Nathaniel Huebsch

List of Publications by Year
in descending order

49 papers	9,740 citations	159585 30 h-index	214800 47 g-index
53 all docs	53 docs citations	53 times ranked	13569 citing authors

#	Article	IF	Citations
1	Hydrogels with tunable stress relaxation regulate stem cell fate and activity. Nature Materials, 2016, 15, 326-334.	27.5	1,650
2	Harnessing traction-mediated manipulation of the cell/matrix interface to control stem-cell fate. Nature Materials, 2010, 9, 518-526.	27.5	1,319
3	Inspiration and application in the evolution of biomaterials. Nature, 2009, 462, 426-432.	27.8	717
4	Substrate stress relaxation regulates cell spreading. Nature Communications, 2015, 6, 6364.	12.8	637
5	Active scaffolds for on-demand drug and cell delivery. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 67-72.	7.1	630
6	An alginate-based hybrid system for growth factor delivery in the functional repair of large bone defects. Biomaterials, 2011, 32, 65-74.	11.4	454
7	CRISPR Interference Efficiently Induces Specific and Reversible Gene Silencing in Human iPSCs. Cell Stem Cell, 2016, 18, 541-553.	11.1	418
8	Human iPSC-based Cardiac Microphysiological System For Drug Screening Applications. Scientific Reports, 2015, 5, 8883.	3.3	411
9	Matrix elasticity of void-forming hydrogels controls transplanted-stem-cell-mediated boneÂformation. Nature Materials, 2015, 14, 1269-1277.	27.5	390
10	Infection-mimicking materials to program dendritic cells in situ. Nature Materials, 2009, 8, 151-158.	27.5	386
11	Ultrasound-triggered disruption and self-healing of reversibly cross-linked hydrogels for drug delivery and enhanced chemotherapy. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 9762-9767.	7.1	372
12	Stress-relaxation behavior in gels with ionic and covalent crosslinks. Journal of Applied Physics, 2010, 107, 63509.	2.5	287
13	Automated Video-Based Analysis of Contractility and Calcium Flux in Human-Induced Pluripotent Stem Cell-Derived Cardiomyocytes Cultured over Different Spatial Scales. Tissue Engineering - Part C: Methods, 2015, 21, 467-479.	2.1	232
14	Mechanical regulation of vascular growth and tissue regeneration in vivo. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, E674-80.	7.1	193
15	Miniaturized iPS-Cell-Derived Cardiac Muscles for Physiologically Relevant Drug Response Analyses. Scientific Reports, 2016, 6, 24726.	3.3	191
16	Self-organizing human cardiac microchambers mediated by geometric confinement. Nature Communications, 2015, 6, 7413.	12.8	167
17	Spatiotemporal delivery of bone morphogenetic protein enhances functional repair of segmental bone defects. Bone, 2011, 49, 485-492.	2.9	135
18	Three-dimensional filamentous human diseased cardiac tissue model. Biomaterials, 2014, 35, 1367-1377.	11.4	102

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19	Cyclic Arginine-Glycine-Aspartate Peptides Enhance Three-Dimensional Stem Cell Osteogenic Differentiation. Tissue Engineering - Part A, 2009, 15, 263-272.	3.1	83
20	Contractile deficits in engineered cardiac microtissues as a result of MYBPC3 deficiency and mechanical overload. Nature Biomedical Engineering, 2018, 2, 955-967.	22.5	82
21	A BAG3 chaperone complex maintains cardiomyocyte function during proteotoxic stress. JCI Insight, 2017, 2, .	5.0	81
22	Fluorescent resonance energy transfer: A tool for probing molecular cellâ€“biomaterial interactions in three dimensions. Biomaterials, 2007, 28, 2424-2437.	11.4	79
23	Patterning alginate hydrogels using light-directed release of caged calcium in a microfluidic device. Biomedical Microdevices, 2010, 12, 145-151.	2.8	72
24	Attenuated Human Bone Morphogenetic Protein-2â€“Mediated Bone Regeneration in a Rat Model of Composite Bone and Muscle Injury. Tissue Engineering - Part C: Methods, 2013, 19, 316-325.	2.1	71
25	Adipose Tissue Engineering Using Injectable, Oxidized Alginate Hydrogels. Tissue Engineering - Part A, 2012, 18, 737-743.	3.1	63
26	In-situ tissue regeneration through SDF-1Î± driven cell recruitment and stiffness-mediated bone regeneration in a critical-sized segmental femoral defect. Acta Biomaterialia, 2017, 60, 50-63.	8.3	62
27	Integrin-Adhesion Ligand Bond Formation of Preosteoblasts and Stem Cells in Three-Dimensional RGD Presenting Matrices. Biomacromolecules, 2008, 9, 1843-1851.	5.4	61
28	Analysis of sterilization protocols for peptide-modified hydrogels. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2005, 74B, 440-447.	3.4	49
29	Metabolically driven maturation of human-induced-pluripotent-stem-cell-derived cardiac microtissues on microfluidic chips. Nature Biomedical Engineering, 2022, 6, 372-388.	22.5	42
30	Inversion and computational maturation of drug response using human stem cell derived cardiomyocytes in microphysiological systems. Scientific Reports, 2018, 8, 17626.	3.3	41
31	Translational mechanobiology: Designing synthetic hydrogel matrices for improved in vitro models and cell-based therapies. Acta Biomaterialia, 2019, 94, 97-111.	8.3	38
32	Noninvasive Probing of the Spatial Organization of Polymer Chains in Hydrogels Using Fluorescence Resonance Energy Transfer (FRET). Journal of the American Chemical Society, 2007, 129, 4518-4519.	13.7	31
33	Integrated Isogenic Human Induced Pluripotent Stem Cellâ€“Based Liver and Heart Microphysiological Systems Predict Unsafe Drugâ€“Drug Interaction. Frontiers in Pharmacology, 2021, 12, 667010.	3.5	29
34	New Molecular Scaffolds for Fluorescent Voltage Indicators. ACS Chemical Biology, 2019, 14, 390-396.	3.4	23
35	Integrin and syndecan binding peptide-conjugated alginate hydrogel for modulation of nucleus pulposus cell phenotype. Biomaterials, 2021, 277, 121113.	11.4	22
36	Elastomer-Grafted iPSC-Derived Micro Heart Muscles to Investigate Effects of Mechanical Loading on Physiology. ACS Biomaterials Science and Engineering, 2021, 7, 2973-2989.	5.2	21

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37	Recovery from hind limb ischemia enhances rhBMP-2-mediated segmental bone defect repair in a rat composite injury model. Bone, 2013, 55, 410-417.	2.9	19
38	Copper-Free Azideâ€"Alkyne Cycloaddition for Peptide Modification of Alginate Hydrogels. ACS Applied Bio Materials, 2021, 4, 1229-1237.	4.6	14
39	Engineering Tissues from Induced Pluripotent Stem Cells. Tissue Engineering - Part A, 2019, 25, 707-710.	3.1	11
40	Characterization of a composite injury model of severe lower limb bone and nerve trauma. Journal of Tissue Engineering and Regenerative Medicine, 2014, 8, 432-441.	2.7	10
41	Modeling the Response of Heart Muscle to Mechanical Stimulation In Vitro. Current Tissue Microenvironment Reports, 2020, 1, 61-72.	3.2	7
42	Interplay of Genotype and Substrate Stiffness in Driving the Hypertrophic Cardiomyopathy Phenotype in iPSC-Micro-Heart Muscle Arrays. Cellular and Molecular Bioengineering, 2021, 14, 409-425.	2.1	6
43	Biocompatible and Enzymatically Degradable Gels for 3D Cellular Encapsulation under Extreme Compressive Strain. Gels, 2021, 7, 101.	4.5	6
44	Robust, Automated Analysis of Electrophysiology in Induced Pluripotent Stem Cell-Derived Micro-Heart Muscle for Drug Toxicity. Tissue Engineering - Part C: Methods, 2022, 28, 457-468.	2.1	6
45	Quantitatively characterizing drugâ€induced arrhythmic contractile motions of human stem cellâ€derived cardiomyocytes. Biotechnology and Bioengineering, 2018, 115, 1958-1970.	3.3	5
46	A Role for Integrin-ECM Bonds as Mechanotransducers that Modulate Adult Stem Cell Fate. , 2011, , 23-46.		1
47	iPSC-Derived Micro-Heart Muscle for Medium-Throughput Pharmacology and Pharmacogenomic Studies. Methods in Molecular Biology, 2022, , 111-131.	0.9	1
48	In Vitro Studies of the Synergy Between Mechanical Loading and Genetics Within Human Induced Pluripotent Stem Cell Derived Micro-Scale Engineered Heart Tissues. MCB Molecular and Cellular Biomechanics, 2019, 16, 107-108.	0.7	0
49	Quantitatively Characterizing Drug-Induced Arrhythmic Contractile Motions of Human Stem Cell-Derived Cardiomyocytes. Biotechnology and Bioengineering, 0, , .	3.3	0