Rob Phillips

List of Publications by Year
in descending order

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	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
2	Multiplexed characterization of rationally designed promoter architectures deconstructs combinatorial logic for IPTG-inducible systems. Nature Communications, 2021, 12, 325.	12.8	27
3	Reconciling kinetic and thermodynamic models of bacterial transcription. PLoS Computational Biology, 2021, 17, e1008572.	3.2	17
4	SchrÃ¶dingerâ€™s What Is Life? at 75. Cell Systems, 2021, 12, 465-476.	6.2	4
5	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
6	Persistent fluid flows defined by active matter boundaries. Communications Physics, 2021, 4, .	5.3	7
7	Fundamental limits on the rate of bacterial growth and their influence on proteomic composition. Cell Systems, 2021, 12, 924-944.e2.	6.2	45
8	3. SIGNALING AT THE CELL MEMBRANE: ION CHANNELS. , 2020, , 77-123.		0
9	8. HOW CELLS DECIDE WHAT TO BE: SIGNALING AND GENE REGULATION. , 2020, , 272-302.		0
10	First-principles prediction of the information processing capacity of a simple genetic circuit. Physical Review E, 2020, 102, 022404.	2.1	11
11	Theoretical investigation of a genetic switch for metabolic adaptation. PLoS ONE, 2020, 15, e0226453.	2.5	4
12	Sequence-dependent dynamics of synthetic and endogenous RSSs in V(D)J recombination. Nucleic Acids Research, 2020, 48, 6726-6739.	14.5	8
13	Deciphering the regulatory genome of Escherichia coli, one hundred promoters at a time. ELife, 2020, 9, .	6.0	31
14	SARS-CoV-2 (COVID-19) by the numbers. ELife, 2020, 9, .	6.0	826
15	Proofreading through spatial gradients. ELife, 2020, 9, .	6.0	14
16	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
17	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
18	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0

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19	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
20	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
21	Theoretical investigation of a genetic switch for metabolic adaptation. , 2020, 15, e0226453.		0
22	Controlling organization and forces in active matter through optically defined boundaries. Nature, 2019, 572, 224-229.	27.8	85
23	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
24	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
25	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
26	Figure 1 Theory Meets Figure 2 Experiments in the Study of Gene Expression. Annual Review of Biophysics, 2019, 48, 121-163.	10.0	48
27	Measuring the Energetic Costs of Embryonic Development. Developmental Cell, 2019, 48, 591-592.	7.0	2
28	Mapping DNA sequence to transcription factor binding energy in vivo. PLoS Computational Biology, 2019, 15, e1006226.	3.2	36
29	Combinatorial Control through Allostery. Journal of Physical Chemistry B, 2019, 123, 2792-2800.	2.6	11
30	Microtubule End-Clustering Maintains a Steady-State Spindle Shape. Current Biology, 2019, 29, 700-708.e5.	3.9	23
31	Allostery and Kinetic Proofreading. Journal of Physical Chemistry B, 2019, 123, 10990-11002.	2.6	4
32	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
33	Tuning Transcriptional Regulation through Signaling: A Predictive Theory of Allosteric Induction. Cell Systems, 2018, 6, 456-469.e10.	6.2	61
34	Membranes by the Numbers. , 2018, , 73-105.		13
35	Theoretical analysis of inducer and operator binding for cyclic-AMP receptor protein mutants. PLoS ONE, 2018, 13, e0204275.	2.5	9
36	Connecting the Dots between Mechanosensitive Channel Abundance, Osmotic Shock, and Survival at Single-Cell Resolution. Journal of Bacteriology, 2018, 200, .	2.2	11

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37	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
38	A comprehensive and quantitative exploration of thousands of viral genomes. ELife, 2018, 7, .	6.0	59
39	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
40	Measuring cis-regulatory energetics in living cells using allelic manifolds. ELife, 2018, 7, .	6.0	20
41	Monod-Wyman-Changeux Analysis of Ligand-Gated Ion Channel Mutants. Journal of Physical Chemistry B, 2017, 121, 3813-3824.	2.6	5
42	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
43	Musings on mechanism: quest for a quark theory of proteins?. FASEB Journal, 2017, 31, 4207-4215.	0.5	3
44	The role of DNA sequence in nucleosome breathing. European Physical Journal E, 2017, 40, 106.	1.6	31
45	Self-consistent theory of transcriptional control in complex regulatory architectures. PLoS ONE, 2017, 12, e0179235.	2.5	13
46	Statistical Mechanics of Allosteric Enzymes. Journal of Physical Chemistry B, 2016, 120, 6021-6037.	2.6	15
47	Predicting the impact of promoter variability on regulatory outputs. Scientific Reports, 2016, 5, 18238.	3.3	9
48	Design Principles of Length Control of Cytoskeletal Structures. Annual Review of Biophysics, 2016, 45, 85-116.	10.0	54
49	Using synthetic biology to make cells tomorrow's test tubes. Integrative Biology (United Kingdom), 2016, 8, 431-450.	1.3	9
50	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
51	Napoleon Is in Equilibrium. Annual Review of Condensed Matter Physics, 2015, 6, 85-111.	14.5	38
52	Interplay of Protein Binding Interactions, DNA Mechanics, and Entropy inÂDNA Looping Kinetics. Biophysical Journal, 2015, 109, 618-629.	0.5	31
53	Theory in Biology: Figure 1 or Figure 7?. Trends in Cell Biology, 2015, 25, 723-729.	7.9	44
54	The Rate of Osmotic Downshock Determines the Survival Probability of Bacterial Mechanosensitive Channel Mutants. Journal of Bacteriology, 2015, 197, 231-237.	2.2	60

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55	The Influence of Promoter Architectures and Regulatory Motifs on Gene Expression in Escherichia coli. PLoS ONE, 2014, 9, e114347.	2.5	33
56	Promoter architecture dictates cell-to-cell variability in gene expression. Science, 2014, 346, 1533-1536.	12.6	200
57	Scaling of Gene Expression with Transcription-Factor Fugacity. Physical Review Letters, 2014, 113, 258101.	7.8	37
58	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
59	Multiple LacI-mediated loops revealed by Bayesian statistics and tethered particle motion. Nucleic Acids Research, 2014, 42, 10265-10277.	14.5	29
60	The Transcription Factor Titration Effect Dictates Level of Gene Expression. Cell, 2014, 156, 1312-1323.	28.9	246
61	The quantified cell. Molecular Biology of the Cell, 2014, 25, 3497-3500.	2.1	44
62	Distinct structural features of TFAM drive mitochondrial DNA packaging versus transcriptional activation. Nature Communications, 2014, 5, 3077.	12.8	186
63	Statistical mechanical model of coupled transcription from multiple promoters due to transcription factor titration. Physical Review E, 2014, 89, 012702.	2.1	42
64	Theoretical and Experimental Dissection of DNA Loop-Mediated Repression. Physical Review Letters, 2013, 110, 018101.	7.8	23
65	Statistical Mechanics of Monodâ€"Wymanâ€"Changeux (MWC) Models. Journal of Molecular Biology, 2013, 425, 1433-1460.	4.2	85
66	Connection between Oligomeric State and Gating Characteristics of Mechanosensitive Ion Channels. PLoS Computational Biology, 2013, 9, e1003055.	3.2	28
67	Directional interactions and cooperativity between mechanosensitive membrane proteins. Europhysics Letters, 2013, 101, 68002.	2.0	39
68	DNA sequence-dependent mechanics and protein-assisted bending in repressor-mediated loop formation. Physical Biology, 2013, 10, 066005.	1.8	23
69	Poly(dA:dT)-Rich DNAs Are Highly Flexible in the Context of DNA Looping. PLoS ONE, 2013, 8, e75799.	2.5	39
70	Entropic Tension in Crowded Membranes. PLoS Computational Biology, 2012, 8, e1002431.	3.2	68
71	Tuning Promoter Strength through RNA Polymerase Binding Site Design in Escherichia coli. PLoS Computational Biology, 2012, 8, e1002811.	3.2	157
72	Sequence dependence of transcription factor-mediated DNA looping. Nucleic Acids Research, 2012, 40, 7728-7738.	14.5	45

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73	Operator Sequence Alters Gene Expression Independently of Transcription Factor Occupancy in Bacteria. Cell Reports, 2012, 2, 150-161.	6.4	65
74	Single-Cell Census of Mechanosensitive Channels in Living Bacteria. PLoS ONE, 2012, 7, e33077.	2.5	45
75	Thermodynamics of Biological Processes. Methods in Enzymology, 2011, 492, 27-59.	1.0	45
76	Comparison and Calibration of Different Reporters for Quantitative Analysis of Gene Expression. Biophysical Journal, 2011, 101, 535-544.	0.5	25
77	Lipid Bilayer Mechanics in a Pipette with Glass-Bilayer Adhesion. Biophysical Journal, 2011, 101, 1913-1920.	0.5	27
78	Mechanosensitive Channels: What Can They Do and How Do They Do It?. Structure, 2011, 19, 1356-1369.	3.3	303
79	Jonathan Widom (1955â€“2011). Nature, 2011, 476, 400-400.	27.8	1
80	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
81	Effect of Promoter Architecture on the Cell-to-Cell Variability in Gene Expression. PLoS Computational Biology, 2011, 7, e1001100.	3.2	141
82	Transcription by the numbers redux: experiments and calculations that surprise. Trends in Cell Biology, 2010, 20, 723-733.	7.9	38
83	SnapShot: Key Numbers in Biology. Cell, 2010, 141, 1262-1262.e1.	28.9	206
84	Trajectory Approach to Two-State Kinetics of Single Particles on Sculpted Energy Landscapes. Physical Review Letters, 2009, 103, 050603.	7.8	29
85	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
86	Emerging roles for lipids in shaping membrane-protein function. Nature, 2009, 459, 379-385.	27.8	865
87	Biochemistry on a Leash: The Roles of Tether Length and Geometry in Signal Integration Proteins. Biophysical Journal, 2009, 96, 1275-1292.	0.5	47
88	Concentration and Length Dependence of DNA Looping in Transcriptional Regulation. PLoS ONE, 2009, 4, e5621.	2.5	82
89	Biology by the Numbers. , 2008, , 217-246.		2
90	Cooperative Gating and Spatial Organization of Membrane Proteins through Elastic Interactions. PLoS Computational Biology, 2007, 3, e81.	3.2	105

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91	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
92	Measuring Flux Distributions for Diffusion in the Small-Numbers Limit. Journal of Physical Chemistry B, 2007, 111, 2288-2292.	2.6	34
93	Biological consequences of tightly bent DNA: The other life of a macromolecular celebrity. Biopolymers, 2007, 85, 115-130.	2.4	158
94	Teaching the principles of statistical dynamics. American Journal of Physics, 2006, 74, 123-133.	0.7	51
95	Dynamics of DNA Ejection from Bacteriophage. Biophysical Journal, 2006, 91, 411-420.	0.5	76
96	High flexibility of DNA on short length scales probed by atomic force microscopy. Nature Nanotechnology, 2006, 1, 137-141.	31.5	345
97	The effect of genome length on ejection forces in bacteriophage lambda. Virology, 2006, 348, 430-436.	2.4	115
98	Volume-Exclusion Effects in Tethered-Particle Experiments: Bead Size Matters. Physical Review Letters, 2006, 96, 088306.	7.8	113
99	Transcriptional regulation by the numbers: applications. Current Opinion in Genetics and Development, 2005, 15, 125-135.	3.3	343
100	Transcriptional regulation by the numbers: models. Current Opinion in Genetics and Development, 2005, 15, 116-124.	3.3	660
101	Forces during Bacteriophage DNA Packaging and Ejection. Biophysical Journal, 2005, 88, 851-866.	0.5	254
102	Membrane-Protein Interactions in Mechanosensitive Channels. Biophysical Journal, 2005, 88, 880-902.	0.5	165
103	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
104	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
105	Cell Biology by the Numbers. , 0, , .		645
106	Physical Biology of the Cell. , 0, , .		391