH, Stoop R, Everts V.** Extracellular matrix proteins: a positive feedback loop in lung fibrosis? *Matrix Biol* 34:170-8, 2014.
8. **Blaauboer ME, Smit TH, Hanemaaijer R, Stoop R, Everts V.** Cyclic mechanical stretch reduces myofibroblast differentiation of primary lung fibroblasts. *Biochem Biophys Res Commun* 404(1):23-27, 2011.
9. **Copland IB, Reynaud D, Pace-Asciak C, Post M.** Mechanotransduction of stretch-induced prostanoid release by fetal lung epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 291(3):L487-L495, 2006.
10. **Klein G, Schaefer A, Hilfiker-Kleiner D, Oppermann D, Shukla P, Quint A, Podewski E, Hilfiker A, Schroder F, Leitges M, Drexler H.** Increased collagen deposition and diastolic dysfunction but preserved myocardial hypertrophy after pressure overload in mice lacking PKC $\epsilon$ . *Circ Res* 96(7):748-755, 2005.
11. **Le Bellego F, Plante S, Chakir J, Hamid Q, Ludwig MS.** Differences in MAP kinase phosphorylation in response to mechanical strain in asthmatic fibroblasts. *Respir Res* 7:68, 2006.
12. **Liu J, Yu W, Liu Y, Chen S, Huang Y, Li X, Liu C, Zhang Y, Li Z, Du J, Tang C, Du J, Jin H.** Mechanical stretching stimulates collagen synthesis via down-regulating SO2/AAT1 pathway. *Sci Rep* 6:21112, 2016.
13. **Manuyakorn W, Smart DE, Noto A, Bucchieri F, Haitchi HM, Holgate ST, Howarth PH, Davies DE.** Mechanical strain causes adaptive change in bronchial fibroblasts enhancing profibrotic and inflammatory responses. *PLoS One* 11(4):e0153926, 2016.
14. **Sanchez-Esteban J, Wang Y, Cicchiello LA, Rubin LP.** Pre- and postnatal lung development, maturation, and plasticity. Cyclic mechanical stretch inhibits cell proliferation and induces apoptosis in fetal rat lung fibroblasts. *Am J Physiol Lung Cell Mol Physiol* 282(3):L448-L456, 2002.



15. **Wang GH, Xi XP.** Effects of mechanical stimulation on viscoelasticity of human lung fibroblast. *Applied Mechanics and Materials* 432: 398, 2013.

#### MESOTHELIAL CELLS

16. **Brown SC, Kamal M, Nasreen N, Baumuratov A, Sharma P, Antony VB, Moudgil BM.** Influence of shape, adhesion and simulated lung mechanics on amorphous silica nanoparticle toxicity. *Adv Powder Tech* 18(1):69-79, 2007.
17. **He Z, Potter R, Li X, Flessner M.** Stretch of human mesothelial cells increases cytokine expression. *Adv Perit Dial* 28:2-9, 2012.
18. **Waters CM, Chang JY, Glucksberg MR, DePaola N, Grothberg JB.** Mechanical forces alter growth factor release by pleural mesothelial cells. *Am J Physiol* 272(3 Pt 1):L552-L557, 1997.

#### PULMONARY ENDOTHELIAL CELLS

19. **Abdulnour RE, Peng X, Finigan JH, Han EJ, Hasan EJ, Birukov KG, Reddy SP, Watkins JE 3rd, Kayyali US, Garcia JG, Tudor RM, Hassoun PM.** Mechanical stress activates xanthine oxidoreductase through MAP kinase-dependent pathways. *Am J Physiol Lung Cell Mol Physiol* 291(3):L345-L353, 2006.
20. **Adyshev DM, Elangovan VR, Moldobaeva N, Mapes B, Sun X, Garcia JG.** Mechanical stress induces pre-B-cell colony-enhancing factor/NAMPT expression via epigenetic regulation by miR-374a and miR-568 in human lung endothelium. *Am J Respir Cell Mol Biol* 50(2):409-18, 2014.
21. **Ali MH, Mungai PT, Schumacker PT.** Stretch-induced phosphorylation of focal adhesion kinase in endothelial cells: role of mitochondrial oxidants. *Am J Physiol Lung Cell Mol Physiol* 291(1):L38-L45, 2006.
22. **Birukov KG, Jacobson JR, Flores AA, Ye SQ, Birukova AA, Verin AD, Garcia JG.** Magnitude-dependent regulation of pulmonary endothelial cell barrier function by cyclic stretch. *Am J Physiol Lung Cell Mol Physiol* 285(4):L785-L797, 2003.
23. **Birukova AA, Chatchavalvanich S, Rios A, Kawkitinarong K, Garcia JG, Birukov KG.** Differential regulation of pulmonary endothelial monolayer integrity by varying degrees of cyclic stretch. *Am J Pathol* 168(5):1749-1761, 2006.
24. **Birukova AA, Fu P, Xing J, Cokic I, Birukov KG.** Lung endothelial barrier protection by iloprost in the 2-hit models of ventilator-induced lung injury (VILI) involves inhibition of Rho signaling. *Transl Res* 155(1):44-54, 2010.
25. **Birukova AA, Fu P, Xing J, Yakubov B, Cokic I, Birukov KG.** Mechanotransduction by GEF-H1 as a novel mechanism of ventilator-induced vascular endothelial permeability. *Am J Physiol Lung Cell Mol Physiol* 298(6):L837-848, 2010.
26. **Birukova AA, Moldobaeva N, Xing J, Birukov KG.** Magnitude-dependent effects of cyclic stretch on HGF- and VEGF-induced pulmonary endothelial remodeling and barrier regulation. *Am J Physiol Lung Cell Mol Physiol* 295(4):L612-L623, 2008.
27. **Birukova AA, Rios A, Birukov KG.** Long-term cyclic stretch controls pulmonary endothelial permeability at translational and post-translational levels. *Exp Cell Res* 314(19):3466-3477, 2008.
28. **Birukova AA, Tian Y, Meliton A, Leff A, Wu T, Birukov KG.** Stimulation of Rho signaling by pathologic mechanical stretch is a "second hit" to Rho-independent lung injury induced by IL-6. *Am J Physiol Lung Cell Mol Physiol* 302(9):L965-75, 2012.
29. **Chen W, Epshtein Y, Ni X, Dull RO, Cress AE, Garcia JG, Jacobson JR.** Role of integrin  $\beta$ 4 in lung endothelial cell inflammatory responses to mechanical stress. *Sci Rep* 5:16529, 2015.
30. **Dong WW, Liu YJ, Lv Z, Mao YF, Wang YW, Zhu XY, Jiang L.** Lung endothelial barrier protection by resveratrol involves inhibition of HMGB1 release and HMGB1-induced mitochondrial oxidative damage via an Nrf2-dependent mechanism. *Free Radic Biol Med* 88(Pt B):404-16, 2015.
31. **Dubrovskiy O, Birukova AA, Birukov KG.** Measurement of local permeability at subcellular level in cell models of agonist- and ventilator-induced lung injury. *Lab Invest* 93(2):254-63, 2013.
32. **Elangovan VR, Camp SM, Kelly GT, Desai AA, Adyshev D, Sun X, Black SM, Wang T, Garcia JG.** Endotoxin- and mechanical stress-induced epigenetic changes in the regulation of the nicotinamide phosphoribosyltransferase promoter. *Pulmonary Circulation* 6(4):539-544, 2016.
33. **Haseneen NA, Vaday GG, Zucker S, Foda HD.** Mechanical stretch induces MMP-2 release and activation in lung endothelium: role of EMMPRIN. *Am J Physiol Lung Cell Mol Physiol* 284(3):L541-L547, 2003.
34. **Gawlak G, Tian Y, O'Donnell JJ 3rd, Tian X, Birukova AA, Birukov KG.** Paxillin mediates stretch-induced Rho signaling and endothelial permeability via assembly of paxillin-p42/44MAPK-GEF-H1 complex. *FASEB J* 28(7):3249-60, 2014.



35. **Grigoryev DN, Ma SF, Irizarry RA, Ye SQ, Quackenbush J, Garcia JG.** Orthologous gene-expression profiling in multi-species models: search for candidate genes. *Genome Biol* 5(5):R34, 2004.
36. **Kobayashi K, Tanaka M, Nebuya S, Kokubo K, Fukuoka Y, Harada Y, Kobayashi H, Noshiro M, Inaoka H.** Temporal change in IL-6 mRNA and protein expression produced by cyclic stretching of human pulmonary artery endothelial cells. *Int J Mol Med* 30(3):509-13, 2012.
37. **Limbourg A, von Felden J, Jagavelu K, Krishnasamy K, Napp LC, Kapopara PR, Gaestel M, Schieffer B, Bauersachs J, Limbourg FP, Bavendiek U.** MAP-kinase activated protein kinase 2 links endothelial activation and monocyte/macrophage recruitment in arteriogenesis. *PLoS One* 10(10):e0138542, 2015.
38. **Liu WF, Nelson CM, Tan JL, Chen CS.** Cadherins, RhoA, and Rac1 are differentially required for stretch-mediated proliferation in endothelial versus smooth muscle cells. *Circ Res* 101(5):e44-e52, 2007.
39. **Mascarenhas JB, Tchourbanov AY, Fan H, Danilov SM, Wang T, Garcia JG.** Mechanical stress and single nucleotide variants regulate alternative splicing of the MYLK gene. *Am J Respir Cell Mol Biol* 56(1):29-37, 2017. doi: 10.1165/rmb.2016-0053OC.
40. **Michalick L, Erfinanda L, Weichert U, van der Giet M, Liedtke W, Kuebler WM.** Transient receptor potential vanilloid 4 and serum glucocorticoid-regulated kinase 1 are critical mediators of lung injury in overventilated mice in vivo. *Anesthesiology* 126(2):300-311, 2017.
41. **Mitra S, Wade MS, Sun X, Moldobaeva N, Flores C, Ma SF, Zhang W, Garcia JG, Jacobson JR.** GADD45a promoter regulation by a functional genetic variant associated with acute lung injury. *PLoS One* 9(6):e100169, 2014.
42. **Moldobaeva A, Rentsendorj O, Jenkins J, Wagner EM.** Nitric oxide synthase promotes distension-induced tracheal venular leukocyte adherence. *PLoS One* 9(9):e106092, 2014.
43. **Nonas S, Birukova AA, Fu P, Xing J, Chatchavalvanich S, Bochkov VN, Leitinger N, Garcia JG, Birukov KG.** Oxidized phospholipids reduce ventilator-induced vascular leak and inflammation in vivo. *Crit Care* 12(1):R27, 2008.
44. **O'Donnell JJ 3rd, Birukova AA, Beyer EC, Birukov KG.** Gap junction protein connexin43 exacerbates lung vascular permeability. *PLoS One* 9(6):e100931, 2014.
45. **Shikata Y, Rios A, Kawkitinarong K, DePaola N, Garcia JG, Birukov KG.** Differential effects of shear stress and cyclic stretch on focal adhesion remodeling, site-specific FAK phosphorylation, and small GTPases in human lung endothelial cell. *Experimental Cell Research* 304(1):40-49, 2005.
46. **Sun X, Elangovan VR, Mapes B, Camp SM, Sammani S, Saadat L, Ceco E, Ma SF, Flores C, MacDougall MS, Quijada H, Liu B, Kempf CL, Wang T, Chiang ET, Garcia JG.** The NAMPT promoter is regulated by mechanical stress, signal transducer and activator of transcription 5, and acute respiratory distress syndrome-associated genetic variants. *Am J Respir Cell Mol Biol* 51(5):660-7, 2014.
47. **Tian Y, Gawlak G, O'Donnell JJ 3rd, Mambetsariev I, Birukova AA.** Modulation of endothelial inflammation by low and high magnitude cyclic stretch. *PLoS One* 11(4):e0153387, 2016.
48. **Tirlapur N, O'Dea K, Soni S, Davies R, Sooranna S, Johnson M, Wilson M, Takata M.** Pathological stretch of endothelial cells activates marginated monocytes to release microvesicles in an in vitro model of ventilator-induced lung injury [abstract]. *American Journal of Respiratory and Critical Care Medicine* 195:A4780, 2017.
49. **Vion AC, Birukova AA, Boulanger CM, Birukov KG.** Mechanical forces stimulate endothelial microparticle generation via caspase-dependent apoptosis-independent mechanism. *Pulm Circ* 3(1):95-9, 2013.
50. **Wang Y, Xu CF, Liu YJ, Mao YF, Lv Z, Li SY, Zhu XY, Jiang L.** Salidroside attenuates ventilation induced lung injury via SIRT1-dependent inhibition of NLRP3 inflammasome. *Cell Physiol Biochem* 42(1):34-43, 2017.
51. **Wedgwood S, Devol JM, Grobe A, Benavidez E, Azakie A, Fineman JR, Black SM.** Fibroblast growth factor-2 expression is altered in lambs with increased pulmonary blood flow and pulmonary hypertension. *Pediatr Res* 61(1):32-36, 2007.
52. **Wolfson RK, Mapes B, Garcia JG.** Excessive mechanical stress increases HMGB1 expression in human lung microvascular endothelial cells via STAT3. *Microvasc Res* 92:50-5, 2014.

#### PULMONARY EPITHELIAL CELLS

53. **Belete HA, Hubmayr RD, Wang S, Singh RD.** The role of purinergic signaling on deformation induced injury and repair responses of alveolar epithelial cells. *PLoS One* 6(11):e27469, 2011.



54. **Budinger GR, Urich D, DeBiase PJ, Chiarella SE, Burgess ZO, Baker CM, Soberanes S, Mutlu GM, Jones JC.** Stretch-induced activation of AMP kinase in the lung requires dystroglycan. *Am J Respir Cell Mol Biol* 39(6):666-672, 2008.
55. **Chapman KE, Sinclair SE, Zhuang D, Hassid A, Desai LP, Waters CM.** Cyclic mechanical strain increases reactive oxygen species production in pulmonary epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 289(5):L834-L841, 2005.
56. **Charles PE, Tissières P, Barbar SD, Croisier D, Dufour J, Dunn-Siegrist I, Chavanet P, Pugin J.** Mild-stretch mechanical ventilation upregulates toll-like receptor 2 and sensitizes the lung to bacterial lipopeptide. *Crit Care* 15(4):R181, 2011.
57. **Chaturvedi LS, Marsh HM, Basson MD.** Src and focal adhesion kinase mediate mechanical strain-induced proliferation and ERK1/2 phosphorylation in human H441 pulmonary epithelial cells. *Am J Physiol Cell Physiol* 292(5):C1701-C1713, 2007.
58. **Chess PR, O'Reilly MA, Sachs F, Finkelstein JN.** Reactive oxidant and p42/44 MAP kinase signaling is necessary for mechanical strain-induced proliferation in pulmonary epithelial cells. *J Appl Physiol* 99(3):1226-1232, 2005.
59. **Chess PR, O'Reilly MA, Toia L.** Microarray analysis reveals a strain-induced oxidant response in pulmonary epithelial cells. *Exp Lung Res* 30(8):739-53, 2004.
60. **Chess PR, Toia L, Finkelstein JN.** Mechanical strain-induced proliferation and signaling in pulmonary epithelial H441 cells. *Am J Physiol Lung Cell Mol Physiol* 279:L43-L51, 2000.
61. **Copland IB, Post M.** Stretch-activated signaling pathways responsible for early response gene expression in fetal lung epithelial cells. *J Cell Physiol* 210(1):133-143, 2007.
62. **Copland IB, Reynaud D, Pace-Asciak C, Post M.** Mechanotransduction of stretch-induced prostanoid release by fetal lung epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 291(3):L487-L495, 2006.
63. **Correa-Meyer E, Pesce L, Guerrero C, Sznajder JI.** Cyclic stretch activates ERK1/2 via G proteins and EGFR in alveolar epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 282(5):L883-L891, 2002.
64. **Desai LP, Chapman KE, Waters CM.** Mechanical stretch decreases migration of alveolar epithelial cells through mechanisms involving Rac1 and Tiam1. *Am J Physiol Lung Cell Mol Physiol* 295(5):L958-L965, 2008.
65. **Desai LP, White SR, Waters CM.** Mechanical stretch decreases FAK phosphorylation and reduces cell migration through loss of JIP3-induced JNK phosphorylation in airway epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 297(3):L520-L529, 2009.
66. **Desai LP, White SR, Waters CM.** Cyclic mechanical stretch decreases cell migration by inhibiting phosphatidylinositol 3-kinase- and focal adhesion kinase-mediated JNK1 activation. *J Biol Chem* 285(7):4511-4519, 2010.
67. **Ding N, Xiao H, Xu LX, She SZ.** Effect of mitogen-activated protein kinase kinase 6-p38 $\alpha$  signal pathway on receptor for advanced glycation end-product expression in alveolar epithelial cells induced by mechanical stretch. *Zhongguo Wei Zhong Bing Ji Jiu Yi Xue* 21(10):597-600, 2009.
68. **dos Santos CC, Han B, Andrade CF, Bai X, Uhlig S, Hubmayr R, Tsang M, Lodyga M, Keshavjee S, Slutsky AS, Liu M.** DNA microarray analysis of gene expression in alveolar epithelial cells in response to TNF $\alpha$ , LPS, and cyclic stretch. *Physiol Genomics* 19(3):331-342, 2004.
69. **Eckle T, Brodsky K, Bonney M, Packard T, Han J, Borchers CH, Mariani TJ, Kominsky DJ, Mittelbronn M, Eltzschig HK.** HIF1A reduces acute lung injury by optimizing carbohydrate metabolism in the alveolar epithelium. *PLoS Biol* 11(9):e1001665, 2013.
70. **Eckle T, Fullbier L, Wehrmann M, Khoury J, Mittelbronn M, Ibla J, Rosenberger P, Eltzschig HK.** Identification of ectonucleotidases CD39 and CD73 in innate protection during acute lung injury. *The Journal of Immunology* 178:8127-8137, 2007.
71. **Eckle T, Kewley EM, Brodsky KS, Tak E, Bonney S, Gobel M, Anderson D, Glover LE, Riegel AK, Colgan SP, Eltzschig HK.** Identification of hypoxia-inducible factor HIF-1A as transcriptional regulator of the A2B adenosine receptor during acute lung injury. *J Immunol* 192(3):1249-56, 2014.
72. **Edwards YS, Sutherland LM, Murray AW.** NO protects alveolar type II cells from stretch-induced apoptosis. A novel role for macrophages in the lung. *Am J Physiol Lung Cell Mol Physiol* 279(6):L1236-L1242, 2000.
73. **Edwards YS, Sutherland LM, Power JHT, Nicholas TE, Murray AW.** Cyclic stretch induces both apoptosis and secretion in rat alveolar type II cells. *FEBS Letters* 448(1):127-130, 1999.
74. **Englert JA, Isabelle C, Henske EP, Choi AM, Baron RM.** MTORC1 is activated in airway epithelial cells in a murine VILI model and following in vitro stretch. *Am J Respir Crit Care Med* 191:A2383, 2015.





75. **Fanelli V, Morita Y, Cappello P, Ghazarian M, Sugumar B, Delsedime L, Batt J, Ranieri VM, Zhang H, Slutsky AS.** Neuromuscular blocking agent cisatracurium attenuates lung injury by inhibition of nicotinic acetylcholine receptor- $\alpha 1$ . *Anesthesiology* 124(1):132-40, 2016.
76. **Frank JA, Wray CM, McAuley DF, Schwendener R, Matthay MA.** Alveolar macrophages contribute to alveolar barrier dysfunction in ventilator-induced lung injury. *Am J Physiol Lung Cell Mol Physiol* 291(6):L1191-8, 2006.
77. **Gao J, Huang T, Zhou LJ, Ge YL, Lin SY, Dai Y.** Preconditioning effects of physiological cyclic stretch on pathologically mechanical stretch-induced alveolar epithelial cell apoptosis and barrier dysfunction. *Biochem Biophys Res Commun* 448(3):342-8, 2014.
78. **Geiger RC, Kaufman CD, Lam AP, Budinger GR, Dean DA.** Tubulin acetylation and histone deacetylase 6 activity in the lung under cyclic load. *Am J Respir Cell Mol Biol* 40(1):76-82, 2009.
79. **Gu C, Liu M, Zhao T, Wang D, Wang Y.** Protective role of p120-catenin in maintaining the integrity of adherens and tight junctions in ventilator-induced lung injury. *Respir Res* 16:58, 2015.
80. **Guo Y, Zhang W, Zheng L, Guo W, Zhang H, Li X.** Impacts of dynamic mechanical stretch on the expression of plasminogen activator inhibitor-1 (PAI-1) in human A549 cell. *Int J Clin Exp Pathol* 9(6):5871-5881, 2016.
81. **Gutierrez JA, Suzara VV, Dobbs LG.** Continuous mechanical contraction modulates expression of alveolar epithelial cell phenotype. *American Journal of Respiratory Cell and Molecular Biology* 29:81-87, 2003.
82. **Hammerschmidt S, Kuhn H, Grasenack T, Gessner C, Wirtz H.** Apoptosis and necrosis induced by cyclic mechanical stretching in alveolar type II cells. *Am J Respir Cell Mol Biol* 30(3):396-402, 2004.
83. **Hammerschmidt S, Kuhn H, Sack U, Schlenska A, Gessner C, Gillissen A, Wirtz H.** Mechanical stretch alters alveolar type II cell mediator release toward a proinflammatory pattern. *Am J Respir Cell Mol Biol* 33(2):203-210, 2005.
84. **Harris C, Rushwan S, Wang W, Thorpe S, Thompson C, Peacock J, Knight M, Goopu B, Greenough A.** P07 Interleukin response to cyclical mechanical stretch with models of different neonatal ventilation modes. *Archives of Disease in Childhood* 102:A4, 2017.
85. **Hokenson MA, Wang Y, Hawwa RL, Huang Z, Sharma S, Sanchez-Esteban J.** Reduced IL-10 production in fetal type II epithelial cells exposed to mechanical stretch is mediated via activation of IL-6-SOCS3 signaling pathway. *PLoS One* 8(3):e59598, 2013.
86. **Horie S, Ansari B, Masterson C, Devaney J, Scully M, O'Toole D, Laffey JG.** Hypercapnic acidosis attenuates pulmonary epithelial stretch-induced injury via inhibition of the canonical NF- $\kappa$ B pathway. *Intensive Care Med* 41(1):8, 2016.
87. **Hossain MM, Smith PG, Wu K, Jin JP.** Cytoskeletal tension regulates both expression and degradation of h2-calponin in lung alveolar cells. *Biochemistry* 45(51):15670-15683, 2006.
88. **Huang Z, Wang Y, Nayak PS, Dammann CE, Sanchez-Esteban J.** Stretch-induced fetal type II cell differentiation is mediated via ErbB1 - ErbB4 interactions. *J Biol Chem* 287(22):18091-18102, 2012.
89. **Ito Y, Correll K, Schiel JA, Finigan JH, Prekeris R, Mason RJ.** Lung fibroblasts accelerate wound closure in human alveolar epithelial cells through hepatocyte growth factor/c-Met signaling. *Am J Physiol Lung Cell Mol Physiol* 307(1):L94-105, 2014.
90. **Jones JC, Lane K, Hopkinson SB, Lecuona E, Geiger RC, Dean DA, Correa-Meyer E, Gonzales M, Campbell K, Sznajder JI, Budinger S.** Laminin-6 assembles into multimolecular fibrillar complexes with perlecan and participates in mechanical-signal transduction via a dystroglycan-dependent, integrin-independent mechanism. *J Cell Sci* 118(Pt 12):2557-2566, 2005.
91. **Karadottir H, Kulkarni NN, Gudjonsson T, Karason S, Gudmundsson GH.** Cyclic mechanical stretch down-regulates cathelicidin antimicrobial peptide expression and activates a pro-inflammatory response in human bronchial epithelial cells. *PeerJ* 3:e1483, 2015.
92. **Kim KC, Zheng QX, Brody JS.** Effect of floating a gel matrix on mucin release in cultured airway epithelial cells. *J Cell Physiol* 156(3):480-486, 1993.
93. **Kuhn H, Petzold K, Hammerschmidt S, Wirtz H.** Interaction of cyclic mechanical stretch and toll-like receptor 4-mediated innate immunity in rat alveolar type II cells. *Respirology* 19(1):67-73, 2014.
94. **Lee HS, Wang Y, Maciejewski BS, Esho K, Fulton C, Sharma S, Sanchez-Esteban J.** Interleukin-10 protects cultured fetal rat type II epithelial cells from injury induced by mechanical stretch. *Am J Physiol Lung Cell Mol Physiol* 294:L225-L232, 2008.
95. **Makena PS, Luellen CL, Balazs L, Ghosh MC, Parthasarathi K, Waters CM, Sinclair SE.** Preexposure to hyperoxia causes increased lung injury and epithelial apoptosis in mice ventilated with high tidal volumes. *Am J Physiol Lung Cell Mol Physiol* 299(5):L711-L719, 2010.



96. **Mao P, Li J, Huang Y, Wu S, Pang X, He W, Liu X, Slutsky AS, Zhang H, Li Y.** MicroRNA-19b mediates lung epithelial-mesenchymal transition via phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase in response to mechanical stretch. *Am J Respir Cell Mol Biol* 56(1):11-19, 2017. doi: 10.1165/rcmb.2015-0377OC.
97. **McAdams RM, Mustafa SB, Shenberger JS, Dixon PS, Henson BM, DiGeronimo RJ.** Cyclic stretch attenuates effects of hyperoxia on cell proliferation and viability in human alveolar epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 291(2):L166-74, 2006.
98. **Mohammed KA, Nasreen N, Tepper RS, Antony VB.** Cyclic stretch induces PIGF expression in bronchial airway epithelial cells via nitric oxide release. *Am J Physiol Lung Cell Mol Physiol* 292(2):L559-L566, 2007.
99. **Nayak PS, Wang Y, Najrana T, Priolo LM, Rios M, Shaw SK, Sanchez-Esteban J.** Mechanotransduction via TRPV4 regulates inflammation and differentiation in fetal mouse distal lung epithelial cells. *Respir Res* 16:60, 2015.
100. **Ning QM, Sun XN, Zhao XK.** Role of mechanical stretching and lipopolysaccharide in early apoptosis and IL-8 of alveolar epithelial type II cells A549. *Asian Pac J Trop Med* 5(8):638-44, 2012.
101. **Ning Q, Wang X.** Role of Rel A and I $\kappa$ B of nuclear factor  $\kappa$ B in the release of interleukin-8 by cyclic mechanical strain in human alveolar type II epithelial cells A549. *Respirology* 12(6):792-798, 2007.
102. **Oudin S, Pugin J.** Role of MAP kinase activation in interleukin-8 production by human BEAS-2B bronchial epithelial cells submitted to cyclic stretch. *Am J Respir Cell Mol Biol* 27(1):107-14, 2002.
103. **Papaiahgari S, Yerrapureddy A, Hassoun PM, Garcia JG, Birukov KG, Reddy SP.** EGFR-activated signaling and actin remodeling regulate cyclic stretch-induced NRF2-ARE activation. *Am J Respir Cell Mol Biol* 36(3):304-312, 2007.
104. **Pasternack M Jr, Liu X, Goodman RA, Rannels DE.** Regulated stimulation of epithelial cell DNA synthesis by fibroblast-derived mediators. *Am J Physiol* 272(4 Pt 1):L619-L630, 1997.
105. **Patel H, Eo S, Kwon S.** Effects of diesel particulate matters on inflammatory responses in static and dynamic culture of human alveolar epithelial cells. *Toxicol Lett* 200(1-2):124-131, 2011.
106. **Patel H, Kim H, Kwon S.** Effect of dynamic environment on the interaction between nanoparticles and human airway epithelial cell monolayer. *NSTI-Nanotech* 3:565-568, 2010.
107. **Patel HJ, Kwon S.** Length-dependent effect of single-walled carbon nanotube exposure in a dynamic cell growth environment of human alveolar epithelial cells. *J Expo Sci Environ Epidemiol* 23(1):101-8, 2013.
108. **Patel H, Kwon S.** Multi-walled carbon nanotube-induced inflammatory response and oxidative stress in a dynamic cell growth environment. *J Biol Eng* 6(1):22, 2012.
109. **Rentzsch I, Santos CL, Huhle R, Ferreira JMC, Koch T, Schnabel C, Koch E, Pelosi P, Rocco PRM, Gama de Abreu M.** Variable stretch reduces the pro-inflammatory response of alveolar epithelial cells. *PLoS One* 12(8):e0182369, 2017.
110. **Roan E, Waters CM, Teng B, Ghosh M, Schwingshackl A.** The 2-pore domain potassium channel TREK-1 regulates stretch-induced detachment of alveolar epithelial cells. *PLoS One* 9(2):e89429, 2014.
111. **Roan E, Wilhelm K, Bada A, Makena PS, Gorantla VK, Sinclair SE, Waters CM.** Hyperoxia alters the mechanical properties of alveolar epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 302(12):L1235-41, 2012.
112. **Rose F, Zwick K, Ghofrani HA, Sibelius U, Seeger W, Walmrath D, Grimminger F.** Prostacyclin enhances stretch-induced surfactant secretion in alveolar epithelial type II cells. *Am J Respir Crit Care Med* 160(3):846-851, 1999.
113. **Sanchez-Esteban J, Cicchiello LA, Wang Y, Tsai S-W, Williams LK, Torday JS, Rubin LP.** Mechanical stretch promotes alveolar epithelial type II cell differentiation. *J Appl Physiol* 91(2):589-595, 2001.
114. **Sanchez-Esteban J, Tsai SW, Sang J, Qin J, Torday JS, Rubin LP.** Effects of mechanical forces on lung-specific gene expression. *Am J Med Sci* 316(3):200-204, 1998.
115. **Sanchez-Esteban J, Wang Y, Filardo EJ, Rubin LP, Ingber DE.** Integrins  $\beta_1$ ,  $\alpha_6$ , and  $\alpha_3$  contribute to mechanical strain-induced differentiation of fetal lung type II epithelial cells via distinct mechanisms. *Am J Physiol Lung Cell Mol Physiol* 290(2):L343-L350, 2006.
116. **Sanchez-Esteban J, Wang Y, Gruppuso PA, Rubin LP.** Mechanical stretch induces fetal type II cell differentiation via an epidermal growth factor receptor-extracellular-regulated protein kinase signaling pathway. *Am J Respir Cell Mol Biol* 30:76-83, 2004.
117. **Savla U, Olson LE, Waters CM.** Mathematical modeling of airway epithelial wound closure during cyclic mechanical strain. *J Appl Physiol* 96(2):566-574, 2004.
118. **Savla U, Sporn PH, Waters CM.** Cyclic stretch of airway epithelium inhibits prostanoid synthesis. *Am J Physiol Lung Cell Mol Physiol* 273:L1013-L1019, 1997.



119. **Savla U, Waters CM.** Mechanical strain inhibits repair of airway epithelium in vitro. *Am J Physiol Lung Cell Mol Physiol* 274:883-892, 1998.
120. **Scott JE, Yang SY, Stanik E, Anderson JE.** Influence of strain on [3H]thymidine incorporation, surfactant-related phospholipid synthesis, and cAMP levels in fetal type II alveolar cells. *Am J Respir Cell Mol Biol* 8(3):258-265, 1993.
121. **Sebag SC, Bastarache JA, Ware LB.** Mechanical stretch inhibits lipopolysaccharide-induced keratinocyte-derived chemokine and tissue factor expression while increasing procoagulant activity in murine lung epithelial cells. *J Biol Chem* 288(11):7875-84, 2013.
122. **Takawira D, Budinger GR, Hopkinson SB, Jones JC.** A dystroglycan/plectin scaffold mediates mechanical pathway bifurcation in lung epithelial cells. *J Biol Chem* 286(8):6301-6310, 2011.
123. **Taylor W, Gokay KE, Capaccio C, Davis E, Glucksberg M, Dean DA.** The effects of cyclic stretch on gene transfer in alveolar epithelial cells. *Mol Ther* 7(4):542-549, 2003.
124. **Thomas RA, Norman JC, Huynh TT, Williams B, Bolton SJ, Wardlaw AJ.** Mechanical stretch has contrasting effects on mediator release from bronchial epithelial cells, with a rho-kinase-dependent component to the mechanotransduction pathway. *Respir Med* 100(9):1588-1597, 2006.
125. **Torday JS, Rehan VK.** Stretch-stimulated surfactant synthesis is coordinated by the paracrine actions of PTHrP and leptin. *Am J Physiol Lung Cell Mol Physiol* 283(1):L130-L135, 2002.
126. **Torday JS, Torres E, Rehan VK.** The role of fibroblast transdifferentiation in lung epithelial cell proliferation, differentiation, and repair in vitro. *Pediatr Pathol Mol Med* 22(3):189-207, 2003.
127. **Valentine MS, Herbert JA, Link PA, Kanga Gninzeko FJ, Schneck MB, Shankar K, Nkwocha J, Reynolds AM, Heise RL.** The Influence of Aging and Mechanical Stretch in Alveolar Epithelium ER Stress and Inflammation.
128. **Vlahakis NE, Schroeder MA, Limper AH, Hubmayr RD.** Stretch induces cytokine release by alveolar epithelial cells in vitro. *Am J Physiol Lung Cell Mol Physiol* 277:L167-L173, 1999.
129. **Wang Y, Huang Z, Nayak PS, Sanchez-Esteban J.** An experimental system to study mechanotransduction in fetal lung cells. *J Vis Exp* (60), 2012. pii: 3543.
130. **Wang Y, Huang Z, Nayak PS, Matthews BD, Warburton D, Shi W, Sanchez-Esteban J.** Strain-induced differentiation of fetal type II epithelial cells is mediated via integrin  $\alpha\beta 1$ -ADAM17/TACE signaling pathway. *J Biol Chem* 288(35):25646-57, 2013.
131. **Wang Y, Maciejewski BS, Drouillard D, Santos M, Hokenson MA, Hawwa RL, Huang Z, Sanchez-Esteban J.** A role for caveolin-1 in mechanotransduction of fetal type II epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 298(6):L775-L783, 2010.
132. **Wang Y, Maciejewski BS, Lee N, Silbert O, McKnight NL, Frangos JA, Sanchez-Esteban J.** Strain-induced fetal type II epithelial cell differentiation is mediated via cAMP-PKA-dependent signaling pathway. *Am J Physiol Lung Cell Mol Physiol* 291(4):L820-L827, 2006.
133. **Wang Y, Maciejewski BS, Weissmann G, Silbert O, Han H, Sanchez-Esteban J.** DNA microarray reveals novel genes induced by mechanical forces in fetal lung type II epithelial cells. *Pediatr Res* 60(2):118-124, 2006.
134. **Waters CM, Ridge KM, Sunio G, Venetsanou K, Sznajder JI.** Mechanical stretching of alveolar epithelial cells increases Na<sup>+</sup>-K<sup>+</sup>-ATPase activity. *J Appl Physiol* 87(2):715-721, 1999.
135. **Waters CM, Savla U.** Keratinocyte growth factor accelerates wound closure in airway epithelium during cyclic mechanical strain. *J Cell Physiol* 181(3):424-432, 1999.
136. **Wilhelm KR, Roan E, Ghosh MC, Parthasarathi K, Waters CM.** Hyperoxia increases the elastic modulus of alveolar epithelial cells through Rho kinase. *FEBS J* 281(3):957-69, 2014.
137. **Wu Q, Shu H, Yao S, Xiang H.** Mechanical stretch induces pentraxin 3 release by alveolar epithelial cells in vitro. *Med Sci Monit* 15(5):BR135-BR140, 2009.
138. **Yu Q, Li M.** Effects of transient receptor potential canonical 1 (TRPC1) on the mechanical stretch-induced expression of airway remodeling-associated factors in human bronchial epithelioid cells. *J Biomech* 51:89-96, 2017.
139. **Zhao T, Liu M, Gu C, Wang X, Wang Y.** Activation of c-Src tyrosine kinase mediated the degradation of occludin in ventilator-induced lung injury. *Respir Res* 15:158, 2014.

#### PULMONARY SMOOTH MUSCLE CELLS

140. **Bonacci JV, Harris T, Stewart AG.** Impact of extracellular matrix and strain on proliferation of bovine airway smooth muscle. *Clin Exp Pharmacol Physiol* 30(5-6):324-328, 2003.



141. **Fairbank NJ, Connolly SC, Mackinnon JD, Wehry K, Deng L, Maksym GN.** Airway smooth muscle cell tone amplifies contractile function in the presence of chronic cyclic strain. *Am J Physiol Lung Cell Mol Physiol* 295(3):L479-L488, 2008.
142. **Hasaneen NA, Zucker S, Cao J, Chiarelli C, Panettieri RA, Foda HD.** Cyclic mechanical strain-induced proliferation and migration of human airway smooth muscle cells: role of EMMPRIN and MMPs. *FASEB J* 19(11):1507-1509, 2005.
143. **Hasaneen NA, Zucker S, Lin RZ, Vaday GG, Panettieri RA, Foda HD.** Angiogenesis is induced by airway smooth muscle strain. *Am J Physiol Lung Cell Mol Physiol* 293(4):L1059-L1068, 2007.
144. **Hirst SJ, Martin JG, Bonacci JV, Chan V, Fixman ED, Hamid QA, Herszberg B, Lavoie JP, McVicker CG, Moir LM, Nguyen TT, Peng Q, Ramos-Barbon D, Stewart AG.** Proliferative aspects of airway smooth muscle. *Journal of Allergy and Clinical Immunology* 114(2 Suppl):S2-S17, 2004.
145. **Kumar A, Knox AJ, Boriek AM.** CCAAT/enhancer-binding protein and activator protein-1 transcription factors regulate the expression of interleukin-8 through the mitogen-activated protein kinase pathways in response to mechanical stretch of human airway smooth muscle cells. *J Biol Chem* 278(21):18868-18876, 2003.
146. **Mata-Greenwood E, Grobe A, Kumar S, Noskina Y, and Black SM.** Cyclic stretch increases VEGF expression in pulmonary arterial smooth muscle cells via TGF- $\beta$ 1 and reactive oxygen species: a requirement for NAD(P)H oxidase. *Am J Physiol Lung Cell Mol Physiol* 289(2):L288-L289, 2005.
147. **Mohamed JS, Boriek AM.** Loss of desmin triggers mechanosensitivity and up-regulation of Ankrd1 expression through Akt-NF- $\kappa$ B signaling pathway in smooth muscle cells. *FASEB J* 26(2):757-65, 2012.
148. **Mohamed JS, Boriek AM.** Stretch augments TGF- $\beta$ 1 expression through RhoA/ROCK1/2, PTK, and PI3K in airway smooth muscle cells. *Am J Physiol Lung Cell Mol Physiol* 299(3):L413-L424, 2010.
149. **Mohamed JS, Lopez MA, Boriek AM.** Mechanical stretch up-regulates microRNA-26a and induces human airway smooth muscle hypertrophy by suppressing glycogen synthase kinase-3 $\beta$ . *J Biol Chem* 285(38):29336-29347, 2010.
150. **Ochoa CD, Baker H, Hasak S, Matyal R, Salam A, Hales CA, Hancock W, Quinn DA.** Cyclic stretch affects pulmonary endothelial cell control of pulmonary smooth muscle cell growth. *Am J Respir Cell Mol Biol* 39(1):105-112, 2008.
151. **Pasternyk SM, D'Antoni ML, Venkatesan N, Siddiqui S, Martin JG, Ludwig MS.** Differential effects of extracellular matrix and mechanical strain on airway smooth muscle cells from ovalbumin- vs. saline-challenged Brown Norway rats. *Respir Physiol Neurobiol* 181(1):36-43, 2012.
152. **Quinn TP, Schlueter M, Soifer SJ, Gutierrez JA.** Cyclic mechanical stretch induces VEGF and FGF-2 expression in pulmonary vascular smooth muscle cells. *Am J Physiol Lung Cell Mol Physiol* 282(5):L897-L903, 2002.
153. **Shah MR, Wedgwood S, Czech L, Kim GA, Lakshminrusimha S, Schumacker PT, Steinhorn RH, Farrow KN.** Cyclic stretch induces inducible nitric oxide synthase and soluble guanylate cyclase in pulmonary artery smooth muscle cells. *Int J Mol Sci* 14(2):4334-48, 2013.
154. **Smith PG, Deng L, Fredberg JJ, Maksym GN.** Mechanical strain increases cell stiffness through cytoskeletal filament reorganization. *Am J Physiol Lung Cell Mol Physiol* 285(2):L456-L463, 2003.
155. **Smith PG, Garcia R, Kogerman L.** Strain reorganizes focal adhesions and cytoskeleton in cultured airway smooth muscle cells. *Exp Cell Res* 232(1):127-136, 1997.
156. **Smith PG, Roy C, Dreger J, Brozovich F.** Mechanical strain increases velocity and extent of shortening in cultured airway smooth muscle cells. *Am J Physiol Lung Cell Mol Physiol* 277:L343-L348, 1999.
157. **Smith PG, Roy C, Fisher S, Huang QQ, Brozovich F.** Mechanical strain increases force production and calcium sensitivity in cultured airway smooth muscle cells. *J Appl Physiol* 89(5):2092-2098, 2000.
158. **Smith PG, Roy C, Zhang YN, Chauduri S.** Mechanical stress increases RhoA activation in airway smooth muscle cells. *Am J Respir Cell Mol Biol* 28(4):436-442, 2003.
159. **Smith PG, Tokui T, Ikebe M.** Mechanical strain increases contractile enzyme activity in cultured airway smooth muscle cells. *Am J Physiol* 268(6 Pt 1):L999-L1005, 1995.
160. **Trempus CS, Song W, Lazrak A, Yu Z, Creighton JR, Young BM, Heise RL, Yu YR, Ingram JL, Tighe RM, Matalon S, Garantziotis S.** A novel role for primary cilia in airway remodeling. *Am J Physiol Lung Cell Mol Physiol* 313(2):L328-L338, 2017.
161. **Vogel E, Britt RD, Faksh A, Prakash YS, Martin RJ, MacFarlane P, Pabelick C.** Mechanical stretch induces remodeling of developing human airway smooth muscle. *Am J Respir Crit Care Med* 191:A5577, 2015.



162. **Wang L, Liu HW, McNeill KD, Stelmack G, Scott JE, Halayko AJ.** Mechanical strain inhibits airway smooth muscle gene transcription via protein kinase C signaling. *American Journal of Respiratory Cell Molecular Biology* 31:54-61, 2004.
163. **Wedgwood S, Devol JM, Grobe A, Benavidez E, Azakie A, Fineman JR, Black SM.** Fibroblast growth factor-2 expression is altered in lambs with increased pulmonary blood flow and pulmonary hypertension. *Pediatr Res* 61(1):32-36, 2007.
164. **Wedgwood S, Lakshminrusimha S, Schumacker PT, Steinhorn RH.** Hypoxia inducible factor signaling and experimental persistent pulmonary hypertension of the newborn. *Front Pharmacol* 6:47, 2015.

#### OTHER PULMONARY CELLS

165. **Ding N, Xiao H, Gao J, Xu LX, She SZ.** Regulation of P38 and MKK6 on HMGB1 expression in alveolar macrophages induced by cyclic mechanical stretch. *Sheng Li Xue Bao* 61(1):49-55, 2009.
166. **Geiger RC, Taylor W, Glucksberg MR, Dean DA.** Cyclic stretch-induced reorganization of the cytoskeleton and its role in enhanced gene transfer. *Gene Ther* 13(8):725-731, 2006.
167. **Ludwig MS, Ftouhi-Paquin N, Huang W, Pagé N, Chakir J, Hamid Q.** Mechanical strain enhances proteoglycan message in fibroblasts from asthmatic subjects. *Clin Exp Allergy* 34(6):926-930, 2004.
168. **Ma D, Lu H, Xu L, Xu X, Xiao W.** Mechanical loading promotes Lewis lung cancer cell growth through periostin. *In Vitro Cell Dev Biol Anim* 45(8):467-472, 2009.
169. **Muratore CS, Nguyen HT, Ziegler MM, Wilson JM.** Stretch-induced upregulation of VEGF gene expression in murine pulmonary culture: a role for angiogenesis in lung development. *Journal of Pediatric Surgery* 35(6):906-913, 2000.
170. **Pan J, Copland I, Post M, Yeger H, Cutz E.** Mechanical stretch-induced serotonin release from pulmonary neuroendocrine cells: implications for lung development. *Am J Physiol Lung Cell Mol Physiol* 290(1):L185-L193, 2006.
171. **Patel S, Natarajan R, Heise RL.** The importance of primary cilia in lung adenocarcinoma tumor progression [abstract]. D98. *Novel Mechanisms of Tumor Promotion and Molecular Targeted Therapy in Lung Cancer* May 1, 2012, A6525-A6525.
172. **Pugin J, Dunn-Siegrist I, Dufour J, Tissières P, Charles PE, Comte R.** Cyclic stretch of human lung cells induces an acidification and promotes bacterial growth. *Am J Respir Cell Mol Biol* 38(3):362-370, 2008.
173. **Tepper RS, Ramchandani R, Argay E, Zhang L, Xue Z, Liu Y, Gunst SJ.** Chronic strain alters the passive and contractile properties of rabbit airways. *J Appl Physiol* 98(5):1949-1954, 2005.
174. **Torday JS, Rehan VK.** Stretch-stimulated surfactant synthesis is coordinated by the paracrine actions of PTHrP and leptin. *Am J Physiol Lung Cell Mol Physiol* 283(1):L130-L135, 2002.

#### MENISCUS

1. **Deschner J, Wypasek E, Ferretti M, Rath B, Anghelina M, Agarwal S.** Regulation of RANKL by biomechanical loading in fibrochondrocytes of meniscus. *J Biomech* 39(10):1796-1803, 2006.
2. **Fermor B, Jeffcoat D, Hennerbichler A, Pisetsky DS, Weinberg JB, Guilak F.** The effects of cyclic mechanical strain and tumor necrosis factor  $\alpha$  on the response of cells of the meniscus. *Osteoarthritis Cartilage* 12:956-962, 2004.
3. **Ferretti M, Madhavan S, Deschner J, Rath-Deschner B, Wypasek E, Agarwal S.** Dynamic biophysical strain modulates proinflammatory gene induction in meniscal fibrochondrocytes. *Am J Physiol Cell Physiol* 290(6):C1610-15, 2006.
4. **Upton ML, Hennerbichler A, Fermor B, Guilak F, Weinberg JB, Setton LA.** Biaxial strain effects on cells from the inner and outer regions of the meniscus. *Connect Tissue Res* 47(4):207-214, 2006.

#### NEURONS, ASTROCYTES, & BRAIN

1. **Albalawi F, Lu W, Beckel JM, Lim JC, McCaughey SA, Mitchell CH.** The P2X7 receptor primes IL-1 $\beta$  and the NLRP3 inflammasome in astrocytes exposed to mechanical strain. *Front Cell Neurosci* 11:227, 2017.
2. **Andrews AM, Lutton EM, Merkel SF, Razmpour R, Ramirez SH.** Mechanical injury induces brain endothelial-derived microvesicle release: implications for cerebral vascular injury during traumatic brain injury. *Front Cell Neurosci* 10:43, 2016.



3. **Arundine M, Aarts M, Lau A, Tymianski M.** Vulnerability of central neurons to secondary insults after in vitro mechanical stretch. *J Neurosci* 24(37):8106-8123, 2004.
4. **Arundine M, Chopra GK, Wrong A, Lei S, Aarts MM, MacDonald JF, Tymianski M.** Enhanced vulnerability to NMDA toxicity in sublethal traumatic neuronal injury in vitro. *Journal of Neurotrauma* 20(12):1377-1395, 2003.
5. **Berretta A, Gowing EK, Jasoni CL, Clarkson AN.** Sonic hedgehog stimulates neurite outgrowth in a mechanical stretch model of reactive-astrogliosis. *Sci Rep* 6:21896, 2016.
6. **Bhattacharya MR, Bautista DM, Wu K, Haeblerle H, Lumpkin EA, Julius D.** Radial stretch reveals distinct populations of mechanosensitive mammalian somatosensory neurons. *Proc Natl Acad Sci U S A* 105(50):20015-20020, 2008.
7. **Gladman SJ, Huang W, Lim SN, Dyall SC, Boddy S, Kang JX, Knight MM, Priestley JV, Michael-Titus AT.** Improved outcome after peripheral nerve injury in mice with increased levels of endogenous  $\omega$ -3 polyunsaturated fatty acids. *J Neurosci* 32(2):563-571, 2012.
8. **Gladman SJ, Ward RE, Michael-Titus AT, Knight MM, Priestley JV.** The effect of mechanical strain or hypoxia on cell death in subpopulations of rat dorsal root ganglion neurons in vitro. *Neuroscience* 171(2):577-587, 2010.
9. **Higgins S, Lee JS, Ha L, Lim JY.** Inducing neurite outgrowth by mechanical cell stretch. *Biores Open Access* 2(3):212-6, 2013.
10. **Lau A, Arundine M, Sun HS, Jones M, Tymianski M.** Inhibition of caspase-mediated apoptosis by peroxynitrite in traumatic brain injury. *J Neurosci* 26(45):11540-11553, 2006.
11. **Ostrow LW, Sachs F.** Mechanosensation and endothelin in astrocytes-hypothetical roles in CNS pathophysiology. *Brain Research Reviews* 48(3):488-508, 2005.
12. **Ostrow LW, Suchyna TM, Sachs F.** Stretch induced endothelin-1 secretion by adult rat astrocytes involves calcium influx via stretch-activated ion channels (SACs). *Biochem Biophys Res Commun* 410(1):81-6, 2011.
13. **Parker K, Berretta A, Saenger S, Sivaramakrishnan M, Shirley SA, Metzger F, Clarkson AN.** PEGylated insulin-like growth factor-I affords protection and facilitates recovery of lost functions post-focal ischemia. *Sci Rep* 7(1):241, 2017.
14. **Rogers R, Dharsee M, Ackloo S, Flanagan JG.** Proteomics analyses of activated human optic nerve head lamina cribrosa cells following biomechanical strain. *Invest Ophthalmol Vis Sci* 53(7):3806-16, 2012.
15. **Rogers RS, Dharsee M, Ackloo S, Sivak JM, Flanagan JG.** Proteomics analyses of human optic nerve head astrocytes following biomechanical strain. *Mol Cell Proteomics* 11(2):M111.012302, 2012.
16. **Uchida K, Nakajima H, Takamura T, Furukawa S, Kobayashi S, Yayama T, Baba H.** Gene expression profiles of neurotrophic factors in rat cultured spinal cord cells under cyclic tensile stress. *Spine (Phila Pa 1976)* 33(24):2596-2604, 2008.

## SKELETAL MUSCLE

1. **Anderson JE, Wozniak AC.** Satellite cell activation on fibers: modeling events in vivo – an invited review. *Can J Physiol Pharmacol* 82:300-310, 2004.
2. **Bertrand AT, Ziaei S, Ehret C, Duchemin H, Mamchaoui K, Bigot A, Mayer M, Quijano-Roy S, Desguerre I, Lainé J, Ben Yaou R, Bonne G, Coirault C.** Cellular microenvironments reveal defective mechanosensing responses and elevated YAP signaling in LMNA-mutated muscle precursors. *J Cell Sci* 127(Pt 13):2873-84, 2014.
3. **Boonen KJ, Langelaan ML, Polak RB, van der Schaft DW, Baaijens FP, Post MJ.** Effects of a combined mechanical stimulation protocol: value for skeletal muscle tissue engineering. *J Biomech* 43(8):1514-1521, 2010.
4. **Cha MC, Purslow PP.** The activities of MMP-9 and total gelatinase respond differently to substrate coating and cyclic mechanical stretching in fibroblasts and myoblasts. *Cell Biol Int* 34(6):587-591, 2010.
5. **Chandran R, Knobloch TJ, Anghelina M, Agarwal S.** Biomechanical signals upregulate myogenic gene induction in the presence or absence of inflammation. *Am J Physiol Cell Physiol* 293(1):C267-C276, 2007.
6. **Chen R, Feng L, Ruan M, Liu X, Adriouch S, Liao H.** Mechanical-stretch of C2C12 myoblasts inhibits expression of Toll-like receptor 3 (TLR3) and of autoantigens associated with inflammatory myopathies. *PLoS One* 8(11):e79930, 2013.
7. **Cheng CS, El-Abd Y, Bui K, Hyun YE, Hughes RH, Kraus WE, Truskey GA.** Conditions that promote primary human skeletal myoblast culture and muscle differentiation in vitro. *Am J Physiol Cell Physiol* 306(4):C385-95, 2014.



8. **Clarke MS, Feedback DL.** Mechanical load induces sarcoplasmic wounding and FGF release in differentiated human skeletal muscle cultures. *FASEB J* 10(4):502-509, 1996.
9. **Demoule A, Divangahi M, Yahiaoui L, Danialou G, Gvozdic D, Labbe K, Bao W, Petrof BJ.** Endotoxin triggers nuclear factor- $\kappa$ B-dependent up-regulation of multiple proinflammatory genes in the diaphragm. *Am J Respir Crit Care Med* 174(6):646-653, 2006.
10. **Dugan JM, Cartmell SH, Gough JE.** Uniaxial cyclic strain of human adipose-derived mesenchymal stem cells and C2C12 myoblasts in coculture. *J Tissue Eng* 5:2041731414530138, 2014.
11. **Ebihara S, Hussain SN, Danialou G, Cho WK, Gottfried SB, Petrof BJ.** Mechanical ventilation protects against diaphragm injury in sepsis: interaction of oxidative and mechanical stresses. *Am J Respir Crit Care Med* 165(2):221-228, 2002.
12. **Goto K, Okuyama R, Sugiyama H, Honda M, Kobayashi T, Uehara K, Akema T, Sugiura T, Yamada S, Ohira Y, Yoshioka T.** Effects of heat stress and mechanical stretch on protein expression in cultured skeletal muscle cells. *Pflugers Arch* 447(2):247-253, 2003.
13. **Hara M, Tabata K, Suzuki T, Do MK, Mizunoya W, Nakamura M, Nishimura S, Tabata S, Ikeuchi Y, Sunagawa K, Anderson JE, Allen RE, Tatsumi R.** Calcium influx through a possible coupling of cation channels impacts skeletal muscle satellite cell activation in response to mechanical stretch. *Am J Physiol Cell Physiol* 302(12):C1741-50, 2012.
14. **Haramizu S, Mori T, Yano M, Ota N, Hashizume K, Otsuka A, Hase T, Shimotoyodome A.** Habitual exercise plus dietary supplementation with milk fat globule membrane improves muscle function deficits via neuromuscular development in senescence-accelerated mice. *Springerplus* 3:339, 2014.
15. **Hicks MR, Cao TV, Campbell DH, Standley PR.** Mechanical strain applied to human fibroblasts differentially regulates skeletal myoblast differentiation. *J Appl Physiol (1985)* 113(3):465-72, 2012.
16. **Ho AM, Marker PC, Peng H, Quintero AJ, Kingsley DM, Huard J.** Dominant negative Bmp5 mutation reveals key role of BMPs in skeletal response to mechanical stimulation. *BMC Dev Biol* 8:35, 2008.
17. **Hornberger TA, Armstrong DD, Koh TJ, Burkholder TJ, Esser KA.** Intracellular signaling specificity in response to uniaxial vs. multiaxial stretch: implications for mechanotransduction. *Am J Physiol Cell Physiol* 288(1):C185-C194, 2005.
18. **Hornberger TA, Stuppard R, Conley KE, Fedele MJ, Fiorotto ML, Chin ER, Esser KA.** Mechanical stimuli regulate rapamycin-sensitive signalling by a phosphoinositide 3-kinase-, protein kinase B- and growth factor-independent mechanism. *Biochem J* 380(Pt 3):795-804, 2004.
19. **Hua W, Zhang M, Wang Y, Yu L, Zhao T, Qiu X, Wang L.** Mechanical stretch regulates microRNA expression profile via NF- $\kappa$ B activation in C2C12 myoblasts. *Mol Med Rep* 14(6):5084-5092, 2016.
20. **Hubatsch DA, Jasmin BJ.** Mechanical stimulation increases expression of acetylcholinesterase in cultured myotubes. *Am J Physiol Cell Physiol* 273:C2002-C2009, 1997.
21. **Huntsman HD, Zachwieja N, Zou K, Ripchik P, Valero MC, De Lisio M, Boppard MD.** Mesenchymal stem cells contribute to vascular growth in skeletal muscle in response to eccentric exercise. *Am J Physiol Heart Circ Physiol* 304(1):H72-81, 2013.
22. **Iwanuma O, Abe S, Hiroki E, Kado S, Sakiyama K, Usami A, Ide Y.** Effects of mechanical stretching on caspase and IGF-1 expression during the proliferation process of myoblasts. *Zoolog Sci* 25(3):242-247, 2008.
23. **Juffer P, Bakker AD, Klein-Nulend J, Jaspers RT.** Mechanical loading by fluid shear stress of myotube glycocalyx stimulates growth factor expression and nitric oxide production. *Cell Biochem Biophys* 69(3):411-9, 2014.
24. **Juffer P, Jaspers RT, Klein-Nulend J, Bakker AD.** Mechanically loaded myotubes affect osteoclast formation. *Calcif Tissue Int* 94(3):319-26, 2014.
25. **Kook SH, Lee HJ, Chung WT, Hwang IH, Lee SA, Kim BS, Lee JC.** Cyclic mechanical stretch stimulates the proliferation of C2C12 myoblasts and inhibits their differentiation via prolonged activation of p38 MAPK. *Mol Cells* 25(4):479-486, 2008.
26. **Kumar A, Murphy R, Robinson P, Wei L, Boriek AM.** Cyclic mechanical strain inhibits skeletal myogenesis through activation of focal adhesion kinase, Rac-1 GTPase, and NF- $\kappa$ B transcription factor. *FASEB J* 18(13):1524-1535, 2004.
27. **Kurokawa K, Abe S, Sakiyama K, Takeda T, Ide Y, Ishigami K.** Effects of stretching stimulation with different rates on the expression of MyHC mRNA in mouse cultured myoblasts. *Biomed Res* 28(1):25-31, 2007.
28. **Liu J, Liu J, Mao J, Yuan X, Lin Z, Li Y.** Caspase-3-mediated cyclic stretch-induced myoblast apoptosis via a Fas/FasL-independent signaling pathway during myogenesis. *J Cell Biochem* 107(4):834-844, 2009.



29. **Ma Y, Fu S, Lu L, Wang X.** Role of androgen receptor on cyclic mechanical stretch-regulated proliferation of C2C12 myoblasts and its upstream signals: IGF-1-mediated PI3K/Akt and MAPKs pathways. *Mol Cell Endocrinol* 450:83-93, 2017.
30. **Milkiewicz M, Doyle JL, Fudalewski T, Ispanovic E, Aghasi M, Haas TL.** HIF-1 $\alpha$  and HIF-2 $\alpha$  play a central role in stretch-induced but not shear-stress-induced angiogenesis in rat skeletal muscle. *J Physiol* 583(Pt 2):753-766, 2007.
31. **Milkiewicz M, Mohammadzadeh F, Ispanovic E, Gee E, Haas TL.** Static strain stimulates expression of matrix metalloproteinase-2 and VEGF in microvascular endothelium via JNK- and ERK-dependent pathways. *J Cell Biochem* 100(3):750-761, 2007.
32. **Mitsumoto Y, Downey GP, Klip A.** Stimulation of glucose transport in L6 muscle cells by long-term intermittent stretch-relaxation. *FEBS Letters* 301(1):94-98, 1992.
33. **Miyazaki M, Esser KA.** REDD2 is enriched in skeletal muscle and inhibits mTOR signaling in response to leucine and stretch. *Am J Physiol Cell Physiol* 296(3):C583-C592, 2009.
34. **Nguyen HX, Lusic AJ, Tidball JG.** Null mutation of myeloperoxidase in mice prevents mechanical activation of neutrophil lysis of muscle cell membranes in vitro and in vivo. *J Physiol* 565(Pt 2):403-13, 2005.
35. **Pardo PS, Mohamed JS, Lopez MA, Boriek AM.** Induction of Sirt1 by mechanical stretch of skeletal muscle through the early response factor EGR1 triggers an antioxidative response. *J Biol Chem* 286(4):2559-2566, 2011.
36. **Peterson JM, Pizza FX.** Cytokines derived from cultured skeletal muscle cells after mechanical strain promote neutrophil chemotaxis in vitro. *J Appl Physiol* 106:130-137, 2009.
37. **Sampaolesi M, Yoshida T, Iwata Y, Hanada H, Shigekawa M.** Stretch-induced cell damage in sarcoglycan-deficient myotubes. *Pflügers Arch - Eur J Physiol* 442:161-170, 2001.
38. **Schilder RJ, Kimball SR, Jefferson LS.** Cell-autonomous regulation of fast troponin T pre-mRNA alternative splicing in response to mechanical stretch. *Am J Physiol Cell Physiol* 303(3):C298-307, 2012.
39. **Soltow QA, Zeanah EH, Lira VA, Criswell DS.** Cessation of cyclic stretch induces atrophy of C2C12 myotubes. *Biochem Biophys Res Commun* 434(2):316-321, 2013.
40. **Tatsumi R, Hattori A, Allen RE, Ikeuchi Y, Ito T.** Mechanical stretch-induced activation of skeletal muscle satellite cells is dependent on nitric oxide production in vitro. *Animal Sci J* 73(3):235-239, 2002.
41. **Tatsumi R, Hattori A, Ikeuchi Y, Anderson JE, Allen RE.** Release of hepatocyte growth factor from mechanically stretched skeletal muscle satellite cells and role of pH and nitric oxide. *Mol Biol Cell* 13(8):2909-2918, 2002.
42. **Tatsumi R, Mitsuhashi K, Ashida K, Haruno A, Hattori A, Ikeuchi Y, Allen RE.** Comparative analysis of mechanical stretch-induced activation activity of back and leg muscle satellite cells in vitro. *Animal Sci J* 75(4):345-351, 2004.
43. **Tatsumi R, Sheehan SM, Iwasaki H, Hattori A, Allen RE.** Mechanical stretch induces activation of skeletal muscle satellite cells in vitro. *Exp Cell Res* 267(1):107-114, 2001.
44. **Tsivitse SK, Mylona E, Peterson JM, Gunning WT, Pizza FX.** Mechanical loading and injury induce human myotubes to release neutrophil chemoattractants. *Am J Physiol Cell Physiol* 288(3):C721-C729, 2005.
45. **Vogel J, Kruse C, Zhang M, Schröder K.** Nox4 supports proper capillary growth in exercise and retina neo-vascularization. *J Physiol* 593(9):2145-54, 2015.
46. **Wozniak AC, Anderson JE.** The dynamics of the nitric oxide release-transient from stretched muscle cells. *Int J Biochem Cell Biol* 41(3):625-631, 2009.
47. **Wozniak AC, Anderson JE.** Nitric oxide-dependence of satellite stem cell activation and quiescence on normal skeletal muscle fibers. *Dev Dyn* 236(1):240-250, 2007.
48. **Wozniak AC, Pilipowicz O, Yablonka RZ, Greenway S, Craven S, Scott E, Anderson JE.** C-Met expression and mechanical activation of satellite cells on cultured muscle fibers. *J Histochem Cytochem* 51(11):1437-1445, 2003.
49. **Yamada M, Sankoda Y, Tatsumi R, Mizunoya W, Ikeuchi Y, Sunagawa K, Allen RE.** Matrix metalloproteinase-2 mediates stretch-induced activation of skeletal muscle satellite cells in a nitric oxide-dependent manner. *Int J Biochem Cell Biol* 40(10):2183-2191, 2008.
50. **Yamashita-Goto K, Ohira Y, Okuyama R, Sugiyama H, Honda M, Sugiura T, Yamada S, Akema T, Yoshioka T.** Heat stress facilitates stretch-induced hypertrophy of cultured rat skeletal muscle cells. In: *Proceedings of "Life in space for life on Earth". 8th European Symposium on Life Sciences Research in Space. 23rd Annual International Gravitational Physiology Meeting, 2-7 June 2002, Karolinska Institutet, Stockholm, Sweden.* Ed.: B. Warmbein. ESA SP-501, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-811-5, 2002, p. 113-114.





51. **Yu HC, Wu TC, Chen MR, Liu SW, Chen JH, Lin KM.** Mechanical stretching induces osteoprotegerin in differentiating C2C12 precursor cells through noncanonical Wnt pathways. *J Bone Miner Res* 25(5):1128-1137, 2010.
52. **Yuan X, Luo S, Lin Z, Wu Y.** Cyclic stretch translocates the  $\alpha 2$ -subunit of the Na pump to plasma membrane in skeletal muscle cells in vitro. *Biochem Biophys Res Commun* 348(2):750-757, 2006.
53. **Zhang H, Anderson JE.** Satellite cell activation and populations on single muscle-fiber cultures from adult zebrafish (*Danio rerio*). *J Exp Biol* 217(Pt 11):1910-7, 2014.
54. **Zhang SJ, Truskey GA, Kraus WE.** Effect of cyclic stretch on  $\beta_{1D}$  integrin expression and activation of FAK and RhoA. *Am J Physiol Cell Physiol* 292:C2057-C2069, 2007.

## SMOOTH MUSCLE CELLS

### BLADDER SMOOTH MUSCLE CELLS

See page 1

### CARDIOVASCULAR SMOOTH MUSCLE CELLS

See page 17

### PULMONARY SMOOTH MUSCLE CELLS

See page 48

### UTERINE/MYOMETRIAL SMOOTH MUSCLE CELLS

See page 62

### OTHER SMOOTH MUSCLE CELLS

1. **Ark M, Sevieux N, Hornick C, He Z, Songu-Mize E.** Acute stretch translocates Na-pump  $\alpha$ -1 subunit to plasma membrane in smooth muscle cells [abstract]. *FASEB J* 16:A466, 349.9, 2002.
2. **Choi K, Mollapour E, Shears SB.** Signal transduction during environmental stress: InsP8 operates within highly restricted contexts. *Cellular Signalling* 17(12):1533-1541, 2005.
3. **Hoffmann S, Dalrymple A, Tribe R, Songu-Mize E.** Stretch regulates expression of TrpC4 in smooth muscle cells [abstract]. *FASEB J* 18:A702, 459.11, 2004.
4. **Hoffmann SE, Zhang Z, Songu-Mize E.** Effect of cyclic stretch on TRP C expression and calcium mobilization [abstract]. *Experimental Biology*, San Diego, CA, April 2005.
5. **Li F, Lin YM, Sarna SK, Shi XZ.** Cellular mechanism of mechanotranscription in colonic smooth muscle cells. *Am J Physiol Gastrointest Liver Physiol* 303(5):G646-56, 2012.
6. **Lin YM, Li F, Shi XZ.** Mechanical stress is a pro-inflammatory stimulus in the gut: in vitro, in vivo and ex vivo evidence. *PLoS One* 9(9):e106242, 2014.
7. **Sevieux N, Alam J, Songu-Mize E.** Na-pump activity and regulation by stretch: a time course study [abstract]. *FASEB J* 15:A444, 401.6, 2001.
8. **Shi XZ, Lin YM, Powell DW, Sarna SK.** Pathophysiology of motility dysfunction in bowel obstruction: role of stretch-induced COX-2. *Am J Physiol Gastrointest Liver Physiol* 300(1):G99-G108, 2011.
9. **Wehner S, Buchholz BM, Schuchtrup S, Rocke A, Schaefer N, Lysson M, Hirner A, Kalff JC.** Mechanical strain and TLR4 synergistically induce cell-specific inflammatory gene expression in intestinal smooth muscle cells and peritoneal macrophages. *Am J Physiol Gastrointest Liver Physiol* 299(5):G1187-G1197, 2010.
10. **Yang S, Dong F, Li D, Sun H, Wu B, Sun T, Wang Y, Shen P, Ji F, Zhou D.** Persistent distention of colon damages interstitial cells of Cajal through Ca<sup>2+</sup> -ERK-AP-1-miR-34c-SCF deregulation. *J Cell Mol Med* 21(9):1881-1892, 2017.

## STEM & PROGENITOR CELLS

1. **Acosta Jr FL, Pham M, Safai Y, Buser Z.** Improving bone formation in osteoporosis through in vitro mechanical stimulation compared to biochemical stimuli. *Journal of Nature and Science* 1(4):63, 2015.
2. **Ambrosio F, Ferrari RJ, Distefano G, Plassmeyer JM, Carvell GE, Deasy BM, Boninger ML, Fitzgerald GK, Huard J.** The synergistic effect of treadmill running on stem-cell transplantation to heal injured skeletal muscle. *Tissue Eng Part A* 16(3):839-849, 2010.



3. **Bolno PB, Wechsler AS, Ranggappa S, Kresh JY.** Cyclic strain of adult stem cells modulates matrix metalloproteinase activity: mechanism for promoting cell-based cardiac remodeling [abstract]. *The Journal of Heart and Lung Transplantation* 24(2 Suppl):S83, 2005.
4. **Brown JP, Galassi TV, Stoppato M, Schiele NR, Kuo CK.** Comparative analysis of mesenchymal stem cell and embryonic tendon progenitor cell response to embryonic tendon biochemical and mechanical factors. *Stem Cell Res Ther* 6:89, 2015.
5. **Brown JP, Finley VG, Kuo CK.** Embryonic mechanical and soluble cues regulate tendon progenitor cell gene expression as a function of developmental stage and anatomical origin. *J Biomech* 47(1):214-22, 2014.
6. **Case N, Thomas J, Sen B, Styner M, Xie Z, Galior K, Rubin J.** Mechanical regulation of glycogen synthase kinase 3 $\beta$  (GSK3 $\beta$ ) in mesenchymal stem cells is dependent on Akt protein serine 473 phosphorylation via mTORC2 protein. *J Biol Chem* 286(45):39450-39456, 2011.
7. **Case N, Xie Z, Sen B, Styner M, Zou M, O'Connor C, Horowitz M, Rubin J.** Mechanical activation of  $\beta$ -catenin regulates phenotype in adult murine marrow-derived mesenchymal stem cells. *J Orthop Res* 28(11):1531-1538, 2010.
8. **Cassino TR, Drowley L, Okada M, Beckman SA, Keller B, Tobita K, Leduc PR, Huard J.** Mechanical loading of stem cells for improvement of transplantation outcome in a model of acute myocardial infarction: the role of loading history. *Tissue Eng Part A* 18(11-12):1101-8, 2012.
9. **Charoenpanich A, Wall ME, Tucker CJ, Andrews DM, Lalush DS, Lobo EG.** Microarray analysis of human adipose-derived stem cells in three-dimensional collagen culture: osteogenesis inhibits bone morphogenic protein and Wnt signaling pathways, and cyclic tensile strain causes upregulation of proinflammatory cytokine regulators and angiogenic factors. *Tissue Eng Part A* 17(21-22):2615-2627, 2011.
10. **Chen QZ, Ishii H, Thouas GA, Lyon AR, Wright JS, Blaker JJ, Chrzanowski W, Boccaccini AR, Ali NN, Knowles JC, Harding SE.** An elastomeric patch derived from poly(glycerol sebacate) for delivery of embryonic stem cells to the heart. *Biomaterials* 31(14):3885-3893, 2010.
11. **Cherbuin T, Movahednia MM, Toh WS, Cao T.** Investigation of human embryonic stem cell-derived keratinocytes as an in vitro research model for mechanical stress dynamic response. *Stem Cell Rev* 11(3):460-73, 2015.
12. **Clause KC, Tinney JP, Liu JL, Gharaibeh B, Fujimoto LK, Wagner WR, Ralphe JC, Keller BB, Huard J, Tobita K.** Functioning engineered cardiac tissue from skeletal muscle derived stem cells [abstract]. 4<sup>th</sup> Annual Symposium of AHA Council on Basic Cardiovascular Sciences, Keystone CO, 2007.
13. **Collins JM, Goldspink PH, Russell B.** Migration and proliferation of human mesenchymal stem cells is stimulated by different regions of the mechano-growth factor prohormone. *J Mol Cell Cardiol* 49(6):1042-1045, 2010.
14. **David V, Marin A, Lafage-Proust MH, Malaval L, Peyroche S, Jones DB, Vico L, Guignandon A.** Mechanical loading down-regulates peroxisome proliferator-activated receptor in bone marrow stromal cells and favors osteoblastogenesis at the expense of adipogenesis. *Endocrinology* 148(5):2553-2562, 2007.
15. **de Jonge N, Muylaert DE, Fioretta ES, Baaijens FP, Fledderus JO, Verhaar MC, Bouten CV.** Matrix production and organization by endothelial colony forming cells in mechanically strained engineered tissue constructs. *PLoS One* 8(9):e73161, 2013.
16. **De Lisio M, Jensen T, Sukiennik RA, Huntsman HD, Boppard MD.** Substrate and strain alter the muscle-derived mesenchymal stem cell secretome to promote myogenesis. *Stem Cell Res Ther* 5(3):74, 2014.
17. **Doroudian G, Curtis MW, Gang A, Russell B.** Cyclic strain dominates over microtopography in regulating cytoskeletal and focal adhesion remodeling of human mesenchymal stem cells. *Biochem Biophys Res Commun* 430(3):1040-6, 2013.
18. **Dugan JM, Cartmell SH, Gough JE.** Uniaxial cyclic strain of human adipose-derived mesenchymal stem cells and C2C12 myoblasts in coculture. *J Tissue Eng* 5:2041731414530138, 2014.
19. **Földes G, Mioulane M, Wright JS, Liu AQ, Novak P, Merkely B, Gorelik J, Schneider MD, Ali NN, Harding SE.** Modulation of human embryonic stem cell-derived cardiomyocyte growth: a testbed for studying human cardiac hypertrophy? *J Mol Cell Cardiol* 50(2):367-376, 2011.
20. **French KM, Maxwell JT, Bhutani S, Ghosh-Choudhary S, Fierro MJ, Johnson TD, Christman KL, Taylor WR, Davis ME.** Fibronectin and cyclic strain improve cardiac progenitor cell regenerative potential in vitro. *Stem Cells Int* 2016:8364382, 2016.
21. **Girão-Silva T, Bassaneze V, Campos LC, Barauna VG, Dallon LA, Krieger JE, Miyakawa AA.** Short-term mechanical stretch fails to differentiate human adipose-derived stem cells into cardiovascular cell phenotypes. *Biomed Eng Online* 13:54, 2014.



22. **Granata A, Serrano F, Bernard WG, McNamara M, Low L, Sastry P, Sinha S.** An iPSC-derived vascular model of Marfan syndrome identifies key mediators of smooth muscle cell death. *Nat Genet* 49(1):97-109, 2017. doi: 10.1038/ng.3723. Epub 2016 Nov 28.
23. **Gong Z, Niklason LE.** Small-diameter human vessel wall engineered from bone marrow-derived mesenchymal stem cells (hMSCs). *FASEB J* 22(6):1635-1648, 2008.
24. **Hamilton DW, Maul TM, Vorp DA.** Characterization of the response of bone marrow-derived progenitor cells to cyclic strain: implications for vascular tissue-engineering applications. *Tissue Engineering* 10(3-4):361-369, 2004.
25. **Harada M, Osuga Y, Hirota Y, Koga K, Morimoto C, Hirata T, Yoshino O, Tsutsumi O, Yano T, Taketani Y.** Mechanical stretch stimulates interleukin-8 production in endometrial stromal cells: possible implications in endometrium-related events. *J Clin Endocrinol Metab* 90(2):1144-8, 2005.
26. **Harada M, Osuga Y, Takemura Y, Yoshino O, Koga K, Hirota Y, Hirata T, Morimoto C, Yano T, Taketani Y.** Mechanical stretch upregulates insulin-like growth factor binding protein-1 (IGFBP-1) secretion from decidualized endometrial stromal cells. *Am J Physiol Endocrinol Metab* 290(2):E268-72, 2006.
27. **Hegarty PK, Watson RW, Coffey RN, Webber MM, Fitzpatrick JM.** Effects of cyclic stretch on prostatic cells in culture. *J Urol* 168(5):2291-2295, 2002.
28. **Huang CH, Chen MH, Young TH, Jeng JH, Chen YJ.** Interactive effects of mechanical stretching and extracellular matrix proteins on initiating osteogenic differentiation of human mesenchymal stem cells. *J Cell Biochem* 108(6):1263-1273, 2009.
29. **Huri PY, Wang A, Spector AA, Grayson WL.** Multistage adipose-derived stem cell myogenesis: an experimental and modeling study. *Cellular and Molecular Bioengineering* 7(4):497-509, 2014.
30. **Izumi G, Koga K, Nagai M, Urata Y, Takamura M, Harada M, Hirata T, Hirota Y, Ogawa K, Inoue S, Fujii T, Osuga Y.** Cyclic stretch augments production of neutrophil chemokines, matrix metalloproteinases, and activin A in human endometrial stromal cells. *Am J Reprod Immunol* 73(6):501-6, 2015.
31. **Jagielska A, Lowe AL, Makhija E, Wroblewska L, Guck J, Franklin RJM, Shivashankar GV, Van Vliet KJ.** Mechanical strain promotes oligodendrocyte differentiation by global changes of gene expression. *Front Cell Neurosci* 11:93, 2017.
32. **Jakkaraju S, Zhe X, Pan D, Choudhury R, Schuger L.** TIPs are tension-responsive proteins involved in myogenic versus adipogenic differentiation. *Developmental Cell* 9(1):39-49, 2005.
33. **Jiang Y, Wang Y, Tang G.** Cyclic tensile strain promotes the osteogenic differentiation of a bone marrow stromal cell and vascular endothelial cell co-culture system. *Arch Biochem Biophys* 607:37-43, 2016.
34. **Kang MN, Yoon HH, Seo YK, Park JK.** Human umbilical cord-derived mesenchymal stem cells differentiate into ligament-like cells with mechanical stimulation in various media. *Tissue Engineering and Regenerative Medicine* 9(4):185-193, 2012.
35. **Kang MN, Yoon HH, Seo YK, Park JK.** Effect of mechanical stimulation on the differentiation of cord stem cells. *Connect Tissue Res* 53(2):149-159, 2012.
36. **Kim YM, Kang YG, Park SH, Han MK, Kim JH, Shin JW, Shin JW.** Effects of mechanical stimulation on the reprogramming of somatic cells into human-induced pluripotent stem cells. *Stem Cell Res Ther* 8(1):139, 2017.
37. **Kmiecik G, Spoldi V, Silini A, Parolini O.** Current view on osteogenic differentiation potential of mesenchymal stromal cells derived from placental tissues. *Stem Cell Rev* 11(4):570-85, 2015.
38. **Koike M, Shimokawa H, Kanno Z, Ohya K, Soma K.** Effects of mechanical strain on proliferation and differentiation of bone marrow stromal cell line ST2. *J Bone Miner Metab* 23(3):219-225, 2005.
39. **Ku CH, Johnson PH, Batten P, Sarathchandra P, Chambers RC, Taylor PM, Yacoub MH, Chester AH.** Collagen synthesis by mesenchymal stem cells and aortic valve interstitial cells in response to mechanical stretch. *Cardiovasc Res* 71(3):548-556, 2006.
40. **Kurpinski K, Park J, Thakar RG, Li S.** Regulation of vascular smooth muscle cells and mesenchymal stem cells by mechanical strain. *Mol Cell Biomech* 3(1):21-34, 2006.
41. **Lee EK, Lee JS, Park HS, Kim CH, Gin YJ, Son Y.** Cyclic stretch stimulates cell proliferation of human mesenchymal stem cells but do not induce their apoptosis and differentiation. *Tissue Engineering and Regenerative Medicine* 2(1):29-33, 2005.
42. **Lee EL, Watson KC, von Recum HA.** Contractile protein and extracellular matrix secretion of cell monolayer sheets following cyclic stretch. *Cardiovascular Engineering and Technology* 3(3):302-310, 2012.
43. **Lee WC, Maul TM, Vorp DA, Rubin JP, Marra KG.** Effects of uniaxial cyclic strain on adipose-derived stem cell morphology, proliferation, and differentiation. *Biomech Model Mechanobiol* 6(4):265-273, 2007.



44. **Li M, Li X, Meikle MC, Islam I, Cao T.** Short periods of cyclic mechanical strain enhance triple-supplement directed osteogenesis and bone nodule formation by human embryonic stem cells in vitro. *Tissue Eng Part A* 19(19-20):2130-7, 2013.
45. **Li R, Liang L, Dou Y, Huang Z, Mo H, Wang Y, Yu B.** Mechanical strain regulates osteogenic and adipogenic differentiation of bone marrow mesenchymal stem cells. *Biomed Res Int* 2015:873251, 2015.
46. **Link PA, Farkas D, Farkas L, Heise RL.** Pulmonary endothelial progenitor cells demonstrate phenotypic shift from altered substrate mechanics. *American Journal of Respiratory and Critical Care Medicine* 195:A4309, 2017.
47. **Liu J, Li Q, Liu S, Gao J, Qin W, Song Y, Jin Z.** Periodontal ligament stem cells in the periodontitis microenvironment are sensitive to static mechanical strain. *Stem Cells Int* 2017:1380851, 2017.
48. **Liu W, Yin L, Yan X, Cui J, Liu W, Rao Y, Sun M, Wei Q, Chen F.** Directing the differentiation of parthenogenetic stem cells into tenocytes for tissue-engineered tendon regeneration. *Stem Cells Transl Med* 6(1):196-208, 2017.
49. **Lohberger B, Kaltenecker H, Stuenkel N, Payer M, Rinner B, Leithner A.** Effect of cyclic mechanical stimulation on the expression of osteogenesis genes in human intraoral mesenchymal stromal and progenitor cells. *Biomed Res Int* 2014:189516, 2014.
50. **MacQuarrie RA, Fang Chen Y, Coles C, Anderson GI.** Wear-particle-induced osteoclast osteolysis: the role of particulates and mechanical strain. *J Biomed Mater Res B Appl Biomater* 69(1):104-112, 2004.
51. **Mauretti A, Bax NA, van Marion MH, Goumans MJ, Sahlgren C, Bouten CV.** Cardiomyocyte progenitor cell mechanoreponse unrevealed: strain avoidance and mechanosome development. *Integr Biol (Camb)* 8(9):991-1001, 2016.
52. **Nieponice A, Maul TM, Cumer JM, Soletti L, Vorp DA.** Mechanical stimulation induces morphological and phenotypic changes in bone marrow-derived progenitor cells within a three-dimensional fibrin matrix. *J Biomed Mater Res A* 81(3):523-530, 2007.
53. **Park JS, Chu JS, Cheng C, Chen F, Chen D, Li S.** Differential effects of equiaxial and uniaxial strain on mesenchymal stem cells. *Biotechnol Bioeng* 88(3):359-68, 2004.
54. **Payne TR, Oshima H, Okada M, Momoi N, Tobita K, Keller BB, Peng H, Huard J.** A relationship between vascular endothelial growth factor, angiogenesis, and cardiac repair after muscle stem cell transplantation into ischemic hearts. *J Am Coll Cardiol* 50(17):1677-1684, 2007.
55. **Rahnert J, Fan X, Case N, Murphy TC, Grassi F, Sen B, Rubin J.** The role of nitric oxide in the mechanical repression of RANKL in bone stromal cells. *Bone* 43(1):48-54, 2008.
56. **Rathbone SR, Glossop JR, Gough JE, Cartmell SH.** Cyclic tensile strain upon human mesenchymal stem cells in 2D and 3D culture differentially influences CCN2, WDR61 and BAHCC1 gene expression levels. *J Mech Behav Biomed Mater* 11:82-91, 2012.
57. **Ruan JL, Tulloch NL, Saiget M, Paige SL, Razumova MV, Regnier M, Tung KC, Keller G, Pabon L, Reinecke H, Murry CE.** Mechanical stress promotes maturation of human myocardium from pluripotent stem cell-derived progenitors. *Stem Cells* 33(7):2148-57, 2015.
58. **Rubin J, Fan X, Biskobing DM, Taylor WR, Rubin CT.** Osteoclastogenesis is repressed by mechanical strain in an in vitro model. *J Orthop Res* 17(5):639-645, 1999.
59. **Rubin J, Murphy T, Nanes MS, Fan X.** Mechanical strain inhibits expression of osteoclast differentiation factor by murine stromal cells. *Am J Physiol Cell Physiol* 278(6):C1126-C1132, 2000.
60. **Rubin J, Murphy TC, Fan X, Goldschmidt M, Taylor WR.** Activation of extracellular signal-regulated kinase is involved in mechanical strain inhibition of RANKL expression in bone stromal cells. *J Bone Miner Res* 17(8):1452-1460, 2002.
61. **Rubin J, Murphy TC, Rahnert J, Song H, Nanes MS, Greenfield EM, Jo H, Fan X.** Mechanical inhibition of RANKL expression is regulated by H-Ras-GTPase. *J Biol Chem* 281(3):1412-1418, 2006.
62. **Rubin J, Murphy TC, Zhu L, Roy E, Nanes MS, Fan X.** Mechanical strain differentially regulates endothelial nitric-oxide synthase and receptor activator of nuclear  $\kappa$ B ligand expression via ERK1/2 MAPK. *J Biol Chem* 278(36):34018-34025, 2003.
63. **Saha S, Ji L, de Pablo JJ, Palecek SP.** Inhibition of human embryonic stem cell differentiation by mechanical strain. *J Cell Physiol* 206(1):126-37, 2006.
64. **Saha S, Ji L, de Pablo JJ, Palecek SP.** TGF $\beta$ /Activin/Nodal pathway in inhibition of human embryonic stem cell differentiation by mechanical strain. *Biophys J* 94(10):4123-4133, 2008.
65. **Scharenberg MA, Pippenger BE, Sack R, Zingg D, Ferralli J, Schenk S, Martin I, Chiquet-Ehrismann R.** TGF- $\beta$ -induced differentiation into myofibroblasts involves specific regulation of two MKL1 isoforms. *J Cell Sci* 127(Pt 5):1079-91, 2014.



66. **Schmelter M, Ateghang B, Helmig S, Wartenberg M, Sauer H.** Embryonic stem cells utilize reactive oxygen species as transducers of mechanical strain-induced cardiovascular differentiation. *FASEB J* 20:1182-1184, 2006.
67. **Sen B, Xie Z, Case N, Ma M, Rubin C, Rubin J.** Mechanical strain inhibits adipogenesis in mesenchymal stem cells by stimulating a durable  $\beta$ -catenin signal. *Endocrinology* 149(12):6065-6075, 2008.
68. **Sen B, Xie Z, Case N, Thompson WR, Uzer G, Styner M, Rubin J.** mTORC2 regulates mechanically induced cytoskeletal reorganization and lineage selection in marrow-derived mesenchymal stem cells. *J Bone Miner Res* 29(1):78-89, 2014.
69. **Shen T, Qiu L, Chang H, Yang Y, Jian C, Xiong J, Zhou J, Dong S.** Cyclic tension promotes osteogenic differentiation in human periodontal ligament stem cells. *Int J Clin Exp Pathol* 7(11):7872-80, 2014.
70. **Shi GX, Zheng XF, Zhu C, Li B, Wang YR, Jiang SD, Jiang LS.** Evidence of the role of R-spondin 1 and its receptor Lgr4 in the transmission of mechanical stimuli to biological signals for bone formation. *Int J Mol Sci* 18(3), 2017. pii: E564.
71. **Shradhanjali A, Riehl BD, Lee JS, Ha L, Lim JY.** Enhanced cardiomyogenic induction of mouse pluripotent cells by cyclic mechanical stretch. *Biochem Biophys Res Commun* 488(4):590-595, 2017.
72. **Simionescu A, Tedder ME, Chuang T, Simionescu DT.** Lectin and antibody-based histochemical techniques for cardiovascular tissue engineering. *Journal of Histotechnology* 34(1):20-28, 2011.
73. **Simmons CA, Matlis S, Thornton AJ, Chen S, Wang CY, Mooney DJ.** Cyclic strain enhances matrix mineralization by adult human mesenchymal stem cells via the extracellular signal-regulated kinase (ERK1/2) signaling pathway. *Journal of Biomechanics* 36(8):1087-1096, 2003.
74. **Song F, Jiang D, Wang T, Wang Y, Chen F, Xu G, Kang Y, Zhang Y.** Mechanical loading improves tendon-bone healing in a rabbit anterior cruciate ligament reconstruction model by promoting proliferation and matrix formation of mesenchymal stem cells and tendon cells. *Cell Physiol Biochem* 41(3):875-889, 2017.
75. **Sumanasinghe RD, Bernacki SH, Lobo EG.** Osteogenic differentiation of human mesenchymal stem cells in collagen matrices: effect of uniaxial cyclic tensile strain on bone morphogenetic protein (BMP-2) mRNA expression. *Tissue Eng* 12(12):3459-3465, 2006.
76. **Sun L, Qu L, Zhu R, Li H, Xue Y, Liu X, Fan J, Fan H.** Effects of mechanical stretch on cell proliferation and matrix formation of mesenchymal stem cell and anterior cruciate ligament fibroblast. *Stem Cells International* 2016:9842075, 2016.
77. **Sun X, Nunes SS.** Bioengineering approaches to mature human pluripotent stem cell-derived cardiomyocytes. *Front Cell Dev Biol* 5:19, 2017.
78. **Tan J, Xu X, Tong Z, Lin J, Yu Q, Lin Y, Kuang W.** Decreased osteogenesis of adult mesenchymal stem cells by reactive oxygen species under cyclic stretch: a possible mechanism of age related osteoporosis. *Bone Res* 3:15003, 2015.
79. **Tchao J, Han L, Lin B, Yang L, Tobita K.** Combined biophysical and soluble factor modulation induces cardiomyocyte differentiation from human muscle derived stem cells. *Sci Rep* 4:6614, 2014.
80. **Tchao J, Kim JJ, Lin B, Salama G, Lo CW, Yang L, Tobita K.** Engineered human muscle tissue from skeletal muscle derived stem cells and induced pluripotent stem cell derived cardiac cells. *Int J Tissue Eng* 2013:198762, 2013.
81. **Thayer P, Tong E, Butler-Abisrorr N, Goldstein A.** Influence of sparse electrospun fibers on the differentiation of mesenchymal stem cells in collagen gels [abstract]. *Tissue Engineering Part A* 20:S18, 2014.
82. **Throm Quinlan AM, Sierad LN, Capulli AK, Firstenberg LE, Billiar KL.** Combining dynamic stretch and tunable stiffness to probe cell mechanobiology in vitro. *PLoS ONE* 6(8):e23272, 2011.
83. **Uzer G, Thompson WR, Sen B, Xie Z, Yen SS, Miller S, Bas G, Styner M, Rubin CT, Judex S, BurrIDGE K, Rubin J.** Cell mechanosensitivity to extremely low-magnitude signals is enabled by a LINCed nucleus. *Stem Cells* 33(6):2063-76, 2015.
84. **Valero MC, Huntsman HD, Liu J, Zou K, Boppart MD.** Eccentric exercise facilitates mesenchymal stem cell appearance in skeletal muscle. *PLoS One* 7(1):e29760, 2012.
85. **Wall ME, Rachlin A, Otey CA, Lobo EG.** Human adipose-derived adult stem cells upregulate palladin during osteogenesis and in response to cyclic tensile strain. *American Journal of Physiology: Cell Physiology* 293(5):C1532-C1538, 2007.
86. **Wang J, Wang CD, Zhang N, Tong WX, Zhang YF, Shan SZ, Zhang XL, Li QF.** Mechanical stimulation orchestrates the osteogenic differentiation of human bone marrow stromal cells by regulating HDAC1. *Cell Death Dis* 7:e2221, 2016.



87. **Ward DF, Salaszyk RM, Klees RF, Backiel J, Agius P, Bennett K, Boskey A, Plopper GE.** Gene focusing and promotes osteogenic differentiation of human mesenchymal stem cells through an extracellular-related kinase-dependent pathway. *Stem Cells and Development* 16:467–479, 2007.
88. **Wei FL, Wang JH, Ding G, Yang SY, Li Y, Hu YJ, Wang SL.** Mechanical force-induced specific microRNA expression in human periodontal ligament stem cells. *Cells Tissues Organs* 199(5-6):353-63, 2014.
89. **Wilson CJ, Kasper G, Schütz MA, Duda GN.** Cyclic strain disrupts endothelial network formation on Matrigel. *Microvasc Res* 78(3):358-63, 2009.
90. **Wozniak M, Fausto A, Carron CP, Meyer DM, Hruska KA.** Mechanically strained cells of the osteoblast lineage organize their extracellular matrix through unique sites of  $\alpha$ V $\beta$ 3-integrin expression. *J Bone Miner Res* 15(9):1731-1745, 2000.
91. **Wu Y, Zhang P, Dai Q, Fu R, Yang X, Fang B, Jiang L.** Osteoclastogenesis accompanying early osteoblastic differentiation of BMSCs promoted by mechanical stretch. *Biomedical Reports* 1(3):474-78, 2013.
92. **Wu Y, Zhang P, Dai Q, Yang X, Fu R, Jiang L, Fang B.** Effect of mechanical stretch on the proliferation and differentiation of BMSCs from ovariectomized rats. *Mol Cell Biochem* 382(1-2):273-82, 2013.
93. **Wu Y, Zhang X, Zhang P, Fang B, Jiang L.** Intermittent traction stretch promotes the osteoblastic differentiation of bone mesenchymal stem cells by the ERK1/2-activated Cbfa1 pathway. *Connect Tissue Res* 53(6):451-9, 2012.
94. **Xiao WL, Zhanga DZ, Fan CH, Yu BJ.** Intermittent stretching and osteogenic differentiation of bone marrow derived mesenchymal stem cells via the p38MAPK-osterix signaling pathway. *Cell Physiol Biochem* 36(3):1015-25, 2015.
95. **Yang G, Rothrauff BB, Lin H, Gottardi R, Alexander PG, Tuan RS.** Enhancement of tenogenic differentiation of human adipose stem cells by tendon-derived extracellular matrix. *Biomaterials* 34(37):9295-306, 2013.
96. **Yu HC, Wu TC, Chen MR, Liu SW, Chen JH, Lin KM.** Mechanical stretching induces osteoprotegerin in differentiating C2C12 precursor cells through noncanonical Wnt pathways. *J Bone Miner Res* 25(5):1128-1137, 2010.

## SYNOVIAL

1. **Bader RA, Wagoner KL.** Modulation of the response of rheumatoid arthritis synovial fibroblasts to proinflammatory stimulants with cyclic tensile strain. *Cytokine* 51(1):35-41, 2010.
2. **Hirata H, Nagakura T, Tsujii M, Morita A, Fujisawa K, Uchida A.** The relationship of VEGF and PGE2 expression to extracellular matrix remodelling of the tenosynovium in the carpal tunnel syndrome. *J Pathol* 204(5):605-612, 2004.
3. **Lange F, Hartl S, Ungethuem U, Kuban RJ, Hammerschmidt S, Faber S, Morawietz L, Wirtz H, Emmrich F, Krenn V, Sack U.** Anti-TNF effects on destructive fibroblasts depend on mechanical stress. *Scand J Immunol* 64(5):544-553, 2006.
4. **Momberger TS, Levick JR, Mason RM.** Hyaluronan secretion by synoviocytes is mechanosensitive. *Matrix Biology* 24(8):510-519, 2005.
5. **Momberger TS, Levick JR, Mason RM.** Mechanosensitive synoviocytes: a Ca<sup>2+</sup> -PKC $\alpha$ -MAP kinase pathway contributes to stretch-induced hyaluronan synthesis in vitro. *Matrix Biol* 25(5):306-316, 2006.
6. **Sambajon VV, Cillo JE, Gassner RJ, Buckley MJ.** The effects of mechanical strain on synovial fibroblasts. *Journal of Oral and Maxillofacial Surgery* 61(6):707-712, 2003.
7. **Thaler JD, Achari Y, Lu T, Shrive NG, Hart DA.** Estrogen receptor  $\beta$  and truncated variants enhance the expression of transfected MMP-1 promoter constructs in response to specific mechanical loading. *Biology of Sex Differences* 5:14, 2014.
8. **Tsujii M, Hirata H, Yoshida T, Imanaka-Yoshida K, Morita A, Uchida A.** Involvement of tenascin-C and PG-M/versican in flexor tenosynovial pathology of idiopathic carpal tunnel syndrome. *Histol Histopathol* 21(5):511-518, 2006.

## TENDON

1. **Ahearne M, Bagnaninchi PO, Yang Y, El Haj AJ.** Online monitoring of collagen fibre alignment in tissue-engineered tendon by PSOCT. *J Tissue Eng Regen Med* 2(8):521-524, 2008.



2. **Almekinders LC, Banes AJ, Ballenger CA.** Effects of repetitive motion on human fibroblasts. *Med Sci Sports Exerc* 25(5):603-607, 1993.
3. **Andersson G, Backman L.** 13 Fibrotic regulators Ccn1 and Ccn2 respond to mechanical loading of tendon cells. *Br J Sports Med* 48:A8-A9, 2014.
4. **Archambault J, Tsuzaki M, Herzog W, Banes AJ.** Stretch and interleukin-1 $\beta$  induce matrix metalloproteinases in rabbit tendon cells in vitro. *Journal of Orthopaedic Research* 20(1):36-39, 2002.
5. **Arnoczky SP, Tian T, Lavagnino M, Gardner K, Schuler P, Morse P.** Activation of stress-activated protein kinases (SAPK) in tendon cells following cyclic strain: the effects of strain frequency, strain magnitude, and cytosolic calcium. *Journal of Orthopaedic Research* 20(5):947-952, 2002.
6. **Backman LJ, Fong G, Andersson G, Scott A, Danielson P.** Substance P is a mechanoresponsive, autocrine regulator of human tenocyte proliferation. *PLoS One* 6(11):e27209, 2011.
7. **Banes AJ, Gilbert J, Taylor D, Monbureau O.** A new vacuum-operated stress-providing instrument that applies static or variable duration cyclic tension or compression to cells in vitro. *J Cell Sci* 75:35-42, 1985.
8. **Banes AJ, Horesovsky G, Larson C, Tsuzaki M, Judex S, Archambault J, Zernicke R, Herzog W, Kelley S, Miller L.** Mechanical load stimulates expression of novel genes in vivo and in vitro in avian flexor tendon cells. *Osteoarthritis Cartilage* 7(1):141-153, 1999.
9. **Banes AJ, Tsuzaki M, Lawrence WT, Ralphs J, Benjamin M, Pederson D, Brown T.** Gap junction connexin expression is upregulated by cyclic mechanical load in avian tendon cells. *Biorheology* 32(2):177, 1995.
10. **Banes AJ, Tsuzaki M, Peiqi H, Brigman B, Brown T, Almekinders L, Lawrence WT, Fischer T.** PDGF-BB, IGF-I and mechanical load stimulate DNA synthesis in avian tendon fibroblasts in vitro. *Journal of Biomechanics* 28(12):1505-1513, 1995.
11. **Banes AJ, Tsuzaki M, Yang X, Faber J, Brown T, Boitano S.** Uniform biaxial strain stimulates immediate and downstream responses in tendon cells. *Annals of Biomedical Engineering* 25(1):S77, 1997.
12. **Banes AJ, Weinhold P, Yang X, Tsuzaki M, Bynum D, Bottlang M, Brown T.** Gap junctions regulate responses of tendon cells ex vivo to mechanical loading. *Clin Orthop Relat Res* 367 Suppl:S356-S370, 1999.
13. **Brown JP, Finley VG, Kuo CK.** Embryonic mechanical and soluble cues regulate tendon progenitor cell gene expression as a function of developmental stage and anatomical origin. *J Biomech* 47(1):214-22, 2014.
14. **Brown JP, Galassi TV, Stoppato M, Schiele NR, Kuo CK.** Comparative analysis of mesenchymal stem cell and embryonic tendon progenitor cell response to embryonic tendon biochemical and mechanical factors. *Stem Cell Res Ther* 6:89, 2015.
15. **Cao TV, Hicks MR, Campbell D, Standley PR.** Dosed myofascial release in three-dimensional bioengineered tendons: effects on human fibroblast hyperplasia, hypertrophy, and cytokine secretion. *J Manipulative Physiol Ther* 36(8):513-21, 2013.
16. **Cao TV, Hicks MR, Zein-Hammoud M, Standley PR.** Duration and magnitude of myofascial release in 3-dimensional bioengineered tendons: effects on wound healing. *J Am Osteopath Assoc* 115(2):72-82, 2015.
17. **Chen CH, Marymont JV, Huang MH, Geyer M, Luo ZP, Liu X.** Mechanical strain promotes fibroblast gene expression in presence of corticosteroid. *Connect Tissue Res* 48(2):65-9, 2007.
18. **Chen G, Jiang H, Tian X, Tang J, Bai X, Zhang Z, Wang L.** Mechanical loading modulates heterotopic ossification in calcific tendinopathy through the mTORC1 signaling pathway. *Mol Med Rep* 16(5):5901-5907, 2017. doi: 10.3892/mmr.2017.7380.
19. **Elfervig M, Archambault J, Herzog W, Bynum D, Banes AJ.** Mechanical stretching induces increased intracellular Ca<sup>2+</sup> in human tendon cells [abstract]. *Transactions of the 47<sup>th</sup> Annual Meeting of the Orthopaedic Research Society* 26:566, 2001.
20. **Elfervig MK, Yang X, Tsuzaki M, Banes AJ.** Mechanical strain and norepinephrine synergize to increase Ca<sup>2+</sup> signaling and cell coupling in tendon cells [abstract]. *Transactions of the 48<sup>th</sup> Annual Meeting of the Orthopaedic Research Society* 27:596, 2002.
21. **Fong G, Backman LJ, Hart DA, Danielson P, McCormack B, Scott A.** Substance P enhances collagen remodeling and MMP-3 expression by human tenocytes. *J Orthop Res* 31(1):91-8, 2013.
22. **Garvin J, Qi J, Maloney M, Banes AJ.** Novel system for engineering bioartificial tendons and application of mechanical load. *Tissue Eng* 9(5):967-979, 2003.
23. **Gilbert JA, Weinhold PS, Banes AJ, Link GW, Jones GL.** Strain profiles for circular cell culture plates containing flexible surfaces employed to mechanically deform cells in vitro. *Journal of Biomechanics* 27(9):1169-1177, 1994.



24. **Hirata H, Nagakura T, Tsujii M, Morita A, Fujisawa K, Uchida A.** The relationship of VEGF and PGE2 expression to extracellular matrix remodelling of the tenosynovium in the carpal tunnel syndrome. *J Pathol* 204(5):605-612, 2004.
25. **Huisman E, Lu A, McCormack RG, Scott A.** Enhanced collagen type I synthesis by human tenocytes subjected to periodic in vitro mechanical stimulation. *BMC Musculoskelet Disord* 15:386, 2014.
26. **Huisman E, Lu A, McCormack R, Scott A.** Enhanced collagen type I synthesis of tenocytes by periodic in vitro mechanical stimulation. *Br J Sports Med* 48:A28, 2014.
27. **Jones E, Legerlotz K, Riley G.** Mechanical regulation of integrins in human tenocytes in collagen and fibrin matrices. *Bone Joint J* 96-B(Supp 11):161, 2014.
28. **Jones ER, Jones GC, Legerlotz K, Riley GP.** Cyclical strain modulates metalloprotease and matrix gene expression in human tenocytes via activation of TGF $\beta$ . *Biochim Biophys Acta* 1833(12):2596-2607, 2013.
29. **Kayama T, Mori M, Ito Y, Matsushima T, Nakamichi R, Suzuki H, Ichinose S, Saito M, Marumo K, Asahara H.** Gtf2ird1-dependent Mohawk expression regulates mechanosensing properties of the tendon. *Mol Cell Biol* 36(8):1297-309, 2016.
30. **Lavagnino M, Gardner KL, Arnoczky SP.** High magnitude, in vitro, biaxial, cyclic tensile strain induces actin depolymerization in tendon cells. *Muscles Ligaments Tendons J* 5(2):124-8, 2015.
31. **Lohberger B, Kaltenecker H, Stuenkel N, Rinner B, Leithner A, Sadoghi P.** Impact of cyclic mechanical stimulation on the expression of extracellular matrix proteins in human primary rotator cuff fibroblasts. *Knee Surg Sports Traumatol Arthrosc* 24(12):3884-3891, 2016.
32. **Mousavizadeh R, Backman L, McCormack RG, Scott A.** Dexamethasone decreases substance P expression in human tendon cells: an in vitro study. *Rheumatology (Oxford)* 54(2):318-23, 2015.
33. **Mousavizadeh R, Khosravi S, Behzad H, McCormack RG, Duronio V, Scott A.** Cyclic strain alters the expression and release of angiogenic factors by human tendon cells. *PLoS One* 9(5):e97356, 2014.
34. **Qi J, Chi L, Bynum D, Baner AJ.** Gap junctions in IL-1 $\beta$ -mediated cell survival response to strain. *J Appl Physiol* 110(5):1425-1431, 2011.
35. **Qi J, Chi L, Maloney M, Yang X, Bynum D, Baner AJ.** Interleukin-1 $\beta$  increases elasticity of human bioartificial tendons. *Tissue Eng* 12(10):2913-2925, 2006.
36. **Qi J, Fox AM, Alexopoulos LG, Chi L, Bynum D, Guilak F, Baner AJ.** IL-1 $\beta$  decreases the elastic modulus of human tenocytes. *J Appl Physiol* 101(1):189-95, 2006.
37. **Ralphs JR, Waggett AD, Benjamin M.** Actin stress fibres and cell-cell adhesion molecules in tendons: organisation in vivo and response to mechanical loading of tendon cells in vitro. *Matrix Biology* 21(1):67-74, 2002.
38. **Song F, Jiang D, Wang T, Wang Y, Chen F, Xu G, Kang Y, Zhang Y.** Mechanical loading improves tendon-bone healing in a rabbit anterior cruciate ligament reconstruction model by promoting proliferation and matrix formation of mesenchymal stem cells and tendon cells. *Cell Physiol Biochem* 41(3):875-889, 2017.
39. **Spang C, Backman LJ, Le Roux S, Chen J, Danielson.** Glutamate signaling through the NMDA receptor reduces the expression of scleraxis in plantaris tendon derived cells. *BMC Musculoskelet Disord* 18(1):218, 2017.
40. **Triantafillopoulos IK, Baner AJ, Bowman KF Jr, Maloney M, Garrett WE Jr, Karas SG.** Nandrolone decanoate and load increase remodeling and strength in human supraspinatus bioartificial tendons. *Am J Sports Med* 32(4):934-943, 2004.
41. **Triantafillopoulos IK, Baner AJ, Elfervig MK, Garrett WE, Karas SG.** Nandrolone decanoate and loading enhance intercellular calcium signalling in human supraspinatus tendon cells [abstract]. *J Bone Joint Surg Br Orthopaedic Proceedings* 86-B:171, 2004.
42. **Tsujii M, Hirata H, Yoshida T, Imanaka-Yoshida K, Morita A, Uchida A.** Involvement of tenascin-C and PG-M/versican in flexor tenosynovial pathology of idiopathic carpal tunnel syndrome. *Histol Histopathol* 21(5):511-518, 2006.
43. **Tsuzaki M, Bynum D, Almekinders L, Faber J, Baner AJ.** Mechanical loading stimulates ecto-ATPase activity in human tendon cells. *J Cell Biochem* 96(1):117-125, 2003.
44. **Tsuzaki M, Bynum D, Almekinders L, Yang X, Faber J, Baner AJ.** ATP modulates load-inducible IL-1 $\beta$ , COX 2, and MMP-3 gene expression in human tendon cells. *J Cell Biochem* 89(3):556-562, 2003.
45. **Wall ME, Baner AJ.** Mechanically-induced strain upregulates connexin-43 mRNA expression in tendon cells [abstract]. *Transactions of the 50<sup>th</sup> Annual Meeting of the Orthopaedic Research Society* 29:827, 2004.
46. **Wall ME, Otey C, Qi J, Baner AJ.** Connexin 43 is localized with actin in tenocytes. *Cell Motil Cytoskeleton* 64(2):121-130, 2007.





47. **Wall ME, Weinhold PS, Siu T, Brown TD, Banes AJ.** Comparison of cellular strain with applied substrate strain in vitro. *J Biomech* 40(1):173-181, 2007.
48. **Yang Y, Wimpenny I, Wang RK.** Application of polarization-sensitive OCT and Doppler OCT in tissue engineering. In: *Optical Techniques in Regenerative Medicine*, Edited by Morgan SP, Rose F, Matcher SJ. Taylor & Francis Group: Florida, p. 307-327, 2014.

## UTERINE

1. **Chin-Smith EC, Willey FR, Slater DM, Taggart MJ, Tribe RM.** Nuclear factor of activated T-cell isoform expression and regulation in human myometrium. *Reprod Biol Endocrinol* 13:83, 2015.
2. **Korita D, Itoh H, Sagawa N, Yura S, Yoshida M, Kakui K, Takemura M, Nuamah MA, Fujii S.** Cyclic mechanical stretching and interleukin-1 $\alpha$  synergistically up-regulate prostacyclin secretion in cultured human uterine myometrial cells. *Gynecol Endocrinol* 18(3):130-7, 2004.
3. **Korita D, Sagawa N, Itoh H, Yura S, Yoshida M, Kakui K, Takemura M, Yokoyama C, Tanabe T, Fujii S.** Cyclic mechanical stretch augments prostacyclin production in cultured human uterine myometrial cells from pregnant women: possible involvement of up-regulation of prostacyclin synthase expression. *J Clin Endocrinol Metab* 87(11):5209-5219, 2002.
4. **Mohan AR, Sooranna SR, Lindstrom TM, Johnson MR, Bennett PR.** The effect of mechanical stretch on cyclooxygenase type 2 expression and activator protein-1 and nuclear factor- $\kappa$ B activity in human amnion cells. *Endocrinology* 148(4):1850-1857, 2007.
5. **Sooranna SR, Engineer N, Loudon JA, Terzidou V, Bennett PR, Johnson MR.** The mitogen-activated protein kinase dependent expression of prostaglandin H synthase-2 and interleukin-8 messenger ribonucleic acid by myometrial cells: the differential effect of stretch and interleukin-1 $\beta$ . *J Clin Endocrinol Metab* 90(6):3517-3527, 2005.
6. **Sooranna SR, Lee Y, Kim LU, Mohan AR, Bennett PR, Johnson MR.** Mechanical stretch activates type 2 cyclooxygenase via activator protein-1 transcription factor in human myometrial cells. *Mol Hum Reprod* 10(2):109-113, 2004.
7. **Takemura M, Itoh H, Sagawa N, Yura S, Korita D, Kakui K, Hirota N, Fujii S.** Cyclic mechanical stretch augments both interleukin-8 and monocyte chemoattractant protein-3 production in the cultured human uterine cervical fibroblast cells. *Mol Hum Reprod* 10(8):573-580, 2004.
8. **Takemura M, Itoh H, Sagawa N, Yura S, Korita D, Kakui K, Kawamura M, Hirota N, Maeda H, Fujii S.** Cyclic mechanical stretch augments hyaluronan production in cultured human uterine cervical fibroblast cells. *Mol Hum Reprod* 11(9):659-665, 2005.
9. **Yoshida M, Sagawa N, Itoh H, Yura S, Takemura M, Wada Y, Sato T, Ito A, Fujii S.** Prostaglandin F(2 $\alpha$ ), cytokines and cyclic mechanical stretch augment matrix metalloproteinase-1 secretion from cultured human uterine cervical fibroblast cells. *Mol Hum Reprod* 8(7):681-687, 2002.

## UTERINE/MYOMETRIAL SMOOTH MUSCLE CELLS

10. **Dalrymple A, Mahn K, Poston L, Songu-Mize E, Tribe R.** Mechanical stretch regulates TrpC proteins and calcium entry in human myometrial smooth muscle cells [abstract]. *J Soc Gynecol Invest* 11(2 Suppl):225A, 2004.
11. **Dalrymple A, Mahn K, Poston L, Songu-Mize E, Tribe RM.** Mechanical stretch regulates TRPC expression and calcium entry in human myometrial smooth muscle cells. *Mol Hum Reprod* 13(3):31-39, 2007.
12. **Loudon JA, Sooranna SR, Bennett PR, Johnson MR.** Mechanical stretch of human uterine smooth muscle cells increases IL-8 mRNA expression and peptide synthesis. *Mol Hum Reprod* 10(12):895-899, 2004.
13. **Mitchell JA, Shynlova O, Langille BL, Lye SJ.** Mechanical stretch and progesterone differentially regulate activator protein-1 transcription factors in primary rat myometrial smooth muscle cells. *Am J Physiol Endocrinol Metab* 287(3):E439-E445, 2004.
14. **Oldenhof AD, Shynlova OP, Liu M, Langille BL, Lye SJ.** Mitogen-activated protein kinases mediate stretch-induced c-fos mRNA expression in myometrial smooth muscle cells. *Am J Physiol Cell Physiol* 283(5):C1530-C1539, 2002.
15. **Shynlova OP, Oldenhof AD, Liu M, Langille L, Lye SJ.** Regulation of c-fos expression by static stretch in rat myometrial smooth muscle cells. *Am J Obstet Gynecol* 186(6):1358-1365, 2002.
16. **Shynlova O, Tsui P, Dorogin A, Lye SJ.** Monocyte chemoattractant protein-1 (CCL-2) integrates mechanical and endocrine signals that mediate term and preterm labor. *J Immunol* 181(2):1470-1479, 2008.



17. **Sooranna SR, Engineer N, Liang Z, Bennett PR, Johnson MR; Imperial College Parturition Research Group.** Stretch and interleukin 1 $\beta$ : pro-labour factors with similar mitogen-activated protein kinase effects but differential patterns of transcription factor activation and gene expression. *J Cell Physiol* 212(1):195-206, 2007.
18. **Sooranna SR, Grigsby P, Myatt L, Bennett PR, Johnson MR.** Prostanoid receptors in human uterine myocytes: the effect of reproductive state and stretch. *Mol Hum Reprod* 11(12):859-864, 2005.
19. **Sooranna SR, Grigsby PL, Engineer N, Liang Z, Sun K, Myatt L, Johnson MR.** Myometrial prostaglandin E2 synthetic enzyme mRNA expression: spatial and temporal variations with pregnancy and labour. *Mol Hum Reprod* 12(10):625-631, 2006.
20. **Terzidou V, Sooranna SR, Kim LU, Thornton S, Bennett PR, Johnson MR.** Mechanical stretch up-regulates the human oxytocin receptor in primary human uterine myocytes. *J Clin Endocrinol Metab* 90(1):237-246, 2005.

## OTHER CELL TYPES

1. **Alman BA, Greel DA, Ruby LK, Goldberg MJ, Wolfe HJ.** Regulation of proliferation and platelet-derived growth factor expression in palmar fibromatosis (Dupuytren contracture) by mechanical strain. *J Orthop Res* 14(5):722-8, 1996.
2. **Balestrini JL, Billiar KL.** Magnitude and duration of stretch modulate fibroblast remodeling. *J Biomech Eng* 131(5):051005, 2009.
3. **Barbolina MV, Liu Y, Gurler H, Kim M, Kajdacsy-Balla AA, Rooper L, Shepard J, Weiss M, Shea LD, Penzes P, Ravosa MJ, Stack MS.** Matrix rigidity activates Wnt signaling through down-regulation of Dickkopf-1 protein. *J Biol Chem* 288(1):141-51, 2013.
4. **Branski RC, Perera P, Verdolini K, Rosen CA, Hebda PA, Agarwal S.** Dynamic biomechanical strain inhibits IL-1 $\beta$ -induced inflammation in vocal fold fibroblasts. *J Voice* 21(6):651-660, 2007.
5. **Campbell J, DeYoung L, Chung E, Brock G.** MP89-20 Traction applied to Peyronie's disease cells reduces cellular fibrosis. *J Urol* 195(4):e1144, 2016.
6. **Chung E, De Young L, Solomon M, Brock GB.** Peyronie's disease and mechanotransduction: an in vitro analysis of the cellular changes to Peyronie's disease in a cell-culture strain system. *J Sex Med* 10(5):1259-67, 2013.
7. **Du QC, Zhang DZ, Chen XJ, Lan-Sun G, Wu M, Xiao WL.** The effect of p38MAPK on cyclic stretch in human facial hypertrophic scar fibroblast differentiation. *PLoS One* 8(10):e75635, 2013.
8. **Du GL, Chen WY, Li XN, He R, Feng PF.** Induction of MMP-1 and -3 by cyclical mechanical stretch is mediated by IL-6 in cultured fibroblasts of keratoconus. *Mol Med Rep* 15(6):3885-3892, 2017.
9. **Ferdous Z, Lazaro LD, Iozzo RV, Höök M, Grande-Allen KJ.** Influence of cyclic strain and decorin deficiency on 3D cellularized collagen matrices. *Biomaterials* 29(18):2740-2748, 2008.
10. **Fisher DD, Cyr RJ.** Mechanical forces in plant growth and development. *Gravit Space Biol Bull* 13(2):67-73, 2000.
11. **Foolen J, Deshpande VS, Kanters FM, Baaijens FP.** The influence of matrix integrity on stress-fiber remodeling in 3D. *Biomaterials* 33(30):7508-7518, 2012.
12. **Foolen J, Janssen-van den Broek MW, Baaijens FP.** Synergy between Rho signaling and matrix density in cyclic stretch-induced stress fiber organization. *Acta Biomater* 10(5):1876-85, 2014.
13. **Freeman SA, Christian S, Austin P, Iu I, Graves ML, Huang L, Tang S, Coombs D, Gold MR, Roskelley CD.** Applied stretch initiates directional invasion through the action of Rap1 GTPase as a tension sensor. *J Cell Sci* 130(1):152-163, 2017.
14. **Giannone G, Jiang G, Sutton DH, Critchley DR, Sheetz MP.** Talin1 is critical for force-dependent reinforcement of initial integrin-cytoskeleton bonds but not tyrosine kinase activation. *J Cell Biol* 163(2):409-419, 2003.
15. **Gupta A, Nitoiu D, Brennan-Crispi D, Addya S, Riobo NA, Kelsell DP, Mahoney MG.** Cell cycle- and cancer-associated gene networks activated by Dsg2: evidence of cystatin a deregulation and a potential role in cell-cell adhesion. *PLoS One* 10(3):e0120091, 2015.
16. **Han B, Bai XH, Lodyga M, Xu J, Yang BB, Keshavjee S, Post M, Liu M.** Conversion of mechanical force into biochemical signaling. *J Biol Chem* 279(52):54793-54801, 2004.
17. **He Z, Potter R, Li X, Flessner M.** Stretch of human mesothelial cells increases cytokine expression. *Adv Perit Dial* 28:2-9, 2012.



18. **Jing Q, Guang-yun Z, Zhen T, Yue Z, Jiang-bo Y, Xiao Y.** Effects of p38MAPK signaling pathway on cyclic tensile stress-induced fibroblast apoptosis. *Journal of Clinical Rehabilitative Tissue Engineering Research* 15(20):3789-3792, 2011.
19. **Joshi B, Bastiani M, Strugnelli SS, Boscher C, Parton RG, Nabi IR.** Phosphocaveolin-1 is a mechanotransducer that induces caveola biogenesis via Egr1 transcriptional regulation. *J Cell Biol* 199(3):425-35, 2012. Erratum in *J Cell Biol* 200(5):681, 2013.
20. **Lee SK, Lee CY, Kook YA, Lee SK, Kim EC.** Mechanical stress promotes odontoblastic differentiation via the heme oxygenase-1 pathway in human dental pulp cell line. *Life Sci* 86(3-4):107-114, 2010.
21. **Lewis JS, Dolgova NV, Chancellor TJ, Acharya AP, Karpiak JV, Lele TP, Keselowsky BG.** The effect of cyclic mechanical strain on activation of dendritic cells cultured on adhesive substrates. *Biomaterials* 34(36):9063-70, 2013.
22. **Loperena R, Gomez JA, Engel N, Harrison DG.** Mechanical stretch on endothelial cells promotes monocyte differentiation into immunogenic dendritic cells. *The FASEB Journal* 31(1 Supplement):1b692-1b692, 2017.
23. **Lutz R, Sakai T, Chiquet M.** Pericellular fibronectin is required for RhoA-dependent responses to cyclic strain in fibroblasts. *J Cell Sci* 123(Pt 9):1511-1521, 2010.
24. **Lynch KM, Ahsan T.** Correlating the effects of bone morphogenic protein to secreted soluble factors from fibroblasts and mesenchymal stem cells in regulating regenerative processes in vitro. *Tissue Eng Part A* 20(23-24):3122-9, 2014.
25. **Matheson LA, Maksym GN, Santerre JP, Labow RS.** Cyclic biaxial strain affects U937 macrophage-like morphology and enzymatic activities. *J Biomed Mater Res A* 76(1):52-62, 2006.
26. **Matheson LA, Maksym GN, Santerre JP, Labow RS.** Differential effects of uniaxial and biaxial strain on U937 macrophage-like cell morphology: Influence of extracellular matrix type proteins. *J Biomed Mater Res A* 81:971-981, 2007.
27. **Matheson LA, Maksym GN, Santerre JP, Labow RS.** The functional response of U937 macrophage-like cells is modulated by extracellular matrix proteins and mechanical strain. *Biochem Cell Biol* 84(5):763-773, 2006.
28. **Osada T, Watanabe S, Tanaka H, Hirose M, Miyazaki A, Sato N.** Effect of mechanical strain on gastric cellular migration and proliferation during mucosal healing: role of Rho dependent and Rac dependent cytoskeletal reorganization. *Gut* 45(4):508-515, 1999.
29. **Pereira AM, Tudor C, Kanger JS, Subramaniam V, Martin-Blanco E.** Integrin-dependent activation of the JNK signaling pathway by mechanical stress. *PLoS One* 6(12):e26182, 2011.
30. **Qu H, Gao P.** The effect of squarewave stretching on apoptosis of human oral squamous cell carcinoma KB cells. *Biomedical Engineering and Informatics (BMEI), 2012 5th International Conference on*, 1598-1601, 2012.
31. **Ruiz-Zapata AM, Kerkhof MH, Zandieh-Doulabi B, Brölmann HA, Smit TH, Helder MN.** Fibroblasts from women with pelvic organ prolapse show differential mechanoresponses depending on surface substrates. *Int Urogynecol J* 24(9):1567-75, 2013.
32. **Sawada Y, Sheetz MP.** Force transduction by Triton cytoskeletons. *J Cell Bio* 156:609-615, 2002.
33. **Tamiello C, Halder M, Kamps MA, Baaijens FP, Broers JL, Bouten CV.** Cellular strain avoidance is mediated by a functional actin cap - observations in an Lmna-deficient cell model. *J Cell Sci* 130(4):779-790, 2017.
34. **Tillu VA, Kovtun O, McMahon KA, Collins BM, Parton RG.** A phosphoinositide-binding cluster in cavin1 acts as a molecular sensor for cavin1 degradation. *Mol Biol Cell* 26(20):3561-9, 2015.
35. **Vollmer T, Hinse D, Kleesiek K, Dreier J.** Interactions between endocarditis-derived *Streptococcus gallolyticus* subsp. *gallolyticus* isolates and human endothelial cells. *BMC Microbiol* 10:78, 2010.
36. **Wang JC, Lee JY, Christian S, Dang-Lawson M, Pritchard C, Freeman SA, Gold MR.** The Rap1-cofilin-1 pathway coordinates actin reorganization and MTOC polarization at the B cell immune synapse. *J Cell Sci* 130(6):1094-1109, 2017.
37. **Wang Y, Qu H.** Effect of mechanical stretch on apoptosis and Bax/Bcl-2 protein expression of human oral squamous cell carcinoma KB cells in vitro. In: *Proceedings of the 2016 International Conference on Biotechnology & Medical Science*. Ed. Y Zhang. World Scientific Publishing Co. Pte. Ltd.: Singapore, 191-198, 2017.
38. **Wehner S, Buchholz BM, Schuchtrup S, Rocke A, Schaefer N, Lysson M, Hirner A, Kalff JC.** Mechanical strain and TLR4 synergistically induce cell-specific inflammatory gene expression in intestinal smooth muscle cells and peritoneal macrophages. *Am J Physiol Gastrointest Liver Physiol* 299(5):G1187-G1197, 2010.



39. **Yang F, Yang D, Zhou J, Dai H, Huang L.** Effect of ERK1/2 signal pathway on the expression of OPG/RANKL in cementoblasts under stress stimulation. *Medical Journal of Chinese People's Liberation Army* 39(12):941-945, 2014.
40. **Yao W, Li X, Zhao B, Du G, Feng P, Chen W.** Combined effect of TNF- $\alpha$  and cyclic stretching on gene and protein expression associated with mineral metabolism in cementoblasts. *Arch Oral Biol* 73:88-93, 2017.
41. **Yu J, Xie YJ, Xu D, Zhao SL.** Effect of cyclic strain on cell morphology, viability and proliferation of human dental pulp cells in vitro. *Shanghai Kou Qiang Yi Xue* 18(6):599-603, 2009.
42. **Zhang H, Wang Y, Bai X, Lv Z, Zou J, Xu W, Wang H.** Cyclic tensile strain on vocal fold fibroblasts inhibits cigarette smoke-induced inflammation: implications for Reinke edema. *J Voice* 29(1):13-21, 2015.
43. **Zong W, Jallah ZC, Stein SE, Abramowitch SD, Moalli PA.** Repetitive mechanical stretch increases extracellular collagenase activity in vaginal fibroblasts. *Female Pelvic Med Reconstr Surg* 16(5):257-262, 2010.

## REVIEWS & COMMENTARIES

1. **Anderson JE, Wozniak AC.** Satellite cell activation on fibers: modeling events in vivo — an invited review. *Can J Physiol Pharmacol* 82:300-310, 2004.
2. **Banes AJ.** Out of academics: education, entrepreneurship and enterprise. *Ann Biomed Eng* 2013 Jun 25. [Epub ahead of print].
3. **Bleuel J, Zaucke F, Brüggemann GP, Niehoff A.** Effects of cyclic tensile strain on chondrocyte metabolism: a systematic review. *PLoS One* 10(3):e0119816, 2015.
4. **Brown TD.** Techniques for mechanical stimulation of cells in vitro: a review. *Journal of Biomechanics* 33(1):3-14, 2000.
5. **Chen Z, Zhang Y, Liang C, Chen L, Zhang G, Qian A.** Mechanosensitive miRNAs and bone formation. *Int J Mol Sci* 18(8) pii: E1684, 2017.
6. **Cummins PM, Cotter EJ, Cahill PA.** Hemodynamic regulation of metalloproteinases within the vasculature. *Protein Pept Lett* 11(5):433-442, 2004.
7. **Cummins PM, von Offenbergsweeney N, Killeen MT, Birney YA, Redmond EM, Cahill PA.** Cyclic strain-mediated matrix metalloproteinase regulation within the vascular endothelium: a force to be reckoned with. *Am J Physiol Heart Circ Physiol* 292:H28-H42, 2007.
8. **Delaine-Smith RM, Javaheri B, Helen Edwards J, Vazquez M, Rumney RM.** Preclinical models for in vitro mechanical loading of bone-derived cells. *Bonekey Rep* 4:728, 2015.
9. **Dogan A, Elcin AE, Elcin YM.** Translational applications of tissue engineering in cardiovascular medicine. *Curr Pharm Des* 23(6):903-914, 2017. doi: 10.2174/138161282366616111141954.
10. **Endlich N, Endlich K.** The challenge and response of podocytes to glomerular hypertension. *Semin Nephrol* 32(4):327-41, 2012.
11. **Friedrich O, Schneidereit D, Nikolaev YA, Nikolova-Krstevski V, Schürmann S, Wirth-Hücking A, Merten AL, Fatkin D, Martinac B.** Adding dimension to cellular mechanotransduction: Advances in biomedical engineering of multiaxial cell-stretch systems and their application to cardiovascular biomechanics and mechano-signaling. *Prog Biophys Mol Biol* 2017 Jun 21. pii: S0079-6107(17)30036-6. doi: 10.1016/j.pbiomolbio.2017.06.011. [Epub ahead of print].
12. **Gupta V, Grande-Allen KJ.** Effects of static and cyclic loading in regulating extracellular matrix synthesis by cardiovascular cells. *Cardiovasc Res* 72(3):375-383, 2006.
13. **Hirst SJ, Martin JG, Bonacci JV, Chan V, Fixman ED, Hamid QA, Herszberg B, Lavoie JP, McVicker CG, Moir LM, Nguyen TT, Peng Q, Ramos-Barbon D, Stewart AG.** Proliferative aspects of airway smooth muscle. *Journal of Allergy and Clinical Immunology* 114(2 Suppl):S2-S17, 2004.
14. **Huang G, Wang L, Wang S, Han Y, Wu J, Zhang Q, Xu F, Lu TJ.** Engineering three-dimensional cell mechanical microenvironment with hydrogels. *Biofabrication* 4(4):042001, 2012.
15. **Hughes-Fulford M.** Signal transduction and mechanical stress. *Sci STKE* 2004(249):RE12, 2004.
16. **Kamble H, Barton MJ, Jun M, Park S, Nguyen NT.** Cell stretching devices as research tools: engineering and biological considerations. *Lab Chip* 16(17):3193-203, 2016.
17. **Kaunas R.** Dynamic stress fiber reorganization on stretched matrices. In: *Cell and Matrix Mechanics* ed, Kaunas R, Zemel A. CRC Press: Boca Raton, 2015.
18. **Kmiecik G, Spoldi V, Silini A, Parolini O.** Current view on osteogenic differentiation potential of mesenchymal stromal cells derived from placental tissues. *Stem Cell Rev* 11(4):570-85, 2015.
19. **Krishnan R, Park JA, Seow CY, Lee PV, Stewart AG.** Cellular biomechanics in drug screening and evaluation: mechanopharmacology. *Trends Pharmacol Sci* 37(2):87-100, 2016.



20. **Kurpinski K, Park J, Thakar RG, Li S.** Regulation of vascular smooth muscle cells and mesenchymal stem cells by mechanical strain. *Mol Cell Biomech* 3(1):21-34, 2006.
21. **Liu J, Huang Y, Chen S, Tang C, Jin H, Du J.** Role of endogenous sulfur dioxide in regulating vascular structural remodeling in hypertension. *Oxid Med Cell Longev* 2016:4529060, 2016.
22. **Mantella LE, Quan A, Verma S.** Variability in vascular smooth muscle cell stretch-induced responses in 2D culture. *Vasc Cell* 7:7, 2015.
23. **McPartland JM.** The endocannabinoid system: an osteopathic perspective. *J Am Osteopath Assoc* 108(10):586-600, 2008.
24. **Noda M, Takuwa Y, Katoh T, Kurokawa K.** Stretch-induced parathyroid hormone-related peptide gene expression: implication in the regulation of myogenic tone. *Curr Opin Nephrol Hypertens* 4(5):383-387, 1995.
25. **Ostrow LW, Sachs F.** Mechanosensation and endothelin in astrocytes-hypothetical roles in CNS pathophysiology. *Brain Research Reviews* 48(3):488-508, 2005.
26. **Park JS, Huang NF, Kurpinski KT, Patel S, Hsu S, Li S.** Mechanobiology of mesenchymal stem cells and their use in cardiovascular repair. *Front Biosci* 12:5098-5116, 2007.
27. **Rakugi H, Yu H, Kamitani A, Nakamura Y, Ohishi M, Kamide K, Nakata Y, Takami S, Higaki J, Ogihara T.** Links between hypertension and myocardial infarction. *American Heart Journal* 132(1 Pt 2 Su):213-221, 1996.
28. **Ravichandran A, Liu Y, Teoh SH.** Review: bioreactor design towards generation of relevant engineered tissues: focus on clinical translation. *J Tissue Eng Regen Med* 2017 Apr 3. doi: 10.1002/term.2270. [Epub ahead of print].
29. **Rutkovskiy A, Stensløkken KO, Vaage IJ.** Osteoblast differentiation at a glance. *Med Sci Monit Basic Res* 22:95-106, 2016.
30. **Sart S, Agathos SN, Li Y, Ma T.** Regulation of mesenchymal stem cell 3D microenvironment: From macro to microfluidic bioreactors. *Biotechnol J* 11(1):43-57, 2016.
31. **Scuderi GJ, Butcher J.** Naturally engineered maturation of cardiomyocytes. *Front Cell Dev Biol* 5:50, 2017.
32. **Somers SM, Spector AA, DiGirolamo DJ, Grayson WL.** Biophysical stimulation for engineering functional skeletal muscle. *Tissue Eng Part B Rev* 23(4):362-372, 2017.
33. **Songu-Mize E, Liu X, Hymel LJ.** Effect of mechanical strain on expression of Na<sup>+</sup>,K<sup>+</sup>-ATPase  $\alpha$  subunits in rat aortic smooth muscle cells. *Amer J Med Sci* 316(3):196-199, 1998.
34. **Sun X, Nunes SS.** Bioengineering approaches to mature human pluripotent stem cell-derived cardiomyocytes. *Front Cell Dev Biol* 5:19, 2017.
35. **Tabatabaei F, Bordbar M.** Effect of mechanical stimulation on differentiation of human mesenchymal stem cells to different cell lines: a systematic review. *Journal of Islamic Dental Association of IRAN (JIDAI)* 25(4):4, 2014.
36. **Takei T, Mills I, Arai K, Sumpio BE.** Molecular basis for tissue expansion: clinical implications for the surgeon. *Plast Reconstr Surg* 102(1):247-258, 1998.
37. **Tanaka S, Hamanishi C, Kikuchi H, Fukuda K.** Factors related to degradation of articular cartilage in osteoarthritis: a review. *Semin Arthritis Rheum* 27(6):392-399, 1998.
38. **Thompson MS, Epari DR, Bieler F, Duda GN.** In vitro models for bone mechanobiology: applications in bone regeneration and tissue engineering. *Proc Inst Mech Eng H* 224(12):1533-1541, 2010.
39. **Trumbull A, Subramanian G, Yildirim-Ayan E.** Mechanoresponsive musculoskeletal tissue differentiation of adipose-derived stem cells. *Biomed Eng Online* 15:43, 2016.
40. **Vandenburgh HH.** Mechanical forces and their second messengers in stimulating cell growth in vitro. *Am J Physiol Regulatory Integrative Comp Physiol* 262(3):R350-355, 1992.
41. **van Meer BJ, Tertoolen LG, Mummery CL.** Concise review: Measuring physiological responses of human pluripotent stem cell derived cardiomyocytes to drugs and disease. *Stem Cells* 34(8):2008-15, 2016.
42. **Wall M, Butler D, Haj AE, Bodle JC, Lobo EG, Banes AJ.** Key developments that impacted the field of mechanobiology and mechanotransduction. *J Orthop Res* 2017 Aug 17. doi: 10.1002/jor.23707. [Epub ahead of print].
43. **Yan L, Zhao L, Li S, Habibou Z.** Effects of hedgehog pathway genes on the response to tensile force and inflammatory cytokines in rat condylar cartilage cells. *Int J Clin Exp Pathol* 9(8):7793-7799, 2016.
44. **Youngstrom DW, Barrett JG.** Engineering tendon: scaffolds, bioreactors, and models of regeneration. *Stem Cells Int* 2016:3919030, 2016.
45. **Zein-Hammoud M, Standley PR.** Modeled osteopathic manipulative treatments: A review of their in vitro effects on fibroblast tissue preparations. *J Am Osteopath Assoc* 115(8):490-502, 2015.



46. **Zhang Y, Sekar RB, McCulloch AD, Tung L.** Cell cultures as models of cardiac mechanoelectric feedback. *Prog Biophys Mol Biol* 97(2-3):367-382, 2008.

## UNIFLEX® AND UNIAXIAL TENSION

1. **Bhatt KA, Chang EI, Warren SM, Lin SE, Bastidas N, Ghali S, Thibboneir A, Capla JM, McCarthy JG, Gurtner GC.** Uniaxial mechanical strain: an in vitro correlate to distraction osteogenesis. *J Surg Res* 143(2):329-336, 2007.
2. **Boonen KJ, Langelaan ML, Polak RB, van der Schaft DW, Baaijens FP, Post MJ.** Effects of a combined mechanical stimulation protocol: value for skeletal muscle tissue engineering. *J Biomech* 43(8):1514-1521, 2010.
3. **Brown JP, Finley VG, Kuo CK.** Embryonic mechanical and soluble cues regulate tendon progenitor cell gene expression as a function of developmental stage and anatomical origin. *J Biomech* 47(1):214-22, 2014.
4. **Brown JP, Galassi TV, Stoppato M, Schiele NR, Kuo CK.** Comparative analysis of mesenchymal stem cell and embryonic tendon progenitor cell response to embryonic tendon biochemical and mechanical factors. *Stem Cell Res Ther* 6:89, 2015.
5. **Dugan JM, Cartmell SH, Gough JE.** Uniaxial cyclic strain of human adipose-derived mesenchymal stem cells and C2C12 myoblasts in coculture. *J Tissue Eng* 5:2041731414530138, 2014.
6. **Foolen J, Deshpande VS, Kanters FM, Baaijens FP.** The influence of matrix integrity on stress-fiber remodeling in 3D. *Biomaterials* 33(30):7508-7518, 2012.
7. **Ghosh K, Thodeti CK, Dudley AC, Mammoto A, Klagsbrun M, Ingber DE.** Tumor-derived endothelial cells exhibit aberrant Rho-mediated mechanosensing and abnormal angiogenesis in vitro. *Proc Natl Acad Sci U S A* 105(32):11305-11310, 2008.
8. **Hamilton DW, Maul TM, Vorp DA.** Characterization of the response of bone marrow-derived progenitor cells to cyclic strain: implications for vascular tissue-engineering applications. *Tissue Engineering* 10(3-4):361-369, 2004.
9. **Huri PY, Wang A, Spector AA, Grayson WL.** Multistage adipose-derived stem cell myogenesis: an experimental and modeling study. *Cellular and Molecular Bioengineering* 7(4):497-509, 2014.
10. **Jones BF, Wall ME, Carroll RL, Washburn S, Banes AJ.** Ligament cells stretch-adapted on a microgrooved substrate increase intercellular communication in response to a mechanical stimulus. *J Biomech* 38(8):1653-1664, 2005.
11. **Juffer P, Jaspers RT, Klein-Nulend J, Bakker AD.** Mechanically loaded myotubes affect osteoclast formation. *Calcif Tissue Int* 94(3):319-26, 2014.
12. **Kim JH, Kang MS, Eltohamy M, Kim TH, Kim HW.** Dynamic mechanical and nanofibrous topological combinatory cues designed for periodontal ligament engineering. *PLoS One* 11(3):e0149967, 2016.
13. **Lee EL, Bendre HH, Kalmykov A, Wong JY.** Surface modification of uniaxial cyclic strain cell culture platform with temperature-responsive polymer for cell sheet detachment. *J Mater Chem B Mater Biol Med* 3(40):7899-7902, 2015.
14. **Lee WC, Maul TM, Vorp DA, Rubin JP, Marra KG.** Effects of uniaxial cyclic strain on adipose-derived stem cell morphology, proliferation, and differentiation. *Biomech Model Mechanobiol* 6(4):265-273, 2007.
15. **Matheson LA, Jack FN, Maksym GN, Paul SJ, Labow RS.** Characterization of the Flexcell Uniflex cyclic strain culture system with U937 macrophage-like cells. *Biomaterials* 27(2):226-233, 2006.
16. **Matheson LA, Maksym GN, Santerre JP, Labow RS.** Differential effects of uniaxial and biaxial strain on U937 macrophage-like cell morphology: Influence of extracellular matrix type proteins. *J Biomed Mater Res A* 81:971-981, 2007.
17. **Matheson LA, Maksym GN, Santerre JP, Labow RS.** The functional response of U937 macrophage-like cells is modulated by extracellular matrix proteins and mechanical strain. *Biochem Cell Biol* 84(5):763-773, 2006.
18. **Rolin GL, Binda D, Tissot M, Viennet C, Saas P, Muret P, Humbert P.** In vitro study of the impact of mechanical tension on the dermal fibroblast phenotype in the context of skin wound healing. *J Biomech* 47(14):3555-61, 2014.



19. **Sedding DG, Hermsen J, Seay U, Eickelberg O, Kummer W, Schwencke C, Strasser RH, Tillmanns H, Braun-Dullaeus RC.** Caveolin-1 facilitates mechanosensitive protein kinase B (Akt) signaling in vitro and in vivo. *Circ Res* 96(6):635-642, 2005.
20. **Sedding DG, Homann M, Seay U, Tillmanns H, Preissner KT, Braun-Dullaeus RC.** Calpain counteracts mechanosensitive apoptosis of vascular smooth muscle cells in vitro and in vivo. *FASEB J* 22(2):579-589, 2008.
21. **Sedding DG, Widmer-Teske R, Mueller A, Stieger P, Daniel JM, Gündüz D, Pullamsetti S, Nef H, Moellmann H, Troidl C, Hamm C, Braun-Dullaeus R.** Role of the phosphatase PTEN in early vascular remodeling. *PLoS One* 8(3):e55445, 2013.
22. **Sheikh AQ, Kuesel C, Taghian T, Hurley JR, Huang W, Wang Y, Hinton RB, Narmoneva DA.** Angiogenic microenvironment augments impaired endothelial responses under diabetic conditions. *Am J Physiol Cell Physiol* 306(8):C768-78, 2014.
23. **Sun L, Qu L, Zhu R, Li H, Xue Y, Liu X, Fan J, Fan H.** Effects of mechanical stretch on cell proliferation and matrix formation of mesenchymal stem cell and anterior cruciate ligament fibroblast. *Stem Cells Int* 2016:9842075, 2016.
24. **Tamiello C, Bouten CV, Baaijens FP.** Competition between cap and basal actin fiber orientation in cells subjected to contact guidance and cyclic strain. *Sci Rep* 5:8752, 2015.
25. **Tamiello C, Halder M, Kamps MA, Baaijens FP, Broers JL, Bouten CV.** Cellular strain avoidance is mediated by a functional actin cap - observations in an Lmna-deficient cell model. *J Cell Sci* 130(4):779-790, 2017.
26. **Thodeti CK, Matthews B, Ravi A, Mammoto A, Ghosh K, Bracha AL, Ingber DE.** TRPV4 channels mediate cyclic strain-induced endothelial cell reorientation through integrin-to-integrin signaling. *Circ Res* 104(9):1123-1130, 2009.
27. **Thompson CL, Chapple JP, Knight MM.** Primary cilia disassembly down-regulates mechanosensitive hedgehog signalling: a feedback mechanism controlling ADAMTS-5 expression in chondrocytes. *Osteoarthritis Cartilage* 22(3):490-8, 2014.
28. **Tondon A, Haase C, Kaunas R.** Mechanical stretch assays in cell culture systems. In: *Handbook of Imaging in Biological Mechanics*, ed. Neu CP, Genin GM. CRC Press: Boca Raton, 2015.
29. **Wescott DC, Pinkerton MN, Gaffey BJ, Beggs KT, Milne TJ, Meikle MC.** Osteogenic gene expression by human periodontal ligament cells under cyclic tension. *J Dent Res* 86(12):1212-1216, 2007.
30. **Wilson CJ, Kasper G, Schütz MA, Duda GN.** Cyclic strain disrupts endothelial network formation on Matrigel. *Microvasc Res* 78(3):358-63, 2009.

## TISSUE TRAIN® AND 3D CULTURE SYSTEM

1. **Abraham T, Kayra D, McManus B, Scott A.** Quantitative assessment of forward and backward second harmonic three dimensional images of collagen type I matrix remodeling in a stimulated cellular environment. *J Struct Biol* 180(1):17-25, 2012.
2. **Ahearne M, Bagnaninchi PO, Yang Y, El Haj AJ.** Online monitoring of collagen fibre alignment in tissue-engineered tendon by PSOCT. *J Tissue Eng Regen Med* 2(8):521-524, 2008.
3. **Allison DA, Wight TN, Ripp NJ, Braun KR, Grande-Allen KJ.** Endogenous overexpression of hyaluronan synthases within dynamically cultured collagen gels: implications for vascular and valvular disease. *Biomaterials* 29:2969-2976, 2008.
4. **Barbolina MV, Liu Y, Gurler H, Kim M, Kajdacsy-Balla AA, Rooper L, Shepard J, Weiss M, Shea LD, Penzes P, Ravosa MJ, Stack MS.** Matrix rigidity activates Wnt signaling through down-regulation of Dickkopf-1 protein. *J Biol Chem* 288(1):141-51, 2013.
5. **Bertrand AT, Ziaei S, Ehret C, Duchemin H, Mamchaoui K, Bigot A, Mayer M, Quijano-Roy S, Desguerre I, Lainé J, Ben Yaou R, Bonne G, Coirault C.** Cellular microenvironments reveal defective mechanosensing responses and elevated YAP signaling in LMNA-mutated muscle precursors. *J Cell Sci* 127(Pt 13):2873-84, 2014.
6. **Cao TV, Hicks MR, Campbell D, Standley PR.** Dosed myofascial release in three-dimensional bioengineered tendons: effects on human fibroblast hyperplasia, hypertrophy, and cytokine secretion. *J Manipulative Physiol Ther* 36(8):513-21, 2013.



7. **Cao TV, Hicks MR, Zein-Hammoud M, Standley PR.** Duration and magnitude of myofascial release in 3-dimensional bioengineered tendons: effects on wound healing. *J Am Osteopath Assoc* 115(2):72-82, 2015.
8. **Charoenpanich A, Wall ME, Tucker CJ, Andrews DM, Lalush DS, Lobo EG.** Microarray analysis of human adipose-derived stem cells in three-dimensional collagen culture: osteogenesis inhibits bone morphogenic protein and Wnt signaling pathways, and cyclic tensile strain causes upregulation of proinflammatory cytokine regulators and angiogenic factors. *Tissue Eng Part A* 17(21-22):2615-2627, 2011.
9. **Clause KC, Tinney JP, Liu LJ, Gharaibeh B, Huard J, Kirk JA, Shroff SG, Fujimoto KL, Wagner WR, Ralphe JC, Keller BB, Tobita K.** A three-dimensional gel bioreactor for assessment of cardiomyocyte induction in skeletal muscle-derived stem cells. *Tissue Eng Part C Methods* 16(3):375-385, 2010.
10. **Clause KC, Tinney JP, Liu LJ, Keller BB, Tobita K.** Engineered early embryonic cardiac tissue increases cardiomyocyte proliferation by cyclic mechanical stretch via p38-MAP kinase phosphorylation. *Tissue Engineering Part A* 15(6):1373-1380, 2009.
11. **Clause KC, Tinney JP, Liu JL, Keller BB, Huard J, Tobita K.** p38MAP-kinase regulates cardiomyocyte proliferation and contractile properties of engineered early embryonic cardiac tissue [abstract]. *Weinstein Cardiovascular Development Research Conference*, Indianapolis, IN, 2007.
12. **Clause KC, Tinney JP, Liu JL, Gharaibeh B, Fujimoto LK, Wagner WR, Ralphe JC, Keller BB, Huard J, Tobita K.** Functioning engineered cardiac tissue from skeletal muscle derived stem cells [abstract]. 4<sup>th</sup> Annual Symposium of AHA Council on Basic Cardiovascular Sciences, Keystone CO, 2007.
13. **de Jonge N, Foolen J, Brugmans MC, Söntjens SH, Baaijens FP, Bouten CV.** Degree of scaffold degradation influences collagen (re)orientation in engineered tissues. *Tissue Eng Part A* 20(11-12):1747-57, 2014.
14. **de Lange WJ, Grimes AC, Hegge LF, Ralphe JC.** Ablation of cardiac myosin-binding protein-C accelerates contractile kinetics in engineered cardiac tissue. *J Gen Physiol* 141(1):73-84, 2013.
15. **Ferdous Z, Lazaro LD, Iozzo RV, Höök M, Grande-Allen KJ.** Influence of cyclic strain and decorin deficiency on 3D cellularized collagen matrices. *Biomaterials* 29(18):2740-2748, 2008.
16. **Freeman SA, Christian S, Austin P, Iu I, Graves ML, Huang L, Tang S, Coombs D, Gold MR, Roskelley CD.** Applied stretch initiates directional invasion through the action of Rap1 GTPase as a tension sensor. *J Cell Sci* 130(1):152-163, 2017.
17. **Garvin J, Qi J, Maloney M, Banes AJ.** Novel system for engineering bioartificial tendons and application of mechanical load. *Tissue Eng* 9(5):967-979, 2003.
18. **Henshaw DR, Attia E, Bhargava M, Hannafin JA.** Canine ACL fibroblast integrin expression and cell alignment in response to cyclic tensile strain in three-dimensional collagen gels. *J Orthop Res* 24(3):481-490, 2006.
19. **Huang G, Wang L, Wang S, Han Y, Wu J, Zhang Q, Xu F, Lu TJ.** Engineering three-dimensional cell mechanical microenvironment with hydrogels. *Biofabrication* 4(4):042001, 2012.
20. **Jobling AI, Gentle A, Metlapally R, McGowan BJ, McBrien NA.** Regulation of scleral cell contraction by transforming growth factor- $\beta$  and stress: competing roles in myopic eye growth. *J Biol Chem* 284(4):2072-2079, 2009.
21. **Jones ER, Jones GC, Legerlotz K, Riley GP.** Cyclical strain modulates metalloprotease and matrix gene expression in human tenocytes via activation of TGF $\beta$ . *Biochim Biophys Acta* 1833(12):2596-2607, 2013.
22. **Lee CH, Shin HJ, Cho IH, Kang YM, Kim IA, Park KD, Shin JW.** Nanofiber alignment and direction of mechanical strain affect the ECM production of human ACL fibroblast. *Biomaterials* 26(11):1261-1270, 2005.
23. **Masumoto H, Nakane T, Tinney JP, Yuan F, Ye F, Kowalski WJ, Minakata K, Sakata R, Yamashita JK, Keller BB.** The myocardial regenerative potential of three-dimensional engineered cardiac tissues composed of multiple human iPSC cell-derived cardiovascular cell lineages. *Sci Rep* 6:29933, 2016.
24. **Nguyen MD, Tinney JP, Ye F, Elnakib AA, Yuan F, El-Baz A, Sethu P, Keller BB, Giridharan GA.** Effects of physiologic mechanical stimulation on embryonic chick cardiomyocytes using a microfluidic cardiac cell culture model. *Anal Chem* 87(4):2107-13, 2015.
25. **Nieponice A, Maul TM, Cumer JM, Soletti L, Vorp DA.** Mechanical stimulation induces morphological and phenotypic changes in bone marrow-derived progenitor cells within a three-dimensional fibrin matrix. *J Biomed Mater Res A* 81(3):523-530, 2007.
26. **Nourse MB, Halpin DE, Scatena M, Mortisen DJ, Tulloch NL, Hauch KD, Torok-Storb B, Ratner BD, Pabon L, Murry CE.** VEGF induces differentiation of functional endothelium from human embryonic stem cells: implications for tissue engineering. *Arterioscler Thromb Vasc Biol* 30(1):80-89, 2010.
27. **Peters AS, Brunner G, Krieg T, Eckes B.** Cyclic mechanical strain induces TGF $\beta$ 1-signalling in dermal fibroblasts embedded in a 3D collagen lattice. *Arch Dermatol Res* 307(2):191-7, 2015.





28. **Qi J, Chi L, Bynum D, Banes AJ.** Gap junctions in IL-1 $\beta$ -mediated cell survival response to strain. *J Appl Physiol* 110(5):1425-1431, 2011.
29. **Qi J, Chi L, Faber J, Koller B, Banes AJ.** ATP reduces gel compaction in osteoblast-populated collagen gels. *J Appl Physiol* 102(3):1152-60, 2007.
30. **Qi J, Chi L, Maloney M, Yang X, Bynum D, Banes AJ.** Interleukin-1 $\beta$  increases elasticity of human bioartificial tendons. *Tissue Eng* 12(10):2913-2925, 2006.
31. **Qi J, Fox AM, Alexopoulos LG, Chi L, Bynum D, Guilak F, Banes AJ.** IL-1 $\beta$  decreases the elastic modulus of human tenocytes. *J Appl Physiol* 101(1):189-95, 2006.
32. **Qi J, Chi L, Wang J, Sumanasinghe R, Wall M, Tsuzaki M, Banes AJ.** Modulation of collagen gel compaction by extracellular ATP is MAPK and NF- $\kappa$ B pathways dependent. *Exp Cell Res* 315(11):1990-2000, 2009.
33. **Rathbone SR, Glossop JR, Gough JE, Cartmell SH.** Cyclic tensile strain upon human mesenchymal stem cells in 2D and 3D culture differentially influences CCNL2, WDR61 and BAHCC1 gene expression levels. *J Mech Behav Biomed Mater* 11:82-91, 2012.
34. **Raval KK, Tao R, White BE, De Lange WJ, Koonce CH, Yu J, Kishnani PS, Thomson JA, Mosher DF, Ralphe JC, Kamp TJ.** Pompe disease results in a Golgi-based glycosylation deficit in human induced pluripotent stem cell-derived cardiomyocytes. *J Biol Chem* 290(5):3121-36, 2015.
35. **Ruan JL, Tulloch NL, Saiget M, Paige SL, Razumova MV, Regnier M, Tung KC, Keller G, Pabon L, Reinecke H, Murry CE.** Mechanical stress promotes maturation of human myocardium from pluripotent stem cell-derived progenitors. *Stem Cells* 33(7):2148-57, 2015.
36. **Schmidt JB, Chen K, Tranquillo RT.** Effects of intermittent and incremental cyclic stretch on ERK signaling and collagen production in engineered tissue. *Cellular and Molecular Bioengineering* 1-10, 2015.
37. **Sumanasinghe RD, Bernacki SH, Lobo EG.** Osteogenic differentiation of human mesenchymal stem cells in collagen matrices: effect of uniaxial cyclic tensile strain on bone morphogenetic protein (BMP-2) mRNA expression. *Tissue Eng* 12(12):3459-3465, 2006.
38. **Taylor SE, Vaughan-Thomas A, Clements DN, Pinchbeck G, Macrory LC, Smith RK, Clegg PD.** Gene expression markers of tendon fibroblasts in normal and diseased tissue compared to monolayer and three dimensional culture systems. *BMC Musculoskelet Disord* 10:27, 2009.
39. **Tchao J, Han L, Lin B, Yang L, Tobita K.** Combined biophysical and soluble factor modulation induces cardiomyocyte differentiation from human muscle derived stem cells. *Sci Rep* 4:6614, 2014.
40. **Tchao J, Kim JJ, Lin B, Salama G, Lo CW, Yang L, Tobita K.** Engineered human muscle tissue from skeletal muscle derived stem cells and induced pluripotent stem cell derived cardiac cells. *Int J Tissue Eng*. 2013:198762, 2013.
41. **Tobita K, Liu LJ, Janczewski AM, Tinney JP, Nonemaker JM, Augustine S, Stolz DB, Shroff SG, Keller BB.** Engineered early embryonic cardiac tissue retains proliferative and contractile properties of developing embryonic myocardium. *Am J Physiol Heart Circ Physiol* 291(4):H1829-37, 2006.
42. **Tondon A, Haase C, Kaunas R.** Mechanical stretch assays in cell culture systems. In: *Handbook of Imaging in Biological Mechanics*, ed. Neu CP, Genin GM. CRC Press: Boca Raton, 2015.
43. **Triantafillopoulos IK, Banes AJ, Bowman KF Jr, Maloney M, Garrett WE Jr, Karas SG.** Nandrolone decanoate and load increase remodeling and strength in human supraspinatus bioartificial tendons. *Am J Sports Med* 32(4):934-943, 2004.
44. **Tulloch NL, Muskheili V, Razumova MV, Korte FS, Regnier M, Hauch KD, Pabon L, Reinecke H, Murry CE.** Growth of engineered human myocardium with mechanical loading and vascular coculture. *Circ Res* 109(1):47-59, 2011.
45. **Weinbaum JS, Schmidt JB, Tranquillo RT.** Combating adaptation to cyclic stretching by prolonging activation of extracellular signal-regulated kinase. *Cellular and Molecular Bioengineering* 6(3):279-286, 2013.
46. **Wen W, Chau E, Jackson-Boeters L, Elliott C, Daley TD, Hamilton DW.** TGF- $\beta$ 1 and FAK regulate periostin expression in PDL fibroblasts. *J Dent Res* 89(12):1439-1443, 2010.
47. **Yang G, Rothrauff BB, Lin H, Gottardi R, Alexander PG, Tuan RS.** Enhancement of tenogenic differentiation of human adipose stem cells by tendon-derived extracellular matrix. *Biomaterials* 34(37):9295-306, 2013.
48. **Yang Y, Wimpenny I, Wang RK.** Application of polarization-sensitive OCT and Doppler OCT in tissue engineering. In: *Optical Techniques in Regenerative Medicine*, edited by Morgan SP, Rose F, Matcher SJ. Taylor & Francis Group: Florida, p. 307-327, 2014.
49. **Ye F, Yuan F, Li X, Cooper N, Tinney JP, Keller BB.** Gene expression profiles in engineered cardiac tissues respond to mechanical loading and inhibition of tyrosine kinases. *Physiol Rep* 1(5):e00078, 2013.



## TENSION SYSTEM STRAIN PROFILES

1. **Brown TD, Bottlang M, Pedersen DR, Banes AJ.** Development and experimental validation of a fluid/structure-interaction finite element model of a vacuum-driven cell culture mechanostimulus system. *Comput Methods Biomech Biomed Engin* 3(1):65-78, 2000.
2. **Brown TD, Bottlang M, Pedersen DR, Banes AJ.** Loading paradigms--intentional and unintentional--for cell culture mechanostimulus. *Am J Med Sci* 316(3):162-168, 1998.
3. **Colombo A, Cahill PA, Lally C.** An analysis of the strain field in biaxial Flexcell membranes for different waveforms and frequencies. *Proc Inst Mech Eng H* 222(8):1235-1245, 2008.
4. **Gilbert JA, Weinhold PS, Banes AJ, Link GW, Jones GL.** Strain profiles for circular cell culture plates containing flexible surfaces employed to mechanically deform cells in vitro. *Journal of Biomechanics* 27(9):1169-1177, 1994.
5. **Matheson LA, Jack FN, Maksym GN, Paul SJ, Labow RS.** Characterization of the Flexcell Uniflex cyclic strain culture system with U937 macrophage-like cells. *Biomaterials* 27(2):226-233, 2006.
6. **Throm Quinlan AM, Sierad LN, Capulli AK, Firstenberg LE, Billiar KL.** Combining dynamic stretch and tunable stiffness to probe cell mechanobiology in vitro. *PLoS ONE* 6(8):e23272, 2011.
7. **Vande Geest JP, Di Martino ES, Vorp DA.** An analysis of the complete strain field within Flexercell™ membranes. *Journal of Biomechanics* 37:1923-1928, 2004.

## APPLICATION OF TENSION SYSTEM

1. **Bartalena G, Grieder R, Sharma RI, Zambelli T, Muff R, Snedeker JG.** A novel method for assessing adherent single-cell stiffness in tension: design and testing of a substrate-based live cell functional imaging device. *Biomed Microdevices* 13(2):291-301, 2011.
2. **Olesen CG, Pennisi CP, de Zee M, Zachar V, Rasmussen J.** Elliptical posts allow for detailed control of non-equibiaxial straining of cell cultures. *J Tissue Viability* 22(2):52-6, 2013.
3. **Wiggins MJ, Anderson JM, Hiltner A.** Biodegradation of polyurethane under fatigue loading. *J Biomed Mater Res A* 65(4):524-535, 2003.
4. **Wiggins MJ, MacEwan M, Anderson JM, Hiltner A.** Effect of soft-segment chemistry on polyurethane biostability during in vitro fatigue loading. *J Biomed Mater Res A* 68(4):668-683, 2004.

## BIOPRESS™ AND COMPRESSION SYSTEM

1. **Bougault C, Aubert-Foucher E, Paumier A, Perrier-Groult E, Huot L, Hot D, Duterque-Coquillaud M, Mallein-Gerin F.** Dynamic compression of chondrocyte-agarose constructs reveals new candidate mechanosensitive genes. *PLoS One* 7(5):e36964, 2012.
2. **Bougault C, Paumier A, Aubert-Foucher E, Mallein-Gerin F.** Molecular analysis of chondrocytes cultured in agarose in response to dynamic compression. *BMC Biotechnol* 8:71, 2008.
3. **Chen X, Guo J, Yuan Y, Sun Z, Chen B, Tong X, Zhang L, Shen C, Zou J.** Cyclic compression stimulates osteoblast differentiation via activation of the Wnt/ $\beta$ -catenin signaling pathway. *Molecular Medicine Reports* 15(5):2890-2896, 2017.
4. **Damaraju S, Matyas JR, Rancourt DE, Duncan NA.** The effect of mechanical stimulation on mineralization in differentiating osteoblasts in collagen-I scaffolds. *Tissue Eng Part A* 20(23-24):3142-3153, 2014.
5. **Damaraju S, Matyas JR, Rancourt DE, Duncan NA.** The role of gap junctions and mechanical loading on mineral formation in a collagen-I scaffold seeded with osteoprogenitor cells. *Tissue Eng Part A* 21(9-10):1720-32, 2015.
6. **Fermor B, Haribabu B, Weinberg JB, Pisetsky, Guilak F.** Mechanical stress and nitric oxide influence leukotriene production in cartilage. *Biochemical and Biophysical Research Communications* 285:806-810, 2001.



7. **Fermor B, Weinberg JB, Pisetsky DS, Guilak F.** The influence of oxygen tension on the induction of the nitric oxide and prostaglandin E2 by mechanical stress in articular cartilage. *Osteoarthritis Cartilage* 13:935-941, 2005.
8. **Fermor B, Weinberg JB, Pisetsky DS, Misukonis MA, Banes AJ, Guilak F.** The effects of static and intermittent compression on nitric oxide production in articular cartilage explants. *J Orthop Res* 9(4):729-737, 2001.
9. **Fermor B, Weinberg JB, Pisetsky DS, Misukonis MA, Fink C, Guilak F.** Induction of cyclooxygenase-2 by mechanical stress through a nitric oxide-regulated pathway. *Osteoarthritis Cartilage* 10:792-798, 2002.
10. **Fink C, Fermor B, Weinberg JB, Pisetsky DS, Misukonis MA, Guilak F.** The effect of dynamic mechanical compression on nitric oxide production in the meniscus. *Osteoarthritis Cartilage* 9(5):481-487, 2001.
11. **Fox DB, Cook JL, Kuroki K, Cockrell M.** Effects of dynamic compressive load on collagen-based scaffolds seeded with fibroblast-like synoviocytes. *Tissue Eng* 12(6):1527-1537, 2006.
12. **Glaeser JD, Salehi K, Kanim LE, NaPier Z, Kropf MA, Cuellar J, Sheyn D, Bae HW.** Treatment with the NFκB inhibitor reduces overloading-induced MMP expression in human nucleus pulposus cells. *The Spine Journal* 17(10):S127, 2017.
13. **Gosset M, Berenbaum F, Levy A, Pigenet A, Thirion S, Saffar JL, Jacques C.** Prostaglandin E2 synthesis in cartilage explants under compression: mPGES-1 is a mechanosensitive gene. *Arthritis Research & Therapy* 8:R135, 2006.
14. **Graff RD, Lazarowski ER, Banes AJ, Lee GM.** ATP release by mechanically loaded porcine chondrons in pellet culture. *Arthritis Rheum* 43(7):1571-1579, 2000.
15. **Hamid T, Xu Y, Ismahil MA, Li Q, Jones SP, Bhatnagar A, Bolli R, Prabhu SD.** TNF receptor signaling inhibits cardiomyogenic differentiation of cardiac stem cells and promotes a neuroadrenergic-like fate. *Am J Physiol Heart Circ Physiol* 311(5):H1189-H1201, 2016.
16. **Hara M, Nakashima M, Fujii T, Uehara K, Yokono C, Hashizume R, Nomura Y.** Construction of collagen gel scaffolds for mechanical stress analysis. *Biosci Biotechnol Biochem* 78(3):458-61, 2014.
17. **Hazenbiller O, Duncan NA, Krawetz RJ.** Reduction of pluripotent gene expression in murine embryonic stem cells exposed to mechanical loading or Cyclo RGD peptide. *BMC Cell Biol* 18(1):32, 2017. doi: 10.1186/s12860-017-0148-6.
18. **Hennerbichler A, Fermor B, Hennerbichler, Weinberg JB, Guilak F.** Regional differences in prostaglandin E2 and nitric oxide production in the knee meniscus in response to dynamic compression. *Biochemical and Biophysical Research Communications* 358:1047-1053, 2007.
19. **Huang D, Liu YP, Huang YJ, Xie YF, Shen KH, Zhang DW, Mou Y.** Mechanical compression up-regulates MMP9 through SMAD3 but not SMAD2 modulation in hypertrophic scar fibroblasts. *Connect Tissue Res* 55(5-6):391-6, 2014.
20. **Kuroki K, Cook JL, Stoker AM, Turnquist SE, Kreeger JM, Tomlinson JL.** Characterizing osteochondrosis in the dog: potential roles for matrix metalloproteinases and mechanical load in pathogenesis and disease progression. *Osteoarthritis Cartilage* 13:225-234, 2005.
21. **Lee CY, Hsu HC, Zhang X, Wang DY, Luo ZP.** Cyclic compression and tension regulate differently the metabolism of chondrocytes. *J Musculoskeletal Res* 9(2):59-64, 2005.
22. **Li D, Lu Z, Xu Z, Ji J, Zheng Z, Lin S, Yan T.** Spironolactone promotes autophagy via inhibiting PI3K/AKT/mTOR signalling pathway and reduce adhesive capacity damage in podocytes under mechanical stress. *Biosci Rep* 36(4), 2016. pii: e00355.
23. **Li X, Dong J, Liu C, Wang X, An M, Chen W.** Contributions of intermittent cyclic compression to proteoglycans synthesis and mechanical properties of knee articular cartilaginous tissue formed in vitro. *Biomedical Engineering and Informatics (BMEI), 2010 3rd International Conference* 4:1655-1658, 2010.
24. **Maxson S, Orr D, Burg K.** Bioreactors for tissue engineering. *Tissue Eng* 179-197, 2011.
25. **Miki Y, Teramura T, Tomiyama T, Onodera Y, Matsuoka T, Fukuda K, Hamanishi C.** Hyaluronan reversed proteoglycan synthesis inhibited by mechanical stress: possible involvement of antioxidant effect. *Inflamm Res* 59(6):471-477, 2010.
26. **Nettelhoff L, Grimm S, Jacobs C, Walter C, Pabst AM, Goldschmitt J, Wehrbein H.** Influence of mechanical compression on human periodontal ligament fibroblasts and osteoblasts. *Clin Oral Investig* 20(3):621-9, 2016.
27. **Pecchi E, Priam S, Gosset M, Pigenet A, Sudre L, Laiguillon MC, Berenbaum F, Houard X.** Induction of nerve growth factor expression and release by mechanical and inflammatory stimuli in chondrocytes: possible involvement in osteoarthritis pain. *Arthritis Res Ther* 16(1):R16, 2014.



28. **Piscoya JL, Fermor B, Kraus VB, Stabler TV, Guilak F.** The influence of mechanical compression on the induction of osteoarthritis-related biomarkers in articular cartilage explants. *Osteoarthritis Cartilage* 13:1092-1099, 2005.
29. **Saminathan A, Sriram G, Vinoth JK, Cao T, Meikle MC.** Engineering the periodontal ligament in hyaluronan-gelatin-type I collagen constructs: upregulation of apoptosis and alterations in gene expression by cyclic compressive strain. *Tissue Eng Part A* 21(3-4):518-29, 2015.
30. **Sanchez C, Gabay O, Salvat C, Henrotin YE, Berenbaum F.** Mechanical loading highly increases IL-6 production and decreases OPG expression by osteoblasts. *Osteoarthritis Cartilage* 17(4):473-481, 2009.
31. **Sanchez C, Pesesse L, Gabay O, Delcour JP, Msika P, Baudouin C, Henrotin YE.** Regulation of subchondral bone osteoblast metabolism by cyclic compression. *Arthritis Rheum* 64(4):1193-203, 2012.
32. **Sharma R, Vinjamaram S, Shah VA, Gupta SK, Chalam KV.** The effect of elevated atmospheric pressure on the survival of retinal ganglion cells using Flexcell biopress system. *Invest Ophthalmol Vis Sci* 44:E-Abstract 152, 2003.
33. **Shin SJ, Fermor B, Weinberg JB, Pisetsky DS, Guilak F.** Regulation of matrix turnover in meniscal explants: role of mechanical stress, interleukin-1, and nitric oxide. *J Appl Physiol* 95(1):308-313, 2003.
34. **Tomiyama T, Fukuda K, Yamazaki K, Hashimoto K, Ueda H, Mori S, Hamanishi C.** Cyclic compression loaded on cartilage explants enhances the production of reactive oxygen species. *J Rheumatol* 34(3):556-562, 2007.
35. **Uehara K, Hara M, Matsuo T, Namiki G, Watanabe M, Nomura Y.** Hyaluronic acid secretion by synoviocytes alters under cyclic compressive load in contracted collagen gels. *Cytotechnology* 67(1):19-26, 2015.
36. **Upton ML, Chen J, Guilak F, Setton LA.** Differential effects of static and dynamic compression on meniscal cell gene expression. *J Orthop Res* 21(6):963-969, 2003.
37. **Werkmeister E, de Isla N, Netter P, Stoltz JF, Dumas D.** Collagenous extracellular matrix of cartilage submitted to mechanical forces studied by second harmonic generation microscopy. *Photochem Photobiol* 86(2):302-310, 2010.
38. **Xu HG, Zhang W, Zheng Q, Yu YF, Deng LF, Wang H, Liu P, Zhang M.** Investigating conversion of endplate chondrocytes induced by intermittent cyclic mechanical unconfined compression in three-dimensional cultures. *European Journal of Histochemistry* 58:2415, 2014.
39. **Zhou Q, Yu BH, Liu WC, Wang ZL.** BM-MSCs and Bio-Oss complexes enhanced new bone formation during maxillary sinus floor augmentation by promoting differentiation of BM-MSCs. *In Vitro Cell Dev Biol Anim* 52(7):757-71, 2016.
40. **Zhou W, Liu G, Yang S, Ye S.** Investigation for effects of cyclical dynamic compression on matrix metabolite and mechanical properties of chondrocytes cultured in alginate. *Journal of Hard Tissue Biology* 25(4):351-356, 2016.

## APPLICATION OF COMPRESSION SYSTEM

1. **Ackermann P, Schizas N, Bring D, Li J, Andersson T, Fahlgren A, Aspenberg P.** Compression therapy promotes tissue repair and biomechanical properties during immobilization. *J Bone Joint Surg Br* 94B (Supp XXXVII) 89, 2012.

## FLEXFLOW™ AND STREAMER® FLUID SHEAR STRESS SYSTEMS

1. **Archambault JM, Elfervig MK, Tsuzaki M, Herzog W, Banes AJ.** Shear stress response of rabbit tendon cells is serum dependent. *Proceedings of the Eleventh Canadian Society for Biomechanics Conference*, 181, 2000.
2. **Archambault JM, Elfervig-Wall MK, Tsuzaki M, Herzog W, Banes AJ.** Rabbit tendon cells produce MMP-3 in response to fluid flow without significant calcium transients. *J Biomech* 35(3):303-309, 2002.



3. **Clark PR, Jensen TJ, Kluger MS, Morelock M, Hanidu A, Qi Z, Tatake RJ, Pober JS.** MEK5 is activated by shear stress, activates ERK5 and induces KLF4 to modulate TNF responses in human dermal microvascular endothelial cells. *Microcirculation* 18(2):102-117, 2011.
4. **de Castro LF, Maycas M, Bravo B, Esbrit P, Gortazar A.** VEGF receptor 2 (VEGFR2) activation is essential for osteocyte survival induced by mechanotransduction. *J Cell Physiol* 230(2):278-85, 2015.
5. **Eiffler RL, Blough ER, Dehlin JM, Haut Donahue TL.** Oscillatory fluid flow regulates glycosaminoglycan production via an intracellular calcium pathway in meniscal cells. *J Orthop Res* 24(3):375-384, 2006.
6. **Elfervig M, Francke E, Archambault J, Herzog W, Tsuzaki M, Bynum D, Brown TD, Banes AJ.** Fluid-induced shear stress activates human tendon cells to signal through multiple Ca<sup>2+</sup> dependent pathways [abstract]. *Transactions of the 46<sup>th</sup> Annual Meeting of the Orthopaedic Research Society* 25:179, 2000.
7. **Elfervig M, Lotano M, Tsuzaki M, Faber J, Banes A J.** Fluid-induced shear stress modulates Cx-43 expression in avian tendon cells but does not induce a Ca<sup>2+</sup> signal [abstract]. *Transactions of the 47<sup>th</sup> Annual Meeting of the Orthopaedic Research Society* 26:570, 2001.
8. **Elfervig MK, Minchew JT, Francke E, Tsuzaki M, Banes AJ.** IL-1 $\beta$  sensitizes intervertebral disc annulus cells to fluid-induced shear stress. *J Cell Biochem* 82(2):290-298, 2001.
9. **Finley MJ, Rauova L, Alferiev IS, Weisel JW, Levy RJ, Stachelek SJ.** Diminished adhesion and activation of platelets and neutrophils with CD47 functionalized blood contacting surfaces. *Biomaterials* 33(24):5803-5811, 2012.
10. **Francke E, Banes A, Elfervig M, Brown T, Bynum D.** Fluid-induced shear stress increases [Ca<sup>2+</sup>]<sub>ic</sub> in cultured human tendon epitenon cells [abstract]. *Transactions of the 46<sup>th</sup> Annual Meeting of the Orthopaedic Research Society* 25:638, 2000.
11. **Francke E, Elfervig MK, Sood A, Brown TD, Bynum DK, Banes AJ.** Fluid-induced shear stress stimulates Ca<sup>2+</sup> signaling in human epitenon cells [abstract]. *1999 Advances in Bioengineering*, J.S. Wayne, ed. American Society of Mechanical Engineers: New York, 1999.
12. **Gao X, Wu L, O'Neil RG.** Temperature-modulated diversity of TRPV4 channel gating: activation by physical stresses and phorbol ester derivatives through protein kinase C-dependent and -independent pathways. *J Biol Chem* 278(29):27129-27137, 2003.
13. **Ge C, Song J, Chen L, Wang L, Chen Y, Liu X, Zhang Y, Zhang L, Zhang M.** Atheroprotective pulsatile flow induces ubiquitin-proteasome-mediated degradation of programmed cell death 4 in endothelial cells. *PLoS One* 9(3):e91564, 2014.
14. **Glossop JR, Hidalgo-Bastida LA, Cartmell SH.** Fluid shear stress induces differential gene expression of leukemia inhibitory factor in human mesenchymal stem cells. *J Biomat Tiss Eng* 1:166-176, 2011.
15. **Gortazar AR, Martin-Millan M, Bravo B, Plotkin LI, Bellido T.** Crosstalk between caveolin-1/extracellular signal-regulated kinase (ERK) and  $\beta$ -catenin survival pathways in osteocyte mechanotransduction. *J Biol Chem* 288(12):8168-8175, 2013.
16. **Grabias BM, Konstantopoulos K.** Epithelial-mesenchymal transition and fibrosis are mutually exclusive responses in shear-activated proximal tubular epithelial cells. *FASEB J* 26(10):4131-41, 2012.
17. **Guan PP, Yu X, Guo JJ, Wang Y, Wang T, Li JY, Konstantopoulos K, Wang ZY, Wang P.** By activating matrix metalloproteinase-7, shear stress promotes chondrosarcoma cell motility, invasion and lung colonization. *Oncotarget* 6(11):9140-59, 2015.
18. **Hamamura K, Zhang P, Zhao L, Shim JW, Chen A, Dodge TR, Wan Q, Shih H, Na S, Lin CC, Sun HB, Yokota H.** Knee loading reduces MMP13 activity in the mouse cartilage. *BMC Musculoskelet Disord* 14(1):312, 2013.
19. **Hosoya T, Maruyama A, Kang MI, Kawatani Y, Shibata T, Uchida K, Warabi E, Noguchi N, Itoh K, Yamamoto M.** Differential responses of the Nrf2-Keap1 system to laminar and oscillatory shear stresses in endothelial cells. *J Biol Chem* 280(29):27244-27250, 2005.
20. **Jaitovich A, Mehta S, Na N, Ciechanover A, Goldman RD, Ridge KM.** Ubiquitin-proteasome-mediated degradation of keratin intermediate filaments in mechanically stimulated A549 cells. *J Biol Chem* 283(37):25348-25355, 2008.
21. **Kamel MA, Picconi JL, Lara-Castillo N, Johnson ML.** Activation of  $\beta$ -catenin signaling in MLO-Y4 osteocytic cells versus 2T3 osteoblastic cells by fluid flow shear stress and PGE2: implications for the study of mechanosensation in bone. *Bone* 47(5):872-881, 2010.
22. **Lee CY, Hsu HC, Zhang X, Wang DY, Luo ZP.** Cyclic compression and tension regulate differently the metabolism of chondrocytes. *J Musculoskeletal Res* 9(2):59-64, 2005.



23. **Li M, Liu X, Zhang Y, Di M, Wang H, Wang L, Chen Y, Liu X, Cao X, Zeng R, Zhang Y, Zhang M.** Upregulation of Dickkopf1 by oscillatory shear stress accelerates atherogenesis. *J Mol Med (Berl)* 94(4):431-41, 2016.
24. **Liao C, Cheng T, Wang S, Zhang C, Jin L, Yang Y.** Shear stress inhibits IL-17A-mediated induction of osteoclastogenesis via osteocyte pathways. *Bone* 101:10-20, 2017.
25. **Liu J, Bi X, Chen T, Zhang Q, Wang SX, Chiu JJ, Liu GS, Zhang Y, Bu P, Jiang F.** Shear stress regulates endothelial cell autophagy via redox regulation and Sirt1 expression. *Cell Death Dis* 6:e1827, 2015.
26. **Malone AM, Batra NN, Shivaram G, Kwon RY, You L, Kim CH, Rodriguez J, Jair K, Jacobs CR.** The role of actin cytoskeleton in oscillatory fluid flow-induced signaling in MC3T3-E1 osteoblasts. *Am J Physiol Cell Physiol* 292(5):C1830-C1836, 2007.
27. **Maycas M, Ardura JA, de Castro LF, Bravo B, Gortázar AR, Esbrit P.** Role of the parathyroid hormone type 1 receptor (PTH1R) as a mechanosensor in osteocyte survival. *J Bone Miner Res* 30(7):1231-44, 2015.
28. **Maycas M, Bravo-Molina B, Fernández de Castro L, Pozuelo JM, Forriol F, P Esbrit, Rodríguez de Gortázar A.** High glucose alters the antiapoptotic response to mechanical stimulation in MLO-Y4 osteocytic cells. *Trauma Fund MAPFRE* 25(2):97-100, 2014.
29. **Metaxa E, Meng H, Kaluvala SR, Szymanski MP, Paluch RA, Kolega J.** Nitric oxide-dependent stimulation of endothelial cell proliferation by sustained high flow. *Am J Physiol Heart Circ Physiol* 295(2):H736-H742, 2008.
30. **Ni J, Waldman A, Khachigian LM.** c-Jun regulates shear- and injury-inducible Egr-1 expression, vein graft stenosis after autologous end-to-side transplantation in rabbits, and intimal hyperplasia in human saphenous veins. *J Biol Chem* 285(6):4038-4048, 2010.
31. **Qi J, Chi L, Faber J, Koller B, Banes AJ.** ATP reduces gel compaction in osteoblast-populated collagen gels. *J Appl Physiol* 102(3):1152-60, 2007.
32. **Radel C, Carlile-Klusacek M, Rizzo V.** Participation of caveolae in  $\beta$ 1 integrin-mediated mechanotransduction. *Biochem Biophys Res Commun* 358(2):626-631, 2007.
33. **Radel C, Rizzo V.** Integrin mechanotransduction stimulates caveolin-1 phosphorylation and recruitment of Csk to mediate actin reorganization. *Am J Physiol Heart Circ Physiol* 288(2):H936-H945, 2005.
34. **Ridge KM, Linz L, Flitney FW, Kuczmarski ER, Chou YH, Omary MB, Sznajder JI, Goldman RD.** Keratin 8 phosphorylation by protein kinase C  $\delta$  regulates shear stress-mediated disassembly of keratin intermediate filaments in alveolar epithelial cells. *J Biol Chem* 280(34):30400-30405, 2005.
35. **Riehl BD, Lee JS, Ha L, Kwon IK, Lim JY.** Flowtaxis of osteoblast migration under fluid shear and the effect of RhoA kinase silencing. *PLoS One* 12(2):e0171857, 2017.
36. **Riehl BD, Lee JS, Ha L, Lim JY.** Fluid-flow-induced mesenchymal stem cell migration: role of focal adhesion kinase and RhoA kinase sensors. *J R Soc Interface* 12(107), 2015. pii: 20150300.
37. **Rosser J, Bonewald LF.** Studying osteocyte function using the cell lines MLO-Y4 and MLO-A5. *Methods Mol Biol* 816:67-81, 2012.
38. **Shim JW, Hamamura K, Chen A, Wan Q, Na S, Yokota H.** Rac1 mediates load-driven attenuation of mRNA expression of nerve growth factor  $\beta$  in cartilage and chondrocytes. *J Musculoskelet Neuronal Interact* 13(3):372-9, 2013.
39. **Siu KL, Gao L, Cai H.** Differential roles of NOX1/NOXO1 and NOX2/p47phox in mediating endothelial redox responses to oscillatory and unidirectional laminar shear stress. *J Biol Chem* 291(16):8653-62, 2016.
40. **Sivaramakrishnan S, DeGiulio JV, Lorand L, Goldman RD, Ridge KM.** Micromechanical properties of keratin intermediate filament networks. *PNAS* 105(3):889-894, 2008.
41. **Sivaramakrishnan S, Schneider JL, Sitikov A, Goldman RD, Ridge KM.** Shear stress induced reorganization of the keratin intermediate filament network requires phosphorylation by protein kinase C  $\zeta$ . *Mol Biol Cell* 20(11):2755-2765, 2009.
42. **Spatz JM, Wein MN, Gooi JH, Qu Y, Garr JL, Liu S, Barry KJ, Uda Y, Lai F, Dedic C, Balcells-Camps M, Kronenberg HM, Babij P, Pajevic PD.** The Wnt inhibitor sclerostin is up-regulated by mechanical unloading in osteocytes in vitro. *J Biol Chem* 290(27):16744-58, 2015.
43. **Srivastava T, McCarthy ET, Sharma R, Cudmore PA, Sharma M, Johnson ML, Bonewald LF.** Prostaglandin E(2) is crucial in the response of podocytes to fluid flow shear stress. *J Cell Commun Signal* 4(2):79-90, 2010.
44. **Stachelek SJ, Alferiev I, Connolly JM, Sacks M, Hebbel RP, Bianco R, Levy RJ.** Cholesterol-modified polyurethane valve cusps demonstrate blood outgrowth endothelial cell adhesion post-seeding in vitro and in vivo. *Ann Thorac Surg* 81(1):47-55, 2006.



45. **Sun HB, Liu Y, Qian L, Yokota H.** Model-based analysis of matrix metalloproteinase expression under mechanical shear. *Ann Biomed Eng* 31(2):171-180, 2003.
46. **Takai E, Landesberg R, Katz RW, Hung CT, Guo XE.** Substrate modulation of osteoblast adhesion strength, focal adhesion kinase activation, and responsiveness to mechanical stimuli. *Mol Cell Biomech* 3(1):1-12, 2006.
47. **Thaler JD, Achari Y, Lu T, Shrive NG, Hart DA.** Estrogen receptor  $\beta$  and truncated variants enhance the expression of transfected MMP-1 promoter constructs in response to specific mechanical loading. *Biology of Sex Differences* 5:14, 2014.
48. **Tran J, Magenau A, Rodriguez M, Rentero C, Royo T, Enrich C, Thomas SR, Grewal T, Gaus K.** Activation of endothelial nitric oxide (eNOS) occurs through different membrane domains in endothelial cells. *PLoS One* 11(3):e0151556, 2016.
49. **Wang XL, Fu A, Spiro C, Lee HC.** Proteomic analysis of vascular endothelial cells-effects of laminar shear stress and high glucose. *J Proteomics Bioinform* 2:445, 2009.
50. **Wang P, Guan PP, Wang T, Yu X, Guo JJ, Konstantopoulos K, Wang ZY.** Interleukin-1 $\beta$  and cyclic AMP mediate the invasion of sheared chondrosarcoma cells via a matrix metalloproteinase-1-dependent mechanism. *Biochim Biophys Acta* 1843(5):923-33, 2014.
51. **Wang P, Zhu F, Konstantopoulos K.** The antagonistic actions of endogenous interleukin-1 $\beta$  and 15-deoxy- $\Delta$ 12,14-prostaglandin J2 regulate the temporal synthesis of matrix metalloproteinase-9 in sheared chondrocytes. *J Biol Chem* 287(38):31877-93, 2012.
52. **Wang P, Zhu F, Lee NH, Konstantopoulos K.** Shear-induced interleukin-6 synthesis in chondrocytes: roles of E prostanoic acid (EP) 2 and EP3 in cAMP/protein kinase A- and PI3-K/Akt-dependent NF- $\kappa$ B activation. *J Biol Chem* 285(32):24793-24804, 2010.
53. **Wu L, Gao X, Brown RC, Heller S, O'Neil RG.** Dual role of the TRPV4 channel as a sensor of flow and osmolality in renal epithelial cells. *Am J Physiol Renal Physiol* 293(5):F1699-F1713, 2007.
54. **Yang B, Rizzo V.** Shear stress activates eNOS at the endothelial apical surface through  $\beta$ 1 containing integrins and caveolae. *Cell Mol Bioeng* 6(3):346-354, 2013.
55. **Yang W, Lu Y, Kalajzic I, Guo D, Harris MA, Gluhak-Heinrich J, Kotha S, Bonewald LF, Feng JQ, Rowe DW, Turner CH, Robling AG, Harris SE.** Dentin matrix protein 1 gene cis-regulation: use in osteocytes to characterize local responses to mechanical loading in vitro and in vivo. *J Biol Chem* 280(21):20680-20690, 2005.
56. **Yokota H, Goldring MB, Sun HB.** CITED2-mediated regulation of MMP-1 and MMP-13 in human chondrocytes under flow shear. *J Biol Chem* 278(47):47275-47280, 2003.
57. **Yoo PS, Mulkeen AL, Dardik A, Cha CH.** A novel in vitro model of lymphatic metastasis from colorectal cancer. *J Surg Res* 143(1):94-98, 2007.
58. **Zhang J, Zhang HY, Zhang M, Qiu ZY, Wu YP, Callaway DA, Jiang JX, Lu L, Jing L, Yang T, Wang MQ.** Connexin43 hemichannels mediate small molecule exchange between chondrocytes and matrix in biomechanically-stimulated temporomandibular joint cartilage. *Osteoarthritis Cartilage* 22(6):822-30, 2014.
59. **Zhang K, Barragan-Adjemian C, Ye L, Kotha S, Dallas M, Lu Y, Zhao S, Harris M, Harris SE, Feng JQ, Bonewald LF.** E11/gp38 selective expression in osteocytes: regulation by mechanical strain and role in dendrite elongation. *Mol Cell Biol* 26(12):4539-45, 2006.
60. **Zhu F, Wang P, Kontogianni-Konstantopoulos A, Konstantopoulos K.** Prostaglandin (PG)D(2) and 15-deoxy- $\Delta$ (12,14)-PGJ(2), but not PGE(2), mediate shear-induced chondrocyte apoptosis via protein kinase A-dependent regulation of polo-like kinases. *Cell Death Differ* 17(8):1325-1334, 2010.
61. **Zhu F, Wang P, Lee NH, Goldring MB, Konstantopoulos K.** Prolonged application of high fluid shear to chondrocytes recapitulates gene expression profiles associated with osteoarthritis. *PLoS One* 5(12):e15174, 2010.

## APPLICATION OF CULTURE PLATES AND SLIDES

1. **Aga M, Bradley JM, Wanchu R, Yang YF, Acott TS, Keller KE.** Differential effects of caveolin-1 and -2 knockdown on aqueous outflow and altered extracellular matrix turnover in caveolin-silenced trabecular meshwork cells. *Invest Ophthalmol Vis Sci* 55(9):5497-509, 2014.
2. **Ahmed SM, Rzigalinski BA, Willoughby KA, Sitterding HA, Ellis EF.** Stretch-induced injury alters mitochondrial membrane potential and cellular ATP in cultured astrocytes and neurons. *J Neurochem* 74(5):1951-1960, 2000.



3. **Ahmed SM, Weber JT, Liang S, Willoughby KA, Sitterding HA, Rzigalinski BA, Ellis EF.** NMDA receptor activation contributes to a portion of the decreased mitochondrial membrane potential and elevated intracellular free calcium in strain-injured neurons. *Journal of Neurotrauma* 19(12):1619-1629, 2002.
4. **Alenghat FJ, Tytell JD, Thodeti CK, Derrien A, Ingber DE.** Mechanical control of cAMP signaling through integrins is mediated by the heterotrimeric Gas protein. *J Cell Biochem* 106(4):529-538, 2009.
5. **Arold SP, Bartolák-Suki E, Suki B.** Variable stretch pattern enhances surfactant secretion in alveolar type II cells in culture. *Am J Physiol Lung Cell Mol Physiol* 296(4):L574-581, 2009.
6. **Arold SP, Wong JY, Suki B.** Design of a new stretching apparatus and the effects of cyclic strain and substratum on mouse lung epithelial-12 cells. *Ann Biomed Eng* 35(7):1156-1164, 2007.
7. **Argento G, de Jonge N, Söntjens SH, Oomens CW, Bouten CV, Baaijens FP.** Modeling the impact of scaffold architecture and mechanical loading on collagen turnover in engineered cardiovascular tissues. *Biomech Model Mechanobiol* 14(3):603-13, 2015.
8. **Arulmoli J, Pathak MM, McDonnell LP, Nourse JL, Tombola F, Earthman JC, Flanagan LA.** Static stretch affects neural stem cell differentiation in an extracellular matrix-dependent manner. *Sci Rep* 5:8499, 2015.
9. **Augustine C, Cepinskas G, Fraser DD.** Traumatic injury elicits JNK-mediated human astrocyte retraction in vitro. *Neuroscience* 274:1-10, 2014.
10. **Bailey ZS, Nilson E, Bates JA, Oyalowo A, Hockey KS, Sajja VS, Thorpe C, Rogers H, Dunn B, Frey AS, Billings MJ, Sholar CA, Hermundstad A, Kumar C, VandeVord PJ, Rzigalinski BA.** Cerium oxide nanoparticles improve outcome after in vitro and in vivo mild traumatic brain injury. *J Neurotrauma* 2016 Nov 2. [Epub ahead of print].
11. **Belete HA, Godin LM, Stroetz RW, Hubmayr RD.** Experimental models to study cell wounding and repair. *Cell Physiol Biochem* 25(1):71-80, 2010.
12. **Bell JD, Ai J, Chen Y, Baker AJ.** Mild in vitro trauma induces rapid Glur2 endocytosis, robustly augments calcium permeability and enhances susceptibility to secondary excitotoxic insult in cultured Purkinje cells. *Brain* 130(Pt 10):2528-2542, 2007.
13. **Bonacci JV, Harris T, Wilson JW, Stewart AG.** Collagen-induced resistance to glucocorticoid anti-mitogenic actions: a potential explanation of smooth muscle hyperplasia in the asthmatic remodelled airway. *British Journal of Pharmacology* 138(7):1203-1206, 2003.
14. **Bonacci JV, Schuliga M, Harris T, Stewart AG.** Collagen impairs glucocorticoid actions in airway smooth muscle through integrin signalling. *Br J Pharmacol* 149(4):365-373, 2006.
15. **Boudreault F, Tschumperlin DJ.** Stretch-induced mitogen-activated protein kinase activation in lung fibroblasts is independent of receptor tyrosine kinases. *Am J Respir Cell Mol Biol* 43(1):64-73, 2010.
16. **Chen SC, Wang BW, Wang DL, Shyu KG.** Hypoxia induces discoidin domain receptor-2 expression via the p38 pathway in vascular smooth muscle cells to increase their migration. *Biochem Biophys Res Commun* 374(4):662-667, 2008.
17. **Chen T, Willoughby KA, Ellis EF.** Group I metabotropic receptor antagonism blocks depletion of calcium stores and reduces potentiated capacitative calcium entry in strain-injured neurons and astrocytes. *Journal of Neurotrauma* 21(3):271-281, 2004.
18. **Collins NT, Cummins PM, Colgan OC, Ferguson G, Birney YA, Murphy RP, Meade G, Cahill PA.** Cyclic strain-mediated regulation of vascular endothelial occludin and ZO-1. Influence on intercellular tight junction assembly and function. *Arterioscler Thromb Vasc Biol* 26:62-68, 2006.
19. **Comeau ES, Hocking DC, Dalecki D.** Ultrasound patterning technologies for studying vascular morphogenesis in 3D. *J Cell Sci* 130(1):232-242, 2017.
20. **Das SK, Wang W, Zhabyeyev P, Basu R, McLean B, Fan D, Parajuli N, DesAulniers J, Patel VB, Hajjar RJ, Dyck JR, Kassiri Z, Oudit GY.** Iron-overload injury and cardiomyopathy in acquired and genetic models is attenuated by resveratrol therapy. *Sci Rep* 5:18132, 2015.
21. **Dunn I, Pugin J.** Mechanical ventilation of various human lung cells in vitro: identification of the macrophage as the main producer of inflammatory mediators. *Chest* 116(1 Suppl):95S-97S, 1999.
22. **Ellis EF, Willoughby KA, Sparks SA, Chen T.** S100B protein is released from rat neonatal neurons, astrocytes, and microglia by in vitro trauma and anti-S100 increases trauma-induced delayed neuronal injury and negates the protective effect of exogenous S100B on neurons. *J Neurochem* 101(6):1463-1470, 2007.
23. **Endlich N, Kress KR, Reiser J, Uttenweiler D, Kriz W, Mundel P, Endlich K.** Podocytes respond to mechanical stress in vitro. *J Am Soc Nephrol* 12(3):413-22, 2001.





24. **Endlich N, Sunohara M, Nietfeld W, Wolski EW, Schiwiek D, Kränzlin B, Gretz N, Kriz W, Eickhoff H, Endlich K.** Analysis of differential gene expression in stretched podocytes: osteopontin enhances adaptation of podocytes to mechanical stress. *FASEB J* 16(13):1850-1852, 2002.
25. **Floyd CL, Gorin FA, Lyeth BG.** Mechanical strain injury increases intracellular sodium and reverses Na<sup>+</sup>/Ca<sup>2+</sup> exchange in cortical astrocytes. *Glia* 51(1):35-46, 2005.
26. **Floyd CL, Rzigalinski BA, Sitterding HA, Willoughby KA, Ellis EF.** Antagonism of group I metabotropic glutamate receptors and PLC attenuates increases in inositol trisphosphate and reduces reactive gliosis in strain-injured astrocytes. *Journal of Neurotrauma* 21(2):205-216, 2004.
27. **Floyd CL, Rzigalinski BA, Weber JT, Sitterding HA, Willoughby KA, Ellis EF.** Traumatic injury of cultured astrocytes alters inositol (1,4,5)-trisphosphate-mediated signaling. *Glia* 33(1):12-23, 2001.
28. **Fudge D, Russell D, Beriault D, Moore W, Lane EB, Vogl AW.** The intermediate filament network in cultured human keratinocytes is remarkably extensible and resilient. *PLoS One* 3(6):e2327, 2008.
29. **Gavara N, Roca-Cusachs P, Sunyer R, Farré R, Navajas D.** Mapping cell-matrix stresses during stretch reveals inelastic reorganization of the cytoskeleton. *Biophys J* 95(1):464-471, 2008.
30. **Goforth PB, Ellis EF, Satin LS.** Enhancement of AMPA-mediated current after traumatic injury in cortical neurons. *J Neurosci* 19(17):7367-7374, 1999.
31. **Goforth PB, Ellis EF, Satin LS.** Mechanical injury modulates AMPA receptor kinetics via an NMDA receptor-dependent pathway. *Journal of Neurotrauma* 21(6):719-732, 2004.
32. **González-Avalos P, Mürnseer M, Deeg J, Bachmann A, Spatz J, Dooley S, Eils R, Gladilin E.** Quantification of substrate and cellular strains in stretchable 3D cell cultures: an experimental and computational framework. *J Microsc* 266(2):115-125, 2017.
33. **Gudipaty SA, Lindblom J, Loftus PD, Redd MJ, Edes K, Davey CF, Krishnegowda V, Rosenblatt J.** Mechanical stretch triggers rapid epithelial cell division through Piezo1. *Nature* 543(7643):118-121, 2017.
34. **Hampton C, Webster GD, Rzigalinski B, Gabler HC.** Mechanical properties of polytetrafluoroethylene elastomer membrane for dynamic cell culture testing. *Biomed Sci Instrum* 44:105-110, 2008.
35. **Hasel C, Durr S, Bauer A, Heydrich R, Bruderlein S, Tambi T, Bhanot U, Moller P.** Pathologically elevated cyclic hydrostatic pressure induces CD95-mediated apoptotic cell death in vascular endothelial cells. *Am J Physiol Cell Physiol* 289(2):C312-C322, 2005.
36. **Hossain MZ, Shea E, Daneshtalab M, Weber JT.** Chemical analysis of extracts from newfoundland berries and potential neuroprotective effects. *Antioxidants (Basel)* 5(4):E36, 2016.
37. **Kaminen S, Wani Z, Luo Z, Ruriko Y, An K.** Chondrocyte response to tensile and compressive cyclic loading modalities. *Journal of Musculoskeletal Research* 15(1):1250006, 2012.
38. **Kao CQ, Goforth PB, Ellis EF, Satin LS.** Potentiation of GABA(A) currents after mechanical injury of cortical neurons. *Journal of Neurotrauma* 21(3):259-270, 2004.
39. **Keller KE, Sun YY, Vranka JA, Hayashi L, Acott TS.** Inhibition of hyaluronan synthesis reduces versican and fibronectin levels in trabecular meshwork cells. *PLoS One* 7(11):e48523, 2012.
40. **Keller KE, Yang YF, Sun YY, Sykes R, Acott TS, Wirtz MK.** Ankyrin repeat and suppressor of cytokine signaling box containing protein-10 is associated with ubiquitin-mediated degradation pathways in trabecular meshwork cells. *Mol Vis* 19:1639-55, 2013.
41. **Keller KE, Yang YF, Sun YY, Sykes R, Gaudette ND, Samples JR, Acott TS, Wirtz MK.** Interleukin-20 receptor expression in the trabecular meshwork and its implication in glaucoma. *J Ocul Pharmacol Ther* 30(2-3):267-76, 2014.
42. **Khadre A, El-Gendy R, Goudouri OM.** Scaffolds' characterisation for a multilayered construct simulating the tooth periodontium. *European Cells and Materials* 28(4):123, 2014.
43. **Kito H, Chen EL, Wang X, Ikeda M, Azuma N, Nakajima N, Gahtan V, Sumpio BE.** Role of mitogen-activated protein kinases in pulmonary endothelial cells exposed to cyclic strain. *J Appl Physiol* 89(6):2391-2400, 2000.
44. **Kizer N, Guo XL, Hruska K.** Reconstitution of stretch-activated cation channels by expression of the  $\alpha$ -subunit of the epithelial sodium channel cloned from osteoblasts. *Proc Natl Acad Sci U S A* 94(3):1013-1018, 1997.
45. **Konermann A, Jäger A, Held SA, Brossart P, Schmöle A.** In vivo and in vitro identification of endocannabinoid signaling in periodontal tissues and their potential role in local pathophysiology. *Cell Mol Neurobiol* 2017 Mar 14. doi: 10.1007/s10571-017-0482-4. [Epub ahead of print]
46. **Krüger M, Sachse C, Zimmermann WH, Eschenhagen T, Klede S, Linke WA.** Thyroid hormone regulates developmental titin isoform transitions via the phosphatidylinositol-3-kinase/ AKT pathway. *Circ Res* 102(4):439-447, 2008.



47. **Kuznetsov SA, Mankani MH, Gronthos S, Satomura K, Bianco P, Robey PG.** Circulating skeletal stem cells. *J Cell Biol* 153(5):1133-1140, 2001.
48. **Lamb RG, Harper CC, McKinney JS, Rzigalinski BA, Ellis EF.** Alterations in phosphatidylcholine metabolism of stretch-injured cultured rat astrocytes. *J Neurochem* 68(5):1904-1910, 1997.
49. **Lapanantasin S, Chongthammakun S, Floyd CL, Berman RF.** Effects of 17 $\beta$ -estradiol on intracellular calcium changes and neuronal survival after mechanical strain injury in neuronal-glia cultures. *Synapse* 60(5):406-410, 2006.
50. **Lau JJ, Wang RM, Black LD 3rd.** Development of an arbitrary waveform membrane stretcher for dynamic cell culture. *Ann Biomed Eng* 42(5):1062-73, 2014.
51. **Lea PM, Custer SJ, Stoica BA, Faden AI.** Modulation of stretch-induced enhancement of neuronal NMDA receptor current by mGluR1 depends upon presence of glia. *Journal of Neurotrauma* 20(11):1233-1249, 2003.
52. **Lea PM, Custer SJ, Vicini S, Faden AI.** Neuronal and glial mGluR5 modulation prevents stretch-induced enhancement of NMDA receptor current. *Pharmacology Biochemistry and Behavior* 73(2):287-298, 2002.
53. **Lehnich H, Simm A, Weber B, Bartling B.** Development of a cyclic multi-axial strain cell culture device. *Biomed Tech (Berl)* 57(Suppl 1):677-680, 2012.
54. **Lewko B, Bryl E, Witkowski JM, Latawiec E, Angielski S, Stepinski J.** Mechanical stress and glucose concentration modulate glucose transport in cultured rat podocytes. *Nephrol Dial Transplant* 20(2):306-311, 2005.
55. **Lewko B, Endlich N, Kriz W, Stepinski J, Endlich K.** C-type natriuretic peptide as a podocyte hormone and modulation of its cGMP production by glucose and mechanical stress. *Kidney International* 66(3):1001-1008, 2004.
56. **Lewko B, Waszkiewicz A, Maryn A, Gołos M, Latawiec E, Daca A, Witkowski JM, Angielski S, Stępiński J.** Dexamethasone-dependent modulation of cyclic GMP synthesis in podocytes. *Mol Cell Biochem* 409(1-2):243-53, 2015.
57. **Li R, Wei M, Shao J.** Effects of verapamil on the immediate-early gene expression of bone marrow mesenchymal stem cells stimulated by mechanical strain in vitro. *Med Sci Monit Basic Res* 19:68-75, 2013.
58. **Liebau MC, Lang D, Bohm J, Endlich N, Bek MJ, Witherden I, Mathieson PW, Saleem MA, Pavenstadt H, Fischer KG.** Functional expression of the renin-angiotensin system in human podocytes. *Am J Physiol Renal Physiol* 290(3):F710-F719, 2006.
59. **Majumdar A, Arold SP, Bartolák-Suki E, Parameswaran H, Suki B.** Jamming dynamics of stretch-induced surfactant release by alveolar type II cells. *J Appl Physiol (1985)* 112(5):824-31, 2012.
60. **Mao Y, Su J, Lei L, Meng L, Qi Y, Huo Y, Tang C.** Adrenomedullin and adrenotensin increase the transcription of regulator of G-protein signaling 2 in vascular smooth muscle cells via the cAMP-dependent and PKC pathways. *Mol Med Rep* 9(1):323-7, 2014.
61. **Maul TM, Hamilton DW, Nieponice A, Soletti L, Vorp DA.** A new experimental system for the extended application of cyclic hydrostatic pressure to cell culture. *J Biomech Eng* 129(1):110-6, 2007.
62. **McKinney JS, Willoughby KA, Liang S, Ellis EF.** Stretch-induced injury of cultured neuronal, glial, and endothelial cells. Effect of polyethylene glycol-conjugated superoxide dismutase. *Stroke* 27(5):934-940, 1996.
63. **Mercado KP, Helguera M, Hocking DC, Dalecki D.** Estimating cell concentration in three-dimensional engineered tissues using high frequency quantitative ultrasound. *Ann Biomed Eng* 42(6):1292-304, 2014.
64. **Mercado KP, Langdon J, Helguera M, McAleavey SA, Hocking DC, Dalecki D.** Scholte wave generation during single tracking location shear wave elasticity imaging of engineered tissues. *J Acoust Soc Am* 138(2):EL138-44, 2015.
65. **Neary JT, Kang Y, Tran M, Feld J.** Traumatic injury activates protein kinase B/Akt in cultured astrocytes: role of extracellular ATP and P2 purinergic receptors. *Journal of Neurotrauma* 22(4):491-500, 2005.
66. **Neary JT, Kang Y, Willoughby KA, Ellis EF.** Activation of extracellular signal-regulated kinase by stretch-induced injury in astrocytes involves extracellular ATP and P2 purinergic receptors. *J Neurosci* 23(6):2348-2356, 2003.
67. **Onodera K, Takahashi I, Sasano Y, Bae JW, Mitani H, Kagayama M, Mitani H.** Stepwise mechanical stretching inhibits chondrogenesis through cell-matrix adhesion mediated by integrins in embryonic rat limb-bud mesenchymal cells. *European Journal of Cell Biology* 84(1):45-58, 2005.
68. **Pugin J, Dunn I, Jolliet P, Tassaux D, Magnenat JL, Nicod LP, Chevrolet JC.** Activation of human macrophages by mechanical ventilation in vitro. *Am J Physiol Lung Cell Mol Physiol* 275:L1040-L1050, 1998.



69. **Putnam AJ, Cunningham JJ, Pillemer BBL, Mooney DJ.** External mechanical strain regulates membrane targeting of Rho GTPases by controlling microtubule assembly. *Am J Physiol Cell Physiol* 284(3):C627-C639, 2003.
70. **Putnam AJ, Schultz K, Mooney DJ.** Control of microtubule assembly by extracellular matrix and externally applied strain. *Am J Physiol Cell Physiol* 280(3):C556-C564, 2001.
71. **Quaglino A, Salierno M, Pellegrotti J, Rubinstein N, Kordon EC.** Mechanical strain induces involution-associated events in mammary epithelial cells. *BMC Cell Biol* 10:55, 2009.
72. **Rachmany L, Tweedie D, Rubovitch V, Li Y, Holloway HW, Kim DS, Ratliff WA, Saykally JN, Citron BA, Hoffer BJ, Greig NH, Pick CG.** Exendin-4 attenuates blast traumatic brain injury induced cognitive impairments, losses of synaptophysin and in vitro TBI-induced hippocampal cellular degeneration. *Sci Rep* 7(1):3735, 2017.
73. **Rana OR, Zobel C, Saygili E, Brixius K, Gramley F, Schimpf T, Mischke K, Frechen D, Knackstedt C, Schwinger RH, Schauerte P, Saygili E.** A simple device to apply equibiaxial strain to cells cultured on flexible membranes. *Am J Physiol Heart Circ Physiol* 294(1):H532-540, 2008.
74. **Rápalo G, Herwig JD, Hewitt R, Wilhelm KR, Waters CM, Roan E.** Live cell imaging during mechanical stretch. *J Vis Exp* (102):e52737, 2015.
75. **Rauch C, Loughna PT.** Cyclosporin-A inhibits stretch-induced changes in myosin heavy chain expression in C2C12 skeletal muscle cells. *Cell Biochem Funct* 24(1):55-61, 2006.
76. **Rauch C, Loughna PT.** Static stretch promotes MEF2A nuclear translocation and expression of neonatal myosin heavy chain in C2C12 myocytes in a calcineurin- and p38-dependent manner. *Am J Physiol Cell Physiol* 288(3):C593-C605, 2005.
77. **Reimann S, Rath-Deschner B, Deschner J, Keilig L, Jäger A, Bourauel C.** Development of an experimental device for the application of static and dynamic tensile strain on cells. *4th European Conference of the International Federation for Medical and Biological Engineering* 22:2019-2022, 2009.
78. **Rzagalinski BA, Liang S, McKinney JS, Willoughby KA, Ellis EF.** Effect of Ca<sup>2+</sup> on in vitro astrocyte injury. *J Neurochem* 68(1):289-296, 1997.
79. **Rzagalinski BA, Weber JT, Willoughby KA, Ellis EF.** Intracellular free calcium dynamics in stretch-injured astrocytes. *J Neurochem* 70(6):2377-2385, 1998.
80. **Salvador E, Burek M, Förster CY.** Stretch and/or oxygen glucose deprivation (OGD) in an in vitro traumatic brain injury (TBI) model induces calcium alteration and inflammatory cascade. *Front Cell Neurosci* 9:323, 2015.
81. **Salvador E, Neuhaus W, Foerster C.** Stretch in brain microvascular endothelial cells (cEND) as an in vitro traumatic brain injury model of the blood brain barrier. *J Vis Exp* (80):e50928, 2013.
82. **Sawada Y, Suda M, Yokoyama H, Kanda T, Sakamaki T, Tanaka S, Nagai R, Abe S, Takeuchi T.** Stretch-induced hypertrophic growth of cardiocytes and processing of brain-type natriuretic peptide are controlled by proprotein-processing endoprotease furin. *J Biol Chem* 272(33):20545-20554, 1997.
83. **Saykally JN, Hatic H, Keeley KL, Jain SC, Ravindranath V, Citron BA.** Withania somnifera Extract Protects Model Neurons from In Vitro Traumatic Injury. *Cell Transplant* 2016 Nov 18. doi: 10.3727/096368916X693770. [Epub ahead of print].
84. **Schordan S, Schordan E, Endlich K, Endlich N.**  $\alpha$ V-integrins mediate the mechanoprotective action of osteopontin in podocytes. *Am J Physiol Renal Physiol* 300(1):F119-F132, 2011.
85. **Schordan E, Welsch S, Rothhut S, Lambert A, Barthelmebs M, Helwig JJ, Massfelder T.** Role of parathyroid hormone-related protein in the regulation of stretch-induced renal vascular smooth muscle cell proliferation. *J Am Soc Nephrol* 15(12):3016-3025, 2004.
86. **Shoham N, Gottlieb R, Sharabani-Yosef O, Zaretsky U, Benayahu D, Gefen A.** Static mechanical stretching accelerates lipid production in 3T3-L1 adipocytes by activating the MEK signaling pathway. *Am J Physiol Cell Physiol* 302(2):C429-41, 2012.
87. **Slemmer JE, Matser EJ, De Zeeuw CI, Weber JT.** Repeated mild injury causes cumulative damage to hippocampal cells. *Brain* 125(Pt 12):2699-2709, 2002.
88. **Slemmer JE, Zhu C, Landshamer S, Trabold R, Grohm J, Ardeshiri A, Wagner E, Sweeney MI, Blomgren K, Culmsee C, Weber JT, Plesnila N.** Causal role of apoptosis-inducing factor for neuronal cell death following traumatic brain injury. *Am J Pathol* 173(6):1795-1805, 2008.
89. **Sowa G, Agarwal S.** Motion exerts a protective effect on intervertebral discs. *American Journal of Physical Medicine & Rehabilitation* 85(3):246-247, 2006.
90. **Sowa G, Agarwal S.** Cyclic tensile stress exerts a protective effect on intervertebral disc cells. *American Journal of Physical Medicine & Rehabilitation* 87(7):537-544, 2008.



91. **Stroetz RW, Vlahakis NE, Walters BJ, Schroeder MA, Hubmayr RD.** Validation of a new live cell strain system: characterization of plasma membrane stress failure. *J Appl Physiol* 90(6):2361-2370, 2001.
92. **Takahashi I, Onodera K, Sasano Y, Mitzoguchi I, Bae JW, Mitani H, Kagayama M, Mitani H.** Effect of stretching on gene expression of  $\beta 1$  integrin and focal adhesion kinase and on chondrogenesis through cell-extracellular matrix interactions. *European Journal of Cell Biology* 82(4):182-192, 2003.
93. **Tamada M, Sheetz MP, Sawada Y.** Activation of a signaling cascade by cytoskeleton stretch. *Dev Cell* 7:709-718, 2004.
94. **Tavalin SJ, Ellis EF, Satin LS.** Inhibition of the electrogenic Na pump underlies delayed depolarization of cortical neurons after mechanical injury or glutamate. *J Neurophysiol* 77:632-638, 1997.
95. **Tavalin SJ, Ellis EF, Satin LS.** Mechanical perturbation of cultured cortical neurons reveals a stretch-induced delayed depolarization. *J Neurophysiol* 74(6):2767-2773, 1995.
96. **Tellios N, Belrose JC, Tokarewicz AC, Hutnik C, Liu H, Leask A, Motolko M, Iijima M, Parapuram SK.** TGF- $\beta$  induces phosphorylation of phosphatase and tensin homolog: implications for fibrosis of the trabecular meshwork tissue in glaucoma. *Sci Rep* 7(1):812, 2017.
97. **Toyoda T, Matsumoto H, Fujikawa K, Saito S, Inoue K.** Tensile load and the metabolism of anterior cruciate ligament cells. *Clinical Orthopaedics & Related Research* 353:247-255, 1998.
98. **Toyoda T, Saito S, Inokuchi S, Yabe Y.** The effects of tensile load on the metabolism of cultured chondrocytes. *Clin Orthop Relat Res* (359):221-228, 1999.
99. **Tran MD, Neary JT.** Purinergic signaling induces thrombospondin-1 expression in astrocytes. *PNAS* 103(24):9321-9326, 2006.
100. **Tran MD, Wanner IB, Neary JT.** Purinergic receptor signaling regulates N-cadherin expression in primary astrocyte cultures. *J Neurochem* 105(1):272-86, 2008.
101. **Trepat X, Deng L, An SS, Navajas D, Tschumperlin DJ, Gerthoffer WT, Butler JP, Fredberg JJ.** Universal physical responses to stretch in the living cell. *Nature* 447(7144):592-595, 2007.
102. **Trepat X, Grabulosa M, Puig F, Maksym GN, Navajas D, Farre R.** Viscoelasticity of human alveolar epithelial cells subjected to stretch. *Am J Physiol Lung Cell Mol Physiol* 287(5):L1025-L1034, 2004.
103. **Trepat X, Puig F, Gavara N, Fredberg JJ, Farre R, Navajas D.** Effect of stretch on structural integrity and micromechanics of human alveolar epithelial cell monolayers exposed to thrombin. *Am J Physiol Lung Cell Mol Physiol* 290(6):L1104-L1110, 2006.
104. **Tyurina YY, Nylander KD, Mirnics ZK, Portugal C, Yan C, Zaccaro C, Saragovi HU, Kagan VE, Schor NF.** The intracellular domain of p75NTR as a determinant of cellular reducing potential and response to oxidant stress. *Aging Cell* 4(4):187-196, 2005.
105. **Upton ML, Chen J, Setton LA.** Region-specific constitutive gene expression in the adult porcine meniscus. *J Orthop Res* 24(7):1562-1570, 2006.
106. **Vincent F, Duquesnes N, Christov C, Damy T, Samuel JL, Crozatier B.** Dual level of interactions between calcineurin and PKC- $\epsilon$  in cardiomyocyte stretch. *Cardiovasc Res* 71(1):97-107, 2006.
107. **Vlahakis NE, Schroeder MA, Pagano RE, Hubmayr RD.** Deformation-induced lipid trafficking in alveolar epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 280(5):L938-L946, 2001.
108. **Wada S, Kanzaki H, Narimiya T, Nakamura Y.** Novel device for application of continuous mechanical tensile strain to mammalian cells. *Biol Open* 6(4):518-524, 2017.
109. **Wagner AH, Schroeter MR, Hecker M.** 17 $\beta$ -estradiol inhibition of NADPH oxidase expression in human endothelial cells. *FASEB J* 15(12):2121-2130, 2001.
110. **Wang F, Knutson K, Alcaino C, Linden DR, Gibbons SJ, Kashyap P, Grover M, Oeckler R, Gottlieb PA, Li HJ, Leiter AB, Farrugia G, Beyder A.** Mechanosensitive ion channel Piezo2 is important for enterochromaffin cell response to mechanical forces. *J Physiol* 595(1):79-91, 2017.
111. **Wang D, Taboas JM, Tuan RS.** PTHrP overexpression partially inhibits a mechanical strain-induced arthritic phenotype in chondrocytes. *Osteoarthritis Cartilage* 19(2):213-221, 2011.
112. **Weber B, Bader N, Lehnich H, Simm A, Silber RE, Bartling B.** Microarray-based gene expression profiling suggests adaptation of lung epithelial cells subjected to chronic cyclic strain. *Cell Physiol Biochem* 33(5):1452-66, 2014.
113. **Weber JT, Rzigalinski BA, Ellis EF.** Calcium responses to caffeine and muscarinic receptor agonists are altered in traumatically injured neurons. *Journal of Neurotrauma* 19(11):1433-1443, 2002.
114. **Weber JT, Rzigalinski BA, Ellis EF.** Traumatic injury of cortical neurons causes changes in intracellular calcium stores and capacitative calcium influx. *J Biol Chem* 276(3):1800-1807, 2001.
115. **Weber JT, Rzigalinski BA, Willoughby KA, Moore SF, Ellis EF.** Alterations in calcium-mediated signal transduction after traumatic injury of cortical neurons. *Cell Calcium* 26(6):289-299, 1999.



116. **Willoughby KA, Kleindienst A, Muller C, Chen T, Muir JK, Ellis EF.** S100B protein is released by in vitro trauma and reduces delayed neuronal injury. *J Neurochem* 91(6):1284-1291, 2004.
117. **Wu CH, Hung TH, Chen CC, Ke CH, Lee CY, Wang PY, Chen SF.** Post-injury treatment with 7,8-dihydroxyflavone, a TrkB receptor agonist, protects against experimental traumatic brain injury via PI3K/Akt signaling. *PLoS One* 9(11):e113397, 2014.
118. **Xu Q, Schett G, Li C, Hu Y, Wick G.** Mechanical stress-induced heat shock protein 70 expression in vascular smooth muscle cells is regulated by Rac and Ras small G proteins but not mitogen-activated protein kinases. *Circ Res* 86(11):1122-1128, 2000.
119. **Xu Z, Buckley MJ, Evans CH, Agarwal S.** Cyclic tensile strain acts as an antagonist of IL-1 $\beta$  actions in chondrocytes. *J Immunol* 165(1):453-60, 2000.
120. **Xu Z, Liu Y, Yang D, Yuan F, Ding J, Chen H, Tian H.** Sesamin protects SH-SY5Y cells against mechanical stretch injury and promoting cell survival. *BMC Neurosci* 18(1):57, 2017.
121. **Yamamoto H, Teramoto H, Uetani K, Igawa K, Shimizu E.** Cyclic stretch upregulates interleukin-8 and transforming growth factor- $\beta$ 1 production through a protein kinase C-dependent pathway in alveolar epithelial cells. *Respirology* 7(2):103-109, 2002.
122. **Yan C, Liang Y, Nylander KD, Schor NF.** TrkA as a life and death receptor: receptor dose as a mediator of function. *Cancer Res* 62:4867-4875, 2002.
123. **You J, Yellowley CE, Donahue HJ, Zhang Y, Chen Q, Jacobs CR.** Substrate deformation levels associated with routine physical activity are less stimulatory to bone cells relative to loading-induced oscillatory fluid flow. *J Biomech Eng* 122(4):387-93, 2000.
124. **Zhan M, Jin B, Chen SE, Reecy JM, Li YP.** TACE release of TNF- $\alpha$  mediates mechanotransduction-induced activation of p38 MAPK and myogenesis. *J Cell Sci* 120(Pt 4):692-701, 2007.
125. **Zhong C, Chrzanowska-Wodnicka M, Brown J, Shaub A, Belkin AM, Burrridge K.** Rho-mediated contractility exposes a cryptic site in fibronectin and induces fibronectin matrix assembly. *J Cell Biol* 141(12):539-551, 1998.
126. **Zou K, De Lisio M, Huntsman HD, Pincu Y, Mahmassani Z, Miller M, Olatunbosun D, Jensen T, Boppard MD.** Laminin-111 improves skeletal muscle stem cell quantity and function following eccentric exercise. *Stem Cells Transl Med* 3(9):1013-22, 2014.

## CUSTOMER-MODIFIED UNITS

1. **Boerboom RA, Rubbens MP, Driessen NJ, Bouten CV, Baaijens FP.** Effect of strain magnitude on the tissue properties of engineered cardiovascular constructs. *Annals of Biomedical Engineering* 36(2):244-253, 2008.
2. **Fermor B, Haribabu B, Weinberg JB, Pisetsky, Guilak F.** Mechanical stress and nitric oxide influence leukotriene production in cartilage. *Biochemical and Biophysical Research Communications* 285:806-810, 2001.
3. **Fermor B, Weinberg JB, Pisetsky DS, Guilak F.** The influence of oxygen tension on the induction of the nitric oxide and prostaglandin E2 by mechanical stress in articular cartilage. *Osteoarthritis Cartilage* 13:935-941, 2005.
4. **Fermor B, Weinberg JB, Pisetsky DS, Misukonis MA, Banes AJ, Guilak F.** The effects of static and intermittent compression on nitric oxide production in articular cartilage explants. *J Orthop Res* 9(4):729-737, 2001.
5. **Fermor B, Weinberg JB, Pisetsky DS, Misukonis MA, Fink C, Guilak F.** Induction of cyclooxygenase-2 by mechanical stress through a nitric oxide-regulated pathway. *Osteoarthritis Cartilage* 10:792-798, 2002.
6. **Fink C, Fermor B, Weinberg JB, Pisetsky DS, Misukonis MA, Guilak F.** The effect of dynamic mechanical compression on nitric oxide production in the meniscus. *Osteoarthritis Cartilage* 9(5):481-487, 2001.
7. **Fisher DD, Cyr RJ.** Mechanical forces in plant growth and development. *Gravit Space Biol Bull* 13(2):67-73, 2000.
8. **Giunti S, Pinach S, Arnaldi L, Viberti G, Perin PC, Camussi G, Gruden G.** The MCP-1/CCR2 system has direct proinflammatory effects in human mesangial cells. *Kidney Int* 69(5):856-863, 2006.
9. **Hasel C, Durr S, Bruderlein S, Melzner I, Moller P.** A cell-culture system for long-term maintenance of elevated hydrostatic pressure with the option of additional tension. *J Biomechanics* 35(5):579-584, 2002.



10. **Lee JM, Kim MG, Byun JH, Kim GC, Ro JH, Hwang DS, Choi BB, Park GC, Kim UK.** The effect of biomechanical stimulation on osteoblast differentiation of human jaw periosteum-derived stem cells. *Maxillofac Plast Reconstr Surg* 39(1):7, 2017.
11. **Meng F, Suchyna TM, Sachs F.** A fluorescence energy transfer-based mechanical stress sensor for specific proteins in situ. *FEBS J* 275(12):3072-3087, 2008.
12. **Park SA, Kim IA, Lee YJ, Shin JW, Kim CR, Kim JK, Yang YI, Shin JW.** Biological responses of ligament fibroblasts and gene expression profiling on micropatterned silicone substrates subjected to mechanical stimuli. *J Biosci Bioeng* 102(5):402-412, 2006.
13. **Piscoya JL, Fermor B, Kraus VB, Stabler TV, Guilak F.** The influence of mechanical compression on the induction of osteoarthritis-related biomarkers in articular cartilage explants. *Osteoarthritis Cartilage* 13:1092-1099, 2005.
14. **Rubbens MP, Driessen-Mol A, Boerboom RA, Koppert MM, van Assen HC, TerHaar Romeny BM, Baaijens FP, Bouten CV.** Quantification of the temporal evolution of collagen orientation in mechanically conditioned engineered cardiovascular tissues. *Ann Biomed Eng* 37(7):1263-1272, 2009.
15. **Shin SJ, Fermor B, Weinberg JB, Pisetsky DS, Guilak F.** Regulation of matrix turnover in meniscal explants: role of mechanical stress, interleukin-1, and nitric oxide. *J Appl Physiol* 95(1):308-313, 2003.
16. **Tobita K, Garrison JB, Keller BB.** Differential effects of cyclic stretch on embryonic ventricular cardiomyocyte and non-cardiomyocyte orientation. In: *Cardiovascular Development and Congenital Malformations: Molecular & Genetic Mechanisms*, Edited by Artman M, Benson DW, Srivastava D, Nakazawa M. Blackwell Futura Publishing:177-179, 2005.
17. **Upton ML, Chen J, Guilak F, Setton LA.** Differential effects of static and dynamic compression on meniscal cell gene expression. *J Orthop Res* 21(6):963-969, 2003.