Rob Phillips

List of Publications by Year
in descending order

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106 papers	12,048 citations	76326 40 h-index	39675 94 g-index
137 all docs	137 docs citations	137 times ranked	14941 citing authors

#	Article	IF	Citations
1	The biomass distribution on Earth. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 6506-6511.	7.1	2,102
2	Emerging roles for lipids in shaping membrane-protein function. Nature, 2009, 459, 379-385.	27.8	865
3	SARS-CoV-2 (COVID-19) by the numbers. ELife, 2020, 9, .	6.0	826
4	Transcriptional regulation by the numbers: models. Current Opinion in Genetics and Development, 2005, 15, 116-124.	3.3	660
5	Cell Biology by the Numbers. , 0, , .		645
6	Physical Biology of the Cell. , 0, , .		391
7	High flexibility of DNA on short length scales probed by atomic force microscopy. Nature Nanotechnology, 2006, 1, 137-141.	31.5	345
8	Transcriptional regulation by the numbers: applications. Current Opinion in Genetics and Development, 2005, 15, 125-135.	3.3	343
9	Mechanosensitive Channels: What Can They Do and How Do They Do It?. Structure, 2011, 19, 1356-1369.	3.3	303
10	Mechanics of DNA packaging in viruses. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 3173-3178.	7.1	260
11	Forces during Bacteriophage DNA Packaging and Ejection. Biophysical Journal, 2005, 88, 851-866.	0.5	254
12	The Transcription Factor Titration Effect Dictates Level of Gene Expression. Cell, 2014, 156, 1312-1323.	28.9	246
13	SnapShot: Key Numbers in Biology. Cell, 2010, 141, 1262-1262.e1.	28.9	206
14	Promoter architecture dictates cell-to-cell variability in gene expression. Science, 2014, 346, 1533-1536.	12.6	200
15	The total number and mass of SARS-CoV-2 virions. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	187
16	Distinct structural features of TFAM drive mitochondrial DNA packaging versus transcriptional activation. Nature Communications, 2014, 5, 3077.	12.8	186
17	Membrane-Protein Interactions in Mechanosensitive Channels. Biophysical Journal, 2005, 88, 880-902.	0.5	165
18	Biological consequences of tightly bent DNA: The other life of a macromolecular celebrity. Biopolymers, 2007, 85, 115-130.	2.4	158

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19	Tuning Promoter Strength through RNA Polymerase Binding Site Design in Escherichia coli. PLoS Computational Biology, 2012, 8, e1002811.	3.2	157
20	Effect of Promoter Architecture on the Cell-to-Cell Variability in Gene Expression. PLoS Computational Biology, 2011, 7, e1001100.	3.2	141
21	Analytic models for mechanotransduction: Gating a mechanosensitive channel. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 4071-4076.	7.1	133
22	Quantitative dissection of the simple repression inputâ€“output function. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 12173-12178.	7.1	122
23	The effect of genome length on ejection forces in bacteriophage lambda. Virology, 2006, 348, 430-436.	2.4	115
24	Real-time observations of single bacteriophage Î» DNA ejections <i>in vitro</i>. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 14652-14657.	7.1	114
25	Volume-Exclusion Effects in Tethered-Particle Experiments: Bead Size Matters. Physical Review Letters, 2006, 96, 088306.	7.8	113
26	Cooperative Gating and Spatial Organization of Membrane Proteins through Elastic Interactions. PLoS Computational Biology, 2007, 3, e81.	3.2	105
27	A feeling for the numbers in biology. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 21465-21471.	7.1	100
28	Energetic cost of building a virus. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E4324-E4333.	7.1	89
29	Statistical Mechanics of Monodâ€“Wymanâ€“Changeux (MWC) Models. Journal of Molecular Biology, 2013, 425, 1433-1460.	4.2	85
30	Controlling organization and forces in active matter through optically defined boundaries. Nature, 2019, 572, 224-229.	27.8	85
31	Concentration and Length Dependence of DNA Looping in Transcriptional Regulation. PLoS ONE, 2009, 4, e5621.	2.5	82
32	Systematic approach for dissecting the molecular mechanisms of transcriptional regulation in bacteria. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E4796-E4805.	7.1	81
33	Dynamics of DNA Ejection from Bacteriophage. Biophysical Journal, 2006, 91, 411-420.	0.5	76
34	Entropic Tension in Crowded Membranes. PLoS Computational Biology, 2012, 8, e1002431.	3.2	68
35	Operator Sequence Alters Gene Expression Independently of Transcription Factor Occupancy in Bacteria. Cell Reports, 2012, 2, 150-161.	6.4	65
36	Tuning Transcriptional Regulation through Signaling: A Predictive Theory of Allosteric Induction. Cell Systems, 2018, 6, 456-469.e10.	6.2	61

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37	The Rate of Osmotic Downshock Determines the Survival Probability of Bacterial Mechanosensitive Channel Mutants. Journal of Bacteriology, 2015, 197, 231-237.	2.2	60
38	A comprehensive and quantitative exploration of thousands of viral genomes. ELife, 2018, 7, .	6.0	59
39	Torque-dependent remodeling of the bacterial flagellar motor. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 11764-11769.	7.1	56
40	Design Principles of Length Control of Cytoskeletal Structures. Annual Review of Biophysics, 2016, 45, 85-116.	10.0	54
41	Teaching the principles of statistical dynamics. American Journal of Physics, 2006, 74, 123-133.	0.7	51
42	Figure 1 Theory Meets Figure 2 Experiments in the Study of Gene Expression. Annual Review of Biophysics, 2019, 48, 121-163.	10.0	48
43	Biochemistry on a Leash: The Roles of Tether Length and Geometry in Signal Integration Proteins. Biophysical Journal, 2009, 96, 1275-1292.	0.5	47
44	Thermodynamics of Biological Processes. Methods in Enzymology, 2011, 492, 27-59.	1.0	45
45	Sequence dependence of transcription factor-mediated DNA looping. Nucleic Acids Research, 2012, 40, 7728-7738.	14.5	45
46	Single-Cell Census of Mechanosensitive Channels in Living Bacteria. PLoS ONE, 2012, 7, e33077.	2.5	45
47	Fundamental limits on the rate of bacterial growth and their influence on proteomic composition. Cell Systems, 2021, 12, 924-944.e2.	6.2	45
48	The quantified cell. Molecular Biology of the Cell, 2014, 25, 3497-3500.	2.1	44
49	Theory in Biology: Figure 1 or Figure 7?. Trends in Cell Biology, 2015, 25, 723-729.	7.9	44
50	Statistical mechanical model of coupled transcription from multiple promoters due to transcription factor titration. Physical Review E, 2014, 89, 012702.	2.1	42
51	Directional interactions and cooperativity between mechanosensitive membrane proteins. Europhysics Letters, 2013, 101, 68002.	2.0	39
52	Poly(dA:dT)-Rich DNAs Are Highly Flexible in the Context of DNA Looping. PLoS ONE, 2013, 8, e75799.	2.5	39
53	Transcription by the numbers redux: experiments and calculations that surprise. Trends in Cell Biology, 2010, 20, 723-733.	7.9	38
54	Napoleon Is in Equilibrium. Annual Review of Condensed Matter Physics, 2015, 6, 85-111.	14.5	38

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55	Scaling of Gene Expression with Transcription-Factor Fugacity. Physical Review Letters, 2014, 113, 258101.	7.8	37
56	Mapping DNA sequence to transcription factor binding energy in vivo. PLoS Computational Biology, 2019, 15, e1006226.	3.2	36
57	Measuring Flux Distributions for Diffusion in the Small-Numbers Limit. Journal of Physical Chemistry B, 2007, 111, 2288-2292.	2.6	34
58	The Influence of Promoter Architectures and Regulatory Motifs on Gene Expression in Escherichia coli. PLoS ONE, 2014, 9, e114347.	2.5	33
59	Interplay of Protein Binding Interactions, DNA Mechanics, and Entropy inÂDNA Looping Kinetics. Biophysical Journal, 2015, 109, 618-629.	0.5	31
60	The role of DNA sequence in nucleosome breathing. European Physical Journal E, 2017, 40, 106.	1.6	31
61	Deciphering the regulatory genome of Escherichia coli, one hundred promoters at a time. ELife, 2020, 9, .	6.0	31
62	Modulation of DNA loop lifetimes by the free energy of loop formation. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 17396-17401.	7.1	30
63	Trajectory Approach to Two-State Kinetics of Single Particles on Sculpted Energy Landscapes. Physical Review Letters, 2009, 103, 050603.	7.8	29
64	Multiple LacI-mediated loops revealed by Bayesian statistics and tethered particle motion. Nucleic Acids Research, 2014, 42, 10265-10277.	14.5	29
65	How the avidity of polymerase binding to the â€"35/â€"10 promoter sites affects gene expression. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 13340-13345.	7.1	29
66	Connection between Oligomeric State and Gating Characteristics of Mechanosensitive Ion Channels. PLoS Computational Biology, 2013, 9, e1003055.	3.2	28
67	Lipid Bilayer Mechanics in a Pipette with Glass-Bilayer Adhesion. Biophysical Journal, 2011, 101, 1913-1920.	0.5	27
68	Multiplexed characterization of rationally designed promoter architectures deconstructs combinatorial logic for IPTG-inducible systems. Nature Communications, 2021, 12, 325.	12.8	27
69	Predictive shifts in free energy couple mutations to their phenotypic consequences. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 18275-18284.	7.1	27
70	Comparison and Calibration of Different Reporters for Quantitative Analysis of Gene Expression. Biophysical Journal, 2011, 101, 535-544.	0.5	25
71	Theoretical and Experimental Dissection of DNA Loop-Mediated Repression. Physical Review Letters, 2013, 110, 018101.	7.8	23
72	DNA sequence-dependent mechanics and protein-assisted bending in repressor-mediated loop formation. Physical Biology, 2013, 10, 066005.	1.8	23

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73	Microtubule End-Clustering Maintains a Steady-State Spindle Shape. Current Biology, 2019, 29, 700-708.e5.	3.9	23
74	Single-molecule analysis of RAG-mediated V(D)J DNA cleavage. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, E1715-23.	7.1	20
75	Harnessing Avidity: Quantifying the Entropic and Energetic Effects of Linker Length and Rigidity for Multivalent Binding of Antibodies to HIV-1. Cell Systems, 2019, 9, 466-474.e7.	6.2	20
76	Measuring cis-regulatory energetics in living cells using allelic manifolds. ELife, 2018, 7, .	6.0	20
77	Reconciling kinetic and thermodynamic models of bacterial transcription. PLoS Computational Biology, 2021, 17, e1008572.	3.2	17
78	Statistical Mechanics of Allosteric Enzymes. Journal of Physical Chemistry B, 2016, 120, 6021-6037.	2.6	15
79	Proofreading through spatial gradients. ELife, 2020, 9, .	6.0	14
80	Self-consistent theory of transcriptional control in complex regulatory architectures. PLoS ONE, 2017, 12, e0179235.	2.5	13
81	Membranes by the Numbers. , 2018, , 73-105.		13
82	Connecting the Dots between Mechanosensitive Channel Abundance, Osmotic Shock, and Survival at Single-Cell Resolution. Journal of Bacteriology, 2018, 200, .	2.2	11
83	Combinatorial Control through Allostery. Journal of Physical Chemistry B, 2019, 123, 2792-2800.	2.6	11
84	First-principles prediction of the information processing capacity of a simple genetic circuit. Physical Review E, 2020, 102, 022404.	2.1	11
85	Predicting the impact of promoter variability on regulatory outputs. Scientific Reports, 2016, 5, 18238.	3.3	9
86	Using synthetic biology to make cells tomorrow's test tubes. Integrative Biology (United Kingdom), 2016, 8, 431-450.	1.3	9
87	Theoretical analysis of inducer and operator binding for cyclic-AMP receptor protein mutants. PLoS ONE, 2018, 13, e0204275.	2.5	9
88	Sequence-dependent dynamics of synthetic and endogenous RSSs in V(D)J recombination. Nucleic Acids Research, 2020, 48, 6726-6739.	14.5	8
89	Persistent fluid flows defined by active matter boundaries. Communications Physics, 2021, 4, .	5.3	7
90	Monod-Wyman-Changeux Analysis of Ligand-Gated Ion Channel Mutants. Journal of Physical Chemistry B, 2017, 121, 3813-3824.	2.6	5

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91	Allostery and Kinetic Proofreading. Journal of Physical Chemistry B, 2019, 123, 10990-11002.	2.6	4
92	Theoretical investigation of a genetic switch for metabolic adaptation. PLoS ONE, 2020, 15, e0226453.	2.5	4
93	SchrÃ¶dingerâ€™s What Is Life? at 75. Cell Systems, 2021, 12, 465-476.	6.2	4
94	Musings on mechanism: quest for a quark theory of proteins?. FASEB Journal, 2017, 31, 4207-4215.	0.5	3
95	MCRL: using a reference library to compress a metagenome into a non-redundant list of sequences, considering viruses as a case study. Bioinformatics, 2022, 38, 631-647.	4.1	3
96	Measuring the Energetic Costs of Embryonic Development. Developmental Cell, 2019, 48, 591-592.	7.0	2
97	Biology by the Numbers. , 2008, , 217-246.		2
98	Jonathan Widom (1955â€“2011). Nature, 2011, 476, 400-400.	27.8	1
99	3. SIGNALING AT THE CELL MEMBRANE: ION CHANNELS. , 2020, , 77-123.		0
100	8. HOW CELLS DECIDE WHAT TO BE: SIGNALING AND GENE REGULATION. , 2020, , 272-302.		0
101	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
102	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
103	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
104	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
105	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
106	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0