Lin Han

List of Publications by Year
in descending order

97 papers	4,793 citations	87888 38 h-index	110387 64 g-index
103 all docs	103 docs citations	103 times ranked	6312 citing authors

#	Article	IF	Citations
1	Osteoarthritis: toward a comprehensive understanding of pathological mechanism. Bone Research, 2017, 5, 16044.	11.4	731
2	Nanomechanics of the Cartilage Extracellular Matrix. Annual Review of Materials Research, 2011, 41, 133-168.	9.3	159
3	Design of Hierarchically Cut Hinges for Highly Stretchable and Reconfigurable Metamaterials with Enhanced Strength. Advanced Materials, 2015, 27, 7181-7190.	21.0	151
4	Combinatorial hydrogels with biochemical gradients for screening 3D cellular microenvironments. Nature Communications, 2018, 9, 614.	12.8	150
5	Poroelasticity of Cartilage at the Nanoscale. Biophysical Journal, 2011, 101, 2304-2313.	0.5	113
6	Regulation of extracellular matrix assembly and structure by hybrid M1/M2 macrophages. Biomaterials, 2021, 269, 120667.	11.4	106
7	Time-Dependent Nanomechanics of Cartilage. Biophysical Journal, 2011, 100, 1846-1854.	0.5	105
8	Influence of hyaluronic acid modification on CD44 binding towards the design of hydrogel biomaterials. Biomaterials, 2019, 222, 119451.	11.4	100
9	Drastically Lowered Protein Adsorption on Microbicidal Hydrophobic/Hydrophilic Polyelectrolyte Multilayers. Biomacromolecules, 2012, 13, 719-726.	5.4	93
10	High-Bandwidth AFM-Based Rheology Reveals that Cartilage is Most Sensitive to High Loading Rates at Early Stages of Impairment. Biophysical Journal, 2013, 104, 1529-1537.	0.5	90
11	Compressive nanomechanics of opposing aggrecan macromolecules. Journal of Biomechanics, 2006, 39, 2555-2565.	2.1	85
12	Self-similar Hierarchical Wrinkles as a Potential Multifunctional Smart Window with Simultaneously Tunable Transparency, Structural Color, and Droplet Transport. ACS Applied Materials & Interfaces, 2017, 9, 26510-26517.	8.0	85
13	EGFR signaling is critical for maintaining the superficial layer of articular cartilage and preventing osteoarthritis initiation. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 14360-14365.	7.1	83
14	Targeting cartilage EGFR pathway for osteoarthritis treatment. Science Translational Medicine, 2021, 13, .	12.4	83
15	Towards controlled polymer brushes via a self-assembly-assisted-grafting-to approach. Nature Communications, 2016, 7, 11119.	12.8	81
16	Micromechanical anisotropy and heterogeneity of the meniscus extracellular matrix. Acta Biomaterialia, 2017, 54, 356-366.	8.3	76
17	Nanoindentation modulus of murine cartilage: a sensitive indicator of the initiation and progression of post-traumatic osteoarthritis. Osteoarthritis and Cartilage, 2017, 25, 108-117.	1.3	70
18	Lateral Nanomechanics of Cartilage Aggrecan Macromolecules. Biophysical Journal, 2007, 92, 1384-1398.	0.5	68

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19	Mechanically dynamic PDMS substrates to investigate changing cell environments. Biomaterials, 2017, 145, 23-32.	11.4	68
20	Type III collagen is a key regulator of the collagen fibrillar structure and biomechanics of articular cartilage and meniscus. Matrix Biology, 2020, 85-86, 47-67.	3.6	68
21	Decorin Regulates the Aggrecan Network Integrity and Biomechanical Functions of Cartilage Extracellular Matrix. ACS Nano, 2019, 13, 11320-11333.	14.6	67
22	Early changes in cartilage pericellular matrix micromechanobiology portend the onset of post-traumatic osteoarthritis. Acta Biomaterialia, 2020, 111, 267-278.	8.3	65
23	Highly robust crystalsome via directed polymer crystallization at curved liquid/liquid interface. Nature Communications, 2016, 7, 10599.	12.8	63
24	Aggrecan Nanoscale Solidâ€“Fluid Interactions Are a Primary Determinant of Cartilage Dynamic Mechanical Properties. ACS Nano, 2015, 9, 2614-2625.	14.6	61
25	Block copolymer crystalsomes withÂan ultrathin shell to extend blood circulation time. Nature Communications, 2018, 9, 3005.	12.8	61
26	Nanobiomechanics of Repair Bone Regenerated by Genetically Modified Mesenchymal Stem Cells. Tissue Engineering - Part A, 2008, 14, 1709-1720.	3.1	60
27	4D printing of self-folding and cell-encapsulating 3D microstructures as scaffolds for tissue-engineering applications. Biofabrication, 2020, 12, 045018.	7.1	58
28	Calcium signaling of in situ chondrocytes in articular cartilage under compressive loading: Roles of calcium sources and cell membrane ion channels. Journal of Orthopaedic Research, 2018, 36, 730-738.	2.3	55
29	A new class of biological materials: Cell membrane-derived hydrogel scaffolds. Biomaterials, 2019, 197, 244-254.	11.4	55
30	Loadingâ€Induced Reduction in Sclerostin as a Mechanism of Subchondral Bone PlateÂSclerosis in Mouse Knee Joints During Lateâ€Stage Osteoarthritis. Arthritis and Rheumatology, 2018, 70, 230-241.	5.6	52
31	Intervertebral Disc Degeneration Is Associated With Aberrant Endplate Remodeling and Reduced Small Molecule Transport. Journal of Bone and Mineral Research, 2020, 35, 1572-1581.	2.8	51
32	Age-related nanostructural and nanomechanical changes of individual human cartilage aggrecan monomers and their glycosaminoglycan side chains. Journal of Structural Biology, 2013, 181, 264-273.	2.8	50
33	Direct Quantification of the Mechanical Anisotropy and Fracture of an Individual Exoskeleton Layer via Uniaxial Compression of Micropillars. Nano Letters, 2011, 11, 3868-3874.	9.1	49
34	Metabolic Labeling to Probe the Spatiotemporal Accumulation of Matrix at the Chondrocyteâ€“Hydrogel Interface. Advanced Functional Materials, 2020, 30, 1909802.	14.9	48
35	Molecular Adhesion between Cartilage Extracellular Matrix Macromolecules. Biomacromolecules, 2014, 15, 772-780.	5.4	44
36	Identification of Chondrocyte Genes and Signaling Pathways in Response to Acute Joint Inflammation. Scientific Reports, 2019, 9, 93.	3.3	43

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37	Cartilage Aggrecan Can Undergo Self-Adhesion. Biophysical Journal, 2008, 95, 4862-4870.	0.5	42
38	Nanomechanical phenotype of chondroadherin-null murine articular cartilage. Matrix Biology, 2014, 38, 84-90.	3.6	42
39	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
40	Distinct effects of different matrix proteoglycans on collagen fibrillogenesis and cell-mediated collagen reorganization. Scientific Reports, 2020, 10, 19065.	3.3	42
41	Dynamic mechanical properties of the tissue-engineered matrix associated with individual chondrocytes. Journal of Biomechanics, 2010, 43, 469-476.	2.1	40
42	Nanoscale Conformation and Compressibility of Cartilage Aggrecan Using Microcontact Printing and Atomic Force Microscopy. Macromolecules, 2005, 38, 4047-4049.	4.8	39
43	Endorepellin-evoked Autophagy Contributes to Angiostasis. Journal of Biological Chemistry, 2016, 291, 19245-19256.	3.4	39
44	Roles of the Fibrous Superficial Zone in the Mechanical Behavior of TMJ Condylar Cartilage. Annals of Biomedical Engineering, 2015, 43, 2652-2662.	2.5	38
45	Biomechanical properties of murine meniscus surface via AFM-based nanoindentation. Journal of Biomechanics, 2015, 48, 1364-1370.	2.1	38
46	Variable piezoelectricity of electrospun chitin. Carbohydrate Polymers, 2018, 195, 218-224.	10.2	38
47	Mediation of Cartilage Matrix Degeneration and Fibrillation by Decorin in Postâ€traumatic Osteoarthritis. Arthritis and Rheumatology, 2020, 72, 1266-1277.	5.6	37
48	Decorin regulates cartilage pericellular matrix micromechanobiology. Matrix Biology, 2021, 96, 1-17.	3.6	37
49	Synthesis, preparation, and conformation of stimulus-responsive end-grafted poly(methacrylic) Tj ETQq1 1 0.784314 rgBT /Overlock 10	2.7	35
50	The Role of Bmp2 in the Maturation and Maintenance of the Murine Knee Joint. Journal of Bone and Mineral Research, 2018, 33, 1708-1717.	2.8	34
51	Maturation State and Matrix Microstructure Regulate Interstitial Cell Migration in Dense Connective Tissues. Scientific Reports, 2018, 8, 3295.	3.3	31
52	Multiscale and multimodal structureâ€“function analysis of intervertebral disc degeneration in a rabbit model. Osteoarthritis and Cartilage, 2019, 27, 1860-1869.	1.3	31
53	Acute Synovitis after Trauma Precedes and is Associated with Osteoarthritis Onset and Progression. International Journal of Biological Sciences, 2020, 16, 970-980.	6.4	30
54	Nanoscale Shear Deformation Mechanisms of Opposing Cartilage Aggrecan Macromolecules. Biophysical Journal, 2007, 93, L23-L25.	0.5	29

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55	Mechanically and Chemically Tunable Cell Culture System for Studying the Myofibroblast Phenotype. Langmuir, 2014, 30, 5481-5487.	3.5	29
56	Biomimetic Proteoglycans Mimic Macromolecular Architecture and Water Uptake of Natural Proteoglycans. Biomacromolecules, 2017, 18, 1713-1723.	5.4	28
57	Primary cilia control cell alignment and patterning in bone development via ceramide-PKCÎ¶-Î²-catenin signaling. Communications Biology, 2020, 3, 45.	4.4	28
58	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
59	Nanomechanics of layer-by-layer polyelectrolyte complexes: a manifestation of ionic cross-links and fixed charges. Soft Matter, 2016, 12, 1158-1169.	2.7	25
60	Ciliary IFT80 is essential for intervertebral disc development and maintenance. FASEB Journal, 2020, 34, 6741-6756.	0.5	25
61	Aggrecan-like biomimetic proteoglycans (BPGs) composed of natural chondroitin sulfate bristles grafted onto a poly(acrylic acid) core for molecular engineering of the extracellular matrix. Acta Biomaterialia, 2018, 75, 93-104.	8.3	24
62	Regulating Mechanotransduction in Three Dimensions using Subâ€€cellular Scale, Crosslinkable Fibers of Controlled Diameter, Stiffness, and Alignment. Advanced Functional Materials, 2019, 29, 1808967.	14.9	23
63	Microstructural design for mechanicalâ€“optical multifunctionality in the exoskeleton of the flower beetle Torynorrhina flammea. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	23
64	Differentiated activities of decorin and biglycan in the progression of post-traumatic osteoarthritis. Osteoarthritis and Cartilage, 2021, 29, 1181-1192.	1.3	23
65	Sacrificial Fibers Improve Matrix Distribution and Micromechanical Properties in a Tissue-Engineered Intervertebral Disc. Acta Biomaterialia, 2020, 111, 232-241.	8.3	22
66	Evolution of hierarchical porous structures in supramolecular guestâ€“host hydrogels. Soft Matter, 2016, 12, 7839-7847.	2.7	21
67	Biomechanical properties of murine TMJ articular disc and condyle cartilage via AFM-nanoindentation. Journal of Biomechanics, 2017, 60, 134-141.	2.1	21
68	Complex Collagen Fiber and Membrane Morphologies of the Whole Porcine Aortic Valve. PLoS ONE, 2014, 9, e86087.	2.5	20
69	Novel generation systems of gaseous chlorine dioxide for Salmonella inactivation on fresh tomato. Food Control, 2018, 92, 479-487.	5.5	20
70	Tunable stimulus-responsive friction mechanisms of polyelectrolyte films and tube forests. Soft Matter, 2012, 8, 8642.	2.7	19
71	Alpha 5 Integrin Mediates Osteoarthritic Changes in Mouse Knee Joints. PLoS ONE, 2016, 11, e0156783.	2.5	19
72	Collagen V-heterozygous and -null supraspinatus tendons exhibit altered dynamic mechanical behaviour at multiple hierarchical scales. Interface Focus, 2016, 6, 20150043.	3.0	19

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73	Cyclophilin B control of lysine post-translational modifications of skin type I collagen. PLoS Genetics, 2019, 15, e1008196.	3.5	18
74	In situ fibril stretch and sliding is location-dependent in mouse supraspinatus tendons. Journal of Biomechanics, 2014, 47, 3794-3798.	2.1	17
75	The impact of cholesterol deposits on the fibrillar architecture of the Achilles tendon in a rabbit model of hypercholesterolemia. Journal of Orthopaedic Surgery and Research, 2019, 14, 172.	2.3	17
76	Layer-by-layer films assembled from natural polymers for sustained release of neurotrophin. Biomedical Materials (Bristol), 2015, 10, 055006.	3.3	16
77	Geometrically Controlled Mechanically Responsive Polyelectrolyte Tube Arrays. Advanced Materials, 2011, 23, 4667-4673.	21.0	14
78	Reproduction Differentially Affects Trabecular Bone Depending on Its Mechanical Versus Metabolic Role. Journal of Biomechanical Engineering, 2017, 139, .	1.3	14
79	Impacts of maturation on the micromechanics of the meniscus extracellular matrix. Journal of Biomechanics, 2018, 72, 252-257.	2.1	14
80	The critical role of Hedgehog-responsive mesenchymal progenitors in meniscus development and injury repair. ELife, 2021, 10, .	6.0	14
81	Bromodomain-containing-protein-4 and cyclin-dependent-kinase-9 inhibitors interact synergistically in vitro and combined treatment reduces post-traumatic osteoarthritis severity in mice. Osteoarthritis and Cartilage, 2021, 29, 68-77.	1.3	13
82	EGFR Signaling Is Required for Maintaining Adult Cartilage Homeostasis and Attenuating Osteoarthritis Progression. Journal of Bone and Mineral Research, 2020, 37, 1012-1023.	2.8	13
83	Molecular Engineering of Pericellular Microniche via Biomimetic Proteoglycans Modulates Cell Mechanobiology. ACS Nano, 2022, 16, 1220-1230.	14.6	12
84	Velcro-mimicking surface based on polymer loop brushes. Nanoscale, 2018, 10, 18269-18274.	5.6	11
85	Intrinsic and growthâ€mediated cell and matrix specialization during murine meniscus tissue assembly. FASEB Journal, 2021, 35, e21779.	0.5	11
86	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
87	Regional biomechanical imaging of liver cancer cells. Journal of Cancer, 2019, 10, 4481-4487.	2.5	10
88	Type V collagen regulates the structure and biomechanics of TMJ condylar cartilage: A fibrous-hyaline hybrid. Matrix Biology, 2021, 102, 1-19.	3.6	10
89	Intermittent Parathyroid Hormone After Prolonged Alendronate Treatment Induces Substantial New Bone Formation and Increases Bone Tissue Heterogeneity in Ovariectomized Rats. Journal of Bone and Mineral Research, 2017, 32, 1703-1715.	2.8	9
90	Cuts Guided Deterministic Buckling in Arrays of Soft Parallel Plates for Multifunctionality. ACS Applied Materials & Interfaces, 2017, 9, 29345-29354.	8.0	9

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91	Degeneration alters structureâ€function relationships at multiple lengthâ€scales and across interfaces in human intervertebral discs. Journal of Anatomy, 2021, 238, 986-998.	1.5	9
92	Primary Cilia Direct Murine Articular Cartilage Tidemark Patterning Through Hedgehog Signaling and Ambulatory Load. Journal of Bone and Mineral Research, 2020, 37, 1097-1116.	2.8	7
93	Non-additive impacts of covalent cross-linking on the viscoelastic nanomechanics of ionic polyelectrolyte complexes. RSC Advances, 2017, 7, 53334-53345.	3.6	6
94	Bio-orthogonal Click Chemistry Methods to Evaluate the Metabolism of Inflammatory Challenged Cartilage after Traumatic Overloading. ACS Biomaterials Science and Engineering, 2022, 8, 2564-2573.	5.2	4
95	Mutable polyelectrolyte tube arrays: mesoscale modeling and lateral force microscopy. Soft Matter, 2017, 13, 5543-5557.	2.7	3
96	Functions and applications of extracellular matrix in cartilage tissue engineering. , 2022, , 133-166.		1
97	Effects of Chondroadherin on Cartilage Nanostructure and Biomechanics via Murine Model. , 2013, , .		0