Steven M Block

List of Publications by Year
in descending order

101 papers	23,134 citations	16411 64 h-index	34900 98 g-index
105 all docs	105 docs citations	105 times ranked	11796 citing authors

#	Article	IF	Citations
1	Optical trapping. Review of Scientific Instruments, 2004, 75, 2787-2809.	0.6	2,206
2	Direct observation of kinesin stepping by optical trapping interferometry. Nature, 1993, 365, 721-727.	13.7	1,818
3	Bead movement by single kinesin molecules studied with optical tweezers. Nature, 1990, 348, 348-352.	13.7	973
4	Single kinesin molecules studied with a molecular force clamp. Nature, 1999, 400, 184-189.	13.7	946
5	Force and velocity measured for single kinesin molecules. Cell, 1994, 77, 773-784.	13.5	845
6	Direct observation of base-pair stepping by RNA polymerase. Nature, 2005, 438, 460-465.	13.7	797
7	Force and Velocity Measured for Single Molecules of RNA Polymerase. , 1998, 282, 902-907.		790
8	Optical trapping of metallic Rayleigh particles. Optics Letters, 1994, 19, 930.	1.7	717
9	Kinesin hydrolyses one ATP per 8-nm step. Nature, 1997, 388, 386-390.	13.7	704
10	Characterization of Photodamage to Escherichia coli in Optical Traps. Biophysical Journal, 1999, 77, 2856-2863.	0.2	622
11	Force production by single kinesin motors. Nature Cell Biology, 2000, 2, 718-723.	4.6	524
12	Kinesin Moves by an Asymmetric Hand-Over-Hand Mechanism. Science, 2003, 302, 2130-2134.	6.0	477
13	Compliance of bacterial flagella measured with optical tweezers. Nature, 1989, 338, 514-518.	13.7	433
14	High-Resolution, Single-Molecule Measurements of Biomolecular Motion. Annual Review of Biophysics and Biomolecular Structure, 2007, 36, 171-190.	18.3	425
15	Nanomechanical measurements of the sequence-dependent folding landscapes of single nucleic acid hairpins. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 6190-6195.	3.3	397
16	Developmental Regulation of Vesicle Transport in Drosophila Embryos: Forces and Kinetics. Cell, 1998, 92, 547-557.	13.5	368
17	Direct Observation of Hierarchical Folding in Single Riboswitch Aptamers. Science, 2008, 319, 630-633.	6.0	361
18	Direct Measurement of the Full, Sequence-Dependent Folding Landscape of a Nucleic Acid. Science, 2006, 314, 1001-1004.	6.0	356

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19	Optical tweezers study life under tension. Nature Photonics, 2011, 5, 318-321.	15.6	354
20	Backtracking by single RNA polymerase molecules observed at near-base-pair resolution. Nature, 2003, 426, 684-687.	13.7	340
21	Kinesin Motor Mechanics: Binding, Stepping, Tracking, Gating, and Limping. Biophysical Journal, 2007, 92, 2986-2995.	0.2	315
22	Ubiquitous Transcriptional Pausing Is Independent of RNA Polymerase Backtracking. Cell, 2003, 115, 437-447.	13.5	306
23	Impulse responses in bacterial chemotaxis. Cell, 1982, 31, 215-226.	13.5	280
24	A pause sequence enriched at translation start sites drives transcription dynamics in vivo. Science, 2014, 344, 1042-1047.	6.0	280
25	Probing the kinesin reaction cycle with a 2D optical force clamp. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 2351-2356.	3.3	264
26	An Automated Two-Dimensional Optical Force Clamp for Single Molecule Studies. Biophysical Journal, 2002, 83, 491-501.	0.2	256
27	Coordination of opposite-polarity microtubule motors. Journal of Cell Biology, 2002, 156, 715-724.	2.3	254
28	Stretching of Single Collapsed DNA Molecules. Biophysical Journal, 2000, 78, 1965-1978.	0.2	253
29	Sequence-Resolved Detection of Pausing by Single RNA Polymerase Molecules. Cell, 2006, 125, 1083-1094.	13.5	252
30	Individual dimers of the mitotic kinesin motor Eg5 step processively and support substantial loads in vitro. Nature Cell Biology, 2006, 8, 470-476.	4.6	243
31	Successive incorporation of force-generating units in the bacterial rotary motor. Nature, 1984, 309, 470-472.	13.7	241
32	Simultaneous, coincident optical trapping and single-molecule fluorescence. Nature Methods, 2004, 1, 133-139.	9.0	218
33	Resource Letter: LBOT-1: Laser-based optical tweezers. American Journal of Physics, 2003, 71, 201-215.	0.3	213
34	Dynein-Mediated Cargo Transport in Vivo. Journal of Cell Biology, 2000, 148, 945-956.	2.3	211
35	Passive All-Optical Force Clamp for High-Resolution Laser Trapping. Physical Review Letters, 2005, 95, 208102.	2.9	201
36	Reconstructing Folding Energy Landscapes by Single-Molecule Force Spectroscopy. Annual Review of Biophysics, 2014, 43, 19-39.	4.5	200

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37	A universal pathway for kinesin stepping. Nature Structural and Molecular Biology, 2011, 18, 1020-1027.	3.6	182
38	Single-Molecule Studies of RNA Polymerase: Motoring Along. Annual Review of Biochemistry, 2008, 77, 149-176.	5.0	179
39	Making light work with optical tweezers. Nature, 1992, 360, 493-495.	13.7	176
40	A DNA-based molecular probe for optically reporting cellular traction forces. Nature Methods, 2014, 11, 1229-1232.	9.0	171
41	Applied Force Reveals Mechanistic and Energetic Details of Transcription Termination. Cell, 2008, 132, 971-982.	13.5	168
42	Direct Observation of Cotranscriptional Folding in an Adenine Riboswitch. Science, 2012, 338, 397-400.	6.0	168
43	Stepping and Stretching. Journal of Biological Chemistry, 2003, 278, 18550-18556.	1.6	159
44	Examining kinesin processivity within a general gating framework. ELife, 2015, 4, .	2.8	158
45	Forward and Reverse Motion of Single RecBCD Molecules on DNA. Biophysical Journal, 2004, 86, 1640-1648.	0.2	134
46	[38] Versatile optical traps with feedback control. Methods in Enzymology, 1998, 298, 460-489.	0.4	133
47	Sequence-Dependent Pausing of Single Lambda Exonuclease Molecules. Science, 2003, 301, 1914-1918.	6.0	128
48	Backsteps induced by nucleotide analogs suggest the front head of kinesin is gated by strain. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 8054-8059.	3.3	123
49	Trigger loop dynamics mediate the balance between the transcriptional fidelity and speed of RNA polymerase II. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 6555-6560.	3.3	118
50	Kinesin processivity is gated by phosphate release. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 14136-14140.	3.3	113
51	E. coli NusG Inhibits Backtracking and Accelerates Pause-Free Transcription by Promoting Forward Translocation of RNA Polymerase. Journal of Molecular Biology, 2010, 399, 17-30.	2.0	108
52	Direct observation of the binding state of the kinesin head to the microtubule. Nature, 2009, 461, 125-128.	13.7	106
53	Kinesin: What Gives?. Cell, 1998, 93, 5-8.	13.5	103
54	Single-Molecule, Motion-Based DNA Sequencing Using RNA Polymerase. Science, 2006, 313, 801-801.	6.0	102

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55	Single-Molecule Studies of RNA Polymerase: One Singular Sensation, Every Little Step It Takes. Molecular Cell, 2011, 41, 249-262.	4.5	95
56	Fifty Ways to Love Your Lever: Myosin Motors. Cell, 1996, 87, 151-157.	13.5	92
57	Folding and unfolding single RNA molecules under tension. Current Opinion in Chemical Biology, 2008, 12, 640-646.	2.8	92
58	Combined optical trapping and single-molecule fluorescence. Journal of Biology, 2003, 2, 6.	2.7	90
59	Real-time observation of the initiation of RNA polymerase II transcription. Nature, 2015, 525, 274-277.	13.7	90
60	Movement of myosin fragments in vitro: Domains involved in force production. Cell, 1987, 48, 953-963.	13.5	88
61	Measurement of the effective focal shift in an optical trap. Optics Letters, 2005, 30, 1318.	1.7	82
62	Compliance of bacterial polyhooks measured with optical tweezers. Cytometry, 1991, 12, 492-496.	1.8	78
63	Statistical Kinetics of Macromolecular Dynamics. Biophysical Journal, 2005, 89, 2277-2285.	0.2	76
64	Factor-dependent processivity in human eIF4A DEAD-box helicase. Science, 2015, 348, 1486-1488.	6.0	76
65	The Mechanochemical Cycle of Mammalian Kinesin-2 KIF3A/B under Load. Current Biology, 2015, 25, 1166-1175.	1.8	75
66	Folding energy landscape of the thiamine pyrophosphate riboswitch aptamer. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 1485-1489.	3.3	71
67	Transcription factors TFIIF and TFIIS promote transcript elongation by RNA polymerase II by synergistic and independent mechanisms. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 6642-6647.	3.3	68
68	[50] Myosin movement in Vitro: A quantitative assay using oriented actin cables from Nitella. Methods in Enzymology, 1986, 134, 531-544.	0.4	65
69	Precision steering of an optical trap by electro-optic deflection. Optics Letters, 2008, 33, 599.	1.7	64
70	Eg5 steps it up!. Cell Division, 2006, 1, 31.	1.1	62
71	Nanometres and piconewtons: the macromolecular mechanics of kinesin. Trends in Cell Biology, 1995, 5, 169-175.	3.6	61
72	Picocalorimetry of Transcription by RNA Polymerase. Biophysical Journal, 2005, 89, L61-L63.	0.2	58

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73	Pulling on the Nascent RNA during Transcription Does Not Alter Kinetics of Elongation or Ubiquitous Pausing. Molecular Cell, 2006, 23, 231-239.	4.5	54
74	Real engines of creation. Nature, 1997, 386, 217-218.	13.7	52
75	Binding and Translocation of Termination Factor Rho Studied at the Single-Molecule Level. Journal of Molecular Biology, 2012, 423, 664-676.	2.0	50
76	Intraflagellar transport velocity is governed by the number of active KIF17 and KIF3AB motors and their motility properties under load. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E6830-E6838.	3.3	50
77	Single-molecule studies of riboswitch folding. Biochimica Et Biophysica Acta - Gene Regulatory Mechanisms, 2014, 1839, 1030-1045.	0.9	49
78	Applied Force Provides Insight into Transcriptional Pausing and Its Modulation by Transcription Factor NusA. Molecular Cell, 2011, 44, 635-646.	4.5	47
79	An Optical Apparatus for Rotation and Trapping. Methods in Enzymology, 2010, 475, 377-404.	0.4	45
80	Leading the Procession: New Insights into Kinesin Motors. Journal of Cell Biology, 1998, 140, 1281-1284.	2.3	40
81	KIF15 nanomechanics and kinesin inhibitors, with implications for cancer chemotherapeutics. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E4613-E4622.	3.3	40
82	Direct measurements of kinesin torsional properties reveal flexible domains and occasional stalk reversals during stepping. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 17007-17012.	3.3	39
83	Force and Premature Binding of ADP Can Regulate the Processivity of Individual Eg5 Dimers. Biophysical Journal, 2009, 97, 1671-1677.	0.2	32
84	Observation of long-range tertiary interactions during ligand binding by the TPP riboswitch aptamer. ELife, 2015, 4, .	2.8	31
85	Electrostatics of Nucleic Acid Folding under Conformational Constraint. Journal of the American Chemical Society, 2012, 134, 4607-4614.	6.6	30
86	Direct observation of processive exoribonuclease motion using optical tweezers. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 15101-15106.	3.3	28
87	On the Origin of Kinesin Limping. Biophysical Journal, 2009, 97, 1663-1670.	0.2	27
88	Single-molecule studies of RNAPII elongation. Biochimica Et Biophysica Acta - Gene Regulatory Mechanisms, 2013, 1829, 29-38.	0.9	25
89	Kinesin Steps Do Not Alternate in Size. Biophysical Journal, 2008, 94, L20-L22.	0.2	23
90	Comprehensive sequence-to-function mapping of cofactor-dependent RNA catalysis in the glmS ribozyme. Nature Communications, 2020, 11, 1663.	5.8	21

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91	Efficient reconstitution of transcription elongation complexes for single-molecule studies of eukaryotic RNA polymerase II. Transcription, 2012, 3, 146-153.	1.7	20
92	Computerized video analysis of tethered bacteria. Review of Scientific Instruments, 1987, 58, 418-423.	0.6	18
93	One small step for myosin.... Nature, 1995, 378, 132-133.	13.7	18
94	Self-cleavage of the <i>glmS</i> ribozyme core is controlled by a fragile folding element. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 11976-11981.	3.3	14
95	Real-time observation of polymerase-promoter contact remodeling during transcription initiation. Nature Communications, 2017, 8, 1178.	5.8	12
96	Not So Lame After All: Kinesin Still Walks with a Hobbled Head. Journal of General Physiology, 2007, 130, 441-444.	0.9	6
97	Observing Single RNA Polymerase Molecules Down to Base-Pair Resolution. Methods in Molecular Biology, 2017, 1486, 391-409.	0.4	3
98	TFIIF and TFIIS Enhance the Mechanical Persistence of Transcript Elongation by RNA Polymerase II. Biophysical Journal, 2014, 106, 486a.	0.2	2
99	High-resolution single-molecule optical trapping measurements of transcription with basepair accuracy: instrumentation and methods. , 2007, , .		1
100	Not So Lame After All: Kinesin Still Walks with a Hobbled Head. Journal of Cell Biology, 2007, 179, i10-i10.	2.3	0
101	Optical tweezers as a tool to study cellular function. Proceedings Annual Meeting Electron Microscopy Society of America, 1992, 50, 424-425.	0.0	0