

# Melissa L L Knothe Tate

## List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

90  
papers

3,474  
citations

34  
h-index

57  
g-index

104  
ext. papers

3,829  
ext. citations

4.5  
avg, IF

5.52  
L-index

#	Paper	IF	Citations
90	The osteocyte. <i>International Journal of Biochemistry and Cell Biology</i> , <b>2004</b> , 36, 1-8	5.6	270
89	"Whither flows the fluid in bone?" An osteocyte's perspective. <i>Journal of Biomechanics</i> , <b>2003</b> , 36, 1409-24.9	2.9	233
88	In vivo tracer transport through the lacunocanalicular system of rat bone in an environment devoid of mechanical loading. <i>Bone</i> , <b>1998</b> , 22, 107-17	4.7	206
87	Current insights on the regenerative potential of the periosteum: molecular, cellular, and endogenous engineering approaches. <i>Journal of Orthopaedic Research</i> , <b>2012</b> , 30, 1869-78	3.8	153
86	High-resolution, high-throughput imaging with a multibeam scanning electron microscope. <i>Journal of Microscopy</i> , <b>2015</b> , 259, 114-120	1.9	144
85	An ex vivo model to study transport processes and fluid flow in loaded bone. <i>Journal of Biomechanics</i> , <b>2000</b> , 33, 247-54	2.9	135
84	Experimental elucidation of mechanical load-induced fluid flow and its potential role in bone metabolism and functional adaptation. <i>American Journal of the Medical Sciences</i> , <b>1998</b> , 316, 189-95	2.2	116
83	Concise review: the periosteum: tapping into a reservoir of clinically useful progenitor cells. <i>Stem Cells Translational Medicine</i> , <b>2012</b> , 1, 480-91	6.9	106
82	The influence of mechanical stimulus on the pattern of tissue differentiation in a long bone fracture--an FEM study. <i>Journal of Biomechanics</i> , <b>2000</b> , 33, 415-25	2.9	87
81	Flow-induced stress on adherent cells in microfluidic devices. <i>Lab on A Chip</i> , <b>2015</b> , 15, 4114-27	7.2	86
80	Mechanical modulation of osteochondroprogenitor cell fate. <i>International Journal of Biochemistry and Cell Biology</i> , <b>2008</b> , 40, 2720-38	5.6	84
79	The role of interstitial fluid flow in the remodeling response to fatigue loading. <i>Journal of Bone and Mineral Research</i> , <b>2002</b> , 17, 2030-7	6.3	79
78	Idealization of pericellular fluid space geometry and dimension results in a profound underprediction of nano-microscale stresses imparted by fluid drag on osteocytes. <i>Journal of Biomechanics</i> , <b>2008</b> , 41, 1736-46	2.9	74
77	Nano-microscale models of periosteocytic flow show differences in stresses imparted to cell body and processes. <i>Annals of Biomedical Engineering</i> , <b>2005</b> , 33, 52-62	4.7	70
76	Modulation of stem cell shape and fate B: mechanical modulation of cell shape and gene expression. <i>Tissue Engineering - Part A</i> , <b>2008</b> , 14, 1573-80	3.9	69
75	A finite element analysis for the prediction of load-induced fluid flow and mechanochemical transduction in bone. <i>Journal of Theoretical Biology</i> , <b>2003</b> , 220, 249-59	2.3	69
74	Modulation of stem cell shape and fate A: the role of density and seeding protocol on nucleus shape and gene expression. <i>Tissue Engineering - Part A</i> , <b>2008</b> , 14, 1561-72	3.9	67

73	Effect of lacunocanalicular architecture on hydraulic conductance in bone tissue: implications for bone health and evolution. <i>The Anatomical Record</i> , <b>2003</b> , 273, 752-62		54
72	Noninvasive fatigue fracture model of the rat ulna. <i>Journal of Orthopaedic Research</i> , <b>2003</b> , 21, 1018-24	3.8	53
71	Testing of a new one-stage bone-transport surgical procedure exploiting the periosteum for the repair of long-bone defects. <i>Journal of Bone and Joint Surgery - Series A</i> , <b>2007</b> , 89, 307-16	5.6	51
70	Solid-supported lipid bilayers to drive stem cell fate and tissue architecture using periosteum derived progenitor cells. <i>Biomaterials</i> , <b>2013</b> , 34, 1878-87	15.6	46
69	Elucidating multiscale periosteal mechanobiology: a key to unlocking the smart properties and regenerative capacity of the periosteum?. <i>Tissue Engineering - Part B: Reviews</i> , <b>2013</b> , 19, 147-59	7.9	45
68	Periosteum, bone's "smart" bounding membrane, exhibits direction-dependent permeability. <i>Journal of Bone and Mineral Research</i> , <b>2013</b> , 28, 608-17	6.3	45
67	Top down and bottom up engineering of bone. <i>Journal of Biomechanics</i> , <b>2011</b> , 44, 304-12	2.9	44
66	Pairing computational and scaled physical models to determine permeability as a measure of cellular communication in micro- and nano-scale pericellular spaces. <i>Microfluidics and Nanofluidics</i> , <b>2008</b> , 4, 193-204	2.8	44
65	Periosteal thickness and cellularity in mid-diaphyseal cross-sections from human femora and tibiae of aged donors. <i>Journal of Anatomy</i> , <b>2014</b> , 224, 142-9	2.9	42
64	Design of tissue engineering scaffolds as delivery devices for mechanical and mechanically modulated signals. <i>Tissue Engineering</i> , <b>2007</b> , 13, 2525-38		41
63	Testing of a New One-Stage Bone-Transport Surgical Procedure Exploiting the Periosteum for the Repair of Long-Bone Defects. <i>Journal of Bone and Joint Surgery - Series A</i> , <b>2007</b> , 89, 307-316	5.6	41
62	Effects of mechanical loading patterns, bone graft, and proximity to periosteum on bone defect healing. <i>Journal of Biomechanics</i> , <b>2010</b> , 43, 2728-37	2.9	40
61	The imperative for controlled mechanical stresses in unraveling cellular mechanisms of mechanotransduction. <i>BioMedical Engineering OnLine</i> , <b>2006</b> , 5, 27	4.1	38
60	Investigation of the morphology of the lacunocanalicular system of cortical bone using atomic force microscopy. <i>Annals of Biomedical Engineering</i> , <b>2001</b> , 29, 1074-81	4.7	38
59	Anisotropic mechanical properties of ovine femoral periosteum and the effects of cryopreservation. <i>Journal of Biomechanics</i> , <b>2011</b> , 44, 1954-9	2.9	37
58	A finite difference model of load-induced fluid displacements within bone under mechanical loading. <i>Medical Engineering and Physics</i> , <b>2000</b> , 22, 117-25	2.4	36
57	Mechanical modulation of nascent stem cell lineage commitment in tissue engineering scaffolds. <i>Biomaterials</i> , <b>2013</b> , 34, 5766-75	15.6	34
56	Mapping the mechanome of live stem cells using a novel method to measure local strain fields in situ at the fluid-cell interface. <i>PLoS ONE</i> , <b>2012</b> , 7, e43601	3.7	32

55	Surgical membranes as directional delivery devices to generate tissue: testing in an ovine critical sized defect model. <i>PLoS ONE</i> , <b>2011</b> , 6, e28702	3.7	32
54	"Culture shock" from the bone cell's perspective: emulating physiological conditions for mechanobiological investigations. <i>American Journal of Physiology - Cell Physiology</i> , <b>2004</b> , 287, C1527-36	5.4	31
53	Medial meniscal displacement and strain in three dimensions under compressive loads: MR assessment. <i>Journal of Magnetic Resonance Imaging</i> , <b>2014</b> , 40, 1181-8	5.6	30
52	Net change in periosteal strain during stance shift loading after surgery correlates to rapid de novo bone generation in critically sized defects. <i>Annals of Biomedical Engineering</i> , <b>2011</b> , 39, 1570-81	4.7	29
51	Engineering and commercialization of human-device interfaces, from bone to brain. <i>Biomaterials</i> , <b>2016</b> , 95, 35-46	15.6	29
50	Development of preparation methods for and insights obtained from atomic force microscopy of fluid spaces in cortical bone. <i>Scanning</i> , <b>2002</b> , 24, 25-33	1.6	28
49	Bone as an inspiration for a novel class of mechanoactive materials. <i>Biomaterials</i> , <b>2009</b> , 30, 133-40	15.6	27
48	Multiscale mechanobiology of de novo bone generation, remodeling and adaptation of autograft in a common ovine femur model. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , <b>2011</b> , 4, 829-40 <sup>1</sup>	4.1	27
47	Open access to novel dual flow chamber technology for in vitro cell mechanotransduction, toxicity and pharmacokinetic studies. <i>BioMedical Engineering OnLine</i> , <b>2007</b> , 6, 46	4.1	26
46	Structure-function relationships in the stem cell's mechanical world B: emergent anisotropy of the cytoskeleton correlates to volume and shape changing stress exposure. <i>MCB Molecular and Cellular Biomechanics</i> , <b>2011</b> , 8, 297-318	1.2	26
45	In situ spatiotemporal mapping of flow fields around seeded stem cells at the subcellular length scale. <i>PLoS ONE</i> , <b>2010</b> , 5, e12796	3.7	24
44	Arthritic periosteal tissue from joint replacement surgery: a novel, autologous source of stem cells. <i>Stem Cells Translational Medicine</i> , <b>2014</b> , 3, 308-17	6.9	21
43	Translating Periosteum's Regenerative Power: Insights From Quantitative Analysis of Tissue Genesis With a Periosteum Substitute Implant. <i>Stem Cells Translational Medicine</i> , <b>2016</b> , 5, 1739-1749	6.9	21
42	Mechanistic, mathematical model to predict the dynamics of tissue genesis in bone defects via mechanical feedback and mediation of biochemical factors. <i>PLoS Computational Biology</i> , <b>2014</b> , 10, e1003604 <sup>5</sup>	5.6	19
41	Mixing mechanisms and net solute transport in bone. <i>Annals of Biomedical Engineering</i> , <b>2001</b> , 29, 810-1; author reply 812-6	4.7	19
40	In silico stochastic network models that emulate the molecular sieving characteristics of bone. <i>Annals of Biomedical Engineering</i> , <b>2005</b> , 33, 87-94	4.7	17
39	Engineering mechanical gradients in next generation biomaterials - Lessons learned from medical textile design. <i>Acta Biomaterialia</i> , <b>2017</b> , 56, 14-24	10.8	15
38	Scale-up of nature's tissue weaving algorithms to engineer advanced functional materials. <i>Scientific Reports</i> , <b>2017</b> , 7, 40396	4.9	14

37	Development and testing of a new self-locking intramedullary nail system: testing of handling aspects and mechanical properties. <i>Injury</i> , <b>2000</b> , 31, 617-26	2.5	14
36	Live Tissue Imaging to Elucidate Mechanical Modulation of Stem Cell Niche Quiescence. <i>Stem Cells Translational Medicine</i> , <b>2017</b> , 6, 285-292	6.9	13
35	Establishing the Basis for Mechanobiology-Based Physical Therapy Protocols to Potentiate Cellular Healing and Tissue Regeneration. <i>Frontiers in Physiology</i> , <b>2017</b> , 8, 303	4.6	13
34	Creating High-Resolution Multiscale Maps of Human Tissue Using Multi-beam SEM. <i>PLoS Computational Biology</i> , <b>2016</b> , 12, e1005217	5	13
33	Structure-function relationships in the stem cell's mechanical world A: seeding protocols as a means to control shape and fate of live stem cells. <i>MCB Molecular and Cellular Biomechanics</i> , <b>2011</b> , 8, 275-96	1.2	13
32	Emergence of Form from Function - Mechanical Engineering Approaches to Probe the Role of Stem Cell Mechanoadaptation in Sealing Cell Fate. <i>Bioarchitecture</i> , <b>2016</b> , 6, 85-103		12
31	Major and minor centroidal axes serve as objective, automatable reference points to test mechanobiological hypotheses using histomorphometry. <i>Journal of Biomechanics</i> , <b>2011</b> , 44, 1205-8	2.9	12
30	Role of mechanical loading in healing of massive bone autografts. <i>Journal of Orthopaedic Research</i> , <b>2010</b> , 28, 1657-64	3.8	12
29	A novel ex vivo model for investigation of fluid displacements in bone after endoprosthesis implantation. <i>Journal of Materials Science: Materials in Medicine</i> , <b>1999</b> , 10, 801-6	4.5	12
28	Periosteum mechanobiology and mechanistic insights for regenerative medicine. <i>BoneKEy Reports</i> , <b>2016</b> , 5, 857		12
27	Organ-to-Cell-Scale Health Assessment Using Geographical Information System Approaches with Multibeam Scanning Electron Microscopy. <i>Advanced Healthcare Materials</i> , <b>2016</b> , 5, 1581-7	10.1	10
26	Biotechnologies toward Mitigating, Curing, and Ultimately Preventing Edema through Compression Therapy. <i>Trends in Biotechnology</i> , <b>2018</b> , 36, 537-548	15.1	9
25	The Only Constant Is Change: Next Generation Materials and Medical Device Design for Physical and Mental Health. <i>Advanced Healthcare Materials</i> , <b>2016</b> , 5, 1840-3	10.1	8
24	Smart body armor inspired by flow in bone. <i>Smart Structures and Systems</i> , <b>2011</b> , 7, 223-228		7
23	Multiscale computational and experimental approaches to elucidate bone and ligament mechanobiology using the ulna-radius-interosseous membrane construct as a model system. <i>Technology and Health Care</i> , <b>2012</b> , 20, 363-78	1.1	6
22	Experimental Elucidation of Mechanical Load-Induced Fluid Flow and Its Potential Role in Bone Metabolism and Functional Adaptation. <i>American Journal of the Medical Sciences</i> , <b>1998</b> , 316, 189-195	2.2	6
21	Multiscale Computational Engineering of Bones: State-of-the-Art Insights for the Future <b>2007</b> , 141-160		6
20	Prospective Design, Rapid Prototyping, and Testing of Smart Dressings, Drug Delivery Patches, and Replacement Body Parts Using Microscopy Aided Design and Manufacture (MADAME). <i>Frontiers in Medicine</i> , <b>2018</b> , 5, 348	4.9	6

19	Knee Joint Tissues Effectively Separate Mixed Sized Molecules Delivered in a Single Bolus to the Heart. <i>Scientific Reports</i> , <b>2018</b> , 8, 10254	4.9	5
18	The linea aspera: a virtual case study testing emergence of form and function. <i>Anatomical Record</i> , <b>2014</b> , 297, 273-80	2.1	5
17	Lithotripsy stimulates new bone formation and mitigates loss of bone due to disuse in aged rats. <i>Technology and Health Care</i> , <b>2013</b> , 21, 587-97	1.1	5
16	Measurement of bone surface strains on the sheep metacarpus in vivo and ex vivo. <i>Veterinary and Comparative Orthopaedics and Traumatology</i> , <b>2003</b> , 16, 38-43	1.2	3
15	Mechanomics Approaches to Understand Cell Behavior in Context of Tissue Neogenesis, During Prenatal Development and Postnatal Healing. <i>Frontiers in Cell and Developmental Biology</i> , <b>2019</b> , 7, 354	5.7	3
14	In vitro biocompatibility and biomechanics study of novel, Microscopy Aided Designed and ManufacturEd (MADAME) materials emulating natural tissue weaves and their intrinsic gradients. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , <b>2020</b> , 103, 103536	4.1	3
13	Biotextility - Prototyping and testing mechanical gradient textiles that emulate Nature's own. <i>Results in Materials</i> , <b>2019</b> , 2, 100018	2.3	2
12	Preface: Special Issue on Bone Fluid Flow: Organ to Cell, Lab Bench to Bedside, On Earth and In Space. <i>Annals of Biomedical Engineering</i> , <b>2005</b> , 33, 1-2	4.7	2
11	Electron Microscopy Sample Preparation Protocol Enabling Nano-to-mesoscopic Mapping of Cellular Connectomes and Their Habitats in Human Tissues and Organs. <i>Bio-protocol</i> , <b>2019</b> , 9, e3298	0.9	2
10	Computational Modeling of Extravascular Flow in Bone <b>2010</b> , 307-328		2
9	Comprehensive pressure profiling to develop next-generation compression treatment for lymphedema: Testing efficacy of high resolution sensors. <i>Sensors and Actuators A: Physical</i> , <b>2019</b> , 289, 100-107	3.9	2
8	Computational Modeling of Tissue Engineering Scaffolds as Delivery Devices for Mechanical and Mechanically Modulated Signals. <i>Studies in Mechanobiology, Tissue Engineering and Biomaterials</i> , <b>2012</b> , 127-143	0.5	1
7	Anatomic sampling site and perfusate osmolarity effects on periosteum intrinsic permeability. <i>Computer Methods in Biomechanics and Biomedical Engineering</i> , <b>2013</b> , 16 Suppl 1, 323-5	2.1	1
6	Mapping the Mechanome-A Protocol for Simultaneous Live Imaging and Quantitative Analysis of Cell Mechanoadaptation and Ingression. <i>Bio-protocol</i> , <b>2019</b> , 9, e3439	0.9	1
5	Sample preparation protocol enabling nano-to-mesoscopic mapping of cellular connectomes and their habitats in human tissues and organs		1
4	Advanced Design and Manufacture of Mechanoactive Materials Inspired by Skin, Bones, and Skin-on-Bones. <i>Frontiers in Bioengineering and Biotechnology</i> , <b>2020</b> , 8, 845	5.8	1
3	Osteoarthritis: New Strategies for Transport and Drug Delivery Across Length Scales. <i>ACS Biomaterials Science and Engineering</i> , <b>2020</b> , 6, 6009-6020	5.5	0
2	Connectomics of Bone to Brain-Probing Physical Renderings of Cellular Experience. <i>Frontiers in Physiology</i> , <b>2021</b> , 12, 647603	4.6	0

- 1 MOLECULAR TRANSPORT IN MUSCULOSKELETAL HEALTH AND DISEASE **2016**, 39-50