Melissa L L Knothe Tate

List of Publications by Year
in descending order

97 papers	4,126 citations	101384 36 h-index	118652 62 g-index
104 all docs	104 docs citations	104 times ranked	3639 citing authors

#	Article	IF	Citations
1	The osteocyte. International Journal of Biochemistry and Cell Biology, 2004, 36, 1-8.	1.2	299
2	â€œWhither flows the fluid in bone?â€•An osteocyte's perspective. Journal of Biomechanics, 2003, 36, 1409-1424.	0.9	262
3	In Vivo Tracer Transport Through the Lacunocanalicular System of Rat Bone in an Environment Devoid of Mechanical Loading. Bone, 1998, 22, 107-117.	1.4	234
4	Current insights on the regenerative potential of the periosteum: Molecular, cellular, and endogenous engineering approaches. Journal of Orthopaedic Research, 2012, 30, 1869-1878.	1.2	207
5	Highâ€resolution, highâ€throughput imaging with a multibeam scanning electron microscope. Journal of Microscopy, 2015, 259, 114-120.	0.8	193
6	An ex vivo model to study transport processes and fluid flow in loaded bone. Journal of Biomechanics, 2000, 33, 247-254.	0.9	154
7	Concise Review: The Periosteum: Tapping into a Reservoir of Clinically Useful Progenitor Cells. Stem Cells Translational Medicine, 2012, 1, 480-491.	1.6	143
8	Experimental Elucidation of Mechanical Load-Induced Fluid Flow and Its Potential Role in Bone Metabolism and Functional Adaptation. American Journal of the Medical Sciences, 1998, 316, 189-195.	0.4	121
9	Flow-induced stress on adherent cells in microfluidic devices. Lab on A Chip, 2015, 15, 4114-4127.	3.1	111
10	Mechanical modulation of osteochondroprogenitor cell fate. International Journal of Biochemistry and Cell Biology, 2008, 40, 2720-2738.	1.2	98
11	The influence of mechanical stimulus on the pattern of tissue differentiation in a long bone fracture â€" an FEM study. Journal of Biomechanics, 2000, 33, 415-425.	0.9	97
12	The Role of Interstitial Fluid Flow in the Remodeling Response to Fatigue Loading. Journal of Bone and Mineral Research, 2002, 17, 2030-2037.	3.1	88
13	Idealization of pericellular fluid space geometry and dimension results in a profound underprediction of nano-microscale stresses imparted by fluid drag on osteocytes. Journal of Biomechanics, 2008, 41, 1736-1746.	0.9	87
14	A Finite Element Analysis for the Prediction of Load-induced Fluid Flow and Mechanochemical Transduction in Bone. Journal of Theoretical Biology, 2003, 220, 249-259.	0.8	84
15	Modulation of Stem Cell Shape and Fate B: Mechanical Modulation of Cell Shape and Gene Expression. Tissue Engineering - Part A, 2008, 14, 1573-1580.	1.6	82
16	Nano?Microscale Models of Periosteocytic Flow Show Differences in Stresses Imparted to Cell Body and Processes. Annals of Biomedical Engineering, 2005, 33, 52-62.	1.3	81
17	Modulation of Stem Cell Shape and Fate A: The Role of Density and Seeding Protocol on Nucleus Shape and Gene Expression. Tissue Engineering - Part A, 2008, 14, 1561-1572.	1.6	78
18	Elucidating Multiscale Periosteal Mechanobiology: A Key to Unlocking the Smart Properties and Regenerative Capacity of the Periosteum?. Tissue Engineering - Part B: Reviews, 2013, 19, 147-159.	2.5	63

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19	Effect of lacunocanalicular architecture on hydraulic conductance in bone tissue: Implications for bone health and evolution. The Anatomical Record, 2003, 273A, 752-762.	2.3	62
20	Noninvasive fatigue fracture model of the rat ulna. Journal of Orthopaedic Research, 2003, 21, 1018-1024.	1.2	59
21	Periosteum, bone's â€œsmartâ€•bounding membrane, exhibits direction-dependent permeability. Journal of Bone and Mineral Research, 2013, 28, 608-617.	3.1	59
22	Testing of a New One-Stage Bone-Transport Surgical Procedure Exploiting the Periosteum for the Repair of Long-Bone Defects. Journal of Bone and Joint Surgery - Series A, 2007, 89, 307-316.	1.4	57
23	Periosteal thickness and cellularity in midâ€diaphyseal crossâ€sections from human femora and tibiae of aged donors. Journal of Anatomy, 2014, 224, 142-149.	0.9	52
24	Solid-supported lipid bilayers to drive stem cell fate and tissue architecture using periosteum derived progenitor cells. Biomaterials, 2013, 34, 1878-1887.	5.7	51
25	Pairing computational and scaled physical models to determine permeability as a measure of cellular communication in micro- and nano-scale pericellular spaces. Microfluidics and Nanofluidics, 2008, 4, 193-204.	1.0	49
26	Top down and bottom up engineering of bone. Journal of Biomechanics, 2011, 44, 304-312.	0.9	49
27	The imperative for controlled mechanical stresses in unraveling cellular mechanisms of mechanotransduction. BioMedical Engineering OnLine, 2006, 5, 27.	1.3	45
28	Design of Tissue Engineering Scaffolds as Delivery Devices for Mechanical and Mechanically Modulated Signals. Tissue Engineering, 2007, 13, 2525-2538.	4.9	45
29	Anisotropic mechanical properties of ovine femoral periosteum and the effects of cryopreservation. Journal of Biomechanics, 2011, 44, 1954-1959.	0.9	45
30	Testing of a New One-Stage Bone-Transport Surgical Procedure Exploiting the Periosteum for the Repair of Long-Bone Defects. Journal of Bone and Joint Surgery - Series A, 2007, 89, 307-316.	1.4	44
31	Investigation of the Morphology of the Lacunocanalicular System of Cortical Bone Using Atomic Force Microscopy. Annals of Biomedical Engineering, 2001, 29, 1074-1081.	1.3	42
32	Effects of mechanical loading patterns, bone graft, and proximity to periosteum on bone defect healing. Journal of Biomechanics, 2010, 43, 2728-2737.	0.9	42
33	Mapping the Mechanome of Live Stem Cells Using a Novel Method to Measure Local Strain Fields In Situ at the Fluid-Cell Interface. PLoS ONE, 2012, 7, e43601.	1.1	42
34	A finite difference model of load-induced fluid displacements within bone under mechanical loading. Medical Engineering and Physics, 2000, 22, 117-125.	0.8	41
35	Mechanical modulation of nascent stem cell lineage commitment in tissue engineering scaffolds. Biomaterials, 2013, 34, 5766-5775.	5.7	41
36	Medial meniscal displacement and strain in three dimensions under compressive loads: MR assessment. Journal of Magnetic Resonance Imaging, 2014, 40, 1181-1188.	1.9	40

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37	Surgical Membranes as Directional Delivery Devices to Generate Tissue: Testing in an Ovine Critical Sized Defect Model. PLoS ONE, 2011, 6, e28702.	1.1	35
38	Multiscale mechanobiology of de novo bone generation, remodeling and adaptation of autograft in a common ovine femur model. Journal of the Mechanical Behavior of Biomedical Materials, 2011, 4, 829-840.	1.5	35
39	â€œCulture shockâ€•from the bone cell's perspective: emulating physiological conditions for mechanobiological investigations. American Journal of Physiology - Cell Physiology, 2004, 287, C1527-C1536.	2.1	34
40	Engineering and commercialization of human-device interfaces, from bone to brain. Biomaterials, 2016, 95, 35-46.	5.7	34
41	Net Change in Periosteal Strain During Stance Shift Loading After Surgery Correlates to Rapid De Novo Bone Generation in Critically Sized Defects. Annals of Biomedical Engineering, 2011, 39, 1570-1581.	1.3	33
42	Development of preparation methods for and insights obtained from atomic force microscopy of fluid spaces in cortical bone. Scanning, 2002, 24, 25-33.	0.7	31
43	Bone as an inspiration for a novel class of mechanoactive materials. Biomaterials, 2009, 30, 133-140.	5.7	31
44	Translating Periosteum's Regenerative Power: Insights From Quantitative Analysis of Tissue Genesis With a Periosteum Substitute Implant. Stem Cells Translational Medicine, 2016, 5, 1739-1749.	1.6	29
45	Arthritic Periosteal Tissue From Joint Replacement Surgery: A Novel, Autologous Source of Stem Cells. Stem Cells Translational Medicine, 2014, 3, 308-317.	1.6	28
46	In Situ Spatiotemporal Mapping of Flow Fields around Seeded Stem Cells at the Subcellular Length Scale. PLoS ONE, 2010, 5, e12796.	1.1	28
47	Open access to novel dual flow chamber technology for in vitro cell mechanotransduction, toxicity and pharamacokinetic studies. BioMedical Engineering OnLine, 2007, 6, 46.	1.3	27
48	Structure-function relationships in the stem cell's mechanical world B: emergent anisotropy of the cytoskeleton correlates to volume and shape changing stress exposure. MCB Molecular and Cellular Biomechanics, 2011, 8, 297-318.	0.3	26
49	Mechanistic, Mathematical Model to Predict the Dynamics of Tissue Genesis in Bone Defects via Mechanical Feedback and Mediation of Biochemical Factors. PLoS Computational Biology, 2014, 10, e1003604.	1.5	23
50	Establishing the Basis for Mechanobiology-Based Physical Therapy Protocols to Potentiate Cellular Healing and Tissue Regeneration. Frontiers in Physiology, 2017, 8, 303.	1.3	23
51	In Silico Stochastic Network Models that Emulate the Molecular Sieving Characteristics of Bone. Annals of Biomedical Engineering, 2005, 33, 87-94.	1.3	21
52	Mixing Mechanisms and Net Solute Transport in Bone. Annals of Biomedical Engineering, 2001, 29, 810-811.	1.3	20
53	Live Tissue Imaging to Elucidate Mechanical Modulation of Stem Cell Niche Quiescence. Stem Cells Translational Medicine, 2017, 6, 285-292.	1.6	20
54	Engineering mechanical gradients in next generation biomaterials â€“ Lessons learned from medical textile design. Acta Biomaterialia, 2017, 56, 14-24.	4.1	19

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55	Development and testing of a new self-locking intramedullary nail system: testing of handling aspects and mechanical properties. Injury, 2000, 31, 617-626.	0.7	18
56	Emergence of form from functionâ€"Mechanical engineering approaches to probe the role of stem cell mechanoadaptation in sealing cell fate. Bioarchitecture, 2016, 6, 85-103.	1.5	16
57	Scale-up of natureâ€™s tissue weaving algorithms to engineer advanced functional materials. Scientific Reports, 2017, 7, 40396.	1.6	15
58	Periosteum mechanobiology and mechanistic insights for regenerative medicine. BoneKEy Reports, 2016, 5, 857.	2.7	15
59	Creating High-Resolution Multiscale Maps of Human Tissue Using Multi-beam SEM. PLoS Computational Biology, 2016, 12, e1005217.	1.5	14
60	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. MCB Molecular and Cellular Biomechanics, 2011, 8, 275-96.	0.3	14
61	A novel ex vivo model for investigation of fluid displacements in bone after endoprosthesis implantation. Journal of Materials Science: Materials in Medicine, 1999, 10, 801-806.	1.7	13
62	Major and minor centroidal axes serve as objective, automatable reference points to test mechanobiological hypotheses using histomorphometry. Journal of Biomechanics, 2011, 44, 1205-1208.	0.9	13
63	Role of mechanical loading in healing of massive bone autografts. Journal of Orthopaedic Research, 2010, 28, 1657-1664.	1.2	12
64	Organâ€toâ€Cellâ€Scale Health Assessment Using Geographical Information System Approaches with Multibeam Scanning Electron Microscopy. Advanced Healthcare Materials, 2016, 5, 1581-1587.	3.9	12
65	The Only Constant Is Change: Next Generation Materials and Medical Device Design for Physical and Mental Health. Advanced Healthcare Materials, 2016, 5, 1840-1843.	3.9	10
66	Biotechnologies toward Mitigating, Curing, and Ultimately Preventing Edema through Compression Therapy. Trends in Biotechnology, 2018, 36, 537-548.	4.9	10
67	Multiscale Computational Engineering of Bones: State-of-the-Art Insights for the Future. , 2007, , 141-160.		10
68	Multiscale computational and experimental approaches to elucidate bone and ligament mechanobiology using the ulna-radius-interosseous membrane construct as a model system. Technology and Health Care, 2012, 20, 363-378.	0.5	9
69	The Linea Aspera: A Virtual Case Study Testing Emergence of Form and Function. Anatomical Record, 2014, 297, 273-280.	0.8	8
70	Prospective Design, Rapid Prototyping, and Testing of Smart Dressings, Drug Delivery Patches, and Replacement Body Parts Using Microscopy Aided Design and ManufacturE (MADAME). Frontiers in Medicine, 2018, 5, 348.	1.2	8
71	Knee Joint Tissues Effectively Separate Mixed Sized Molecules Delivered in a Single Bolus to the Heart. Scientific Reports, 2018, 8, 10254.	1.6	8
72	Smart body armor inspired by flow in bone. Smart Structures and Systems, 2011, 7, 223-228.	1.9	8

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73	Experimental Elucidation of Mechanical Load-Induced Fluid Flow and Its Potential Role in Bone Metabolism and Functional Adaptation. American Journal of the Medical Sciences, 1998, 316, 189-195.	0.4	7
74	Lithotripsy stimulates new bone formation and mitigates loss of bone due to disuse in aged rats. Technology and Health Care, 2013, 21, 587-597.	0.5	6
75	Mechanomics Approaches to Understand Cell Behavior in Context of Tissue Neogenesis, During Prenatal Development and Postnatal Healing. Frontiers in Cell and Developmental Biology, 2019, 7, 354.	1.8	6
76	Cell and Tissue Engineeringâ€"Taking Cues from Nature's Engineering Paradigm for Developing, Growing, and Repairing Tissues. Tissue Engineering - Part A, 2008, 14, 1459-1460.	1.6	5
77	Biotextilogy - Prototyping and testing mechanical gradient textiles that emulate Natureâ€™s own. Results in Materials, 2019, 2, 100018.	0.9	4
78	In vitro biocompatibility and biomechanics study of novel, Microscopy Aided Designed and ManufacturEd (MADAME) materials emulating natural tissue weaves and their intrinsic gradients. Journal of the Mechanical Behavior of Biomedical Materials, 2020, 103, 103536.	1.5	4
79	Measurement of bone surface strains on the sheep metacarpus in vivo and ex vivo. Veterinary and Comparative Orthopaedics and Traumatology, 2003, 16, 38-43.	0.2	3
80	Preface: Special Issue on Bone Fluid Flow: Organ to Cell, Lab Bench to Bedside, On Earth and In Space. Annals of Biomedical Engineering, 2005, 33, 1-2.	1.3	3
81	Computational Modeling of Tissue Engineering Scaffolds as Delivery Devices for Mechanical and Mechanically Modulated Signals. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2012, , 127-143.	0.7	3
82	Comprehensive pressure profiling to develop next-generation compression treatment for lymphedema: Testing efficacy of high resolution sensors. Sensors and Actuators A: Physical, 2019, 289, 100-107.	2.0	3
83	Osteoarthritis: New Strategies for Transport and Drug Delivery Across Length Scales. ACS Biomaterials Science and Engineering, 2020, 6, 6009-6020.	2.6	3
84	Advanced Design and Manufacture of Mechanoactive Materials Inspired by Skin, Bones, and Skin-on-Bones. Frontiers in Bioengineering and Biotechnology, 2020, 8, 845.	2.0	3
85	Connectomics of Bone to Brainâ€"Probing Physical Renderings of Cellular Experience. Frontiers in Physiology, 2021, 12, 647603.	1.3	3
86	Electron Microscopy Sample Preparation Protocol Enabling Nano-to-mesoscopic Mapping of Cellular Connectomes and Their Habitats in Human Tissues and Organs. Bio-protocol, 2019, 9, e3298.	0.2	3
87	Molecular Dynamics Computations of Flow in Constricted and Wavy Nano Channels. , 2009, , .		2
88	Computational Modeling of Extravascular Flow in Bone. , 2010, , 307-328.		2
89	Mapping the Mechanomeâ€"A Protocol for Simultaneous Live Imaging and Quantitative Analysis of Cell Mechanoadaptation and Ingression. Bio-protocol, 2019, 9, e3439.	0.2	2
90	Modeling the Effects of Interstitial Fluid Flow on a Single Osteocyte and Its Processes. , 2004, , .		2

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91	Anatomic sampling site and perfusate osmolarity effects on periosteum intrinsic permeability. Computer Methods in Biomechanics and Biomedical Engineering, 2013, 16, 323-325.	0.9	1
92	Application of Stochastic Network Models for the Study of Molecular Transport Processes in Bone. , 2004, , .		1
93	Performance Evaluation of Four Cell Flow Chambers: How Well Is Stress Controlled at a Cellular Level?. , 2004, , .		1
94	SHEAR STRESS UPREGULATES CONDENSED MESENCHYME MATRIX ASSEMBLY IN CELL MODELS. Journal of Biomechanics, 2008, 41, S18.	0.9	0
95	Mapping the Mechanome: New Experimental and Computational Approaches to Elucidate Stem Cell Mechanoadaptation and Lineage Commitment. Biophysical Journal, 2016, 110, 24a.	0.2	0
96	Induction of Microdamage Through Application of Acoustic Energy to Cortical Bone. , 2004, , .		0
97	MOLECULAR TRANSPORT IN MUSCULOSKELETAL HEALTH AND DISEASE. , 2016, , 39-50.		0