

# Benjamin R Freedman

## List of Publications by Year in descending order

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110  
papers

26,678  
citations

36203

51  
h-index

24915

109  
g-index

111  
all docs

111  
docs citations

111  
times ranked

29174  
citing authors

#	ARTICLE	IF	CITATIONS
1	Alginate: Properties and biomedical applications. <i>Progress in Polymer Science</i> , 2012, 37, 106-126.	11.8	5,658
2	Highly stretchable and tough hydrogels. <i>Nature</i> , 2012, 489, 133-136.	13.7	4,089
3	Designing hydrogels for controlled drug delivery. <i>Nature Reviews Materials</i> , 2016, 1, .	23.3	2,817
4	Hydrogels with tunable stress relaxation regulate stem cell fate and activity. <i>Nature Materials</i> , 2016, 15, 326-334.	13.3	1,650
5	Harnessing traction-mediated manipulation of the cell/matrix interface to control stem-cell fate. <i>Nature Materials</i> , 2010, 9, 518-526.	13.3	1,319
6	Effects of extracellular matrix viscoelasticity on cellular behaviour. <i>Nature</i> , 2020, 584, 535-546.	13.7	1,045
7	Extracellular matrix stiffness and composition jointly regulate the induction of malignant phenotypes in mammary epithelium. <i>Nature Materials</i> , 2014, 13, 970-978.	13.3	689
8	Degradation of Partially Oxidized Alginate and Its Potential Application for Tissue Engineering. <i>Biotechnology Progress</i> , 2001, 17, 945-950.	1.3	573
9	Controlling alginate gel degradation utilizing partial oxidation and bimodal molecular weight distribution. <i>Biomaterials</i> , 2005, 26, 2455-2465.	5.7	565
10	The tensile properties of alginate hydrogels. <i>Biomaterials</i> , 2004, 25, 3187-3199.	5.7	469
11	Injectable, spontaneously assembling, inorganic scaffolds modulate immune cells in vivo and increase vaccine efficacy. <i>Nature Biotechnology</i> , 2015, 33, 64-72.	9.4	436
12	Matrix elasticity of void-forming hydrogels controls transplanted-stem-cell-mediated bone formation. <i>Nature Materials</i> , 2015, 14, 1269-1277.	13.3	390
13	Infection-mimicking materials to program dendritic cells in situ. <i>Nature Materials</i> , 2009, 8, 151-158.	13.3	386
14	Decorin regulates assembly of collagen fibrils and acquisition of biomechanical properties during tendon development. <i>Journal of Cellular Biochemistry</i> , 2006, 98, 1436-1449.	1.2	361
15	A facile approach to enhance antigen response for personalized cancer vaccination. <i>Nature Materials</i> , 2018, 17, 528-534.	13.3	313
16	Injectable cryogel-based whole-cell cancer vaccines. <i>Nature Communications</i> , 2015, 6, 7556.	5.8	312
17	Performance and biocompatibility of extremely tough alginate/polyacrylamide hydrogels. <i>Biomaterials</i> , 2013, 34, 8042-8048.	5.7	282
18	Injectable, porous, and cell-responsive gelatin cryogels. <i>Biomaterials</i> , 2014, 35, 2477-2487.	5.7	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. <i>Journal of Orthopaedic Research</i> , 2009, 27, 1596-1602.	1.2	259
20	Versatile click alginate hydrogels crosslinked via tetrazine-norbornene chemistry. <i>Biomaterials</i> , 2015, 50, 30-37.	5.7	238
21	In Situ Regulation of DC Subsets and T Cells Mediates Tumor Regression in Mice. <i>Science Translational Medicine</i> , 2009, 1, 8ra19.	5.8	211
22	Effect of Altered Matrix Proteins on Quasilinear Viscoelastic Properties in Transgenic Mouse Tail Tendons. <i>Annals of Biomedical Engineering</i> , 2003, 31, 599-605.	1.3	176
23	Decorin expression is important for age-related changes in tendon structure and mechanical properties. <i>Matrix Biology</i> , 2013, 32, 3-13.	1.5	169
24	Influence of Decorin and Biglycan on Mechanical Properties of Multiple Tendons in Knockout Mice. <i>Journal of Biomechanical Engineering</i> , 2005, 127, 181-185.	0.6	167
25	Decorin and biglycan are necessary for maintaining collagen fibril structure, fiber realignment, and mechanical properties of mature tendons. <i>Matrix Biology</i> , 2017, 64, 81-93.	1.5	159
26	Viscoelastic surface electrode arrays to interface with viscoelastic tissues. <i>Nature Nanotechnology</i> , 2021, 16, 1019-1029.	15.6	144
27	Biomaterials to Mimic and Heal Connective Tissues. <i>Advanced Materials</i> , 2019, 31, e1806695.	11.1	131
28	Tendon healing in interleukin-4 and interleukin-6 knockout mice. <i>Journal of Biomechanics</i> , 2006, 39, 61-69.	0.9	128
29	The Effect of Postoperative Passive Motion on Rotator Cuff Healing in a Rat Model. <i>Journal of Bone and Joint Surgery - Series A</i> , 2009, 91, 2421-2429.	1.4	103
30	Structure-function relationships of postnatal tendon development: A parallel to healing. <i>Matrix Biology</i> , 2013, 32, 106-116.	1.5	100
31	Degradable and Removable Tough Adhesive Hydrogels. <i>Advanced Materials</i> , 2021, 33, e2008553.	11.1	99
32	Injectable, Tough Alginate Cryogels as Cancer Vaccines. <i>Advanced Healthcare Materials</i> , 2018, 7, e1701469.	3.9	96
33	Injectable, Pore-Forming Hydrogels for In Vivo Enrichment of Immature Dendritic Cells. <i>Advanced Healthcare Materials</i> , 2015, 4, 2677-2687.	3.9	92
34	Enhanced tendon healing by a tough hydrogel with an adhesive side and high drug-loading capacity. <i>Nature Biomedical Engineering</i> , 2022, 6, 1167-1179.	11.6	92
35	Advances in Therapeutic Cancer Vaccines. <i>Advances in Immunology</i> , 2016, 130, 191-249.	1.1	88
36	Characterizing local collagen fiber re-alignment and crimp behavior throughout mechanical testing in a mature mouse supraspinatus tendon model. <i>Journal of Biomechanics</i> , 2012, 45, 2061-2065.	0.9	84

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37	Mechanical, Compositional, and Structural Properties of the Post-natal Mouse Achilles Tendon. <i>Annals of Biomedical Engineering</i> , 2011, 39, 1904-1913.	1.3	83
38	Engineering a 3D-Bioprinted Model of Human Heart Valve Disease Using Nanoindentation-Based Biomechanics. <i>Nanomaterials</i> , 2018, 8, 296.	1.9	81
39	Hydrolytically-degradable click-crosslinked alginate hydrogels. <i>Biomaterials</i> , 2018, 181, 189-198.	5.7	79
40	Influence of Decorin on the Mechanical, Compositional, and Structural Properties of the Mouse Patellar Tendon. <i>Journal of Biomechanical Engineering</i> , 2012, 134, 031005.	0.6	77
41	Effect of Age and Proteoglycan Deficiency on Collagen Fiber Re-Alignment and Mechanical Properties in Mouse Supraspinatus Tendon. <i>Journal of Biomechanical Engineering</i> , 2013, 135, 021019.	0.6	73
42	Biomaterials as Local Niches for Immunomodulation. <i>Accounts of Chemical Research</i> , 2020, 53, 1749-1760.	7.6	73
43	The (dys)functional extracellular matrix. <i>Biochimica Et Biophysica Acta - Molecular Cell Research</i> , 2015, 1853, 3153-3164.	1.9	72
44	The Detrimental Effects of Systemic Ibuprofen Delivery on Tendon Healing Are Time-Dependent. <i>Clinical Orthopaedics and Related Research</i> , 2014, 472, 2433-2439.	0.7	70
45	The Tendon Injury Response is Influenced by Decorin and Biglycan. <i>Annals of Biomedical Engineering</i> , 2014, 42, 619-630.	1.3	66
46	Exercise following a short immobilization period is detrimental to tendon properties and joint mechanics in a rat rotator cuff injury model. <i>Journal of Orthopaedic Research</i> , 2010, 28, 841-845.	1.2	65
47	Biomechanical and structural response of healing Achilles tendon to fatigue loading following acute injury. <i>Journal of Biomechanics</i> , 2014, 47, 2028-2034.	0.9	65
48	Biaxial Tensile Testing and Constitutive Modeling of Human Supraspinatus Tendon. <i>Journal of Biomechanical Engineering</i> , 2012, 134, 021004.	0.6	63
49	Effect of Preconditioning and Stress Relaxation on Local Collagen Fiber Re-Alignment: Inhomogeneous Properties of Rat Supraspinatus Tendon. <i>Journal of Biomechanical Engineering</i> , 2012, 134, 031007.	0.6	63
50	Development and evaluation of multiple tendon injury models in the mouse. <i>Journal of Biomechanics</i> , 2012, 45, 1550-1553.	0.9	61
51	Mechanical, compositional, and structural properties of the mouse patellar tendon with changes in biglycan gene expression. <i>Journal of Orthopaedic Research</i> , 2013, 31, 1430-1437.	1.2	61
52	Dynamic Loading and Tendon Healing Affect Multiscale Tendon Properties and ECM Stress Transmission. <i>Scientific Reports</i> , 2018, 8, 10854.	1.6	58
53	Materials based tumor immunotherapy vaccines. <i>Current Opinion in Immunology</i> , 2013, 25, 238-245.	2.4	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. <i>Journal of Orthopaedic Research</i> , 2016, 34, 2172-2180.	1.2	53

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55	Determining the contribution of glycosaminoglycans to tendon mechanical properties with a modified shear-lag model. <i>Journal of Biomechanics</i> , 2013, 46, 2497-2503.	0.9	52
56	Tough Composite Hydrogels with High Loading and Local Release of Biological Drugs. <i>Advanced Healthcare Materials</i> , 2018, 7, e1701393.	3.9	52
57	After rotator cuff repair, stiffness but not the loss in range of motion increased transiently for immobilized shoulders in a rat model. <i>Journal of Shoulder and Elbow Surgery</i> , 2008, 17, S108-S113.	1.2	51
58	Micromechanical poroelastic finite element and shear-lag models of tendon predict large strain dependent Poisson's ratios and fluid expulsion under tensile loading. <i>Acta Biomaterialia</i> , 2015, 22, 83-91.	4.1	47
59	Microstructured thin-film electrode technology enables proof of concept of scalable, soft auditory brainstem implants. <i>Science Translational Medicine</i> , 2019, 11, .	5.8	47
60	Analysis of Collagen Organization in Mouse Achilles Tendon Using High-Frequency Ultrasound Imaging. <i>Journal of Biomechanical Engineering</i> , 2014, 136, 021029.	0.6	46
61	Targeted Deletion of Collagen V in Tendons and Ligaments Results in a Classic Ehlers-Danlos Syndrome Joint Phenotype. <i>American Journal of Pathology</i> , 2015, 185, 1436-1447.	1.9	46
62	Transient decreases in forelimb gait and ground reaction forces following rotator cuff injury and repair in a rat model. <i>Journal of Biomechanics</i> , 2010, 43, 778-782.	0.9	43
63	Examining Differences in Local Collagen Fiber Crimp Frequency Throughout Mechanical Testing in a Developmental Mouse Supraspinatus Tendon Model. <i>Journal of Biomechanical Engineering</i> , 2012, 134, 041004.	0.6	42
64	Changing the Mindset in Life Sciences Toward Translation: A Consensus. <i>Science Translational Medicine</i> , 2014, 6, 264cm12.	5.8	42
65	Skeletal muscle regeneration with robotic actuation-mediated clearance of neutrophils. <i>Science Translational Medicine</i> , 2021, 13, eabe8868.	5.8	42
66	Re-evaluating the functional implications of the Q-angle and its relationship to in-vivo patellofemoral kinematics. <i>Clinical Biomechanics</i> , 2014, 29, 1139-1145.	0.5	38
67	The dynamics of collagen uncrimping and lateral contraction in tendon and the effect of ionic concentration. <i>Journal of Biomechanics</i> , 2013, 46, 2242-2249.	0.9	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. <i>Matrix Biology</i> , 2016, 52-54, 315-324.	1.5	36
69	Evaluating changes in tendon crimp with fatigue loading as an ex vivo structural assessment of tendon damage. <i>Journal of Orthopaedic Research</i> , 2015, 33, 904-910.	1.2	35
70	Predicting three-dimensional patellofemoral kinematics from static imaging-based alignment measures. <i>Journal of Orthopaedic Research</i> , 2013, 31, 441-447.	1.2	34
71	Regulatory role of collagen V in establishing mechanical properties of tendons and ligaments is tissue dependent. <i>Journal of Orthopaedic Research</i> , 2015, 33, 882-888.	1.2	32
72	Relationship of vaccine efficacy to the kinetics of DC and T-cell responses induced by PLG-based cancer vaccines. <i>Biomatter</i> , 2011, 1, 66-75.	2.6	31

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73	Single-Shot Mesoporous Silica Rods Scaffold for Induction of Humoral Responses Against Small Antigens. <i>Advanced Functional Materials</i> , 2020, 30, 2002448.	7.8	31
74	Rapid Ultratough Topological Tissue Adhesives. <i>Advanced Materials</i> , 2022, 34, .	11.1	31
75	Effects of immobilization angle on tendon healing after achilles rupture in a rat model. <i>Journal of Orthopaedic Research</i> , 2019, 37, 562-573.	1.2	29
76	Tendon healing affects the multiscale mechanical, structural and compositional response of tendon to quasi-static tensile loading. <i>Journal of the Royal Society Interface</i> , 2018, 15, 20170880.	1.5	27
77	Engineering reversible elasticity in ductile and brittle thin films supported by a plastic foil. <i>Extreme Mechanics Letters</i> , 2017, 15, 63-69.	2.0	26
78	Tendon Biomechanics and Crimp Properties Following Fatigue Loading Are Influenced by Tendon Type and Age in Mice. <i>Journal of Orthopaedic Research</i> , 2020, 38, 36-42.	1.2	25
79	Mechanisms of mesenchymal stem cell correction of the impaired biomechanical properties of diabetic skin: The role of miR-29a. <i>Wound Repair and Regeneration</i> , 2016, 24, 237-246.	1.5	24
80	Injury response of geriatric mouse patellar tendons. <i>Journal of Orthopaedic Research</i> , 2016, 34, 1256-1263.	1.2	22
81	Mechanical, histological, and functional properties remain inferior in conservatively treated Achilles tendons in rodents: Long term evaluation. <i>Journal of Biomechanics</i> , 2017, 56, 55-60.	0.9	22
82	Temporal Healing of Achilles Tendons After Injury in Rodents Depends on Surgical Treatment and Activity. <i>Journal of the American Academy of Orthopaedic Surgeons</i> , The, 2017, 25, 635-647.	1.1	22
83	Postinjury biomechanics of Achilles tendon vary by sex and hormone status. <i>Journal of Applied Physiology</i> , 2016, 121, 1106-1114.	1.2	21
84	Materials for Implantable Surface Electrode Arrays: Current Status and Future Directions. <i>Advanced Materials</i> , 2022, 34, e2107207.	11.1	21
85	Ultrasound-Guided Dry Needling of the Healthy Rat Supraspinatus Tendon Elicits Early Healing Without Causing Permanent Damage. <i>Journal of Orthopaedic Research</i> , 2019, 37, 2035-2042.	1.2	20
86	Modulating Glucose Metabolism and Lactate Synthesis in Injured Mouse Tendons: Treatment With Dichloroacetate, a Lactate Synthesis Inhibitor, Improves Tendon Healing. <i>American Journal of Sports Medicine</i> , 2018, 46, 2222-2231.	1.9	19
87	In situ fibril stretch and sliding is location-dependent in mouse supraspinatus tendons. <i>Journal of Biomechanics</i> , 2014, 47, 3794-3798.	0.9	17
88	Aging and matrix viscoelasticity affect multiscale tendon properties and tendon derived cell behavior. <i>Acta Biomaterialia</i> , 2022, 143, 63-71.	4.1	16
89	Genetic Response of Rat Supraspinatus Tendon and Muscle to Exercise. <i>PLoS ONE</i> , 2015, 10, e0139880.	1.1	13
90	MRI-based analysis of patellofemoral cartilage contact, thickness, and alignment in extension, and during moderate and deep flexion. <i>Knee</i> , 2015, 22, 405-410.	0.8	13

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91	Cryogel vaccines effectively induce immune responses independent of proximity to the draining lymph nodes. <i>Biomaterials</i> , 2022, 281, 121329.	5.7	13
92	Near-Infrared Fluorescence Hydrogen Peroxide Assay for Versatile Metabolite Biosensing in Whole Blood. <i>Small</i> , 2020, 16, e2000369.	5.2	12
93	Tendinopathy and tendon material response to load: What we can learn from small animal studies. <i>Acta Biomaterialia</i> , 2021, 134, 43-56.	4.1	12
94	A novel two-component, expandable bioadhesive for exposed defect coverage: Applicability to prenatal procedures. <i>Journal of Pediatric Surgery</i> , 2021, 56, 165-169.	0.8	11
95	A Modular Biomaterial Scaffold-Based Vaccine Elicits Durable Adaptive Immunity to Subunit SARS-CoV-2 Antigens. <i>Advanced Healthcare Materials</i> , 2021, 10, e2101370.	3.9	10
96	Increasing Vascular Response to Injury Improves Tendon Early Healing Outcome in Aged Rats. <i>Annals of Biomedical Engineering</i> , 2022, 50, 587-600.	1.3	10
97	Induced Knockdown of Decorin, Alone and in Tandem With Biglycan Knockdown, Directly Increases Aged Murine Patellar Tendon Viscoelastic Properties. <i>Journal of Biomechanical Engineering</i> , 2020, 142, .	0.6	9
98	Scaffold Vaccines for Generating Robust and Tunable Antibody Responses. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	9
99	Recent and Future Strategies of Mechanotherapy for Tissue Regenerative Rehabilitation. <i>ACS Biomaterials Science and Engineering</i> , 2022, 8, 4639-4642.	2.6	9
100	Ultrasound Evaluation of Anti-Vascular Endothelial Growth Factor-Induced Changes in Vascular Response Following Tendon Injury. <i>Ultrasound in Medicine and Biology</i> , 2019, 45, 1841-1849.	0.7	8
101	Localized delivery of ibuprofen via a bilayer delivery system (BiLDS) for supraspinatus tendon healing in a rat model. <i>Journal of Orthopaedic Research</i> , 2020, 38, 2339-2349.	1.2	8
102	Mechanical properties of the different rotator cuff tendons in the rat are similarly and adversely affected by age. <i>Journal of Biomechanics</i> , 2021, 117, 110249.	0.9	8
103	Modulation of vascular response after injury in the rat Achilles tendon alters healing capacity. <i>Journal of Orthopaedic Research</i> , 2021, 39, 2000-2016.	1.2	7
104	Biglycan has a major role in maintenance of mature tendon mechanics. <i>Journal of Orthopaedic Research</i> , 2022, 40, 2546-2556.	1.2	6
105	Development of a liposomal near-infrared fluorescence lactate assay for human blood. <i>Biomaterials</i> , 2022, 283, 121475.	5.7	6
106	Achilles Tendon Ruptures in Middle-Aged Rats Heal Poorly Compared With Those in Young and Old Rats. <i>American Journal of Sports Medicine</i> , 2022, 50, 170-181.	1.9	5
107	Nonsurgical treatment reduces tendon inflammation and elevates tendon markers in early healing. <i>Journal of Orthopaedic Research</i> , 2022, 40, 2308-2319.	1.2	5
108	Generation of the Compression-induced Dedifferentiated Adipocytes (CiDAs) Using Hypertonic Medium. <i>Bio-protocol</i> , 2021, 11, e3920.	0.2	3

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109	Immune-responsive biodegradable scaffolds for enhancing neutrophil regeneration. <i>Bioengineering and Translational Medicine</i> , 2023, 8, .	3.9	2
110	Inhibition of glucose use improves structural recovery of injured Achilles tendon in mice. <i>Journal of Orthopaedic Research</i> , 2022, 40, 1409-1419.	1.2	1