Akhilesh K Gaharwar

List of Publications by Year
in descending order

130 papers	14,149 citations	20036 63 h-index	23173 116 g-index
135 all docs	135 docs citations	135 times ranked	18072 citing authors

#	Article	IF	Citations
1	4D Printing of Engineered Living Materials. Advanced Functional Materials, 2022, 32, 2106843.	7.8	38
2	2D Covalent Organic Framework Direct Osteogenic Differentiation of Stem Cells. Advanced Healthcare Materials, 2022, 11, e2101737.	3.9	8
3	2D Nanosilicate for additive manufacturing: Rheological modifier, sacrificial ink and support bath. Bioprinting, 2022, 25, e00187.	2.9	7
4	Coiled Coil Crosslinked Alginate Hydrogels Dampen Macrophage-Driven Inflammation. Biomacromolecules, 2022, 23, 1183-1194.	2.6	5
5	Electrically Conductive MoS₂ Reinforced Polyacrylonitrile Nanofibers for Biomedical Applications. Advanced NanoBiomed Research, 2022, 2, .	1.7	6
6	Dissociation of nanosilicates induces downstream endochondral differentiation gene expression program. Science Advances, 2022, 8, eabl9404.	4.7	9
7	Nano-bio interactions of 2D molybdenum disulfide. Advanced Drug Delivery Reviews, 2022, 187, 114361.	6.6	30
8	Nanoengineered Ink for Designing 3D Printable Flexible Bioelectronics. ACS Nano, 2022, 16, 8798-8811.	7.3	24
9	Injectable, Selfâ€healing, and 3D Printable Dynamic Hydrogels. Advanced Materials Interfaces, 2022, 9, .	1.9	10
10	<scp>Twoâ€dimensional</scp> metal organic frameworks for biomedical applications. Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology, 2021, 13, e1674.	3.3	27
11	Mechanotransduction-on-chip: vessel-chip model of endothelial YAP mechanobiology reveals matrix stiffness impedes shear response. Lab on A Chip, 2021, 21, 1738-1751.	3.1	17
12	Bioglass incorporated methacrylated collagen bioactive ink for 3D printing of bone tissue. Biomedical Materials (Bristol), 2021, 16, 035003.	1.7	23
13	Lightâ€Triggered In Situ Gelation of Hydrogels using 2D Molybdenum Disulfide (MoS₂) Nanoassemblies as Crosslink Epicenter. Advanced Materials, 2021, 33, e2101238.	11.1	46
14	Nanoclay Reinforced Biomaterials for Mending Musculoskeletal Tissue Disorders. Advanced Healthcare Materials, 2021, 10, e2100217.	3.9	23
15	Development of Nanosilicateâ€"Hydrogel Composites for Sustained Delivery of Charged Biopharmaceutics. ACS Applied Materials & Interfaces, 2021, 13, 27880-27894.	4.0	12
16	Emerging 2D nanomaterials for biomedical applications. Materials Today, 2021, 50, 276-302.	8.3	148
17	Human tumor microenvironment chip evaluates the consequences of platelet extravasation and combinatorial antitumor-antiplatelet therapy in ovarian cancer. Science Advances, 2021, 7, .	4.7	43
18	3D Bioprinted Multicellular Vascular Models. Advanced Healthcare Materials, 2021, 10, e2101141.	3.9	31

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19	Selfâ€Oscillating 3D Printed Hydrogel Shapes. Advanced Materials Technologies, 2021, 6, 2100418.	3.0	5
20	2D layered nanomaterials for therapeutics delivery. Current Opinion in Biomedical Engineering, 2021, 20, 100319.	1.8	16
21	Polymer-Coated Extracellular Vesicles for Selective Codelivery of Chemotherapeutics and siRNA to Cancer Cells. ACS Applied Bio Materials, 2021, 4, 1294-1306.	2.3	14
22	Generalizing hydrogel microparticles into a new class of bioinks for extrusion bioprinting. Science Advances, 2021, 7, eabk3087.	4.7	53
23	Engineered extracellular vesicles with synthetic lipids via membrane fusion to establish efficient gene delivery. International Journal of Pharmaceutics, 2020, 573, 118802.	2.6	88
24	Hydrogel Bioink Reinforcement for Additive Manufacturing: A Focused Review of Emerging Strategies. Advanced Materials, 2020, 32, e1902026.	11.1	377
25	Comparison of Photo Cross Linkable Gelatin Derivatives and Initiators for Three-Dimensional Extrusion Bioprinting. Biomacromolecules, 2020, 21, 454-463.	2.6	26
26	Lightâ€Responsive Inorganic Biomaterials for Biomedical Applications. Advanced Science, 2020, 7, 2000863.	5.6	155
27	Biomedical Applications of Additive Manufacturing. , 2020, , 623-639.		5
28	Photothermal modulation of human stem cells using light-responsive 2D nanomaterials. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 13329-13338.	3.3	47
29	Conditioning of 3D Printed Nanoengineered Ionicâ€"Covalent Entanglement Scaffolds with iPâ€hMSCs Derived Matrix. Advanced Healthcare Materials, 2020, 9, 1901580.	3.9	22
30	Nanoengineered Lightâ€Activatable Polybubbles for Onâ€Demand Therapeutic Delivery. Advanced Functional Materials, 2020, 30, 2003579.	7.8	8
31	Engineered biomaterials for in situ tissue regeneration. Nature Reviews Materials, 2020, 5, 686-705.	23.3	420
32	Bioprinting 101: Design, Fabrication, and Evaluation of Cell-Laden 3D Bioprinted Scaffolds. Tissue Engineering - Part A, 2020, 26, 318-338.	1.6	104
33	Nanoengineered Osteoinductive Bioink for 3D Bioprinting Bone Tissue. ACS Applied Materials & Interfaces, 2020, 12, 15976-15988.	4.0	109
34	Inorganic Biomaterials for Regenerative Medicine. ACS Applied Materials & Interfaces, 2020, 12, 5319-5344.	4.0	135
35	2D Covalent Organic Frameworks for Biomedical Applications. Advanced Functional Materials, 2020, 30, 2002046.	7.8	172
36	Self-Assembly of Block Heterochiral Peptides into Helical Tapes. Journal of the American Chemical Society, 2020, 142, 19809-19813.	6.6	55

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37	Emerging trends in multiscale modeling of vascular pathophysiology: Organ-on-a-chip and 3D printing. Biomaterials, 2019, 196, 2-17.	5.7	72
38	Sustained and Prolonged Delivery of Protein Therapeutics from Two-Dimensional Nanosilicates. ACS Applied Materials & Interfaces, 2019, 11, 6741-6750.	4.0	54
39	Clickable PEG hydrogel microspheres as building blocks for 3D bioprinting. Biomaterials Science, 2019, 7, 1179-1187.	2.6	178
40	Organ-on-chips made of blood: endothelial progenitor cells from blood reconstitute vascular thromboinflammation in vessel-chips. Lab on A Chip, 2019, 19, 2500-2511.	3.1	52
41	Superhydrophobic states of 2D nanomaterials controlled by atomic defects can modulate cell adhesion. Chemical Communications, 2019, 55, 8772-8775.	2.2	21
42	Printing Therapeutic Proteins in 3D using Nanoengineered Bioink to Control and Direct Cell Migration. Advanced Healthcare Materials, 2019, 8, e1801553.	3.9	61
43	Pectin Methacrylate (PEMA) and Gelatin-Based Hydrogels for Cell Delivery: Converting Waste Materials into Biomaterials. ACS Applied Materials & Interfaces, 2019, 11, 12283-12297.	4.0	61
44	Nanostructured Hydrogels for Tissue Engineering and Regenerative Medicine. , 2019, , 21-21.		7
45	Bone Bioprinting: Advancing Frontiers in Bone Bioprinting (Adv. Healthcare Mater. 7/2019). Advanced Healthcare Materials, 2019, 8, 1970030.	3.9	3
46	2D Nanoclay for Biomedical Applications: Regenerative Medicine, Therapeutic Delivery, and Additive Manufacturing. Advanced Materials, 2019, 31, e1900332.	11.1	237
47	Advancing Frontiers in Bone Bioprinting. Advanced Healthcare Materials, 2019, 8, e1801048.	3.9	164
48	3D-printed bioactive scaffolds from nanosilicates and PEOT/PBT for bone tissue engineering. International Journal of Energy Production and Management, 2019, 6, 29-37.	1.9	30
49	Rapid Osteogenic Enhancement of Stem Cells in Human Bone Marrow Using a Glycogen-Synthease-Kinase-3-Beta Inhibitor Improves Osteogenic Efficacy In Vitro and In Vivo. Stem Cells Translational Medicine, 2018, 7, 342-353.	1.6	7
50	Nanoengineered Ionicâ€“Covalent Entanglement (NICE) Bioinks for 3D Bioprinting. ACS Applied Materials & Interfaces, 2018, 10, 9957-9968.	4.0	192
51	Selfâ€assembled, ellipsoidal polymeric nanoparticles for intracellular delivery of therapeutics. Journal of Biomedical Materials Research - Part A, 2018, 106, 2048-2058.	2.1	22
52	Widespread changes in transcriptome profile of human mesenchymal stem cells induced by two-dimensional nanosilicates. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E3905-E3913.	3.3	119
53	Nanoengineered injectable hydrogels for wound healing application. Acta Biomaterialia, 2018, 70, 35-47.	4.1	201
54	Gradient nanocomposite hydrogels for interface tissue engineering. Nanomedicine: Nanotechnology, Biology, and Medicine, 2018, 14, 2465-2474.	1.7	81

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55	Nanoengineered Colloidal Inks for 3D Bioprinting. Langmuir, 2018, 34, 917-925.	1.6	145
56	Improving the Oxidative Stability of Shape Memory Polyurethanes Containing Tertiary Amines by the Presence of Isocyanurate Triols. Macromolecules, 2018, 51, 9078-9087.	2.2	21
57	Combinatorial Screening of Nanoclay-Reinforced Hydrogels: A Glimpse of the â€œHoly Grailâ€•in Orthopedic Stem Cell Therapy?. ACS Applied Materials & Interfaces, 2018, 10, 34924-34941.	4.0	54
58	2D Nanosilicates Loaded with Proangiogenic Factors Stimulate Endothelial Sprouting. Advanced Biology, 2018, 2, 1800092.	3.0	16
59	Antimicrobial Activity of Metal and Metalâ€Oxide Based Nanoparticles. Advanced Therapeutics, 2018, 1, 1700033.	1.6	380
60	Effect of ionic strength on shear-thinning nanoclayâ€“polymer composite hydrogels. Biomaterials Science, 2018, 6, 2073-2083.	2.6	89
61	Oxygen-Generating Photo-Cross-Linkable Hydrogels Support Cardiac Progenitor Cell Survival by Reducing Hypoxia-Induced Necrosis. ACS Biomaterials Science and Engineering, 2017, 3, 1964-1971.	2.6	82
62	MicroRNAs and Periodontal Homeostasis. Journal of Dental Research, 2017, 96, 491-500.	2.5	58
63	Nanoengineered Osteoinductive and Elastomeric Scaffolds for Bone Tissue Engineering. ACS Biomaterials Science and Engineering, 2017, 3, 590-600.	2.6	91
64	Injectable nanoengineered stimuli-responsive hydrogels for on-demand and localized therapeutic delivery. Nanoscale, 2017, 9, 15379-15389.	2.8	62
65	Vacancyâ€Driven Gelation Using Defectâ€Rich Nanoassemblies of 2D Transition Metal Dichalcogenides and Polymeric Binder for Biomedical Applications. Advanced Materials, 2017, 29, 1702037.	11.1	52
66	Assessment of Local Heterogeneity in Mechanical Properties of Nanostructured Hydrogel Networks. ACS Nano, 2017, 11, 7690-7696.	7.3	49
67	Selfâ€Assembled Hydrogel Fiber Bundles from Oppositely Charged Polyelectrolytes Mimic Microâ€/Nanoscale Hierarchy of Collagen. Advanced Functional Materials, 2017, 27, 1606273.	7.8	61
68	Shear-Thinning and Thermo-Reversible Nanoengineered Inks for 3D Bioprinting. ACS Applied Materials & Interfaces, 2017, 9, 43449-43458.	4.0	270
69	Versatile Clickâ€Protein Hydrogels for Biomedical Applications. ChemistrySelect, 2017, 2, 10310-10315.	0.7	2
70	Brillouin microspectroscopy of nanostructured biomaterials: photonics assisted tailoring mechanical properties. Proceedings of SPIE, 2016, , .	0.8	0
71	Photocrosslinkable and elastomeric hydrogels for bone regeneration. Journal of Biomedical Materials Research - Part A, 2016, 104, 879-888.	2.1	73
72	3D Biomaterial Microarrays for Regenerative Medicine: Current Stateâ€ofâ€theâ€Art, Emerging Directions and Future Trends. Advanced Materials, 2016, 28, 771-781.	11.1	80

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73	Engineered Nanomaterials for Infection Control and Healing Acute and Chronic Wounds. ACS Applied Materials & Interfaces, 2016, 8, 10049-10069.	4.0	206
74	Injectable shear-thinning nanoengineered hydrogels for stem cell delivery. Nanoscale, 2016, 8, 12362-12372.	2.8	150
75	Advanced Bioinks for 3D Printing: A Materials Science Perspective. Annals of Biomedical Engineering, 2016, 44, 2090-2102.	1.3	518
76	Emerging Trends in Biomaterials Research. Annals of Biomedical Engineering, 2016, 44, 1861-1862.	1.3	7
77	Advances in Nanotechnology for the Treatment of Osteoporosis. Current Osteoporosis Reports, 2016, 14, 87-94.	1.5	86
78	Cold Plasma Reticulation of Shape Memory Embolic Tissue Scaffolds. Macromolecular Rapid Communications, 2016, 37, 1945-1951.	2.0	11
79	Sequential Thiolâ€"Ene and Tetrazine Click Reactions for the Polymerization and Functionalization of Hydrogel Microparticles. Biomacromolecules, 2016, 17, 3516-3523.	2.6	55
80	Nanoengineered thermoresponsive magnetic hydrogels for biomedical applications. Bioengineering and Translational Medicine, 2016, 1, 297-305.	3.9	70
81	Engineering complex tissue-like microgel arrays for evaluating stem cell differentiation. Scientific Reports, 2016, 6, 30445.	1.6	31
82	Nanoengineered biomaterials for repair and regeneration of orthopedic tissue interfaces. Acta Biomaterialia, 2016, 42, 2-17.	4.1	107
83	Nanoengineered biomimetic hydrogels for guiding human stem cell osteogenesis in three dimensional microenvironments. Journal of Materials Chemistry B, 2016, 4, 3544-3554.	2.9	149
84	Mechanically Stiff Nanocomposite Hydrogels at Ultralow Nanoparticle Content. ACS Nano, 2016, 10, 246-256.	7.3	184
85	Microscale Technologies for Engineering Complex Tissue Structures. , 2016, , 3-25.		6
86	DSC-Differentiated Hepatocytes for Treatment of Liver Diseases. Pancreatic Islet Biology, 2016, , 265-279.	0.1	1
87	Nanomaterials for Engineering Stem Cell Responses. Advanced Healthcare Materials, 2015, 4, 1600-1627.	3.9	123
88	ExÂvivo engineered immune organoids for controlled germinal centerÂreactions. Biomaterials, 2015, 63, 24-34.	5.7	108
89	Bioactive Nanoengineered Hydrogels for Bone Tissue Engineering: A Growth-Factor-Free Approach. ACS Nano, 2015, 9, 3109-3118.	7.3	547
90	Elastomeric nanocomposite scaffolds made from poly(glycerol sebacate) chemically crosslinked with carbon nanotubes. Biomaterials Science, 2015, 3, 46-58.	2.6	85

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91	Elastomeric Cell-Laden Nanocomposite Microfibers for Engineering Complex Tissues. Cellular and Molecular Bioengineering, 2015, 8, 404-415.	1.0	23
92	Advanced Nanomaterials: Promises for Improved Dental Tissue Regeneration. , 2015, , 5-22.		9
93	Reinforcement of osteogenesis with nanofabricated hydroxyapatite and GelMA nanocomposite. Proceedings of SPIE, 2015, , .	0.8	1
94	Polymers for Bioprinting. , 2015, , 229-248.		60
95	Twoâ€Dimensional Nanomaterials for Biomedical Applications: Emerging Trends and Future Prospects. Advanced Materials, 2015, 27, 7261-7284.	11.1	665
96	Elastomeric and mechanically stiff nanocomposites from poly(glycerol sebacate) and bioactive nanosilicates. Acta Biomaterialia, 2015, 26, 34-44.	4.1	56
97	Anisotropic poly (glycerol sebacate)-poly (<i>ÃÂµ</i>-caprolactone) electrospun fibers promote endothelial cell guidance. Biofabrication, 2015, 7, 015001.	3.7	95
98	Bioinspired Polymeric Nanocomposites for Regenerative Medicine. Macromolecular Chemistry and Physics, 2015, 216, 248-264.	1.1	123
99	Nanocomposite hydrogels for biomedical applications. Biotechnology and Bioengineering, 2014, 111, 441-453.	1.7	916
100	The osteogenic differentiation of SSEA-4 sub-population of human adipose derived stem cells using silicate nanoplatelets. Biomaterials, 2014, 35, 9087-9099.	5.7	104
101	Microscale Bioadhesive Hydrogel Arrays for Cell Engineering Applications. Cellular and Molecular Bioengineering, 2014, 7, 394-408.	1.0	37
102	Shear-Thinning Nanocomposite Hydrogels for the Treatment of Hemorrhage. ACS Nano, 2014, 8, 9833-9842.	7.3	318
103	Injectable Graphene Oxide/Hydrogel-Based Angiogenic Gene Delivery System for Vasculogenesis and Cardiac Repair. ACS Nano, 2014, 8, 8050-8062.	7.3	449
104	Amphiphilic beads as depots for sustained drug release integrated into fibrillar scaffolds. Journal of Controlled Release, 2014, 187, 66-73.	4.8	63
105	Nanoclay-Enriched Poly(É›-caprolactone) Electrospun Scaffolds for Osteogenic Differentiation of Human Mesenchymal Stem Cells. Tissue Engineering - Part A, 2014, 20, 2088-2101.	1.6	133
106	A combinatorial cell-laden gel microarray for inducing osteogenic differentiation of human mesenchymal stem cells. Scientific Reports, 2014, 4, 3896.	1.6	123
107	PGS:Gelatin nanofibrous scaffolds with tunable mechanical andÂstructural properties for engineering cardiac tissues. Biomaterials, 2013, 34, 6355-6366.	5.7	273
108	Effect of biodegradation and de novo matrix synthesis on the mechanical properties of valvular interstitial cell-seeded polyglycerol sebacateâ€"polycaprolactone scaffolds. Acta Biomaterialia, 2013, 9, 5963-5973.	4.1	123

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109	Photocrosslinkable <i>Kappa</i>â€Carrageenan Hydrogels for Tissue Engineering Applications. Advanced Healthcare Materials, 2013, 2, 895-907.	3.9	178
110	Highly elastomeric poly(glycerol sebacate)-co-poly(ethylene glycol) amphiphilic block copolymers. Biomaterials, 2013, 34, 3970-3983.	5.7	137
111	Microfluidic fabrication of cell adhesive chitosan microtubes. Biomedical Microdevices, 2013, 15, 465-472.	1.4	46
112	Photocrosslinked nanocomposite hydrogels from PEG and silica nanospheres: Structural, mechanical and cell adhesion characteristics. Materials Science and Engineering C, 2013, 33, 1800-1807.	3.8	109
113	Hyperbranched Polyester Hydrogels with Controlled Drug Release and Cell Adhesion Properties. Biomacromolecules, 2013, 14, 1299-1310.	2.6	110
114	Bioactive Silicate Nanoplatelets for Osteogenic Differentiation of Human Mesenchymal Stem Cells. Advanced Materials, 2013, 25, 3329-3336.	11.1	448
115	Physically Crosslinked Nanocomposites from Silicateâ€Crosslinked PEO: Mechanical Properties and Osteogenic Differentiation of Human Mesenchymal Stem Cells. Macromolecular Bioscience, 2012, 12, 779-793.	2.1	116
116	Highly Extensible, Tough, and Elastomeric Nanocomposite Hydrogels from Poly(ethylene glycol) and Hydroxyapatite Nanoparticles. Biomacromolecules, 2011, 12, 1641-1650.	2.6	299
117	Mechanically Tough Pluronic F127/Laponite Nanocomposite Hydrogels from Covalently and Physically Cross-Linked Networks. Macromolecules, 2011, 44, 8215-8224.	2.2	150
118	Transparent, elastomeric and tough hydrogels from poly(ethylene glycol) and silicate nanoparticles. Acta Biomaterialia, 2011, 7, 4139-4148.	4.1	210
119	Highly Extensible Bioâ€Nanocomposite Fibers. Macromolecular Rapid Communications, 2011, 32, 50-57.	2.0	46
120	Assessment of using LaponiteÂ® cross-linked poly(ethylene oxide) for controlled cell adhesion and mineralization. Acta Biomaterialia, 2011, 7, 568-577.	4.1	149
121	Highly Extensible Bioâ€Nanocomposite Films with Directionâ€Dependent Properties. Advanced Functional Materials, 2010, 20, 429-436.	7.8	81
122	Tuning Cell Adhesion by Incorporation of Charged Silicate Nanoparticles as Crossâ€Linkers to Polyethylene Oxide. Macromolecular Bioscience, 2010, 10, 1416-1423.	2.1	77
123	Macromol. Biosci. 12/2010. Macromolecular Bioscience, 2010, 10, .	2.1	0
124	Development of Biomedical Polymer-Silicate Nanocomposites: A Materials Science Perspective. Materials, 2010, 3, 2986-3005.	1.3	130
125	Addition of Chitosan to Silicate Cross-Linked PEO for Tuning Osteoblast Cell Adhesion and Mineralization. ACS Applied Materials & Interfaces, 2010, 2, 3119-3127.	4.0	64
126	Silicate Crossâ€Linked Bioâ€Nanocomposite Hydrogels from PEO and Chitosan. Macromolecular Bioscience, 2009, 9, 1028-1035.	2.1	46

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127	Magnetic Nanoparticles Encapsulated Within a Thermoresponsive Polymer. Journal of Nanoscience and Nanotechnology, 2009, 9, 5355-5361.	0.9	38
128	Dual-stimuli responsive PNiPAM microgel achieved via layer-by-layer assembly: Magnetic and thermoresponsive. Journal of Colloid and Interface Science, 2008, 324, 47-54.	5.0	127
129	Magnetic Nanoparticleâ€"Polyelectrolyte Interaction: A Layered Approach for Biomedical Applications. Journal of Nanoscience and Nanotechnology, 2008, 8, 4033-4040.	0.9	37
130	Layer-by-layer assembly of a magnetic nanoparticle shell on a thermoresponsive microgel core. Journal of Magnetism and Magnetic Materials, 2007, 311, 219-223.	1.0	70