Margaret L Gardel

List of Publications by Year
in descending order

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90 papers	9,559 citations	47006 47 h-index	49909 87 g-index
97 all docs	97 docs citations	97 times ranked	10087 citing authors

#	Article	IF	Citations
1	Mechanical Integration of Actin and Adhesion Dynamics in Cell Migration. Annual Review of Cell and Developmental Biology, 2010, 26, 315-333.	9.4	819
2	High Resolution Traction Force Microscopy Based on Experimental and Computational Advances. Biophysical Journal, 2008, 94, 207-220.	0.5	514
3	Forcing cells into shape: the mechanics of actomyosin contractility. Nature Reviews Molecular Cell Biology, 2015, 16, 486-498.	37.0	487
4	Cell-ECM traction force modulates endogenous tension at cellâ€“cell contacts. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 4708-4713.	7.1	448
5	Traction stress in focal adhesions correlates biphasically with actin retrograde flow speed. Journal of Cell Biology, 2008, 183, 999-1005.	5.2	422
6	Mechanics of the F-actin cytoskeleton. Journal of Biomechanics, 2010, 43, 9-14.	2.1	402
7	F-actin buckling coordinates contractility and severing in a biomimetic actomyosin cortex. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 20820-20825.	7.1	341
8	Identification and Characterization of a Small Molecule Inhibitor of Formin-Mediated Actin Assembly. Chemistry and Biology, 2009, 16, 1158-1168.	6.0	337
9	Tension is required but not sufficient for focal adhesion maturation without a stress fiber template. Journal of Cell Biology, 2012, 196, 363-374.	5.2	278
10	United we stand â€“ integrating the actin cytoskeleton and cellâ€“matrix adhesions in cellular mechanotransduction. Journal of Cell Science, 2012, 125, 3051-60.	2.0	278
11	Geometry Regulates Traction Stresses in Adherent Cells. Biophysical Journal, 2014, 107, 825-833.	0.5	211
12	Regulation of cell motile behavior by crosstalk between cadherin- and integrin-mediated adhesions. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 13324-13329.	7.1	199
13	Epithelial rotation promotes the global alignment of contractile actin bundles during Drosophila egg chamber elongation. Nature Communications, 2014, 5, 5511.	12.8	199
14	PyK2 and FAK connections to p190Rho guanine nucleotide exchange factor regulate RhoA activity, focal adhesion formation, and cell motility. Journal of Cell Biology, 2008, 180, 187-203.	5.2	196
15	A Zyxin-Mediated Mechanism for Actin Stress Fiber Maintenance and Repair. Developmental Cell, 2010, 19, 365-376.	7.0	193
16	Chapter 19 Mechanical Response of Cytoskeletal Networks. Methods in Cell Biology, 2008, 89, 487-519.	1.1	180
17	Stiffness-controlled three-dimensional extracellular matrices for high-resolution imaging of cell behavior. Nature Protocols, 2012, 7, 2056-2066.	12.0	178
18	Spatiotemporal Constraints on the Force-Dependent Growth of Focal Adhesions. Biophysical Journal, 2011, 100, 2883-2893.	0.5	177

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19	Local Cortical Tension by Myosin II Guides 3D Endothelial Cell Branching. Current Biology, 2009, 19, 260-265.	3.9	172
20	Contractile Units in Disordered Actomyosin Bundles Arise from F-Actin Buckling. Physical Review Letters, 2012, 108, 238107.	7.8	127
21	Tunable structure and dynamics of active liquid crystals. Science Advances, 2018, 4, eaat7779.	10.3	125
22	Optogenetic control of RhoA reveals zyxin-mediated elasticity of stress fibres. Nature Communications, 2017, 8, 15817.	12.8	123
23	Stressing the limits of focal adhesion mechanosensitivity. Current Opinion in Cell Biology, 2014, 30, 68-73.	5.4	122
24	Reconstitution of Contractile Actomyosin Bundles. Biophysical Journal, 2011, 100, 2698-2705.	0.5	119
25	Transient Frictional Slip between Integrin and the ECM in Focal Adhesions under Myosin II Tension. Current Biology, 2010, 20, 1145-1153.	3.9	114
26	Liquid behavior of cross-linked actin bundles. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 2131-2136.	7.1	106
27	Distribution of directional change as a signature of complex dynamics. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 19689-19694.	7.1	105
28	Lamellipodium is a myosin-independent mechanosensor. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 2646-2651.	7.1	101
29	High throughput discovery of functional protein modifications by Hotspot Thermal Profiling. Nature Methods, 2019, 16, 894-901.	19.0	101
30	Model-based Traction Force Microscopy Reveals Differential Tension in Cellular Actin Bundles. PLoS Computational Biology, 2015, 11, e1004076.	3.2	87
31	Actin Mechanics and Fragmentation. Journal of Biological Chemistry, 2015, 290, 17137-17144.	3.4	86
32	The Actin Cytoskeleton as an Active Adaptive Material. Annual Review of Condensed Matter Physics, 2020, 11, 421-439.	14.5	86
33	Assembly kinetics determine the architecture of Î±-actinin crosslinked F-actin networks. Nature Communications, 2012, 3, 861.	12.8	84
34	RhoA Mediates Epithelial Cell Shape Changes via Mechanosensitive Endocytosis. Developmental Cell, 2020, 52, 152-166.e5.	7.0	82
35	Endothelial barrier disruption and recovery is controlled by substrate stiffness. Microvascular Research, 2013, 87, 50-57.	2.5	81
36	Preparation of Complaint Matrices for Quantifying Cellular Contraction. Journal of Visualized Experiments, 2010, , .	0.3	79

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37	Partitioning and Enhanced Self-Assembly of Actin in Polypeptide Coacervates. Biophysical Journal, 2018, 114, 1636-1645.	0.5	78
38	Conserved F-actin dynamics and force transmission at cell adhesions. Current Opinion in Cell Biology, 2010, 22, 583-588.	5.4	76
39	Interplay of structure, elasticity, and dynamics in actin-based nematic materials. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E124-E133.	7.1	73
40	Spatiotemporal control of liquid crystal structure and dynamics through activity patterning. Nature Materials, 2021, 20, 875-882.	27.5	70
41	Dynamin regulates the dynamics and mechanical strength of the actin cytoskeleton as a multifilament actin-bundling protein. Nature Cell Biology, 2020, 22, 674-688.	10.3	70
42	CD98hc (SLC3A2) participates in fibronectin matrix assembly by mediating integrin signaling. Journal of Cell Biology, 2007, 178, 701-711.	5.2	69
43	Evolutionarily diverse LIM domain-containing proteins bind stressed actin filaments through a conserved mechanism. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 25532-25542.	7.1	67
44	Isoforms Confer Characteristic Force Generation and Mechanosensation by Myosin II Filaments. Biophysical Journal, 2015, 108, 1997-2006.	0.5	64
45	Filament rigidity and connectivity tune the deformation modes of active biopolymer networks. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E10037-E10045.	7.1	63
46	Liposome adhesion generates traction stress. Nature Physics, 2014, 10, 163-169.	16.7	62
47	Thick Filament Length and Isoform Composition Determine Self-Organized Contractile Units in Actomyosin Bundles. Biophysical Journal, 2013, 104, 655-665.	0.5	61
48	Determinants of Fluidlike Behavior and Effective Viscosity in Cross-Linked Actin Networks. Biophysical Journal, 2014, 106, 526-534.	0.5	59
49	Mechanosensitive Junction Remodeling Promotes Robust Epithelial Morphogenesis. Biophysical Journal, 2019, 117, 1739-1750.	0.5	59
50	Myosin II-Mediated Focal Adhesion Maturation Is Tension Insensitive. PLoS ONE, 2013, 8, e70652.	2.5	53
51	Desmosomal cadherin association with Tctex-1 and cortactin-Arp2/3 drives perijunctional actin polymerization to promote keratinocyte delamination. Nature Communications, 2018, 9, 1053.	12.8	52
52	Actomyosin sliding is attenuated in contractile biomimetic cortices. Molecular Biology of the Cell, 2014, 25, 1845-1853.	2.1	50
53	Optimization of traction force microscopy for micron-sized focal adhesions. Journal of Physics Condensed Matter, 2010, 22, 194104.	1.8	48
54	Self-organizing motors divide active liquid droplets. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 11125-11130.	7.1	44

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55	Machine learning active-nematic hydrodynamics. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	44
56	Cell cycleâ€“dependent active stress drives epithelia remodeling. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	41
57	Self-Organization of Myosin II in Reconstituted Actomyosin Bundles. Biophysical Journal, 2012, 103, 1265-1274.	0.5	40
58	Protrusive Activity Guides Changes in Cell-Cell Tension during Epithelial Cell Scattering. Biophysical Journal, 2014, 107, 555-563.	0.5	40
59	Attenuation of Lipopolysaccharide-Induced Lung Vascular Stiffening by Lipoxin Reduces Lung Inflammation. American Journal of Respiratory Cell and Molecular Biology, 2015, 52, 152-161.	2.9	40
60	Filament turnover tunes both force generation and dissipation to control long-range flows in a model actomyosin cortex. PLoS Computational Biology, 2017, 13, e1005811.	3.2	39
61	Arp2/3 Inhibition Induces Amoeboid-Like Protrusions in MCF10A Epithelial Cells by Reduced Cytoskeletal-Membrane Coupling and Focal Adhesion Assembly. PLoS ONE, 2014, 9, e100943.	2.5	38
62	Cholesterol depletion impairs contractile machinery in neonatal rat cardiomyocytes. Scientific Reports, 2017, 7, 43764.	3.3	37
63	<scp>LIM</scp> domain proteins in cell mechanobiology. Cytoskeleton, 2021, 78, 303-311.	2.0	34
64	Force localization modes in dynamic epithelial colonies. Molecular Biology of the Cell, 2018, 29, 2835-2847.	2.1	33
65	Cofilin drives rapid turnover and fluidization of entangled F-actin. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 12629-12637.	7.1	33
66	Mechanical hysteresis in actin networks. Soft Matter, 2018, 14, 2052-2058.	2.7	32
67	Cellâ€“substrate interactions. Journal of Physics Condensed Matter, 2010, 22, 190301.	1.8	25
68	Dia1-dependent adhesions are required by epithelial tissues to initiate invasion. Journal of Cell Biology, 2018, 217, 1485-1502.	5.2	23
69	Tuning shape and internal structure of protein dropletsviabiopolymer filaments. Soft Matter, 2020, 16, 5659-5668.	2.7	22
70	Reconstitution of Contractile Actomyosin Arrays. Methods in Enzymology, 2014, 540, 265-282.	1.0	20
71	Force-dependent intercellular adhesion strengthening underlies asymmetric adherens junction contraction. Current Biology, 2022, 32, 1986-2000.e5.	3.9	17
72	Actin filament alignment causes mechanical hysteresis in cross-linked networks. Soft Matter, 2021, 17, 5499-5507.	2.7	16

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73	Actin bundle architecture and mechanics regulate myosin II force generation. Biophysical Journal, 2021, 120, 1957-1970.	0.5	14
74	Clutch Dynamics. Science, 2008, 322, 1646-1647.	12.6	12
75	Actin Assembly Factors Regulate the Gelation Kinetics and Architecture ofÂF-actin Networks. Biophysical Journal, 2013, 104, 1709-1719.	0.5	12
76	Tuning molecular motor transport through cytoskeletal filament network organization. Soft Matter, 2020, 16, 2135-2140.	2.7	11
77	Optogenetic Control of RhoA to Probe Subcellular Mechanochemical Circuitry. Current Protocols in Cell Biology, 2020, 86, e102.	2.3	10
78	Probing Intracellular Force Distributions by Highâ€Resolution Live Cell Imaging and Inverse Dynamics. Methods in Cell Biology, 2007, 83, 199-235.	1.1	9
79	Adaptive viscoelasticity of epithelial cell junctions: from models to methods. Current Opinion in Genetics and Development, 2020, 63, 86-94.	3.3	8
80	Cutting through the Noise: The Mechanics of Intracellular Transport. Developmental Cell, 2014, 30, 365-366.	7.0	5
81	Heat and Humidity for Bioburden Reduction of N95 Filtering Facepiece Respirators. Applied Biosafety, 2021, 26, 80-89.	0.5	5
82	Catapulting of topological defects through elasticity bands in active nematics. Soft Matter, 2022, 18, 5271-5281.	2.7	5
83	Moving beyond molecular mechanisms. Journal of Cell Biology, 2015, 208, 143-145.	5.2	3
84	When Is â€œEnoughâ€•Enough?. Cell Systems, 2017, 4, 480-482.	6.2	3
85	Nucleation and shape dynamics of model nematic tactoids around adhesive colloids. Journal of Chemical Physics, 2020, 152, 084901.	3.0	3
86	Stress relaxation in F-actin solutions by severing. Soft Matter, 2019, 15, 6300-6307.	2.7	1
87	Caveolae Spelunking: Exploring a New Modality in Tensional Homeostasis. Developmental Cell, 2020, 54, 3-5.	7.0	1
88	Living matterâ€”nexus of physics and biology in the 21st century. Molecular Biology of the Cell, 2012, 23, 4165-4166.	2.1	0
89	Editorial overview: Cell architecture. Current Opinion in Cell Biology, 2016, 38, v-vi.	5.4	0
90	Dia1 coordinates differentiation and cell sorting in a stratified epithelium. Journal of Cell Biology, 2022, 221, .	5.2	0