Benjamin R Freedman

List of Publications by Year
in descending order

110	26,678	36303 51	24982 109
papers	citations	h-index	g-index

111	111	111	29174
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Alginate: Properties and biomedical applications. Progress in Polymer Science, 2012, 37, 106-126.	24.7	5,658
2	Highly stretchable and tough hydrogels. Nature, 2012, 489, 133-136.	27.8	4,089
3	Designing hydrogels for controlled drug delivery. Nature Reviews Materials, 2016, 1, .	48.7	2,817
4	Hydrogels with tunable stress relaxation regulate stem cell fate and activity. Nature Materials, 2016, 15, 326-334.	27.5	1,650
5	Harnessing traction-mediated manipulation of the cell/matrix interface to control stem-cell fate. Nature Materials, 2010, 9, 518-526.	27.5	1,319
6	Effects of extracellular matrix viscoelasticity on cellular behaviour. Nature, 2020, 584, 535-546.	27.8	1,045
7	Extracellular matrix stiffness and composition jointly regulate the induction of malignant phenotypes in mammary epithelium. Nature Materials, 2014, 13, 970-978.	27.5	689
8	Degradation of Partially Oxidized Alginate and Its Potential Application for Tissue Engineering. Biotechnology Progress, 2001, 17, 945-950.	2.6	573
9	Controlling alginate gel degradation utilizing partial oxidation and bimodal molecular weight distribution. Biomaterials, 2005, 26, 2455-2465.	11.4	565
10	The tensile properties of alginate hydrogels. Biomaterials, 2004, 25, 3187-3199.	11.4	469
11	Injectable, spontaneously assembling, inorganic scaffolds modulate immune cells in vivo and increase vaccine efficacy. Nature Biotechnology, 2015, 33, 64-72.	17.5	436
12	Matrix elasticity of void-forming hydrogels controls transplanted-stem-cell-mediated boneÂformation. Nature Materials, 2015, 14, 1269-1277.	27.5	390
13	Infection-mimicking materials to program dendritic cells in situ. Nature Materials, 2009, 8, 151-158.	27.5	386
14	Decorin regulates assembly of collagen fibrils and acquisition of biomechanical properties during tendon development. Journal of Cellular Biochemistry, 2006, 98, 1436-1449.	2.6	361
15	A facile approach to enhance antigen response for personalized cancer vaccination. Nature Materials, 2018, 17, 528-534.	27.5	313
16	Injectable cryogel-based whole-cell cancer vaccines. Nature Communications, 2015, 6, 7556.	12.8	312
17	Performance and biocompatibility of extremely tough alginate/polyacrylamide hydrogels. Biomaterials, 2013, 34, 8042-8048.	11.4	282
18	Injectable, porous, and cell-responsive gelatin cryogels. Biomaterials, 2014, 35, 2477-2487.	11.4	266

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19	Effect of fiber distribution and realignment on the nonlinear and inhomogeneous mechanical properties of human supraspinatus tendon under longitudinal tensile loading. Journal of Orthopaedic Research, 2009, 27, 1596-1602.	2.3	259
20	Versatile click alginate hydrogels crosslinked via tetrazineâ€“norbornene chemistry. Biomaterials, 2015, 50, 30-37.	11.4	238
21	In Situ Regulation of DC Subsets and T Cells Mediates Tumor Regression in Mice. Science Translational Medicine, 2009, 1, 8ra19.	12.4	211
22	Effect of Altered Matrix Proteins on Quasilinear Viscoelastic Properties in Transgenic Mouse Tail Tendons. Annals of Biomedical Engineering, 2003, 31, 599-605.	2.5	176
23	Decorin expression is important for age-related changes in tendon structure and mechanical properties. Matrix Biology, 2013, 32, 3-13.	3.6	169
24	Influence of Decorin and Biglycan on Mechanical Properties of Multiple Tendons in Knockout Mice. Journal of Biomechanical Engineering, 2005, 127, 181-185.	1.3	167
25	Decorin and biglycan are necessary for maintaining collagen fibril structure, fiber realignment, and mechanical properties of mature tendons. Matrix Biology, 2017, 64, 81-93.	3.6	159
26	Viscoelastic surface electrode arrays to interface with viscoelastic tissues. Nature Nanotechnology, 2021, 16, 1019-1029.	31.5	144
27	Biomaterials to Mimic and Heal Connective Tissues. Advanced Materials, 2019, 31, e1806695.	21.0	131
28	Tendon healing in interleukin-4 and interleukin-6 knockout mice. Journal of Biomechanics, 2006, 39, 61-69.	2.1	128
29	The Effect of Postoperative Passive Motion on Rotator Cuff Healing in a Rat Model. Journal of Bone and Joint Surgery - Series A, 2009, 91, 2421-2429.	3.0	103
30	Structureâ€“function relationships of postnatal tendon development: A parallel to healing. Matrix Biology, 2013, 32, 106-116.	3.6	100
31	Degradable and Removable Tough Adhesive Hydrogels. Advanced Materials, 2021, 33, e2008553.	21.0	99
32	Injectable, Tough Alginate Cryogels as Cancer Vaccines. Advanced Healthcare Materials, 2018, 7, e1701469.	7.6	96
33	Injectable, Poreâ€Forming Hydrogels for In Vivo Enrichment of Immature Dendritic Cells. Advanced Healthcare Materials, 2015, 4, 2677-2687.	7.6	92
34	Enhanced tendon healing by a tough hydrogel with an adhesive side and high drug-loading capacity. Nature Biomedical Engineering, 2022, 6, 1167-1179.	22.5	92
35	Advances in Therapeutic Cancer Vaccines. Advances in Immunology, 2016, 130, 191-249.	2.2	88
36	Characterizing local collagen fiber re-alignment and crimp behavior throughout mechanical testing in a mature mouse supraspinatus tendon model. Journal of Biomechanics, 2012, 45, 2061-2065.	2.1	84

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37	Mechanical, Compositional, and Structural Properties of the Post-natal Mouse Achilles Tendon. Annals of Biomedical Engineering, 2011, 39, 1904-1913.	2.5	83
38	Engineering a 3D-Bioprinted Model of Human Heart Valve Disease Using Nanoindentation-Based Biomechanics. Nanomaterials, 2018, 8, 296.	4.1	81
39	Hydrolytically-degradable click-crosslinked alginate hydrogels. Biomaterials, 2018, 181, 189-198.	11.4	79
40	Influence of Decorin on the Mechanical, Compositional, and Structural Properties of the Mouse Patellar Tendon. Journal of Biomechanical Engineering, 2012, 134, 031005.	1.3	77
41	Effect of Age and Proteoglycan Deficiency on Collagen Fiber Re-Alignment and Mechanical Properties in Mouse Supraspinatus Tendon. Journal of Biomechanical Engineering, 2013, 135, 021019.	1.3	73
42	Biomaterials as Local Niches for Immunomodulation. Accounts of Chemical Research, 2020, 53, 1749-1760.	15.6	73
43	The (dys)functional extracellular matrix. Biochimica Et Biophysica Acta - Molecular Cell Research, 2015, 1853, 3153-3164.	4.1	72
44	The Detrimental Effects of Systemic Ibuprofen Delivery on Tendon Healing Are Time-Dependent. Clinical Orthopaedics and Related Research, 2014, 472, 2433-2439.	1.5	70
45	The Tendon Injury Response is Influenced by Decorin and Biglycan. Annals of Biomedical Engineering, 2014, 42, 619-630.	2.5	66
46	Exercise following a short immobilization period is detrimental to tendon properties and joint mechanics in a rat rotator cuff injury model. Journal of Orthopaedic Research, 2010, 28, 841-845.	2.3	65
47	Biomechanical and structural response of healing Achilles tendon to fatigue loading following acute injury. Journal of Biomechanics, 2014, 47, 2028-2034.	2.1	65
48	Biaxial Tensile Testing and Constitutive Modeling of Human Supraspinatus Tendon. Journal of Biomechanical Engineering, 2012, 134, 021004.	1.3	63
49	Effect of Preconditioning and Stress Relaxation on Local Collagen Fiber Re-Alignment: Inhomogeneous Properties of Rat Supraspinatus Tendon. Journal of Biomechanical Engineering, 2012, 134, 031007.	1.3	63
50	Development and evaluation of multiple tendon injury models in the mouse. Journal of Biomechanics, 2012, 45, 1550-1553.	2.1	61
51	Mechanical, compositional, and structural properties of the mouse patellar tendon with changes in biglycan gene expression. Journal of Orthopaedic Research, 2013, 31, 1430-1437.	2.3	61
52	Dynamic Loading and Tendon Healing Affect Multiscale Tendon Properties and ECM Stress Transmission. Scientific Reports, 2018, 8, 10854.	3.3	58
53	Materials based tumor immunotherapy vaccines. Current Opinion in Immunology, 2013, 25, 238-245.	5.5	53
54	Nonsurgical treatment and early return to activity leads to improved Achilles tendon fatigue mechanics and functional outcomes during early healing in an animal model. Journal of Orthopaedic Research, 2016, 34, 2172-2180.	2.3	53

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55	Determining the contribution of glycosaminoglycans to tendon mechanical properties with a modified shear-lag model. Journal of Biomechanics, 2013, 46, 2497-2503.	2.1	52
56	Tough Composite Hydrogels with High Loading and Local Release of Biological Drugs. Advanced Healthcare Materials, 2018, 7, e1701393.	7.6	52
57	After rotator cuff repair, stiffnessâ€"but not the loss in range of motionâ€"increased transiently for immobilized shoulders in a rat model. Journal of Shoulder and Elbow Surgery, 2008, 17, S108-S113.	2.6	51
58	Micromechanical poroelastic finite element and shear-lag models of tendon predict large strain dependent Poissonâ€™s ratios and fluid expulsion under tensile loading. Acta Biomaterialia, 2015, 22, 83-91.	8.3	47
59	Microstructured thin-film electrode technology enables proof of concept of scalable, soft auditory brainstem implants. Science Translational Medicine, 2019, 11, .	12.4	47
60	Analysis of Collagen Organization in Mouse Achilles Tendon Using High-Frequency Ultrasound Imaging. Journal of Biomechanical Engineering, 2014, 136, 021029.	1.3	46
61	Targeted Deletion of Collagen V in Tendons and Ligaments Results in a Classic Ehlers-Danlos Syndrome Joint Phenotype. American Journal of Pathology, 2015, 185, 1436-1447.	3.8	46
62	Transient decreases in forelimb gait and ground reaction forces following rotator cuff injury and repair in a rat model. Journal of Biomechanics, 2010, 43, 778-782.	2.1	43
63	Examining Differences in Local Collagen Fiber Crimp Frequency Throughout Mechanical Testing in a Developmental Mouse Supraspinatus Tendon Model. Journal of Biomechanical Engineering, 2012, 134, 041004.	1.3	42
64	Changing the Mindset in Life Sciences Toward Translation: A Consensus. Science Translational Medicine, 2014, 6, 264cm12.	12.4	42
65	Skeletal muscle regeneration with robotic actuationâ€"mediated clearance of neutrophils. Science Translational Medicine, 2021, 13, eabe8868.	12.4	42
66	Re-evaluating the functional implications of the Q-angle and its relationship to in-vivo patellofemoral kinematics. Clinical Biomechanics, 2014, 29, 1139-1145.	1.2	38
67	The dynamics of collagen uncrimping and lateral contraction in tendon and the effect of ionic concentration. Journal of Biomechanics, 2013, 46, 2242-2249.	2.1	37
68	Tendon mineralization is progressive and associated with deterioration of tendon biomechanical properties, and requires BMP-Smad signaling in the mouse Achilles tendon injury model. Matrix Biology, 2016, 52-54, 315-324.	3.6	36
69	Evaluating changes in tendon crimp with fatigue loading as an ex vivo structural assessment of tendon damage. Journal of Orthopaedic Research, 2015, 33, 904-910.	2.3	35
70	Predicting threeâ€dimensional patellofemoral kinematics from static imagingâ€based alignment measures. Journal of Orthopaedic Research, 2013, 31, 441-447.	2.3	34
71	Regulatory role of collagen V in establishing mechanical properties of tendons and ligaments is tissue dependent. Journal of Orthopaedic Research, 2015, 33, 882-888.	2.3	32
72	Relationship of vaccine efficacy to the kinetics of DC and T-cell responses induced by PLG-based cancer vaccines. Biomatter, 2011, 1, 66-75.	2.6	31

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73	Singleâ€Shot Mesoporous Silica Rods Scaffold for Induction of Humoral Responses Against Small Antigens. Advanced Functional Materials, 2020, 30, 2002448.	14.9	31
74	Rapid Ultratough Topological Tissue Adhesives. Advanced Materials, 2022, 34, .	21.0	31
75	Effects of immobilization angle on tendon healing after achilles rupture in a rat model. Journal of Orthopaedic Research, 2019, 37, 562-573.	2.3	29
76	Tendon healing affects the multiscale mechanical, structural and compositional response of tendon to quasi-static tensile loading. Journal of the Royal Society Interface, 2018, 15, 20170880.	3.4	27
77	Engineering reversible elasticity in ductile and brittle thin films supported by a plastic foil. Extreme Mechanics Letters, 2017, 15, 63-69.	4.1	26
78	Tendon Biomechanics and Crimp Properties Following Fatigue Loading Are Influenced by Tendon Type and Age in Mice. Journal of Orthopaedic Research, 2020, 38, 36-42.	2.3	25
79	Mechanisms of mesenchymal stem cell correction of the impaired biomechanical properties of diabetic skin: The role of miRâ€29a. Wound Repair and Regeneration, 2016, 24, 237-246.	3.0	24
80	Injury response of geriatric mouse patellar tendons. Journal of Orthopaedic Research, 2016, 34, 1256-1263.	2.3	22
81	Mechanical, histological, and functional properties remain inferior in conservatively treated Achilles tendons in rodents: Long term evaluation. Journal of Biomechanics, 2017, 56, 55-60.	2.1	22
82	Temporal Healing of Achilles Tendons After Injury in Rodents Depends on Surgical Treatment and Activity. Journal of the American Academy of Orthopaedic Surgeons, The, 2017, 25, 635-647.	2.5	22
83	Postinjury biomechanics of Achilles tendon vary by sex and hormone status. Journal of Applied Physiology, 2016, 121, 1106-1114.	2.5	21
84	Materials for Implantable Surface Electrode Arrays: Current Status and Future Directions. Advanced Materials, 2022, 34, e2107207.	21.0	21
85	Ultrasoundâ€Guided Dry Needling of the Healthy Rat Supraspinatus Tendon Elicits Early Healing Without Causing Permanent Damage. Journal of Orthopaedic Research, 2019, 37, 2035-2042.	2.3	20
86	Modulating Glucose Metabolism and Lactate Synthesis in Injured Mouse Tendons: Treatment With Dichloroacetate, a Lactate Synthesis Inhibitor, Improves Tendon Healing. American Journal of Sports Medicine, 2018, 46, 2222-2231.	4.2	19
87	In situ fibril stretch and sliding is location-dependent in mouse supraspinatus tendons. Journal of Biomechanics, 2014, 47, 3794-3798.	2.1	17
88	Aging and matrix viscoelasticity affect multiscale tendon properties and tendon derived cell behavior. Acta Biomaterialia, 2022, 143, 63-71.	8.3	16
89	Genetic Response of Rat Supraspinatus Tendon and Muscle to Exercise. PLoS ONE, 2015, 10, e0139880.	2.5	13
90	MRI-based analysis of patellofemoral cartilage contact, thickness, and alignment in extension, and during moderate and deep flexion. Knee, 2015, 22, 405-410.	1.6	13

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91	Cryogel vaccines effectively induce immune responses independent of proximity to the draining lymph nodes. Biomaterials, 2022, 281, 121329.	11.4	13
92	Nearâ€Infrared Fluorescence Hydrogen Peroxide Assay for Versatile Metabolite Biosensing in Whole Blood. Small, 2020, 16, e2000369.	10.0	12
93	Tendinopathy and tendon material response to load: What we can learn from small animal studies. Acta Biomaterialia, 2021, 134, 43-56.	8.3	12
94	A novel two-component, expandable bioadhesive for exposed defect coverage: Applicability to prenatal procedures. Journal of Pediatric Surgery, 2021, 56, 165-169.	1.6	11
95	A Modular Biomaterial Scaffoldâ€Based Vaccine Elicits Durable Adaptive Immunity to Subunit SARSâ€CoVâ€2 Antigens. Advanced Healthcare Materials, 2021, 10, e2101370.	7.6	10
96	Increasing Vascular Response to Injury Improves Tendon Early Healing Outcome in Aged Rats. Annals of Biomedical Engineering, 2022, 50, 587-600.	2.5	10
97	Induced Knockdown of Decorin, Alone and in Tandem With Biglycan Knockdown, Directly Increases Aged Murine Patellar Tendon Viscoelastic Properties. Journal of Biomechanical Engineering, 2020, 142, .	1.3	9
98	Scaffold Vaccines for Generating Robust and Tunable Antibody Responses. Advanced Functional Materials, 2022, 32, .	14.9	9
99	Recent and Future Strategies of Mechanotherapy for Tissue Regenerative Rehabilitation. ACS Biomaterials Science and Engineering, 2022, 8, 4639-4642.	5.2	9
100	Ultrasound Evaluation of Anti-Vascular Endothelial Growth Factorâ€“Induced Changes in Vascular Response Following Tendon Injury. Ultrasound in Medicine and Biology, 2019, 45, 1841-1849.	1.5	8
101	Localized delivery of ibuprofen via a bilayer delivery system (BiLDS) for supraspinatus tendon healing in a rat model. Journal of Orthopaedic Research, 2020, 38, 2339-2349.	2.3	8
102	Mechanical properties of the different rotator cuff tendons in the rat are similarly and adversely affected by age. Journal of Biomechanics, 2021, 117, 110249.	2.1	8
103	Modulation of vascular response after injury in the rat Achilles tendon alters healing capacity. Journal of Orthopaedic Research, 2021, 39, 2000-2016.	2.3	7
104	Biglycan has a major role in maintenance of mature tendon mechanics. Journal of Orthopaedic Research, 2022, 40, 2546-2556.	2.3	6
105	Development of a liposomal near-infrared fluorescence lactate assay for human blood. Biomaterials, 2022, 283, 121475.	11.4	6
106	Achilles Tendon Ruptures in Middle-Aged Rats Heal Poorly Compared With Those in Young and Old Rats. American Journal of Sports Medicine, 2022, 50, 170-181.	4.2	5
107	Nonsurgical treatment reduces tendon inflammation and elevates tendon markers in early healing. Journal of Orthopaedic Research, 2022, 40, 2308-2319.	2.3	5
108	Generation of the Compression-induced Dedifferentiated Adipocytes (CiDAs) Using Hypertonic Medium. Bio-protocol, 2021, 11, e3920.	0.4	3

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109	Immuneâ€responsive biodegradable scaffolds for enhancing neutrophil regeneration. Bioengineering and Translational Medicine, 2023, 8, .	7.1	2
110	Inhibition of glucose use improves structural recovery of injured Achilles tendon in mice. Journal of Orthopaedic Research, 2022, 40, 1409-1419.	2.3	1