

Benjamin R Freedman

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102 papers	19,153 citations	45 h-index	111 g-index
111 ext. papers	22,866 ext. citations	10.7 avg, IF	7.38 L-index

#	Paper	IF	Citations
102	Alginate: properties and biomedical applications. <i>Progress in Polymer Science</i> , 2012 , 37, 106-126	29.6	4151
101	Highly stretchable and tough hydrogels. <i>Nature</i> , 2012 , 489, 133-6	50.4	3109
100	Designing hydrogels for controlled drug delivery. <i>Nature Reviews Materials</i> , 2016 , 1,	73.3	1741
99	Hydrogels with tunable stress relaxation regulate stem cell fate and activity. <i>Nature Materials</i> , 2016 , 15, 326-34	27	1153
98	Harnessing traction-mediated manipulation of the cell/matrix interface to control stem-cell fate. <i>Nature Materials</i> , 2010 , 9, 518-26	27	1126
97	Extracellular matrix stiffness and composition jointly regulate the induction of malignant phenotypes in mammary epithelium. <i>Nature Materials</i> , 2014 , 13, 970-8	27	515
96	Controlling alginate gel degradation utilizing partial oxidation and bimodal molecular weight distribution. <i>Biomaterials</i> , 2005 , 26, 2455-65	15.6	488
95	Degradation of partially oxidized alginate and its potential application for tissue engineering. <i>Biotechnology Progress</i> , 2001 , 17, 945-50	2.8	478
94	The tensile properties of alginate hydrogels. <i>Biomaterials</i> , 2004 , 25, 3187-99	15.6	398
93	Effects of extracellular matrix viscoelasticity on cellular behaviour. <i>Nature</i> , 2020 , 584, 535-546	50.4	362
92	Injectable, spontaneously assembling, inorganic scaffolds modulate immune cells in vivo and increase vaccine efficacy. <i>Nature Biotechnology</i> , 2015 , 33, 64-72	44.5	340
91	Infection-mimicking materials to program dendritic cells in situ. <i>Nature Materials</i> , 2009 , 8, 151-8	27	327
90	Decorin regulates assembly of collagen fibrils and acquisition of biomechanical properties during tendon development. <i>Journal of Cellular Biochemistry</i> , 2006 , 98, 1436-49	4.7	315
89	Matrix elasticity of void-forming hydrogels controls transplanted-stem-cell-mediated bone formation. <i>Nature Materials</i> , 2015 , 14, 1269-77	27	302
88	Injectable cryogel-based whole-cell cancer vaccines. <i>Nature Communications</i> , 2015 , 6, 7556	17.4	237
87	A facile approach to enhance antigen response for personalized cancer vaccination. <i>Nature Materials</i> , 2018 , 17, 528-534	27	215
86	Performance and biocompatibility of extremely tough alginate/polyacrylamide hydrogels. <i>Biomaterials</i> , 2013 , 34, 8042-8	15.6	213

85	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, 1596-602	3.8	208
84	Injectable, porous, and cell-responsive gelatin cryogels. <i>Biomaterials</i> , 2014 , 35, 2477-87	15.6	205
83	Versatile click alginate hydrogels crosslinked via tetrazine-norbornene chemistry. <i>Biomaterials</i> , 2015 , 50, 30-7	15.6	185
82	In situ regulation of DC subsets and T cells mediates tumor regression in mice. <i>Science Translational Medicine</i> , 2009 , 1, 8ra19	17.5	184
81	Effect of altered matrix proteins on quasilinear viscoelastic properties in transgenic mouse tail tendons. <i>Annals of Biomedical Engineering</i> , 2003 , 31, 599-605	4.7	154
80	Influence of decorin and biglycan on mechanical properties of multiple tendons in knockout mice. <i>Journal of Biomechanical Engineering</i> , 2005 , 127, 181-5	2.1	144
79	Decorin expression is important for age-related changes in tendon structure and mechanical properties. <i>Matrix Biology</i> , 2013 , 32, 3-13	11.4	133
78	Tendon healing in interleukin-4 and interleukin-6 knockout mice. <i>Journal of Biomechanics</i> , 2006 , 39, 61-92.9	11.0	110
77	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	11.4	97
76	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, 2421-9	5.6	85
75	Biomaterials to Mimic and Heal Connective Tissues. <i>Advanced Materials</i> , 2019 , 31, e1806695	24	79
74	Structure-function relationships of postnatal tendon development: a parallel to healing. <i>Matrix Biology</i> , 2013 , 32, 106-16	11.4	76
73	Advances in Therapeutic Cancer Vaccines. <i>Advances in Immunology</i> , 2016 , 130, 191-249	5.6	71
72	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, 2061-5	2.9	65
71	Injectable, Tough Alginate Cryogels as Cancer Vaccines. <i>Advanced Healthcare Materials</i> , 2018 , 7, e1701469	10.1	63
70	Injectable, Pore-Forming Hydrogels for In Vivo Enrichment of Immature Dendritic Cells. <i>Advanced Healthcare Materials</i> , 2015 , 4, 2677-87	10.1	61
69	Mechanical, compositional, and structural properties of the post-natal mouse Achilles tendon. <i>Annals of Biomedical Engineering</i> , 2011 , 39, 1904-13	4.7	61
68	Influence of decorin on the mechanical, compositional, and structural properties of the mouse patellar tendon. <i>Journal of Biomechanical Engineering</i> , 2012 , 134, 031005	2.1	61

67	Engineering a 3D-Bioprinted Model of Human Heart Valve Disease Using Nanoindentation-Based Biomechanics. <i>Nanomaterials</i> , 2018 , 8,	5.4	59
66	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, 841-5	3.8	59
65	The detrimental effects of systemic Ibuprofen delivery on tendon healing are time-dependent. <i>Clinical Orthopaedics and Related Research</i> , 2014 , 472, 2433-9	2.2	58
64	The (dys)functional extracellular matrix. <i>Biochimica Et Biophysica Acta - Molecular Cell Research</i> , 2015 , 1853, 3153-64	4.9	57
63	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	2.1	55
62	Biomechanical and structural response of healing Achilles tendon to fatigue loading following acute injury. <i>Journal of Biomechanics</i> , 2014 , 47, 2028-34	2.9	54
61	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	2.1	54
60	The tendon injury response is influenced by decorin and biglycan. <i>Annals of Biomedical Engineering</i> , 2014 , 42, 619-30	4.7	50
59	Materials based tumor immunotherapy vaccines. <i>Current Opinion in Immunology</i> , 2013 , 25, 238-45	7.8	49
58	Biaxial tensile testing and constitutive modeling of human supraspinatus tendon. <i>Journal of Biomechanical Engineering</i> , 2012 , 134, 021004	2.1	48
57	Determining the contribution of glycosaminoglycans to tendon mechanical properties with a modified shear-lag model. <i>Journal of Biomechanics</i> , 2013 , 46, 2497-503	2.9	44
56	Hydrolytically-degradable click-crosslinked alginate hydrogels. <i>Biomaterials</i> , 2018 , 181, 189-198	15.6	43
55	Development and evaluation of multiple tendon injury models in the mouse. <i>Journal of Biomechanics</i> , 2012 , 45, 1550-3	2.9	43
54	Mechanical, compositional, and structural properties of the mouse patellar tendon with changes in biglycan gene expression. <i>Journal of Orthopaedic Research</i> , 2013 , 31, 1430-7	3.8	43
53	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, 108S-113S	4.3	43
52	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	3.8	40
51	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	10.8	39
50	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, 778-82	2.9	39

49	Tough Composite Hydrogels with High Loading and Local Release of Biological Drugs. <i>Advanced Healthcare Materials</i> , 2018 , 7, e1701393	10.1	37
48	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	2.1	35
47	Analysis of collagen organization in mouse achilles tendon using high-frequency ultrasound imaging. <i>Journal of Biomechanical Engineering</i> , 2014 , 136, 021029	2.1	34
46	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, 1436-47	5.8	32
45	Dynamic Loading and Tendon Healing Affect Multiscale Tendon Properties and ECM Stress Transmission. <i>Scientific Reports</i> , 2018 , 8, 10854	4.9	32
44	Microstructured thin-film electrode technology enables proof of concept of scalable, soft auditory brainstem implants. <i>Science Translational Medicine</i> , 2019 , 11,	17.5	31
43	Changing the mindset in life sciences toward translation: a consensus. <i>Science Translational Medicine</i> , 2014 , 6, 264cm12	17.5	31
42	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, 904-10	3.8	29
41	Predicting three-dimensional patellofemoral kinematics from static imaging-based alignment measures. <i>Journal of Orthopaedic Research</i> , 2013 , 31, 441-7	3.8	29
40	The dynamics of collagen uncrimping and lateral contraction in tendon and the effect of ionic concentration. <i>Journal of Biomechanics</i> , 2013 , 46, 2242-9	2.9	29
39	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		28
38	Viscoelastic surface electrode arrays to interface with viscoelastic tissues. <i>Nature Nanotechnology</i> , 2021 , 16, 1019-1029	28.7	27
37	Re-evaluating the functional implications of the Q-angle and its relationship to in-vivo patellofemoral kinematics. <i>Clinical Biomechanics</i> , 2014 , 29, 1139-45	2.2	26
36	Biomaterials as Local Niches for Immunomodulation. <i>Accounts of Chemical Research</i> , 2020 , 53, 1749-1760	4.3	25
35	Regulatory role of collagen V in establishing mechanical properties of tendons and ligaments is tissue dependent. <i>Journal of Orthopaedic Research</i> , 2015 , 33, 882-8	3.8	24
34	Degradable and Removable Tough Adhesive Hydrogels. <i>Advanced Materials</i> , 2021 , 33, e2008553	24	22
33	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	11.4	21
32	Engineering reversible elasticity in ductile and brittle thin films supported by a plastic foil. <i>Extreme Mechanics Letters</i> , 2017 , 15, 63-69	3.9	18

31	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	2.9	17
30	Effects of immobilization angle on tendon healing after achilles rupture in a rat model. <i>Journal of Orthopaedic Research</i> , 2019 , 37, 562-573	3.8	17
29	Single-Shot Mesoporous Silica Rods Scaffold for Induction of Humoral Responses Against Small Antigens. <i>Advanced Functional Materials</i> , 2020 , 30, 2002448	15.6	17
28	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,	4.1	16
27	Postinjury biomechanics of Achilles tendon vary by sex and hormone status. <i>Journal of Applied Physiology</i> , 2016 , 121, 1106-1114	3.7	16
26	In situ fibril stretch and sliding is location-dependent in mouse supraspinatus tendons. <i>Journal of Biomechanics</i> , 2014 , 47, 3794-8	2.9	16
25	Temporal Healing of Achilles Tendons After Injury in Rodents Depends on Surgical Treatment and Activity. <i>Journal of the American Academy of Orthopaedic Surgeons, The</i> , 2017 , 25, 635-647	4.5	15
24	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	3.8	15
23	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, 237-46	3.6	14
22	Injury response of geriatric mouse patellar tendons. <i>Journal of Orthopaedic Research</i> , 2016 , 34, 1256-63	3.8	13
21	Genetic Response of Rat Supraspinatus Tendon and Muscle to Exercise. <i>PLoS ONE</i> , 2015 , 10, e0139880	3.7	11
20	Enhanced tendon healing by a tough hydrogel with an adhesive side and high drug-loading capacity.. <i>Nature Biomedical Engineering</i> , 2022 ,	19	11
19	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	6.8	10
18	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	3.8	8
17	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	2.6	8
16	Skeletal muscle regeneration with robotic actuation-mediated clearance of neutrophils. <i>Science Translational Medicine</i> , 2021 , 13, eabe8868	17.5	7
15	Near-Infrared Fluorescence Hydrogen Peroxide Assay for Versatile Metabolite Biosensing in Whole Blood. <i>Small</i> , 2020 , 16, e2000369	11	6
14	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	3.5	5

13	Materials for implantable surface electrode arrays: current status and future directions. <i>Advanced Materials</i> , 2021 , e2107207	24	4
12	Modulation of vascular response after injury in the rat Achilles tendon alters healing capacity. <i>Journal of Orthopaedic Research</i> , 2021 , 39, 2000-2016	3.8	4
11	A novel two-component, expandable bioadhesive for exposed defect coverage: Applicability to prenatal procedures. <i>Journal of Pediatric Surgery</i> , 2021 , 56, 165-169	2.6	4
10	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	3.8	2
9	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,	2.1	2
8	Cryogel vaccines effectively induce immune responses independent of proximity to the draining lymph nodes.. <i>Biomaterials</i> , 2021 , 281, 121329	15.6	2
7	A Modular Biomaterial Scaffold-Based Vaccine Elicits Durable Adaptive Immunity to Subunit SARS-CoV-2 Antigens. <i>Advanced Healthcare Materials</i> , 2021 , 10, e2101370	10.1	2
6	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	2.9	2
5	Generation of the Compression-induced Dedifferentiated Adipocytes (CiDAs) Using Hypertonic Medium. <i>Bio-protocol</i> , 2021 , 11, e3920	0.9	1
4	Development of a liposomal near-infrared fluorescence lactate assay for human blood.. <i>Biomaterials</i> , 2022 , 283, 121475	15.6	1
3	Scaffold Vaccines for Generating Robust and Tunable Antibody Responses. <i>Advanced Functional Materials</i> , 2110905	15.6	0
2	Achilles Tendon Ruptures in Middle-Aged Rats Heal Poorly Compared With Those in Young and Old Rats [Formula: see text]. <i>American Journal of Sports Medicine</i> , 2021 , 3635465211055476	6.8	0
1	Tendinopathy and tendon material response to load: What we can learn from small animal studies. <i>Acta Biomaterialia</i> , 2021 , 134, 43-56	10.8	0