Alan J Grodzinsky

List of Publications by Year
in descending order

79 papers	7,068 citations	87888 38 h-index	71685 76 g-index
79 all docs	79 docs citations	79 times ranked	6316 citing authors

#	Article	IF	Citations
1	Biosynthetic response of cartilage explants to dynamic compression. Journal of Orthopaedic Research, 1989, 7, 619-636.	2.3	768
2	Cartilage Tissue Remodeling in Response to Mechanical Forces. Annual Review of Biomedical Engineering, 2000, 2, 691-713.	12.3	548
3	Chondrocytes in agarose culture synthesize a mechanically functional extracellular matrix. Journal of Orthopaedic Research, 1992, 10, 745-758.	2.3	473
4	Mechanical and physicochemical determinants of the chondrocyte biosynthetic response. Journal of Orthopaedic Research, 1988, 6, 777-792.	2.3	383
5	Noncontact three-dimensional mapping of intracellular hydromechanical properties by Brillouin microscopy. Nature Methods, 2015, 12, 1132-1134.	19.0	326
6	Comparison of biomechanical and biochemical properties of cartilage from human knee and ankle pairs. Journal of Orthopaedic Research, 2000, 18, 739-748.	2.3	295
7	Solid stress and elastic energy as measures of tumour mechanopathology. Nature Biomedical Engineering, 2017, 1, .	22.5	280
8	Cartilage diseases. Matrix Biology, 2018, 71-72, 51-69.	3.6	258
9	Swelling of articular cartilage and other connective tissues: Electromechanochemical forces. Journal of Orthopaedic Research, 1985, 3, 148-159.	2.3	230
10	Mechanical Compression of Cartilage Explants Induces Multiple Time-dependent Gene Expression Patterns and Involves Intracellular Calcium and Cyclic AMP. Journal of Biological Chemistry, 2004, 279, 19502-19511.	3.4	212
11	The effect of dynamic compression on the response of articular cartilage to insulinâ€like growth factorâ€I. Journal of Orthopaedic Research, 2001, 19, 11-17.	2.3	200
12	Biosynthetic response and mechanical properties of articular cartilage after injurious compression. Journal of Orthopaedic Research, 2001, 19, 1140-1146.	2.3	193
13	Anti-VEGF therapy induces ECM remodeling and mechanical barriers to therapy in colorectal cancer liver metastases. Science Translational Medicine, 2016, 8, 360ra135.	12.4	184
14	Cartilage-penetrating nanocarriers improve delivery and efficacy of growth factor treatment of osteoarthritis. Science Translational Medicine, 2018, 10, .	12.4	183
15	Cartilage-targeting drug delivery: can electrostatic interactions help?. Nature Reviews Rheumatology, 2017, 13, 183-193.	8.0	180
16	Streaming potentials: A sensitive index of enzymatic degradation in articular cartilage. Journal of Orthopaedic Research, 1987, 5, 497-508.	2.3	134
17	Solid stress in brain tumours causes neuronal loss and neurological dysfunction and can be reversed by lithium. Nature Biomedical Engineering, 2019, 3, 230-245.	22.5	127
18	Effects of injurious compression on matrix turnover around individual cells in calf articular cartilage explants. Journal of Orthopaedic Research, 1998, 16, 490-499.	2.3	112

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19	Down-regulation of chondrocyte aggrecan and type-II Collagen gene expression correlates with increases in static compression magnitude and duration. Journal of Orthopaedic Research, 1999, 17, 836-842.	2.3	112
20	Mechanical Injury and Cytokines Cause Loss of Cartilage Integrity and Upregulate Proteins Associated with Catabolism, Immunity, Inflammation, and Repair. Molecular and Cellular Proteomics, 2009, 8, 1475-1489.	3.8	90
21	Effects of short-term glucocorticoid treatment on changes in cartilage matrix degradation and chondrocyte gene expression induced by mechanical injury and inflammatory cytokines. Arthritis Research and Therapy, 2011, 13, R142.	3.5	83
22	Size- and speed-dependent mechanical behavior in living mammalian cytoplasm. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 9529-9534.	7.1	81
23	Differential effects of serum, insulin-like growth factor-I, and fibroblast growth factor-2 on the maintenance of cartilage physical properties during long-term culture. Journal of Orthopaedic Research, 1996, 14, 44-52.	2.3	77
24	Intraâ€articular dexamethasone to inhibit the development of postâ€traumatic osteoarthritis. Journal of Orthopaedic Research, 2017, 35, 406-411.	2.3	65
25	Aggrecan Nanoscale Solidâ€"Fluid Interactions Are a Primary Determinant of Cartilage Dynamic Mechanical Properties. ACS Nano, 2015, 9, 2614-2625.	14.6	61
26	Molecular-Level Theoretical Model for Electrostatic Interactions within Polyelectrolyte Brushes:Â Applications to Charged Glycosaminoglycans. Langmuir, 2003, 19, 5526-5539.	3.5	60
27	Biological connective tissues exhibit viscoelastic and poroelastic behavior at different frequency regimes: Application to tendon and skin biophysics. Acta Biomaterialia, 2018, 70, 249-259.	8.3	60
28	Green fluorescent proteins engineered for cartilage-targeted drug delivery: Insights for transport into highly charged avascular tissues. Biomaterials, 2018, 183, 218-233.	11.4	50
29	Induction of DNA Synthesis by a Single Transient Mechanical Stimulus of Human Vascular Smooth Muscle Cells. Circulation, 1996, 93, 99-105.	1.6	48
30	Cartilage degradation and associated changes in biomechanical and electromechanical properties. Acta Orthopaedica, 1995, 66, 38-44.	1.4	48
31	Physical and Biological Regulation of Proteoglycan Turnover around Chondrocytes in Cartilage Explants: Implications for Tissue Degradation and Repair. Annals of the New York Academy of Sciences, 1999, 878, 420-441.	3.8	47
32	Predicting Knee Osteoarthritis. Annals of Biomedical Engineering, 2016, 44, 222-233.	2.5	47
33	Tendon exhibits complex poroelastic behavior at the nanoscale as revealed by high-frequency AFM-based rheology. Journal of Biomechanics, 2017, 54, 11-18.	2.1	46
34	A novel mechanobiological model can predict how physiologically relevant dynamic loading causes proteoglycan loss in mechanically injured articular cartilage. Scientific Reports, 2018, 8, 15599.	3.3	46
35	A comparative study of the inhibitory effects of interleukin-1 receptor antagonist following administration as a recombinant protein or by gene transfer. Arthritis Research, 2003, 5, R301.	2.0	43
36	Effects of Dexamethasone on Mesenchymal Stromal Cell Chondrogenesis and Aggrecanase Activity. Cartilage, 2013, 4, 63-74.	2.7	43

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37	Nanomechanical phenotype of chondroadherin-null murine articular cartilage. Matrix Biology, 2014, 38, 84-90.	3.6	42
38	AFM-Nanomechanical Test: An Interdisciplinary Tool That Links the Understanding of Cartilage and Meniscus Biomechanics, Osteoarthritis Degeneration, and Tissue Engineering. ACS Biomaterials Science and Engineering, 2017, 3, 2033-2049.	5.2	42
39	Electromechanical Transduction with Charged Polyelectrolyte Membranes. IEEE Transactions on Biomedical Engineering, 1976, BME-23, 421-433.	4.2	40
40	Contribution of electrodiffusion to the dynamics of electrically stimulated changes in mechanical properties of collagen membranes. Biopolymers, 1980, 19, 241-262.	2.4	40
41	High-bandwidth AFM-based rheology is a sensitive indicator of early cartilage aggrecan degradation relevant to mouse models of osteoarthritis. Journal of Biomechanics, 2015, 48, 162-165.	2.1	40
42	Laser Speckle Rheology for evaluating the viscoelastic properties of hydrogel scaffolds. Scientific Reports, 2016, 6, 37949.	3.3	39
43	Biomechanical properties of murine meniscus surface via AFM-based nanoindentation. Journal of Biomechanics, 2015, 48, 1364-1370.	2.1	38
44	Quantitative proteomics analysis of cartilage response to mechanical injury and cytokine treatment. Matrix Biology, 2017, 63, 11-22.	3.6	35
45	Transport of tissue inhibitor of metalloproteinases-1 through cartilage: Contributions of fluid flow and electrical migration. Journal of Orthopaedic Research, 1998, 16, 734-742.	2.3	31
46	In-situ removal of ammonium and lactate through electrical means for hybridoma cultures. Biotechnology and Bioengineering, 1995, 47, 308-318.	3.3	30
47	Creb5 establishes the competence for Prg4 expression in articular cartilage. Communications Biology, 2021, 4, 332.	4.4	30
48	Nondestructive Detection of Cartilage Degeneration Using Electromechanical Surface Spectroscopy. Journal of Biomechanical Engineering, 1994, 116, 384-392.	1.3	28
49	Enzyme Pretreatment plus Locally Delivered HB-IGF-1 Stimulate Integrative Cartilage Repair <i>In Vitro</i>. Tissue Engineering - Part A, 2019, 25, 1191-1201.	3.1	28
50	Modeling IL-1 induced degradation of articular cartilage. Archives of Biochemistry and Biophysics, 2016, 594, 37-53.	3.0	27
51	Articular cartilage of the knee 3 years after ACL reconstruction. Monthly Notices of the Royal Astronomical Society: Letters, 2015, 86, 605-610.	3.3	23
52	Synthetic nanoscale electrostatic particles as growth factor carriers for cartilage repair. Bioengineering and Translational Medicine, 2016, 1, 347-356.	7.1	23
53	Augmentation of mass transfer through electrical means for hydrogel-entrappedEscherichia coli cultivation. Biotechnology and Bioengineering, 1995, 48, 149-157.	3.3	22
54	Biomanufacturing in low Earth orbit for regenerative medicine. Stem Cell Reports, 2022, 17, 1-13.	4.8	22

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55	Tissue-Engineered Versus Native Cartilage: Linkage between Cellular Mechano-Transduction and Biomechanical Properties. Novartis Foundation Symposium, 2008, , 52-69.	1.1	21
56	Stress-vs-time signals allow the prediction of structurally catastrophic events during fracturing of immature cartilage and predetermine the biomechanical, biochemical, and structural impairment. Journal of Structural Biology, 2013, 183, 501-511.	2.8	21
57	Growth Factor-Mediated Migration of Bone Marrow Progenitor Cells for Accelerated Scaffold Recruitment. Tissue Engineering - Part A, 2016, 22, 917-927.	3.1	21
58	Wide bandwidth nanomechanical assessment of murine cartilage reveals protection of aggrecan knock-in mice from joint-overuse. Journal of Biomechanics, 2016, 49, 1634-1640.	2.1	20
59	Release of pro-inflammatory cytokines from muscle and bone causes tenocyte death in a novel rotator cuff in vitro explant culture model. Connective Tissue Research, 2018, 59, 423-436.	2.3	20
60	Mechanobiological model for simulation of injured cartilage degradation via pro-inflammatory cytokines and mechanical stimulus. PLoS Computational Biology, 2020, 16, e1007998.	3.2	20
61	Nutrient enrichment and in-situ waste removal through electrical means for hybridoma cultures. Biotechnology and Bioengineering, 1995, 47, 319-326.	3.3	19
62	Coculture of bovine cartilage with synovium and fibrous joint capsule increases aggrecanase and matrix metalloproteinase activity. Arthritis Research and Therapy, 2017, 19, 157.	3.5	17
63	Human osteoarthritic chondrons outnumber patientâ€•and jointâ€•matched chondrocytes in hydrogel cultureâ€"Future application in autologous cellâ€•based OA cartilage repair?. Journal of Tissue Engineering and Regenerative Medicine, 2018, 12, e1206-e1220.	2.7	16
64	Computational model for the analysis of cartilage and cartilage tissue constructs. Journal of Tissue Engineering and Regenerative Medicine, 2016, 10, 334-347.	2.7	14
65	Chemoproteomics of matrix metalloproteases in a model of cartilage degeneration suggests functional biomarkers associated with posttraumatic osteoarthritis. Journal of Biological Chemistry, 2018, 293, 11459-11469.	3.4	14
66	Multiscale Poroviscoelastic Compressive Properties of Mouse Supraspinatus Tendons Are Altered in Young and Aged Mice. Journal of Biomechanical Engineering, 2018, 140, .	1.3	12
67	Microfracture Augmentation With Trypsin Pretreatment and Growth Factorâ€"Functionalized Self-assembling Peptide Hydrogel Scaffold in an Equine Model. American Journal of Sports Medicine, 2021, 49, 2498-2508.	4.2	12
68	Systems Based Study of the Therapeutic Potential of Small Charged Molecules for the Inhibition of IL-1 Mediated Cartilage Degradation. PLoS ONE, 2016, 11, e0168047.	2.5	11
69	Dynamic nanomechanics of individual bone marrow stromal cells and cell-matrix composites during chondrogenic differentiation. Journal of Biomechanics, 2015, 48, 171-175.	2.1	10
70	Age-associated changes in the response of tendon explants to stress deprivation is sex-dependent. Connective Tissue Research, 2020, 61, 48-62.	2.3	9
71	Proteomic analysis reveals dexamethasone rescues matrix breakdown but not anabolic dysregulation in a cartilage injury model. Osteoarthritis and Cartilage Open, 2020, 2, 100099.	2.0	9
72	Shear strain and inflammationâ€•induced fixed charge density loss in the knee joint cartilage following ACL injury and reconstruction: A computational study. Journal of Orthopaedic Research, 2022, 40, 1505-1522.	2.3	8

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73	Loseâ€Dose Administration of Dexamethasone Is Beneficial in Preventing Secondary Tendon Damage in a Stressâ€Deprived Joint Injury Explant Model. Journal of Orthopaedic Research, 2020, 38, 139-149.	2.3	7
74	Persistence Length of Cartilage Aggrecan Macromolecules Measured via Atomic Force Microscopy. Macromolecular Symposia, 2004, 214, 1-4.	0.7	6
75	Nanoscale Poroelasticity of the Tectorial Membrane Determines Hair Bundle Deflections. Physical Review Letters, 2019, 122, 028101.	7.8	5
76	Spatial configuration of charge and hydrophobicity tune particle transport through mucus. Biophysical Journal, 2022, 121, 277-287.	0.5	3
77	Title is missing!. , 2020, 16, e1007998.		0
78	Title is missing!. , 2020, 16, e1007998.		0
79	Title is missing!. , 2020, 16, e1007998.		0