

Robert E Guldberg

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

110
papers

7,580
citations

38
h-index

86
g-index

115
ext. papers

8,863
ext. citations

6.2
avg, IF

6.04
L-index

#	Paper	IF	Citations
110	Implantable biosensors for musculoskeletal health.. <i>Connective Tissue Research</i> , 2022 , 1-15	3.3	1
109	Regenerative Rehabilitation Strategies for Complex Bone Injuries. <i>Physiology in Health and Disease</i> , 2022 , 251-289	0.2	
108	Magnetoelastic sensors for real-time tracking of cell growth. <i>Biotechnology and Bioengineering</i> , 2021 , 118, 2380-2385	4.9	4
107	Effects of osteogenic ambulatory mechanical stimulation on early stages of BMP-2 mediated bone repair. <i>Connective Tissue Research</i> , 2021 , 1-12	3.3	3
106	Triple growth factor delivery promotes functional bone regeneration following composite musculoskeletal trauma. <i>Acta Biomaterialia</i> , 2021 , 127, 180-192	10.8	6
105	Biomaterial strategies for improved intra-articular drug delivery. <i>Journal of Biomedical Materials Research - Part A</i> , 2021 , 109, 426-436	5.4	8
104	Development of systemic immune dysregulation in a rat trauma model of biomaterial-associated infection. <i>Biomaterials</i> , 2021 , 264, 120405	15.6	9
103	Localized Sampling Enables Monitoring of Cell State via Inline Electrospray Ionization Mass Spectrometry. <i>Biotechnology Journal</i> , 2021 , 16, e2000277	5.6	1
102	Early systemic immune biomarkers predict bone regeneration after trauma. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	7
101	A magnetoelastic bone fixation device for controlled mechanical stimulation at femoral fractures in rodents. <i>Engineering Research Express</i> , 2021 , 3, 035028	0.9	0
100	BMP-2 delivery strategy modulates local bone regeneration and systemic immune responses to complex extremity trauma. <i>Biomaterials Science</i> , 2021 , 9, 1668-1682	7.4	6
99	Wireless sensor enables longitudinal monitoring of regenerative niche mechanics during rehabilitation that enhance bone repair. <i>Bone</i> , 2020 , 135, 115311	4.7	13
98	A piezoelectric bone fixation plate for in vivo application and monitoring of mechanical loading during fracture healing. <i>Measurement Science and Technology</i> , 2020 , 31, 095703	2	1
97	Multiomics characterization of mesenchymal stromal cells cultured in monolayer and as aggregates. <i>Biotechnology and Bioengineering</i> , 2020 , 117, 1761-1778	4.9	11
96	Heparin-mediated delivery of bone morphogenetic protein-2 improves spatial localization of bone regeneration. <i>Science Advances</i> , 2020 , 6, eaay1240	14.3	40
95	Effects of controlled dual growth factor delivery on bone regeneration following composite bone-muscle injury. <i>Acta Biomaterialia</i> , 2020 , 114, 63-75	10.8	20
94	3D Printing of Microgel-Loaded Modular Microcages as Instructive Scaffolds for Tissue Engineering. <i>Advanced Materials</i> , 2020 , 32, e2001736	24	22

93	Articular Cartilage- and Synoviocyte-Binding Poly(ethylene glycol) Nanocomposite Microgels as Intra-Articular Drug Delivery Vehicles for the Treatment of Osteoarthritis. <i>ACS Biomaterials Science and Engineering</i> , 2020 , 6, 5084-5095	5.5	12
92	Extracellular matrix compression temporally regulates microvascular angiogenesis. <i>Science Advances</i> , 2020 , 6,	14.3	23
91	Decorin-supplemented collagen hydrogels for the co-delivery of bone morphogenetic protein-2 and microvascular fragments to a composite bone-muscle injury model with impaired vascularization. <i>Acta Biomaterialia</i> , 2019 , 93, 210-221	10.8	22
90	Localized Osteoarthritis Disease-Modifying Changes due to Intra-articular Injection of Micronized Dehydrated Human Amnion/Chorion Membrane. <i>Regenerative Engineering and Translational Medicine</i> , 2019 , 5, 210-219	2.4	4
89	Chondroitin Sulfate Glycosaminoglycan Scaffolds for Cell and Recombinant Protein-Based Bone Regeneration. <i>Stem Cells Translational Medicine</i> , 2019 , 8, 575-585	6.9	24
88	Microcomputed Tomography. <i>Springer Handbooks</i> , 2019 , 1205-1236	1.3	2
87	Materials Science and Design Principles of Growth Factor Delivery Systems in Tissue Engineering and Regenerative Medicine. <i>Advanced Healthcare Materials</i> , 2019 , 8, e1801000	10.1	91
86	Regional gene expression analysis of multiple tissues in an experimental animal model of post-traumatic osteoarthritis. <i>Osteoarthritis and Cartilage</i> , 2019 , 27, 294-303	6.2	5
85	Effects of BMP-2 dose and delivery of microvascular fragments on healing of bone defects with concomitant volumetric muscle loss. <i>Journal of Orthopaedic Research</i> , 2019 , 37, 553-561	3.8	10
84	Dynamic mass spectrometry probe for electrospray ionization mass spectrometry monitoring of bioreactors for therapeutic cell manufacturing. <i>Biotechnology and Bioengineering</i> , 2019 , 116, 121-131	4.9	5
83	Impaired bone healing following treatment of established nonunion correlates with serum cytokine expression. <i>Journal of Orthopaedic Research</i> , 2019 , 37, 299-307	3.8	10
82	Effect of porous orthopaedic implant material and structure on load sharing with simulated bone ingrowth: A finite element analysis comparing titanium and PEEK. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2018 , 80, 68-76	4.1	50
81	Design and Structure-Function Characterization of 3D Printed Synthetic Porous Biomaterials for Tissue Engineering. <i>Advanced Healthcare Materials</i> , 2018 , 7, e1701095	10.1	68
80	Clinical potential of implantable wireless sensors for orthopedic treatments. <i>Expert Review of Medical Devices</i> , 2018 , 15, 255-264	3.5	18
79	Intra-articular TSG-6 delivery from heparin-based microparticles reduces cartilage damage in a rat model of osteoarthritis. <i>Biomaterials Science</i> , 2018 , 6, 1159-1167	7.4	24
78	Biological evaluation and finite-element modeling of porous poly(para-phenylene) for orthopaedic implants. <i>Acta Biomaterialia</i> , 2018 , 72, 352-361	10.8	11
77	Immunomodulatory strategies for immune dysregulation following severe musculoskeletal trauma. <i>Journal of Immunology and Regenerative Medicine</i> , 2018 , 2, 21-35	2.8	4
76	Contrast enhanced CT imaging of early articular changes in a pre-clinical model of osteoarthritis. <i>Osteoarthritis and Cartilage</i> , 2018 , 26, 118-127	6.2	17

75	A rapid method for determining protein diffusion through hydrogels for regenerative medicine applications. <i>APL Bioengineering</i> , 2018 , 2, 026110	6.6	29
74	Porous PEEK improves the bone-implant interface compared to plasma-sprayed titanium coating on PEEK. <i>Biomaterials</i> , 2018 , 185, 106-116	15.6	94
73	Aggregate mesenchymal stem cell delivery ameliorates the regenerative niche for muscle repair. <i>Journal of Tissue Engineering and Regenerative Medicine</i> , 2018 , 12, 1867-1876	4.4	9
72	Hydrogel delivery of lysostaphin eliminates orthopedic implant infection by and supports fracture healing. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018 , 115, E4960-E4969	11.5	92
71	Human platelet lysate supplementation of mesenchymal stromal cell delivery: issues of xenogenicity and species variability. <i>Journal of Tissue Engineering and Regenerative Medicine</i> , 2017 , 11, 2876-2884	4.4	6
70	Competitive Protein Binding Influences Heparin-Based Modulation of Spatial Growth Factor Delivery for Bone Regeneration. <i>Tissue Engineering - Part A</i> , 2017 , 23, 683-695	3.9	26
69	Implantable Sensors for Regenerative Medicine. <i>Journal of Biomechanical Engineering</i> , 2017 , 139,	2.1	28
68	One year of abaloparatide, a selective peptide activator of the PTH1 receptor, increased bone mass and strength in ovariectomized rats. <i>Bone</i> , 2017 , 95, 143-150	4.7	39
67	Enhanced in vivo retention of low dose BMP-2 via heparin microparticle delivery does not accelerate bone healing in a critically sized femoral defect. <i>Acta Biomaterialia</i> , 2017 , 59, 21-32	10.8	26
66	Skeletal Myoblast-Seeded Vascularized Tissue Scaffolds in the Treatment of a Large Volumetric Muscle Defect in the Rat Biceps Femoris Muscle. <i>Tissue Engineering - Part A</i> , 2017 , 23, 989-1000	3.9	26
65	Delivery vehicle effects on bone regeneration and heterotopic ossification induced by high dose BMP-2. <i>Acta Biomaterialia</i> , 2017 , 49, 101-112	10.8	73
64	Effects of Local Antibiotic Delivery from Porous Space Maintainers on Infection Clearance and Induction of an Osteogenic Membrane in an Infected Bone Defect. <i>Tissue Engineering - Part A</i> , 2017 , 23, 91-100	3.9	22
63	Supraspinatus tendon overuse results in degenerative changes to tendon insertion region and adjacent humeral cartilage in a rat model. <i>Journal of Orthopaedic Research</i> , 2017 , 35, 1910-1918	3.8	10
62	Wireless Implantable Sensor for Noninvasive, Longitudinal Quantification of Axial Strain Across Rodent Long Bone Defects. <i>Journal of Biomechanical Engineering</i> , 2017 , 139,	2.1	25
61	Getting PEEK to Stick to Bone: The Development of Porous PEEK for Interbody Fusion Devices. <i>Techniques in Orthopaedics</i> , 2017 , 32, 158-166	0.4	49
60	Deformation and fatigue of tough 3D printed elastomer scaffolds processed by fused deposition modeling and continuous liquid interface production. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2017 , 75, 1-13	4.1	23
59	Gender-specific differential expression of exosomal miRNA in synovial fluid of patients with osteoarthritis. <i>Scientific Reports</i> , 2017 , 7, 2029	4.9	114
58	Local deformation behavior of surface porous polyether-ether-ketone. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2017 , 65, 522-532	4.1	19

57	An Embedded Wireless Temperature Sensor for Orthopedic Implants. <i>IEEE Sensors Journal</i> , 2017 , 1-1	4	12
56	Decorin-containing collagen hydrogels as dimensionally stable scaffolds to study the effects of compressive mechanical loading on angiogenesis. <i>MRS Communications</i> , 2017 , 7, 466-471	2.7	10
55	Compressive cyclic ratcheting and fatigue of synthetic, soft biomedical polymers in solution. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2016 , 54, 268-82	4.1	13
54	Mineralization of three-dimensional osteoblast cultures is enhanced by the interaction of 1 α ,25-dihydroxyvitamin D3 and BMP2 via two specific vitamin D receptors. <i>Journal of Tissue Engineering and Regenerative Medicine</i> , 2016 , 10, 40-51	4.4	18
53	Osteogenic Differentiation of Mesenchymal Stem Cells by Mimicking the Cellular Niche of the Endochondral Template. <i>Tissue Engineering - Part A</i> , 2016 , 22, 1176-1190	3.9	24
52	Thermo-mechanical behavior and structure of melt blown shape-memory polyurethane nonwovens. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2016 , 62, 545-555	4.1	17
51	Tissue Engineering for Pediatric Applications. <i>Tissue Engineering - Part A</i> , 2016 , 22, 195-6	3.9	2
50	The effect of contouring on fatigue resistance of three types of fracture fixation plates. <i>Journal of Orthopaedic Surgery and Research</i> , 2016 , 11, 107	2.8	10
49	Influence of structural load-bearing scaffolds on mechanical load- and BMP-2-mediated bone regeneration. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2016 , 62, 169-181	4.1	18
48	Quantitative pre-clinical screening of therapeutics for joint diseases using contrast enhanced micro-computed tomography. <i>Osteoarthritis and Cartilage</i> , 2016 , 24, 1604-12	6.2	13
47	Influence of scaffold properties on the inter-relationship between human bone marrow derived stromal cells and endothelial cells in pro-osteogenic conditions. <i>Acta Biomaterialia</i> , 2015 , 25, 16-23	10.8	18
46	"Do-it-yourself in vitro vasculature that recapitulates in vivo geometries for investigating endothelial-blood cell interactions". <i>Scientific Reports</i> , 2015 , 5, 12401	4.9	84
45	Simple coating with fibronectin fragment enhances stainless steel screw osseointegration in healthy and osteoporotic rats. <i>Biomaterials</i> , 2015 , 63, 137-45	15.6	74
44	Hydrogel-based Delivery of rhBMP-2 Improves Healing of Large Bone Defects Compared With Autograft. <i>Clinical Orthopaedics and Related Research</i> , 2015 , 473, 2885-97	2.2	35
43	Microarchitectural and mechanical characterization of the sickle bone. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2015 , 48, 220-228	4.1	8
42	Effects of in vitro endochondral priming and pre-vascularisation of human MSC cellular aggregates in vivo. <i>Stem Cell Research and Therapy</i> , 2015 , 6, 218	8.3	27
41	High-strength, surface-porous polyether-ether-ketone for load-bearing orthopedic implants. <i>Acta Biomaterialia</i> , 2015 , 13, 159-67	10.8	107
40	Drug Delivery: Nanoengineered Particles for Enhanced Intra-Articular Retention and Delivery of Proteins (Adv. Healthcare Mater. 10/2014). <i>Advanced Healthcare Materials</i> , 2014 , 3, 1561-1561	10.1	1

39	Oxidized alginate hydrogels for bone morphogenetic protein-2 delivery in long bone defects. <i>Acta Biomaterialia</i> , 2014 , 10, 4390-9	10.8	62
38	Rapidly polymerizing injectable click hydrogel therapy to delay bone growth in a murine re-synostosis model. <i>Biomaterials</i> , 2014 , 35, 9698-708	15.6	37
37	Bone regeneration using an alpha 2 beta 1 integrin-specific hydrogel as a BMP-2 delivery vehicle. <i>Biomaterials</i> , 2014 , 35, 5453-61	15.6	135
36	Functional analysis of limb recovery following autograft treatment of volumetric muscle loss in the quadriceps femoris. <i>Journal of Biomechanics</i> , 2014 , 47, 2013-21	2.9	52
35	Heparin microparticle effects on presentation and bioactivity of bone morphogenetic protein-2. <i>Biomaterials</i> , 2014 , 35, 7228-38	15.6	76
34	The effect of conditional inactivation of beta 1 integrins using twist 2 Cre, Osterix Cre and osteocalcin Cre lines on skeletal phenotype. <i>Bone</i> , 2014 , 68, 131-41	4.7	35
33	Nanoengineered particles for enhanced intra-articular retention and delivery of proteins. <i>Advanced Healthcare Materials</i> , 2014 , 3, 1562-7, 1525	10.1	42
32	Particulated Juvenile Articular Cartilage Implantation in the Knee: A 3-Year EPIC-CT and Histological Examination. <i>Cartilage</i> , 2014 , 5, 74-7	3	22
31	Low intensity, high frequency vibration training to improve musculoskeletal function in a mouse model of Duchenne muscular dystrophy. <i>PLoS ONE</i> , 2014 , 9, e104339	3.7	11
30	Chondrogenic Differentiation of Rat BMSCs in Hydrogel. <i>Manuals in Biomedical Research</i> , 2014 , 9-16		
29	Attenuated human bone morphogenetic protein-2-mediated bone regeneration in a rat model of composite bone and muscle injury. <i>Tissue Engineering - Part C: Methods</i> , 2013 , 19, 316-25	2.9	56
28	Effects of in vivo mechanical loading on large bone defect regeneration. <i>Journal of Orthopaedic Research</i> , 2012 , 30, 1067-75	3.8	82
27	Functional restoration of critically sized segmental defects with bone morphogenetic protein-2 and heparin treatment. <i>Clinical Orthopaedics and Related Research</i> , 2011 , 469, 3111-7	2.2	21
26	Spatiotemporal delivery of bone morphogenetic protein enhances functional repair of segmental bone defects. <i>Bone</i> , 2011 , 49, 485-92	4.7	116
25	An alginate-based hybrid system for growth factor delivery in the functional repair of large bone defects. <i>Biomaterials</i> , 2011 , 32, 65-74	15.6	397
24	Effects of protein dose and delivery system on BMP-mediated bone regeneration. <i>Biomaterials</i> , 2011 , 32, 5241-51	15.6	243
23	Mechanical regulation of vascular growth and tissue regeneration in vivo. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, E674-80	11.5	160
22	Characterization of a small animal growth plate injury model using microcomputed tomography. <i>Bone</i> , 2010 , 46, 1555-63	4.7	13

21	Stem cell-synthesized extracellular matrix for bone repair. <i>Journal of Materials Chemistry</i> , 2010 , 20, 8942		17
20	Guidelines for assessment of bone microstructure in rodents using micro-computed tomography. <i>Journal of Bone and Mineral Research</i> , 2010 , 25, 1468-86	6.3	2608
19	Spatiotemporal delivery strategies for promoting musculoskeletal tissue regeneration. <i>Journal of Bone and Mineral Research</i> , 2009 , 24, 1507-11	6.3	42
18	In vivo model for evaluating the effects of mechanical stimulation on tissue-engineered bone repair. <i>Journal of Biomechanical Engineering</i> , 2009 , 131, 084502	2.1	40
17	Elastic properties and microstructure of external cortical bone in the craniofacial skeleton of the baboon. <i>FASEB Journal</i> , 2009 , 23, 650.1	0.9	
16	3D imaging of tissue integration with porous biomaterials. <i>Biomaterials</i> , 2008 , 29, 3757-61	15.6	69
15	Convergence in a mechanically complex phenotype: detecting structural adaptations for crushing in cichlid fish. <i>Evolution; International Journal of Organic Evolution</i> , 2008 , 62, 1587-99	3.8	59
14	Quantitative volumetric analysis of cardiac morphogenesis assessed through micro-computed tomography. <i>Developmental Dynamics</i> , 2007 , 236, spc1-spc1	2.9	
13	Quantitative assessment of scaffold and growth factor-mediated repair of critically sized bone defects. <i>Journal of Orthopaedic Research</i> , 2007 , 25, 941-50	3.8	199
12	Analysis of cartilage matrix fixed charge density and three-dimensional morphology via contrast-enhanced microcomputed tomography. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006 , 103, 19255-60	11.5	229
11	Porous methacrylate tissue engineering scaffolds: using carbon dioxide to control porosity and interconnectivity. <i>Journal of Materials Science</i> , 2006 , 41, 4197	4.3	35
10	Quantitative microcomputed tomography analysis of collateral vessel development after ischemic injury. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2004 , 287, H302-10	5.2	192
9	Microcomputed tomography imaging of skeletal development and growth. <i>Birth Defects Research Part C: Embryo Today Reviews</i> , 2004 , 72, 250-9		62
8	Quantitative microcomputed tomography analysis of mineralization within three-dimensional scaffolds in vitro. <i>Journal of Biomedical Materials Research Part B</i> , 2004 , 69, 97-104		86
7	Functional integration of tissue-engineered bone constructs. <i>Journal of Musculoskeletal Neuronal Interactions</i> , 2004 , 4, 399-400	1.3	11
6	Analyzing bone, blood vessels, and biomaterials with microcomputed tomography. <i>IEEE Engineering in Medicine and Biology Magazine</i> , 2003 , 22, 77-83		68
5	Microarchitectural and mechanical characterization of oriented porous polymer scaffolds. <i>Biomaterials</i> , 2003 , 24, 481-9	15.6	326
4	The accuracy of digital image-based finite element models. <i>Journal of Biomechanical Engineering</i> , 1998 , 120, 289-95	2.1	136

3	Mechanical stimulation of tissue repair in the hydraulic bone chamber. <i>Journal of Bone and Mineral Research</i> , 1997 , 12, 1295-302	6.3	83
2	Models of composite bone and soft-tissue limb trauma534-554		2
1	Real-time monitoring of mechanical cues in the regenerative niche reveal dynamic strain magnitudes that enhance bone repair		1