Lawrence J Bonassar

List of Publications by Year
in descending order

268 papers	14,627 citations	15504 65 h-index	26613 107 g-index
273 all docs	273 docs citations	273 times ranked	12266 citing authors

#	Article	IF	Citations
1	Microfluidic scaffolds for tissue engineering. Nature Materials, 2007, 6, 908-915.	27.5	550
2	Direct Freeform Fabrication of Seeded Hydrogels in Arbitrary Geometries. Tissue Engineering, 2006, 12, 1325-1335.	4.6	332
3	Dense type I collagen matrices that support cellular remodeling and microfabrication for studies of tumor angiogenesis and vasculogenesis in vitro. Biomaterials, 2010, 31, 8596-8607.	11.4	306
4	Replacement of an Avulsed Phalanx with Tissue-Engineered Bone. New England Journal of Medicine, 2001, 344, 1511-1514.	27.0	305
5	3D Bioprinting of Spatially Heterogeneous Collagen Constructs for Cartilage Tissue Engineering. ACS Biomaterials Science and Engineering, 2016, 2, 1800-1805.	5.2	303
6	Tuning three-dimensional collagen matrix stiffness independently of collagen concentration modulates endothelial cell behavior. Acta Biomaterialia, 2013, 9, 4635-4644.	8.3	300
7	Matrix stiffening promotes a tumor vasculature phenotype. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 492-497.	7.1	295
8	Injection molding of chondrocyte/alginate constructs in the shape of facial implants. Journal of Biomedical Materials Research Part B, 2001, 55, 503-511.	3.1	256
9	The role of cartilage streaming potential, fluid flow and pressure in the stimulation of chondrocyte biosynthesis during dynamic compression. Journal of Biomechanics, 1995, 28, 1055-1066.	2.1	230
10	Comparison of Chondrogensis in Static and Perfused Bioreactor Culture. Biotechnology Progress, 2000, 16, 893-896.	2.6	228
11	A Microfluidic Biomaterial. Journal of the American Chemical Society, 2005, 127, 13788-13789.	13.7	211
12	Effect of substrate mechanics on chondrocyte adhesion to modified alginate surfaces. Archives of Biochemistry and Biophysics, 2004, 422, 161-167.	3.0	205
13	Tissue-Engineered Composites of Anulus Fibrosus and Nucleus Pulposus for Intervertebral Disc Replacement. Spine, 2004, 29, 1290-1297.	2.0	205
14	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
15	Tissue engineering: The first decade and beyond. , 1998, 72, 297-303.		187
16	Prevention of cartilage degeneration in a rat model of osteoarthritis by intraarticular treatment with recombinant lubricin. Arthritis and Rheumatism, 2009, 60, 840-847.	6.7	183
17	Correlating rheological properties and printability of collagen bioinks: the effects of riboflavin photocrosslinking and pH. Biofabrication, 2017, 9, 034102.	7.1	178
18	Methods for Photocrosslinking Alginate Hydrogel Scaffolds with High Cell Viability. Tissue Engineering - Part C: Methods, 2011, 17, 173-179.	2.1	167

#	Article	IF	Citations
19	Tissue-engineered intervertebral discs produce new matrix, maintain disc height, and restore biomechanical function to the rodent spine. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 13106-13111.	7.1	166
20	Temporal Bone Fractures: Otic Capsule Sparing versus Otic Capsule Violating Clinical and Radiographic Considerations. Arteriosclerosis, Thrombosis, and Vascular Biology, 1999, 47, 1079.	2.4	162
21	Tissue-Engineered Lung: An In Vivo and In Vitro Comparison of Polyglycolic Acid and Pluronic F-127 Hydrogel/Somatic Lung Progenitor Cell Constructs to Support Tissue Growth. Tissue Engineering, 2006, 12, 1213-1225.	4.6	161
22	High-Fidelity Tissue Engineering of Patient-Specific Auricles for Reconstruction of Pediatric Microtia and Other Auricular Deformities. PLoS ONE, 2013, 8, e56506.	2.5	158
23	Changes in cartilage composition and physical properties due to stromelysin degradation. Arthritis and Rheumatism, 1995, 38, 173-183.	6.7	149
24	Lubrication mode analysis of articular cartilage using Stribeck surfaces. Journal of Biomechanics, 2008, 41, 1910-1918.	2.1	148
25	Self-Assembly of Aligned Tissue-Engineered Annulus Fibrosus and Intervertebral Disc Composite Via Collagen Gel Contraction. Tissue Engineering - Part A, 2010, 16, 1339-1348.	3.1	147
26	Characterization of Polylactic Acidâ€"Polyglycolic Acid Composites for Cartilage Tissue Engineering. Tissue Engineering, 2003, 9, 63-70.	4.6	146
27	Biomechanical and biochemical characterization of composite tissue-engineered intervertebral discs. Biomaterials, 2006, 27, 362-370.	11.4	146
28	Autologous tissue-engineered trachea with sheep nasal chondrocytes. Journal of Thoracic and Cardiovascular Surgery, 2002, 123, 1177-1184.	0.8	137
29	Additive manufacturing for <i>in situ</i> repair of osteochondral defects. Biofabrication, 2010, 2, 035004.	7.1	137
30	Review of Injectable Cartilage Engineering Using Fibrin Gel in Mice and Swine Models. Tissue Engineering, 2006, 12, 1151-1168.	4.6	134
31	Mapping the depth dependence of shear properties in articular cartilage. Journal of Biomechanics, 2008, 41, 2430-2437.	2.1	131
32	A composite tissueâ€engineered trachea using sheep nasal chondrocyte and epithelial cells. FASEB Journal, 2003, 17, 823-828.	0.5	125
33	Detection of interleukin-1 in the cartilage of patients with osteoarthritis: a possible autocrine/paracrine role in pathogenesis. Osteoarthritis and Cartilage, 1997, 5, 293-300.	1.3	124
34	Binding and localization of recombinant lubricin to articular cartilage surfaces. Journal of Orthopaedic Research, 2007, 25, 283-292.	2.3	124
35	Measurement of local strains in intervertebral disc anulus fibrosus tissue under dynamic shear: Contributions of matrix fiber orientation and elastin content. Journal of Biomechanics, 2009, 42, 2279-2285.	2.1	122
36	Image-Guided Tissue Engineering of Anatomically Shaped Implants via MRI and Micro-CT Using Injection Molding. Tissue Engineering - Part A, 2008, 14, 1195-1202.	3.1	112

#	Article	IF	Citations
37	Injectable Tissue-Engineered Cartilage with Different Chondrocyte Sources. Plastic and Reconstructive Surgery, 2004, 113, 1361-1371.	1.4	110
38	Elastoviscous Transitions of Articular Cartilage Reveal a Mechanism of Synergy between Lubricin and Hyaluronic Acid. PLoS ONE, 2015, 10, e0143415.	2.5	105
39	Mechanical and Physicochemical Regulation of the Action of Insulin-Like Growth Factor-I on Articular Cartilage. Archives of Biochemistry and Biophysics, 2000, 379, 57-63.	3.0	102
40	Direct perfusion measurements of cancellous bone anisotropic permeability. Journal of Biomechanics, 2001, 34, 1197-1202.	2.1	102
41	An Overview of Tissue Engineered Bone. Clinical Orthopaedics and Related Research, 1999, 367, S375-S381.	1.5	101
42	Tissue Engineering of Autologous Cartilage for Craniofacial Reconstruction by Injection Molding. Plastic and Reconstructive Surgery, 2003, 112, 793-799.	1.4	101
43	Cells (MC3T3-E1)-Laden Alginate Scaffolds Fabricated by a Modified Solid-Freeform Fabrication Process Supplemented with an Aerosol Spraying. Biomacromolecules, 2012, 13, 2997-3003.	5.4	101
44	Poly(lactide-co-glycolide) microspheres as a moldable scaffold for cartilage tissue engineering. Biomaterials, 2005, 26, 1945-1952.	11.4	99
45	Postâ€traumatic osteoarthritis of the ankle: A distinct clinical entity requiring new research approaches. Journal of Orthopaedic Research, 2017, 35, 440-453.	2.3	96
46	Age dependence of biochemical and biomechanical properties of tissue-engineered human septal cartilage. Biomaterials, 2002, 23, 3087-3094.	11.4	91
47	Integration of layered chondrocyte-seeded alginate hydrogel scaffolds. Biomaterials, 2007, 28, 2987-2993.	11.4	91
48	Identification and initial characterization of spore-like cells in adult mammals. Journal of Cellular Biochemistry, 2001, 80, 455-460.	2.6	90
49	Boundary mode lubrication of articular cartilage by recombinant human lubricin. Journal of Orthopaedic Research, 2009, 27, 771-777.	2.3	90
50	Three-Dimensional Bioprinting and Its Potential in the Field of Articular Cartilage Regeneration. Cartilage, 2017, 8, 327-340.	2.7	90
51	Cell(MC3T3â€E1)â€Printed Poly(<i>Ïµ</i>â€caprolactone)/Alginate Hybrid Scaffolds for Tissue Regeneration. Macromolecular Rapid Communications, 2013, 34, 142-149.	3.9	88
52	In vivo tibial compression decreases osteolysis and tumor formation in a human metastatic breast cancer model. Journal of Bone and Mineral Research, 2013, 28, 2357-2367.	2.8	88
53	Recent advances in biological therapies for disc degeneration: tissue engineering of the annulus fibrosus, nucleus pulposus and whole intervertebral discs. Current Opinion in Biotechnology, 2013, 24, 872-879.	6.6	87
54	High density cell seeding affects the rheology and printability of collagen bioinks. Biofabrication, 2019, 11, 045016.	7.1	80

#	Article	IF	Citations
55	Molecular transport in articular cartilage â€" what have we learned from the past 50 years?. Nature Reviews Rheumatology, 2018, 14, 393-403.	8.0	79
56	Combined nucleus pulposus augmentation and annulus fibrosus repair prevents acute intervertebral disc degeneration after discectomy. Science Translational Medicine, 2020, 12, .	12.4	79
57	The effects of needle puncture injury on microscale shear strain in the intervertebral disc annulus fibrosus. Spine Journal, 2010, 10, 1098-1105.	1.3	78
58	Inhibition of Cartilage Degradation and Changes in Physical Properties Induced by IL-1Î² and Retinoic Acid Using Matrix Metalloproteinase Inhibitors. Archives of Biochemistry and Biophysics, 1997, 344, 404-412.	3.0	77
59	Increased Mixing Improves Hydrogel Homogeneity and Quality of Three-Dimensional Printed Constructs. Tissue Engineering - Part C: Methods, 2011, 17, 239-248.	2.1	76
60	A Novel Approach to Regenerating Periodontal Tissue by Grafting Autologous Cultured Periosteum. Tissue Engineering, 2006, 12, 1227-1335.	4.6	74
61	Age-related changes in the composition and mechanical properties of human nasal cartilage. Archives of Biochemistry and Biophysics, 2002, 403, 132-140.	3.0	71
62	High density type I collagen gels for tissue engineering of whole menisci. Acta Biomaterialia, 2013, 9, 7787-7795.	8.3	71
63	Modeling the dynamic composition of engineered cartilage. Archives of Biochemistry and Biophysics, 2002, 408, 246-254.	3.0	69
64	Integrative Repair of Cartilage with Articular and Nonarticular Chondrocytes. Tissue Engineering, 2004, 10, 1308-1315.	4.6	68
65	High-resolution spatial mapping of shear properties in cartilage. Journal of Biomechanics, 2010, 43, 796-800.	2.1	68
66	Structure-Function Relations and Rigidity Percolation in the Shear Properties of Articular Cartilage. Biophysical Journal, 2014, 107, 1721-1730.	0.5	68
67	An Allogenic Cellâ€"Based Implant for Meniscal Lesions. American Journal of Sports Medicine, 2006, 34, 1779-1789.	4.2	67
68	Processing of type I collagen gels using nonenzymatic glycation. Journal of Biomedical Materials Research - Part A, 2010, 93A, 843-851.	4.0	66
69	In Vitro Tissue Engineering to Generate a Human-Sized Auricle and Nasal Tip. Laryngoscope, 2003, 113, 90-94.	2.0	65
70	Biomechanical Analysis of a Chondrocyte-Based Repair Model of Articular Cartilage. Tissue Engineering, 1999, 5, 317-326.	4.6	64
71	Measuring microscale strain fields in articular cartilage during rapid impact reveals thresholds for chondrocyte death and a protective role for the superficial layer. Journal of Biomechanics, 2015, 48, 3440-3446.	2.1	64
72	Dynamic compressive loading of image-guided tissue engineered meniscal constructs. Journal of Biomechanics, 2011, 44, 509-516.	2.1	63

#	Article	IF	Citations
73	Induction of fiber alignment and mechanical anisotropy in tissue engineered menisci with mechanical anchoring. Journal of Biomechanics, 2015, 48, 1436-1443.	2.1	62
74	Biological Treatment Approaches for Degenerative Disk Disease: A Literature Review of in Vivo Animal and Clinical Data. Global Spine Journal, 2016, 6, 497-518.	2.3	62
75	Tissue-Engineered Calcium Alginate Patches in the Repair of Chronic Chinchilla Tympanic Membrane Perforations. Laryngoscope, 2006, 116, 700-704.	2.0	61
76	Physiologically Distributed Loading Patterns Drive the Formation of Zonally Organized Collagen Structures in Tissue-Engineered Meniscus. Tissue Engineering - Part A, 2016, 22, 907-916.	3.1	60
77	A Biomechanical Analysis of an Engineered Cell-Scaffold Implant for Cartilage Repair. Annals of Plastic Surgery, 2001, 46, 533-537.	0.9	59
78	Characterization of mesenchymal stem cells and fibrochondrocytes in three-dimensional co-culture: analysis of cell shape, matrix production, and mechanical performance. Stem Cell Research and Therapy, 2016, 7, 39.	5.5	59
79	Analysis of bending behavior of native and engineered auricular and costal cartilage. Journal of Biomedical Materials Research Part B, 2004, 68A, 597-602.	3.1	58
80	A Novel Injectable Approach for Cartilage Formation in Vivo Using PLG Microspheres. Annals of Biomedical Engineering, 2004, 32, 418-429.	2.5	56
81	Comparison of tracheal and nasal chondrocytes for tissue engineering of the trachea. Annals of Thoracic Surgery, 2003, 76, 1884-1888.	1.3	55
82	Role for Interleukin 1Î± in the Inhibition of Chondrogenesis in Autologous Implants Using Polyglycolic Acidâ€“Polylactic Acid Scaffolds. Tissue Engineering, 2005, 11, 192-200.	4.6	55
83	Conditions affecting cell seeding onto threeâ€dimensional scaffolds for cellularâ€based biodegradable implants. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2009, 91B, 80-87.	3.4	55
84	Injectable, highâ€density collagen gels for annulus fibrosus repair: An <i>in vitro</i> rat tail model. Journal of Biomedical Materials Research - Part A, 2015, 103, 2571-2581.	4.0	55
85	Riboflavin crosslinked high-density collagen gel for the repair of annular defects in intervertebral discs: An in vivo study. Acta Biomaterialia, 2015, 26, 215-224.	8.3	55
86	Effects of enzymatic treatments on the depth-dependent viscoelastic shear properties of articular cartilage. Journal of Orthopaedic Research, 2014, 32, 1652-1657.	2.3	53
87	Tissue-engineered spinal cord. Transplantation Proceedings, 2001, 33, 592-598.	0.6	52
88	Annular Repair Using High-Density Collagen Gel. Spine, 2014, 39, 198-206.	2.0	52
89	Modulation of lubricin biosynthesis and tissue surface properties following cartilage mechanical injury. Arthritis and Rheumatism, 2009, 60, 133-142.	6.7	49
90	Fabrication of cell-laden three-dimensional alginate-scaffolds with an aerosol cross-linking process. Journal of Materials Chemistry, 2012, 22, 18735.	6.7	49

#	Article	IF	Citations
91	Cartilage degradation and associated changes in biomechanical and electromechanical properties. Acta Orthopaedica, 1995, 66, 38-44.	1.4	48
92	Effect of media mixing on ECM assembly and mechanical properties of anatomically-shaped tissue engineered meniscus. Biomaterials, 2010, 31, 6756-6763.	11.4	47
93	Microstructured templates for directed growth and vascularization of soft tissue inÂvivo. Biomaterials, 2011, 32, 5391-5401.	11.4	47
94	Mitochondrial dysfunction is an acute response of articular chondrocytes to mechanical injury. Journal of Orthopaedic Research, 2018, 36, 739-750.	2.3	47
95	Microscale frictional strains determine chondrocyte fate in loaded cartilage. Journal of Biomechanics, 2018, 74, 72-78.	2.1	47
96	Biologic Annulus Fibrosus Repair: A Review of Preclinical <i>In Vivo</i> Investigations. Tissue Engineering - Part B: Reviews, 2018, 24, 179-190.	4.8	47
97	Cell-based bonding of articular cartilage: An extended study. Journal of Biomedical Materials Research Part B, 2003, 64A, 517-524.	3.1	46
98	Localization of Viscous Behavior and Shear Energy Dissipation in Articular Cartilage Under Dynamic Shear Loading. Journal of Biomechanical Engineering, 2013, 135, 31002.	1.3	46
99	Mechanical characterization of matrix-induced autologous chondrocyte implantation (MACIÂ®) grafts in an equine model at 53 weeks. Journal of Biomechanics, 2015, 48, 1944-1949.	2.1	46
100	Annulus Fibrosus Repair Using High-Density Collagen Gel. Spine, 2018, 43, E208-E215.	2.0	46
101	In vivo annular repair using high-density collagen gel seeded with annulus fibrosus cells. Acta Biomaterialia, 2018, 79, 230-238.	8.3	46
102	A role for the interleukin-1 receptor in the pathway linking static mechanical compression to decreased proteoglycan synthesis in surface articular cartilage. Archives of Biochemistry and Biophysics, 2003, 413, 229-235.	3.0	44
103	Total disc replacement using tissue-engineered intervertebral discs in the canine cervical spine. PLoS ONE, 2017, 12, e0185716.	2.5	44
104	Porous Poly(Vinyl Alcohol)-Hydrogel Matrix-Engineered Biosynthetic Cartilage. Tissue Engineering - Part A, 2011, 17, 301-309.	3.1	43
105	The Effect of the Duration of Mechanical Stimulation and Post-Stimulation Culture on the Structure and Properties of Dynamically Compressed Tissue-Engineered Menisci. Tissue Engineering - Part A, 2012, 18, 1365-1375.	3.1	43
106	Next generation tissue engineering of orthopedic soft tissue-to-bone interfaces. MRS Communications, 2017, 7, 289-308.	1.8	43
107	Cell-Laden Poly(É›-caprolactone)/Alginate Hybrid Scaffolds Fabricated by an Aerosol Cross-Linking Process for Obtaining Homogeneous Cell Distribution: Fabrication, Seeding Efficiency, and Cell Proliferation and Distribution. Tissue Engineering - Part C: Methods, 2013, 19, 784-793.	2.1	42
108	Age Dependence of Cellular Properties of Human Septal Cartilage. JAMA Otolaryngology, 2001, 127, 1248.	1.2	41

#	Article	IF	Citations
109	An Optical Method for Evaluation of Geometric Fidelity for Anatomically Shaped Tissue-Engineered Constructs. Tissue Engineering - Part C: Methods, 2010, 16, 693-703.	2.1	40
110	Insights into interstitial flow, shear stress, and mass transport effects on ECM heterogeneity in bioreactor-cultivated engineered cartilage hydrogels. Biomechanics and Modeling in Mechanobiology, 2012, 11, 689-702.	2.8	40
111	Tissue engineering the human auricle by auricular chondrocyte-mesenchymal stem cell co-implantation. PLoS ONE, 2018, 13, e0202356.	2.5	40
112	Imageâ€based tissue engineering of a total intervertebral disc implant for restoration of function to the rat lumbar spine. NMR in Biomedicine, 2012, 25, 443-451.	2.8	39
113	Effect of a Poly(propylene fumarate) Foaming Cement on the Healing of Bone Defects. Tissue Engineering, 1999, 5, 305-316.	4.6	38
114	Fabrication of Tissue Engineered Tympanic Membrane Patches Using Computer-Aided Design and Injection Molding. Laryngoscope, 2004, 114, 1290-1295.	2.0	38
115	Chondrocyte calcium signaling in response to fluid flow is regulated by matrix adhesion in 3-D alginate scaffolds. Archives of Biochemistry and Biophysics, 2011, 505, 112-117.	3.0	38
116	Binding and lubrication of biomimetic boundary lubricants on articular cartilage. Journal of Orthopaedic Research, 2017, 35, 548-557.	2.3	38
117	Mitoprotective therapy preserves chondrocyte viability and prevents cartilage degeneration in an ex vivo model of posttraumatic osteoarthritis. Journal of Orthopaedic Research, 2018, 36, 2147-2156.	2.3	38
118	Aerosol delivery of mammalian cells for tissue engineering. Biotechnology and Bioengineering, 2005, 91, 801-807.	3.3	37
119	Nonâ€enzymatic glycation of chondrocyteâ€seeded collagen gels for cartilage tissue engineering. Journal of Orthopaedic Research, 2008, 26, 1434-1439.	2.3	36
120	Imageâ€guided tissue engineering. Journal of Cellular and Molecular Medicine, 2009, 13, 1428-1436.	3.6	36
121	Clinical doses of radiation reduce collagen matrix stiffness. APL Bioengineering, 2018, 2, 031901.	6.2	36
122	Tissue Engineering Cartilage with Aged Articular Chondrocytes In Vivo. Plastic and Reconstructive Surgery, 2006, 118, 41-49.	1.4	35
123	Frictional Properties of the Meniscus Improve After Scaffold-augmented Repair of Partial Meniscectomy: A Pilot Study. Clinical Orthopaedics and Related Research, 2011, 469, 2817-2823.	1.5	35
124	Long-Term Morphological and Microarchitectural Stability of Tissue-Engineered, Patient-Specific Auricles<i>In Vivo</i>. Tissue Engineering - Part A, 2016, 22, 461-468.	3.1	35
125	Activation and Inhibition of Endogenous Matrix Metalloproteinases in Articular Cartilage: Effects on Composition and Biophysical Properties. Archives of Biochemistry and Biophysics, 1996, 333, 359-367.	3.0	34
126	Fiber development and matrix production in tissue-engineered menisci using bovine mesenchymal stem cells and fibrochondrocytes. Connective Tissue Research, 2017, 58, 329-341.	2.3	34

#	Article	IF	Citations
127	Mesenchymal Stem Cell-Seeded High-Density Collagen Gel for Annular Repair: 6-Week Results From In Vivo Sheep Models. Neurosurgery, 2019, 85, E350-E359.	1.1	34
128	Role of TGF-Î² and FGF in the Treatment of Radiation-Impaired Wounds Using a Novel Drug Delivery System. Plastic and Reconstructive Surgery, 2008, 122, 1036-1045.	1.4	33
129	Galectin-3 Binds to Lubricin and Reinforces the Lubricating Boundary Layer of Articular Cartilage. Scientific Reports, 2016, 6, 25463.	3.3	33
130	Mechanical properties and structureâ€"function relationships in articular cartilage repaired using IGFâ€ geneâ€enhanced chondrocytes. Journal of Orthopaedic Research, 2016, 34, 149-153.	2.3	33
131	Integrin Î±10Î²1-Selected Mesenchymal Stem Cells Mitigate the Progression of Osteoarthritis in an Equine Talar Impact Model. American Journal of Sports Medicine, 2020, 48, 612-623.	4.2	33
132	Adhesive properties of laminated alginate gels for tissue engineering of layered structures. Journal of Biomedical Materials Research - Part A, 2008, 85A, 611-618.	4.0	32
133	Effects of Chitosan Coatings on Polypropylene Mesh for Implantation in a Rat Abdominal Wall Model. Tissue Engineering - Part A, 2013, 19, 2713-2723.	3.1	32
134	Anatomic variation of depthâ€dependent mechanical properties in neonatal bovine articular cartilage. Journal of Orthopaedic Research, 2013, 31, 686-691.	2.3	31
135	Boundary mode lubrication of articular cartilage with a biomimetic diblock copolymer. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 12437-12441.	7.1	31
136	Mitoprotective therapy prevents rapid, strainâ€dependent mitochondrial dysfunction after articular cartilage injury. Journal of Orthopaedic Research, 2020, 38, 1257-1267.	2.3	31
137	Assessment of Intervertebral Disc Degeneration Based on Quantitative Magnetic Resonance Imaging Analysis. Spine, 2014, 39, E369-E378.	2.0	29
138	Fibronectin mediates enhanced wear protection of lubricin during shear. Biomacromolecules, 2015, 16, 2884-2894.	5.4	29
139	Interaction of Epidermal Growth Factor and Insulin-like Growth Factor-I in the Regulation of Growth Plate Chondrocytes. Experimental Cell Research, 1997, 234, 1-6.	2.6	28
140	Tissue-Engineered Human Auricular Cartilage Demonstrates Euploidy by Flow Cytometry. Tissue Engineering, 2002, 8, 85-92.	4.6	28
141	Frictional characterization of injectable hyaluronic acids is more predictive of clinical outcomes than traditional rheological or viscoelastic characterization. PLoS ONE, 2019, 14, e0216702.	2.5	28
142	The Effect of IGF-I on Anatomically Shaped Tissue-Engineered Menisci. Tissue Engineering - Part A, 2013, 19, 1443-1450.	3.1	27
143	Joint-dependent response to impact and implications for post-traumatic osteoarthritis. Osteoarthritis and Cartilage, 2015, 23, 1130-1137.	1.3	27
144	Characterization of Tissue Response to Impact Loads Delivered Using a Hand-Held Instrument for Studying Articular Cartilage Injury. Cartilage, 2015, 6, 226-232.	2.7	27

#	Article	IF	Citations
145	Initial investigation of individual and combined annulus fibrosus and nucleus pulposus repair ex vivo. Acta Biomaterialia, 2017, 59, 192-199.	8.3	27
146	Understanding the Stiff-to-Compliant Transition of the Meniscal Attachments by Spatial Correlation of Composition, Structure, and Mechanics. ACS Applied Materials & Interfaces, 2019, 11, 26559-26570.	8.0	27
147	Parametric Finite Element Analysis of Physical Stimuli Resulting From Mechanical Stimulation of Tissue Engineered Cartilage. Journal of Biomechanical Engineering, 2009, 131, 061014.	1.3	26
148	Human talar and femoral cartilage have distinct mechanical properties near the articular surface. Journal of Biomechanics, 2016, 49, 3320-3327.	2.1	26
149	Biomechanical and biochemical characterization of porcine tracheal cartilage. Laryngoscope, 2016, 126, E325-E331.	2.0	25
150	Fibroblasts regulate contractile force independent of MMP activity in 3D-collagen. Biochemical and Biophysical Research Communications, 2003, 312, 725-732.	2.1	24
151	Identification of cartilage injury using quantitative multiphoton microscopy. Osteoarthritis and Cartilage, 2014, 22, 355-362.	1.3	24
152	Enhanced boundary lubrication properties of engineered menisci by lubricin localization with insulin-like growth factor I treatment. Journal of Biomechanics, 2014, 47, 2183-2188.	2.1	24
153	Analysis of frictional behavior and changes in morphology resulting from cartilage articulation with porous polyurethane foams. Journal of Orthopaedic Research, 2010, 28, 1292-1299.	2.3	23
154	Cyclic Mechanical Loading Enhances Transport of Antibodies Into Articular Cartilage. Journal of Biomechanical Engineering, 2017, 139, .	1.3	23
155	Sub-critical impact inhibits the lubricating mechanisms of articular cartilage. Journal of Biomechanics, 2017, 53, 64-70.	2.1	23
156	Proteoglycan removal by chondroitinase ABC improves injectable collagen gel adhesion to annulus fibrosus. Acta Biomaterialia, 2019, 97, 428-436.	8.3	23
157	Matrix metalloproteinase activity synergizes with Î±2Î²1 integrins to enhance collagen remodeling. Experimental Cell Research, 2005, 310, 79-87.	2.6	22
158	Total disc replacement using a tissue-engineered intervertebral disc in vivo: new animal model and initial results. Evidence-based Spine-care Journal, 2010, 1, 62-66.	0.9	22
159	A Pre-Clinical Test Platform for the Functional Evaluation of Scaffolds for Musculoskeletal Defects: The Meniscus. HSS Journal, 2011, 7, 157-163.	1.7	22
160	Mathematical Modeling and Frequency Gradient Analysis of Cellular and Vascular Invasion into Integra and Strattice. Plastic and Reconstructive Surgery, 2012, 129, 89-99.	1.4	22
161	Tissue-engineered intervertebral discs: MRI results and histology in the rodent spine. Journal of Neurosurgery: Spine, 2014, 20, 443-451.	1.7	22
162	The effect of hypoxia on thermosensitive poly(<i>N</i> -vinylcaprolactam) hydrogels with tunable mechanical integrity for cartilage tissue engineering. , 2017, 105, 1863-1873.		21

#	Article	IF	Citations
163	The clot thickens: Autologous and allogeneic fibrin sealants are mechanically equivalent in an ex vivo model of cartilage repair. PLoS ONE, 2019, 14, e0224756.	2.5	21
164	Mechanical properties and structureâ€function relationships of human chondrocyteâ€seeded cartilage constructs after in vitro culture. Journal of Orthopaedic Research, 2017, 35, 2298-2306.	2.3	20
165	How can 50 years of solute transport data in articular cartilage inform the design of arthritis therapeutics?. Osteoarthritis and Cartilage, 2018, 26, 1438-1446.	1.3	20
166	Calcium signaling in response to fluid flow by chondrocytes in 3D alginate culture. Journal of Orthopaedic Research, 2012, 30, 793-799.	2.3	19
167	Tunable Lubricin-mimetics for Boundary Lubrication of Cartilage. Biotribology, 2017, 9, 18-23.	1.9	19
168	Hypoxic Expansion of Human Mesenchymal Stem Cells Enhances Three-Dimensional Maturation of Tissue-Engineered Intervertebral Discs. Tissue Engineering - Part A, 2017, 23, 293-300.	3.1	19
169	The Effect of Antibody Size and Mechanical Loading on Solute Diffusion Through the Articular Surface of Cartilage. Journal of Biomechanical Engineering, 2017, 139, .	1.3	19
170	A model system for developing a tissue engineered meniscal enthesis. Acta Biomaterialia, 2017, 56, 110-117.	8.3	19
171	Degradation alters the lubrication of articular cartilage by high viscosity, hyaluronic acidâ€based lubricants. Journal of Orthopaedic Research, 2018, 36, 1456-1464.	2.3	19
172	Glycation of collagen matrices promotes breast tumor cell invasion. Integrative Biology (United) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 38	1.3	19
173	Cellular and Chemical Gradients to Engineer the Meniscusâ€toâ€Bone Insertion. Advanced Healthcare Materials, 2019, 8, 1800806.	7.6	19
174	Mineral Distribution Spatially Patterns Bone Marrow Stromal Cell Behavior on Monolithic Bone Scaffolds. Acta Biomaterialia, 2020, 112, 274-285.	8.3	19
175	Effect of Sustained-Release PDGF and TGF-Î² on Cyclophosphamide-Induced Impaired Wound Healing. Plastic and Reconstructive Surgery, 2009, 124, 1118-1124.	1.4	18
176	Optimizing cell sourcing for clinical translation of tissue engineered ears. Biofabrication, 2017, 9, 015004.	7.1	18
177	Pathomechanism and Biomechanics of Degenerative Disc Disease: Features of Healthy and Degenerated Discs. International Journal of Spine Surgery, 2021, 15, 10-25.	1.5	18
178	Alteration of articular cartilage frictional properties by transforming growth factor Î², interleukinâ€1Î², and oncostatin M. Arthritis and Rheumatism, 2009, 60, 440-449.	6.7	17
179	Top-Down Fabrication of Spatially Controlled Mineral-Gradient Scaffolds for Interfacial Tissue Engineering. ACS Biomaterials Science and Engineering, 2019, 5, 2988-2997.	5.2	17
180	Effect of Lubricin Mimetics on the Inhibition of Osteoarthritis in a Rat Anterior Cruciate Ligament Transection Model. American Journal of Sports Medicine, 2020, 48, 624-634.	4.2	17

#	Article	IF	Citations
181	Interaction with Cartilage Increases the Viscosity of Hyaluronic Acid Solutions. ACS Biomaterials Science and Engineering, 2020, 6, 2787-2795.	5.2	17
182	Histomorphometric Analysis of a Cell-Based Model of Cartilage Repair. Tissue Engineering, 2002, 8, 839-846.	4.6	16
183	Correlation Between Hearing Loss and Scala Media Area in Guinea Pigs with Long-standing Endolymphatic Hydrops. Otology and Neurotology, 2003, 24, 64-72.	1.3	16
184	3D Cell and Scaffold Patterning Strategies in Tissue Engineering. Recent Patents on Biomedical Engineering, 2013, 6, 3-21.	0.5	16
185	Targeting calcium-related mechanotransduction in early OA. Nature Reviews Rheumatology, 2021, 17, 445-446.	8.0	16
186	A Mechanical Composite Spheres Analysis of Engineered Cartilage Dynamics. Journal of Biomechanical Engineering, 2007, 129, 473-480.	1.3	15
187	Adhesion and integration of tissue engineered cartilage to porous polyethylene for composite ear reconstruction. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2015, 103, 983-991.	3.4	15
188	Dose-Dependent Response of Tissue-Engineered Intervertebral Discs to Dynamic Unconfined Compressive Loading. Tissue Engineering - Part A, 2015, 21, 564-572.	3.1	15
189	Local and global measurements show that damage initiation in articular cartilage is inhibited by the surface layer and has significant rate dependence. Journal of Biomechanics, 2018, 72, 63-70.	2.1	15
190	Tissue Engineering Auricular Cartilage Using Late Passage Human Auricular Chondrocytes. Annals of Plastic Surgery, 2018, 80, S168-S173.	0.9	15
191	Mechanical Properties of Perforated and Partially Demineralized Bone Grafts. Clinical Orthopaedics and Related Research, 1998, 353, 238-246.	1.5	14
192	Multiscale Strain as a Predictor of Impact-Induced Fissuring in Articular Cartilage. Journal of Biomechanical Engineering, 2017, 139, .	1.3	14
193	In vitro culture increases mechanical stability of human tissue engineered cartilage constructs by prevention of microscale scaffold buckling. Journal of Biomechanics, 2017, 64, 77-84.	2.1	14
194	STRUCTURAL TISSUE ENGINEERING. , 2000, , 671-682.		14
195	Normal features of tissue-engineered auricular cartilage by flow cytometry and histology: patient safety. Otolaryngology - Head and Neck Surgery, 2003, 129, 390-396.	1.9	13
196	Quantitative characterization of mesenchymal stem cell adhesion to the articular cartilage surface. Journal of Biomedical Materials Research - Part A, 2013, 101, 3592-3598.	4.0	13
197	Degenerative changes of the canine cervical spine after discectomy procedures, an in vivo study. BMC Veterinary Research, 2017, 13, 193.	1.9	13
198	Synergistic Interactions of a Synthetic Lubricin-Mimetic with Fibronectin for Enhanced Wear Protection. Frontiers in Bioengineering and Biotechnology, 2017, 5, 36.	4.1	13

#	Article	IF	Citations
199	Dynamics of Synovial Fluid Aggregation under Shear. Langmuir, 2019, 35, 15887-15896.	3.5	13
200	Temporal changes in synovial fluid composition and elastoviscous lubrication in the equine carpal fracture model. Journal of Orthopaedic Research, 2019, 37, 1071-1079.	2.3	13
201	Measurement of local diffusion and composition in degraded articular cartilage reveals the unique role of surface structure in controlling macromolecular transport. Journal of Biomechanics, 2019, 82, 38-45.	2.1	13
202	Cartilage articulation exacerbates chondrocyte damage and death after impact injury. Journal of Orthopaedic Research, 2021, 39, 2130-2140.	2.3	13
203	In vivo effects of stromelysin on the composition and physical properties of rabbit articular cartilage in the presence and absence of a synthetic inhibitor. Arthritis and Rheumatism, 1995, 38, 1678-1686.	6.7	12
204	Spatial periodicity in growth plate shear mechanical properties is disrupted by vitamin D deficiency. Journal of Biomechanics, 2013, 46, 1597-1603.	2.1	12
205	Regulation of proteoglycan production by varying glucose concentrations controls fiber formation in tissue engineered menisci. Acta Biomaterialia, 2019, 100, 173-183.	8.3	12
206	Multiscale mechanics of tissueâ€engineered cartilage grown from human chondrocytes and humanâ€induced pluripotent stem cells. Journal of Orthopaedic Research, 2020, 38, 1965-1973.	2.3	12
207	Effects of Seeding Density on Proteoglycan Assembly of Passaged Mesenchymal Stem Cells. Cellular and Molecular Bioengineering, 2010, 3, 197-206.	2.1	11
208	Tissue-engineered total disc replacement: final outcomes of a murine caudal disc in vivo study. Evidence-based Spine-care Journal, 2011, 2, 55-56.	0.9	11
209	Resorbable plating system stabilizes tissueâ€engineered intervertebral discs implanted ex vivo in canine cervical spines. JOR Spine, 2018, 1, e1031.	3.2	11
210	Heterogeneous matrix deposition in human tissue engineered cartilage changes the local shear modulus and resistance to local construct buckling. Journal of Biomechanics, 2020, 105, 109760.	2.1	11
211	Combining TGF-Î²1 and Mechanical Anchoring to Enhance Collagen Fiber Formation and Alignment in Tissue-Engineered Menisci. ACS Biomaterials Science and Engineering, 2021, 7, 1608-1620.	5.2	11
212	Identification and initial characterization of sporeâ€like cells in adult mammals. Journal of Cellular Biochemistry, 2001, 80, 455-460.	2.6	11
213	Customized biomaterials to augment chondrocyte gene therapy. Acta Biomaterialia, 2017, 53, 260-267.	8.3	10
214	Non-Destructive Spatial Mapping of Glycosaminoglycan Loss in Native and Degraded Articular Cartilage Using Confocal Raman Microspectroscopy. Frontiers in Bioengineering and Biotechnology, 2021, 9, 744197.	4.1	10
215	A New Histomorphometric Method to Assess Growth Plate Chondrodysplasia and Its Application to		

#	Article	IF	Citations
217	Computed Tomography-Guided Tissue Engineering of Upper Airway Cartilage. Tissue Engineering - Part C: Methods, 2014, 20, 506-513.	2.1	9
218	Stable recombinant production of codonâ€scrambled lubricin and mucin in human cells. Biotechnology and Bioengineering, 2019, 116, 1292-1303.	3.3	9
219	Regeneration and Replacement of the Intervertebral Disc. , 2007, , 877-896.		9
220	A Century of Cartilage Tribology Research Is Informing Lubrication Therapies. Journal of Biomechanical Engineering, 2020, 142, .	1.3	9
221	Control of the Electromechanical Properties of Alginate Hydrogels via Ionic and Covalent Cross-Linking and Microparticle Doping. Biomacromolecules, 2010, 11, 2184-2189.	5.4	8
222	Biomechanical characterisation of equine laryngeal cartilage. Equine Veterinary Journal, 2011, 43, 592-598.	1.7	8
223	Biological intervertebral disc replacement: an in vivo model and comparison of two surgical techniques to approach the rat caudal disc. Evidence-based Spine-care Journal, 2011, 2, 29-35.	0.9	8
224	Influence of Block Length on Articular Cartilage Lubrication with a Diblock Bottle-Brush Copolymer. ACS Applied Materials & Interfaces, 2020, 12, 330-337.	8.0	8
225	Distinct tribological endotypes of pathological human synovial fluid reveal characteristic biomarkers and variation in efficacy of viscosupplementation at reducing local strains in articular cartilage. Osteoarthritis and Cartilage, 2020, 28, 492-501.	1.3	8
226	Nipple Engineering: Maintaining Nipple Geometry with Externally Scaffolded Processed Autologous Costal Cartilage. Journal of Plastic, Reconstructive and Aesthetic Surgery, 2021, 74, 2596-2603.	1.0	8
227	The role of SLRPs and large aggregating proteoglycans in collagen fibrillogenesis, extracellular matrix assembly, and mechanical function of fibrocartilage. Connective Tissue Research, 2021, , 1-18.	2.3	8
228	Structural origins of cartilage shear mechanics. Science Advances, 2022, 8, eabk2805.	10.3	8
229	The degenerative impact of hyperglycemia on the structure and mechanics of developing murine intervertebral discs. JOR Spine, 2022, 5, e1191.	3.2	8
230	Mechanical performance of collagen gels is dependent on purity, Î±1/Î±2 ratio, and telopeptides. Journal of Biomedical Materials Research - Part A, 2022, 110, 11-20.	4.0	7
231	Three-Dimensional-Printed External Scaffolds Mitigate Loss of Volume and Topography in Engineered Elastic Cartilage Constructs. Cartilage, 2021, 13, 1780S-1789S.	2.7	7
232	Rigidity and fracture of biopolymer double networks. Soft Matter, 2022, 18, 322-327.	2.7	7
233	Efficient engineering of human auricular cartilage through mesenchymal stem cell chaperoning. Journal of Tissue Engineering and Regenerative Medicine, 2022, 16, 825-835.	2.7	7
234	Effects of Matrix Metalloproteinases on Cartilage Biophysical Properties in Vitro and in Vivo. Annals of the New York Academy of Sciences, 1994, 732, 439-443.	3.8	6

#	Article	IF	Citations
235	Minimally Invasive Technique of Auricular Cartilage Harvest for Tissue Engineering. Tissue Engineering, 2000, 6, 69-74.	4.6	6
236	Hyaline Articular Matrix Formed by Dynamic Self-Regenerating Cartilage and Hydrogels. Tissue Engineering - Part A, 2016, 22, 962-970.	3.1	6
237	The Effect of Charge and Mechanical Loading on Antibody Diffusion Through the Articular Surface of Cartilage. Journal of Biomechanical Engineering, 2019, 141, .	1.3	6
238	Microscale strain mapping demonstrates the importance of interface slope in the mechanics of cartilage repair. Journal of Biomechanics, 2021, 114, 110159.	2.1	6
239	Comparison of Efficacy of Endogenous and Exogenous IGF-I in Stimulating Matrix Production in Neonatal and Mature Chondrocytes. Cartilage, 2015, 6, 264-272.	2.7	5
240	Innovative Biological Treatment Methods for Degenerative Disc Disease. World Neurosurgery, 2022, 157, 282-299.	1.3	5
241	Polyacrylamide hydrogel lubricates cartilage after biochemical degradation and mechanical injury. Journal of Orthopaedic Research, 2023, 41, 63-71.	2.3	5
242	Mesenchymal Stem Cells Enhance Lubrication of Engineered Meniscus Through Lubricin Localization in Collagen Gels. Biotribology, 2016, 8, 26-32.	1.9	4
243	Imaging the local biochemical content of native and injured intervertebral disc using Fourier transform infrared microscopy. JOR Spine, 2020, 3, e1121.	3.2	4
244	Stribeck Curve Analysis of Temporomandibular Joint Condylar Cartilage and Disc. Journal of Biomechanical Engineering, 2019, 141, .	1.3	4
245	Inflammatory and Noninflammatory Synovial Fluids Exhibit New and Distinct Tribological Endotypes. Journal of Biomechanical Engineering, 2020, 142, .	1.3	4
246	Simple synthesis of soft, tough, and cytocompatible biohybrid composites. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	4
247	Properties of Cartilage Engineered from Elderly Human Chondrocytes for Articular Surface Repair. Tissue Engineering - Part A, 2012, 18, 1490-1499.	3.1	3
248	Integrative Repair of Cartilage with Articular and Nonarticular Chondrocytes. Tissue Engineering, 2004, 10, 1308-1315.	4.6	3
249	Cartilage Reconstruction. , 2002, , 1027-1039.		2
250	Measurement of Local Strains in Intervertebral Disc Anulus Fibrosus Tissue Under Dynamic Shear: Contributions of Matrix Fiber Orientation and Elastin Content. , 2009, , .		1
251	Erratum. FASEB Journal, 2014, 28, 5022-5022.	0.5	1
252	Off-the-Shelf Nipple Engineering. Annals of Plastic Surgery, 2022, 88, S302-S308.	0.9	1

#	ARTICLE	IF	CITATIONS
253	Early cartilage injury quantified and characterized with multiphoton microscopy imaging. Osteoarthritis and Cartilage, 2013, 21, S182-S183.	1.3	0
254	Structure-Function Relations and Rigidity Percolation in Biopolymer Networks in Live Tissue under Shear: Bovine Articular Cartilage as a Model System. Biophysical Journal, 2015, 108, 115a.	0.5	0
255	Mechanically aided transport of antibodies through articular cartilage. Osteoarthritis and Cartilage, 2015, 23, A287-A288.	1.3	0
256	Interfaces: Cellular and Chemical Gradients to Engineer the Meniscusâ€toâ€Bone Insertion (Adv.) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 6	7.6	0
257	The influence of chondrocyte source on the manufacturing reproducibility of human tissue engineered cartilage. Acta Biomaterialia, 2021, 131, 276-285.	8.3	0
258	Depth-dependent patterns in shear modulus of temporomandibular joint cartilage correspond to tissue structure and anatomic location. Journal of Biomechanics, 2021, 129, 110815.	2.1	0
259	Review of Injectable Cartilage Engineering Using Fibrin Gel in Mice and Swine Models. Tissue Engineering, 2006, .	4.6	0
260	Tissue-Engineered Lung: An In Vivo and In Vitro Comparison of Polyglycolic Acid and Pluronic F-127 Hydrogel/Somatic Lung Progenitor Cell Constructs to Support Tissue Growth. Tissue Engineering, 2006, .	4.6	0
261	Title is missing!. Tissue Engineering, 2006, .	4.6	0
262	Microvascular Structure and Function in Vitro. , 2009, , .		0
263	Heat Shock Factor 1 Reprograms the DLBCL Microenvironment to Evade Immune Surveillance and Support Tumor Growth. Blood, 2018, 132, 2854-2854.	1.4	0
264	Genetic Manipulation of Adhesion Protein Expression to Regulate Tissue Remodeling. , 2001, , .		0
265	Cell Adhesion to RGD-Alginate Is Modulated by Substrate Mechanics. , 2001, , .		0
266	Injection Molding of Tissue Engineered Tympanic Membrane Patches Utilizing Computer-Aided Design. , 2001, , .		0
267	Modeling the Dynamic Composition of Engineered Cartilage. , 2001, , .		0
268	Intra-articular Hyaluronic Acid Injections. , 2022, , 109-122.		0