

Guillaume Charras

List of Publications by Year in descending order

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101
papers

12,907
citations

36303

51
h-index

31849

101
g-index

119
all docs

119
docs citations

119
times ranked

14248
citing authors

#	ARTICLE	IF	CITATIONS
1	Mechanotransduction and YAP-dependent matrix remodelling is required for the generation and maintenance of cancer-associated fibroblasts. <i>Nature Cell Biology</i> , 2013, 15, 637-646.	10.3	1,088
2	Actin cortex mechanics and cellular morphogenesis. <i>Trends in Cell Biology</i> , 2012, 22, 536-545.	7.9	695
3	Blebs lead the way: how to migrate without lamellipodia. <i>Nature Reviews Molecular Cell Biology</i> , 2008, 9, 730-736.	37.0	650
4	Physical influences of the extracellular environment on cell migration. <i>Nature Reviews Molecular Cell Biology</i> , 2014, 15, 813-824.	37.0	585
5	Non-equilibration of hydrostatic pressure in blebbing cells. <i>Nature</i> , 2005, 435, 365-369.	27.8	547
6	Reassembly of contractile actin cortex in cell blebs. <i>Journal of Cell Biology</i> , 2006, 175, 477-490.	5.2	546
7	The cytoplasm of living cells behaves as a poroelastic material. <i>Nature Materials</i> , 2013, 12, 253-261.	27.5	527
8	Tissue stiffening coordinates morphogenesis by triggering collective cell migration in vivo. <i>Nature</i> , 2018, 554, 523-527.	27.8	404
9	Life and Times of a Cellular Bleb. <i>Biophysical Journal</i> , 2008, 94, 1836-1853.	0.5	393
10	Actin cortex architecture regulates cell surface tension. <i>Nature Cell Biology</i> , 2017, 19, 689-697.	10.3	325
11	Tensile Forces and Mechanotransduction at Cell-Cell Junctions. <i>Current Biology</i> , 2018, 28, R445-R457.	3.9	301
12	Characterizing the mechanics of cultured cell monolayers. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 16449-16454.	7.1	295
13	Force transmission during adhesion-independent migration. <i>Nature Cell Biology</i> , 2015, 17, 524-529.	10.3	279
14	A short history of blebbing. <i>Journal of Microscopy</i> , 2008, 231, 466-478.	1.8	276
15	Single Cell Mechanotransduction and Its Modulation Analyzed by Atomic Force Microscope Indentation. <i>Biophysical Journal</i> , 2002, 82, 2970-2981.	0.5	264
16	Cellular Control of Cortical Actin Nucleation. <i>Current Biology</i> , 2014, 24, 1628-1635.	3.9	219
17	Optogenetic control of cellular forces and mechanotransduction. <i>Nature Communications</i> , 2017, 8, 14396.	12.8	183
18	Analysis of turnover dynamics of the submembranous actin cortex. <i>Molecular Biology of the Cell</i> , 2013, 24, 757-767.	2.1	181

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19	Fractional viscoelastic models for power-law materials. <i>Soft Matter</i> , 2020, 16, 6002-6020.	2.7	178
20	Emergence of homeostatic epithelial packing and stress dissipation through divisions oriented along the long cell axis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 5726-5731.	7.1	176
21	Interaction with surrounding normal epithelial cells influences signalling pathways and behaviour of Src-transformed cells. <i>Journal of Cell Science</i> , 2010, 123, 171-180.	2.0	175
22	Actin disassembly by cofilin, coronin, and Aip1 occurs in bursts and is inhibited by barbed-end cappers. <i>Journal of Cell Biology</i> , 2008, 182, 341-353.	5.2	161
23	Experimental validation of atomic force microscopy-based cell elasticity measurements. <i>Nanotechnology</i> , 2011, 22, 345102.	2.6	151
24	Adapting atomic force microscopy for cell biology. <i>Ultramicroscopy</i> , 2000, 82, 289-295.	1.9	138
25	Determination of Cellular Strains by Combined Atomic Force Microscopy and Finite Element Modeling. <i>Biophysical Journal</i> , 2002, 83, 858-879.	0.5	135
26	Polar stimulation and constrained cell migration in microfluidic channels. <i>Lab on A Chip</i> , 2007, 7, 1783.	6.0	133
27	Implications of a poroelastic cytoplasm for the dynamics of animal cell shape. <i>Seminars in Cell and Developmental Biology</i> , 2008, 19, 215-223.	5.0	132
28	Actin kinetics shapes cortical network structure and mechanics. <i>Science Advances</i> , 2016, 2, e1501337.	10.3	130
29	Stress relaxation in epithelial monolayers is controlled by the actomyosin cortex. <i>Nature Physics</i> , 2019, 15, 839-847.	16.7	126
30	Screening for Cell Migration Inhibitors via Automated Microscopy Reveals a Rho-Kinase Inhibitor. <i>Chemistry and Biology</i> , 2005, 12, 385-395.	6.0	125
31	In vivo collective cell migration requires an LPAR2-dependent increase in tissue fluidity. <i>Journal of Cell Biology</i> , 2014, 206, 113-127.	5.2	125
32	Hypoxia and loss of α 2 (HIF-2) inactivate stromal fibroblasts to decrease tumour stiffness and metastasis. <i>EMBO Reports</i> , 2015, 16, 1394-1408.	4.5	120
33	Atomic force microscopy can be used to mechanically stimulate osteoblasts and evaluate cellular strain distributions. <i>Ultramicroscopy</i> , 2001, 86, 85-95.	1.9	118
34	Fascin Regulates Nuclear Movement and Deformation in Migrating Cells. <i>Developmental Cell</i> , 2016, 38, 371-383.	7.0	116
35	Cdc42EP3/BORG2 and Septin Network Enables Mechano-transduction and the Emergence of Cancer-Associated Fibroblasts. <i>Cell Reports</i> , 2015, 13, 2699-2714.	6.4	106
36	Epithelial repair is a two-stage process driven first by dying cells and then by their neighbours. <i>Journal of Cell Science</i> , 2014, 127, 1229-41.	2.0	103

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37	Self-organizing actin patterns shape membrane architecture but not cell mechanics. <i>Nature Communications</i> , 2017, 8, 14347.	12.8	99
38	Mechanisms of leading edge protrusion in interstitial migration. <i>Nature Communications</i> , 2013, 4, 2896.	12.8	91
39	Formation of adherens junctions leads to the emergence of a tissue-level tension in epithelial monolayers. <i>Journal of Cell Science</i> , 2014, 127, 2507-17.	2.0	91
40	Cortical cell stiffness is independent of substrate mechanics. <i>Nature Materials</i> , 2020, 19, 1019-1025.	27.5	89
41	Animal cell hydraulics. <i>Journal of Cell Science</i> , 2009, 122, 3233-3241.	2.0	86
42	PP1-Mediated Moesin Dephosphorylation Couples Polar Relaxation to Mitotic Exit. <i>Current Biology</i> , 2012, 22, 231-236.	3.9	86
43	Mechanics of the cellular actin cortex: From signalling to shape change. <i>Current Opinion in Cell Biology</i> , 2020, 66, 69-78.	5.4	77
44	Cell cortex composition and homeostasis resolved by integrating proteomics and quantitative imaging. <i>Cytoskeleton</i> , 2013, 70, 741-754.	2.0	76
45	Estimating the Sensitivity of Mechanosensitive Ion Channels to Membrane Strain and Tension. <i>Biophysical Journal</i> , 2004, 87, 2870-2884.	0.5	73
46	F-Actin Interactome Reveals Vimentin as a Key Regulator of Actin Organization and Cell Mechanics in Mitosis. <i>Developmental Cell</i> , 2020, 52, 210-222.e7.	7.0	70
47	Polarization of Myosin II Refines Tissue Material Properties to Buffer Mechanical Stress. <i>Developmental Cell</i> , 2019, 48, 245-260.e7.	7.0	68
48	Immunodeficiency and severe susceptibility to bacterial infection associated with a loss-of-function homozygous mutation of MKL1. <i>Blood</i> , 2015, 126, 1527-1535.	1.4	66
49	Directional memory arises from long-lived cytoskeletal asymmetries in polarized chemotactic cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 1267-1272.	7.1	65
50	Local cellular neighborhood controls proliferation in cell competition. <i>Molecular Biology of the Cell</i> , 2017, 28, 3215-3228.	2.1	62
51	Death-associated protein kinase (DAPK) and signal transduction: blebbing in programmed cell death. <i>FEBS Journal</i> , 2010, 277, 58-65.	4.7	61
52	A question of time: tissue adaptation to mechanical forces. <i>Current Opinion in Cell Biology</i> , 2016, 38, 68-73.	5.4	61
53	Actomyosin controls planarity and folding of epithelia in response to compression. <i>Nature Materials</i> , 2020, 19, 109-117.	27.5	60
54	Loss of E-cadherin provides tolerance to centrosome amplification in epithelial cancer cells. <i>Journal of Cell Biology</i> , 2018, 217, 195-209.	5.2	59

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55	Dissecting protein reaction dynamics in living cells by fluorescence recovery after photobleaching. <i>Nature Protocols</i> , 2015, 10, 660-680.	12.0	58
56	Improving the local solution accuracy of large-scale digital image-based finite element analyses. <i>Journal of Biomechanics</i> , 2000, 33, 255-259.	2.1	57
57	Nanoscale stiffness topography reveals structure and mechanics of the transport barrier in intact nuclear pore complexes. <i>Nature Nanotechnology</i> , 2015, 10, 60-64.	31.5	57
58	L-selectin shedding is activated specifically within transmigrating pseudopods of monocytes to regulate cell polarity in vitro. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, E1461-70.	7.1	54
59	WASp-dependent actin cytoskeleton stability at the dendritic cell immunological synapse is required for extensive, functional T cell contacts. <i>Journal of Leukocyte Biology</i> , 2016, 99, 699-710.	3.3	54
60	The Natural Product Cucurbitacin E Inhibits Depolymerization of Actin Filaments. <i>ACS Chemical Biology</i> , 2012, 7, 1502-1508.	3.4	51
61	Substrate area confinement is a key determinant of cell velocity in collective migration. <i>Nature Physics</i> , 2019, 15, 858-866.	16.7	51
62	Generating suspended cell monolayers for mechanobiological studies. <i>Nature Protocols</i> , 2013, 8, 2516-2530.	12.0	50
63	Curling of epithelial monolayers reveals coupling between active bending and tissue tension. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 9377-9383.	7.1	49
64	Quantitative Analysis of Ezrin Turnover Dynamics in the Actin Cortex. <i>Biophysical Journal</i> , 2014, 106, 343-353.	0.5	48
65	Coordinated control of Notch-Delta signalling and cell cycle progression drives lateral inhibition mediated tissue patterning. <i>Development (Cambridge)</i> , 2016, 143, 2305-10.	2.5	48
66	SPIN90 associates with mDia1 and the Arp2/3 complex to regulate cortical actin organization. <i>Nature Cell Biology</i> , 2020, 22, 803-814.	10.3	48
67	ANALYSIS OF LIGAND-RECEPTOR INTERACTIONS IN CELLS BY ATOMIC FORCE MICROSCOPY. <i>Journal of Receptor and Signal Transduction Research</i> , 2002, 22, 169-190.	2.5	47
68	Automated Deep Lineage Tree Analysis Using a Bayesian Single Cell Tracking Approach. <i>Frontiers in Computer Science</i> , 2021, 3, .	2.8	44
69	Excess F-actin mechanically impedes mitosis leading to cytokinesis failure in X-linked neutropenia by exceeding Aurora B kinase error correction capacity. <i>Blood</i> , 2012, 120, 3803-3811.	1.4	42
70	The dynamic mechanical properties of cellularised aggregates. <i>Current Opinion in Cell Biology</i> , 2016, 42, 113-120.	5.4	38
71	A unified rheological model for cells and cellularised materials. <i>Royal Society Open Science</i> , 2020, 7, 190920.	2.4	38
72	The toxoplasma-host cell junction is anchored to the cell cortex to sustain parasite invasive force. <i>BMC Biology</i> , 2014, 12, 773.	3.8	35

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73	A role for actomyosin contractility in Notch signaling. BMC Biology, 2019, 17, 12.	3.8	35
74	Stimulation of Cortical Myosin Phosphorylation by p114RhoGEF Drives Cell Migration and Tumor Cell Invasion. PLoS ONE, 2012, 7, e50188.	2.5	33
75	Redistribution of Adhesive Forces through Src/FAK Drives Contact Inhibition of Locomotion in Neural Crest. Developmental Cell, 2018, 45, 565-579.e3.	7.0	33
76	An open access microfluidic device for the study of the physical limits of cancer cell deformation during migration in confined environments. Microelectronic Engineering, 2015, 144, 42-45.	2.4	29
77	Cell-scale biophysical determinants of cell competition in epithelia. ELife, 2021, 10, .	6.0	28
78	Integration of Atomic Force and Confocal Microscopy. Single Molecules, 2000, 1, 135-137.	0.9	26
79	Spatiotemporal control of gene expression using microfluidics. Lab on A Chip, 2014, 14, 1336-1347.	6.0	26
80	Extent of myosin penetration within the actin cortex regulates cell surface mechanics. Nature Communications, 2021, 12, 6511.	12.8	26
81	L-selectin regulates human neutrophil transendothelial migration. Journal of Cell Science, 2021, 134, .	2.0	24
82	New technologies in scanning probe microscopy for studying molecular interactions in cells. Expert Reviews in Molecular Medicine, 2000, 2, 1-19.	3.9	19
83	A phenomenological density-scaling approach to lamellipodial actin dynamics <sup />. Interface Focus, 2014, 4, 20140006.	3.0	19
84	Liquid crystals in living tissue. Nature, 2017, 544, 164-165.	27.8	18
85	Fracture in living tissues. Trends in Cell Biology, 2022, 32, 537-551.	7.9	18
86	A Worldwide Competition to Compare the Speed and Chemotactic Accuracy of Neutrophil-Like Cells. PLoS ONE, 2016, 11, e0154491.	2.5	16
87	Isotropic myosin-generated tissue tension is required for the dynamic orientation of the mitotic spindle. Molecular Biology of the Cell, 2020, 31, 1370-1379.	2.1	15
88	Learning biophysical determinants of cell fate with deep neural networks. Nature Machine Intelligence, 2022, 4, 636-644.	16.0	14
89	A Microstructural Finite Element Simulation of Mechanically Induced Bone Formation. Journal of Biomechanical Engineering, 2001, 123, 607-612.	1.3	13
90	Disease-associated missense mutations in the EVH1 domain disrupt intrinsic WASp function causing dysregulated actin dynamics and impaired dendritic cell migration. Blood, 2013, 121, 72-84.	1.4	11

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91	Single-cell approaches to cell competition: High-throughput imaging, machine learning and simulations. <i>Seminars in Cancer Biology</i> , 2020, 63, 60-68.	9.6	10
92	Biotechnological Applications of Atomic Force Microscopy. <i>Methods in Cell Biology</i> , 2002, 68, 171-191.	1.1	9
93	Spindle reorientation in response to mechanical stress is an emergent property of the spindle positioning mechanisms. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	7.1	7
94	Hydraulic cracking. <i>Nature Materials</i> , 2015, 14, 268-269.	27.5	6
95	Tug-of-war between stretching and bending in living cell sheets. <i>Physical Review E</i> , 2020, 102, 012401.	2.1	5
96	Stress fibres and the cortex work in tandem. <i>Nature Materials</i> , 2021, 20, 281-283.	27.5	3
97	Poroelastic osmoregulation of living cell volume. <i>IScience</i> , 2021, 24, 103482.	4.1	3
98	Microfluidic Devices for Examining the Physical Limits of Migration in Confined Environments. <i>Methods in Molecular Biology</i> , 2018, 1749, 375-386.	0.9	1
99	BRAF Modulates Stretch-Induced Intercellular Gap Formation through Localized Actin Reorganization. <i>International Journal of Molecular Sciences</i> , 2021, 22, 8989.	4.1	1
100	Integration of Atomic Force and Confocal Microscopy. <i>Single Molecules</i> , 2000, 1, 135-137.	0.9	1
101	Epithelial repair is a two-stage process driven first by dying cells and then by their neighbours. <i>Development (Cambridge)</i> , 2014, 141, e0808-e0808.	2.5	0