Damien Lacroix

List of Publications by Citations

92 papers	3,809 citations	31 h-index	61 g-index
102 ext. papers	4,309 ext. citations	4.2 avg, IF	5.58 L-index

#	Paper	IF	Citations
92	A mechano-regulation model for tissue differentiation during fracture healing: analysis of gap size and loading. *Journal of Biomechanics*, **2002**, 35, 1163-71	2.9	459
91	Simulation of tissue differentiation in a scaffold as a function of porosity, Young's modulus and dissolution rate: application of mechanobiological models in tissue engineering. *Biomaterials*, **2007**, 28, 5544-54	15.6	266
90	Nanotechnology in regenerative medicine: the materials side. *Trends in Biotechnology*, **2008**, 26, 39-47	15.1	244
89	Finite element study of scaffold architecture design and culture conditions for tissue engineering. *Biomaterials*, **2009**, 30, 6142-9	15.6	202
88	Biomechanical model to simulate tissue differentiation and bone regeneration: application to fracture healing. *Medical and Biological Engineering and Computing*, **2002**, 40, 14-21	3.1	184
87	A finite element study of mechanical stimuli in scaffolds for bone tissue engineering. *Journal of Biomechanics*, **2008**, 41, 1005-14	2.9	138
86	Bone Cell Models: Impact of Fluid Shear Stress on Bone Formation. *Frontiers in Bioengineering and Biotechnology*, **2016**, 4, 87	5.8	132
85	The influence of the scaffold design on the distribution of adhering cells after perfusion cell seeding. *Biomaterials*, **2011**, 32, 2878-84	15.6	115
84	Commentary: Deciphering the link between architecture and biological response of a bone graft substitute. *Acta Biomaterialia*, **2011**, 7, 478-84	10.8	112
83	Three-dimensional finite element analysis of glenoid replacement prostheses: a comparison of keeled and pegged anchorage systems. *Journal of Biomechanical Engineering*, **2000**, 122, 430-6	2.1	111
82	Micro-finite element models of bone tissue-engineering scaffolds. *Biomaterials*, **2006**, 27, 5326-34	15.6	108
81	Computational modelling of the mechanical environment of osteogenesis within a polylactic acid-calcium phosphate glass scaffold. *Biomaterials*, **2009**, 30, 4219-26	15.6	82
80	How does the geometry affect the internal biomechanics of a lumbar spine bi-segment finite element model? Consequences on the validation process. *Journal of Biomechanics*, **2007**, 40, 2414-25	2.9	79
79	Computer-aided design and finite-element modelling of biomaterial scaffolds for bone tissue engineering. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2009**, 367, 1993-2009	3	76
78	Simulation of fracture healing in the tibia: mechanoregulation of cell activity using a lattice modeling approach. *Journal of Orthopaedic Research*, **2011**, 29, 1496-503	3.8	75
77	A dynamical study of the mechanical stimuli and tissue differentiation within a CaP scaffold based on micro-CT finite element models. *Biomechanics and Modeling in Mechanobiology*, **2011**, 10, 565-76	3.8	69
76	A multi-structural single cell model of force-induced interactions of cytoskeletal components. *Biomaterials*, **2013**, 34, 6119-26	15.6	67

75	Simulation of angiogenesis and cell differentiation in a CaP scaffold subjected to compressive strains using a lattice modeling approach. *Biomaterials*, **2010**, 31, 2446-52	15.6	65
74	Comparison of four methods to simulate swelling in poroelastic finite element models of intervertebral discs. *Journal of the Mechanical Behavior of Biomedical Materials*, **2011**, 4, 1234-41	4.1	63
73	The effect of sustained compression on oxygen metabolic transport in the intervertebral disc decreases with degenerative changes. *PLoS Computational Biology*, **2011**, 7, e1002112	5	62
72	Finite element study of a novel intervertebral disc substitute. *Spine*, **2005**, 30, 2257-64	3.3	58
71	Bioreactor based engineering of large-scale human cartilage grafts for joint resurfacing. *Biomaterials*, **2010**, 31, 8946-52	15.6	57
70	A PLA/calcium phosphate degradable composite material for bone tissue engineering: an in vitro study. *Journal of Materials Science: Materials in Medicine*, **2008**, 19, 1503-13	4.5	56
69	Mechanical and structural characterisation of completely degradable polylactic acid/calcium phosphate glass scaffolds. *Biomaterials*, **2007**, 28, 4429-38	15.6	55
68	Statistical factorial analysis on the poroelastic material properties sensitivity of the lumbar intervertebral disc under compression, flexion and axial rotation. *Journal of Biomechanics*, **2009**, 42, 2780-8	2.9	49
67	Simulation of bone tissue formation within a porous scaffold under dynamic compression. *Biomechanics and Modeling in Mechanobiology*, **2010**, 9, 583-96	3.8	48
66	The role of endplate poromechanical properties on the nutrient availability in the intervertebral disc. *Osteoarthritis and Cartilage*, **2014**, 22, 1053-60	6.2	44
65	The inter-sample structural variability of regular tissue-engineered scaffolds significantly affects the micromechanical local cell environment. *Interface Focus*, **2015**, 5, 20140097	3.9	36
64	Primary cilia mechanics affects cell mechanosensation: A computational study. *Journal of Theoretical Biology*, **2015**, 379, 38-46	2.3	32
63	Regional annulus fibre orientations used as a tool for the calibration of lumbar intervertebral disc finite element models. *Computer Methods in Biomechanics and Biomedical Engineering*, **2013**, 16, 923-8	2.1	31
62	On the collagen criss-cross angles in the annuli fibrosi of lumbar spine finite element models. *Biomechanics and Modeling in Mechanobiology*, **2011**, 10, 203-19	3.8	31
61	Local displacement and strain uncertainties in different bone types by digital volume correlation of synchrotron microtomograms. *Journal of Biomechanics*, **2017**, 58, 27-36	2.9	30
60	Simulation of cell seeding within a three-dimensional porous scaffold: a fluid-particle analysis. *Tissue Engineering - Part C: Methods*, **2012**, 18, 624-31	2.9	30
59	Continuous mandibular distraction osteogenesis using superelastic shape memory alloy (SMA). *Journal of Materials Science: Materials in Medicine*, **2004**, 15, 541-6	4.5	29
58	Perfusion cell seeding on large porous PLA/calcium phosphate composite scaffolds in a perfusion bioreactor system under varying perfusion parameters. *Journal of Biomedical Materials Research - Part A*, **2010**, 95, 1011-8	5.4	28

57	Finite element analysis of donning procedure of a prosthetic transfemoral socket. *Annals of Biomedical Engineering*, **2011**, 39, 2972-83	4.7	27
56	In silico bone mechanobiology: modeling a multifaceted biological system. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, **2016**, 8, 485-505	6.6	26
55	Anisotropic tissue elasticity in human lumbar vertebra, by means of a coupled ultrasound-micromechanics approach. *Materials Letters*, **2012**, 78, 154-158	3.3	24
54	Comparison of patient-specific computational models vs. clinical follow-up, for adjacent segment disc degeneration and bone remodelling after spinal fusion. *PLoS ONE*, **2018**, 13, e0200899	3.7	24
53	Flow perfusion rate modulates cell deposition onto scaffold substrate during cell seeding. *Biomechanics and Modeling in Mechanobiology*, **2018**, 17, 675-687	3.8	23
52	Numerical exploration of the combined effect of nutrient supply, tissue condition and deformation in the intervertebral disc. *Journal of Biomechanics*, **2014**, 47, 1520-5	2.9	22
51	Computational techniques for the assessment of fracture repair. *Injury*, **2014**, 45 Suppl 2, S23-31	2.5	22
50	Traction Forces of Endothelial Cells under Slow Shear Flow. *Biophysical Journal*, **2015**, 109, 1533-6	2.9	20
49	Structural finite element analysis to explain cell mechanics variability. *Journal of the Mechanical Behavior of Biomedical Materials*, **2014**, 38, 219-31	4.1	20
48	Micromechanical study of the load transfer in a polycaprolactone-collagen hybrid scaffold when subjected to unconfined and confined compression. *Biomechanics and Modeling in Mechanobiology*, **2018**, 17, 531-541	3.8	20
47	μ-Particle tracking velocimetry and computational fluid dynamics study of cell seeding within a 3D porous scaffold. *Journal of the Mechanical Behavior of Biomedical Materials*, **2017**, 75, 463-469	4.1	18
46	In silico evaluation of a new composite disc substitute with a L3-L5 lumbar spine finite element model. *European Spine Journal*, **2012**, 21 Suppl 5, S675-87	2.7	18
45	Impact of hip anatomical variations on the cartilage stress: a finite element analysis towards the biomechanical exploration of the factors that may explain primary hip arthritis in morphologically normal subjects. *Clinical Biomechanics*, **2014**, 29, 444-50	2.2	17
44	Effects of oxidative stress-induced changes in the actin cytoskeletal structure on myoblast damage under compressive stress: confocal-based cell-specific finite element analysis. *Biomechanics and Modeling in Mechanobiology*, **2016**, 15, 1495-1508	3.8	16
43	Bone repair biomaterials **2009**,		16
42	A novel algorithm to predict bone changes in the mouse tibia properties under physiological conditions. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 985-1001	3.8	15
41	Mechanical response of 3D Insert PCL to compression. *Journal of the Mechanical Behavior of Biomedical Materials*, **2017**, 65, 478-489	4.1	14
40	2D μ-Particle Image Velocimetry and Computational Fluid Dynamics Study Within a 3D Porous Scaffold. *Annals of Biomedical Engineering*, **2017**, 45, 1341-1351	4.7	13

39	Short bursts of cyclic mechanical compression modulate tissue formation in a 3D hybrid scaffold. *Journal of the Mechanical Behavior of Biomedical Materials*, **2017**, 71, 165-174	4.1	11
38	Heterogeneity in The Mechanical Properties of Integrins Determines Mechanotransduction Dynamics in Bone Osteoblasts. *Scientific Reports*, **2019**, 9, 13113	4.9	11
37	Materials Surface Effects on Biological Interactions. *NATO Science for Peace and Security Series A: Chemistry and Biology*, **2010**, 233-252	0.1	11
36	Comparison of HR-pQCT- and microCT-based finite element models for the estimation of the mechanical properties of the calcaneus trabecular bone. *Biomechanics and Modeling in Mechanobiology*, **2018**, 17, 1715-1730	3.8	10
35	Material property discontinuities in intervertebral disc porohyperelastic finite element models generate numerical instabilities due to volumetric strain variations. *Journal of the Mechanical Behavior of Biomedical Materials*, **2013**, 26, 1-10	4.1	9
34	Simulating the sensitivity of cell nutritive environment to composition changes within the intervertebral disc. *Journal of the Mechanics and Physics of Solids*, **2016**, 90, 108-123	5	8
33	Poroelastic Modeling of Highly Hydrated Collagen Hydrogels: Experimental Results vs. Numerical Simulation With Custom and Commercial Finite Element Solvers. *Frontiers in Bioengineering and Biotechnology*, **2018**, 6, 142	5.8	8
32	Effect of cell sample size in atomic force microscopy nanoindentation. *Journal of the Mechanical Behavior of Biomedical Materials*, **2019**, 94, 259-266	4.1	7
31	Early life vitamin D depletion alters the postnatal response to skeletal loading in growing and mature bone. *PLoS ONE*, **2018**, 13, e0190675	3.7	6
30	Development of a Computer-Aided Design and Finite Element Analysis Combined Method for Affordable Spine Surgical Navigation With 3D-Printed Customized Template. *Frontiers in Surgery*, **2020**, 7, 583386	2.3	6
29	Finite element modelling of hybrid stabilization systems for the human lumbar spine. *Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine*, **2020**, 234, 1409-1420	1.7	5
28	Changes in scaffold porosity during bone tissue engineering in perfusion bioreactors considerably affect cellular mechanical stimulation for mineralization. *Bone Reports*, **2020**, 12, 100265	2.6	4
27	Computational Methods in the Modeling of Scaffolds for Tissue Engineering. *Studies in Mechanobiology, Tissue Engineering and Biomaterials*, **2012**, 107-126	0.5	4
26	Biomechanical aspects of bone repair **2019**, 53-64		3
25	Revealing hidden information in osteoblasts' mechanotransduction through analysis of time patterns of critical events. *BMC Bioinformatics*, **2020**, 21, 114	3.6	3
24	An extended discrete element method for the estimation of contact pressure at the ankle joint during stance phase. *Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine*, **2020**, 234, 507-516	1.7	3
23	Hyaluronic acid selective anchoring to the cytoskeleton: An atomic force microscopy study. *PLoS ONE*, **2018**, 13, e0206056	3.7	3
22	Revealing the nanoindentation response of a single cell using a 3D structural finite element model. *Journal of Materials Research*, **2021**, 36, 2591-2600	2.5	3

21	Intervertebral Disc Cell Death Explained by Metabolism-Deformation Couplings in a Porohyperelastic Finite Element Model **2013**,		2
20	Biomechanical aspects of bone repair **2009**, 106-118		2
19	Royal Academy of Medicine in Ireland Section of Bioengineering. *Irish Journal of Medical Science*, **1999**, 168, 208-220	1.9	2
18	Analysis of mechanotransduction dynamics during combined mechanical stimulation and modulation of the extracellular-regulated kinase cascade uncovers hidden information within the signalling noise. *Interface Focus*, **2021**, 11, 20190136	3.9	2
17	Influence of indentation test factors on the mechanical response of the skin. *Universitas Scientiarum*, **2019**, 24, 49-72	0.6	1
16	Tratamiento quir□gico de las pseudoartrosis as□pticas de di□isis humeral. Estudio biomec□nico. *Revista De Ortopedia Y Traumatologia*, **2007**, 51, 88-93		1
15	A Review of Bioreactors and Mechanical Stimuli. *Frontiers of Biomechanics*, **2019**, 1-22	0.2	1
14	Computational Simulation of Cell Seeding in a Tissue Engineering Scaffold. *Frontiers of Biomechanics*, **2019**, 81-104	0.2	1
13	Collagen Gel Cell Encapsulation to Study Mechanotransduction. *Frontiers of Biomechanics*, **2019**, 105-125	0.2	1
12	Computational Modelling of Collagen Hydrogel. *Frontiers of Biomechanics*, **2019**, 143-158	0.2	1
11	A systematic approach to the scale separation problem in the development of multiscale models. *PLoS ONE*, **2021**, 16, e0251297	3.7	1
10	Quantification of CSK Mechanics and Deformation in Relation to Cellular Functioning. *Frontiers of Biomechanics*, **2019**, 181-193	0.2	0
9	Comportamiento biomec□nico del injerto anterior en la cirug□ del raquis lumbar. Estudio comparativo mediante un modelo de elementos finitos. *Revista De Ortopedia Y Traumatologia*, **2007** , 51, 284-295		
8	A Novel Three-Dimensional Computational Method to Assess Rod Contour Deformation and to Map Bony Fusion in a Lumbopelvic Reconstruction After En-Bloc Sacrectomy.. *Frontiers in Surgery*, **2021**, 8, 698179	2.3	
7	Mechanical Stimulation in a PCL Additive Manufacturing Scaffold. *Frontiers of Biomechanics*, **2019**, 37-57	0.2	
6	Multiscale Simulation of Bioreactor Design and In Vitro Conditions. *Frontiers of Biomechanics*, **2019**, 23-36.	2	
5	Towards a New Approach to Analyse Quality Control and Morphometric Variability in a Scaffold. *Frontiers of Biomechanics*, **2019**, 59-80	0.2	
4	Collagen Gel Cell Encapsulation to Study the Effect of Fluid Flow on Mechanotransduction. *Frontiers of Biomechanics*, **2019**, 127-142	0.2	

3 Mechanical Load Transfer at the Cellular Level. *Frontiers of Biomechanics*, **2019**, 159-179 0.2

2 GS11-6 The Effects of Actin Filament Structure on C2C12 Myoblasts under Compressive Stress In-vitro : Finite Element Analysis(GS11: Computational Biomechanics). *The Proceedings of the Asian Pacific Conference on Biomechanics Emerging Science and Technology in Biomechanics*, **2015**, 2015.8, 219

1 Biomaterials: Processing, Characterization, and Applications **2009**, 123-154