

# Steven M Block

## List of Publications by Year in descending order

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101  
papers

23,134  
citations

16451

64  
h-index

34986

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.	1.3	2,206
2	Direct observation of kinesin stepping by optical trapping interferometry. Nature, 1993, 365, 721-727.	27.8	1,818
3	Bead movement by single kinesin molecules studied with optical tweezers. Nature, 1990, 348, 348-352.	27.8	973
4	Single kinesin molecules studied with a molecular force clamp. Nature, 1999, 400, 184-189.	27.8	946
5	Force and velocity measured for single kinesin molecules. Cell, 1994, 77, 773-784.	28.9	845
6	Direct observation of base-pair stepping by RNA polymerase. Nature, 2005, 438, 460-465.	27.8	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.	3.3	717
9	Kinesin hydrolyses one ATP per 8-nm step. Nature, 1997, 388, 386-390.	27.8	704
10	Characterization of Photodamage to Escherichia coli in Optical Traps. Biophysical Journal, 1999, 77, 2856-2863.	0.5	622
11	Force production by single kinesin motors. Nature Cell Biology, 2000, 2, 718-723.	10.3	524
12	Kinesin Moves by an Asymmetric Hand-Over-Hand Mechanism. Science, 2003, 302, 2130-2134.	12.6	477
13	Compliance of bacterial flagella measured with optical tweezers. Nature, 1989, 338, 514-518.	27.8	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.	7.1	397
16	Developmental Regulation of Vesicle Transport in Drosophila Embryos: Forces and Kinetics. Cell, 1998, 92, 547-557.	28.9	368
17	Direct Observation of Hierarchical Folding in Single Riboswitch Aptamers. Science, 2008, 319, 630-633.	12.6	361
18	Direct Measurement of the Full, Sequence-Dependent Folding Landscape of a Nucleic Acid. Science, 2006, 314, 1001-1004.	12.6	356

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19	Optical tweezers study life under tension. <i>Nature Photonics</i> , 2011, 5, 318-321.	31.4	354
20	Backtracking by single RNA polymerase molecules observed at near-base-pair resolution. <i>Nature</i> , 2003, 426, 684-687.	27.8	340
21	Kinesin Motor Mechanics: Binding, Stepping, Tracking, Gating, and Limping. <i>Biophysical Journal</i> , 2007, 92, 2986-2995.	0.5	315
22	Ubiquitous Transcriptional Pausing Is Independent of RNA Polymerase Backtracking. <i>Cell</i> , 2003, 115, 437-447.	28.9	306
23	Impulse responses in bacterial chemotaxis. <i>Cell</i> , 1982, 31, 215-226.	28.9	280
24	A pause sequence enriched at translation start sites drives transcription dynamics in vivo. <i>Science</i> , 2014, 344, 1042-1047.	12.6	280
25	Probing the kinesin reaction cycle with a 2D optical force clamp. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2003, 100, 2351-2356.	7.1	264
26	An Automated Two-Dimensional Optical Force Clamp for Single Molecule Studies. <i>Biophysical Journal</i> , 2002, 83, 491-501.	0.5	256
27	Coordination of opposite-polarity microtubule motors. <i>Journal of Cell Biology</i> , 2002, 156, 715-724.	5.2	254
28	Stretching of Single Collapsed DNA Molecules. <i>Biophysical Journal</i> , 2000, 78, 1965-1978.	0.5	253
29	Sequence-Resolved Detection of Pausing by Single RNA Polymerase Molecules. <i>Cell</i> , 2006, 125, 1083-1094.	28.9	252
30	Individual dimers of the mitotic kinesin motor Eg5 step processively and support substantial loads in vitro. <i>Nature Cell Biology</i> , 2006, 8, 470-476.	10.3	243
31	Successive incorporation of force-generating units in the bacterial rotary motor. <i>Nature</i> , 1984, 309, 470-472.	27.8	241
32	Simultaneous, coincident optical trapping and single-molecule fluorescence. <i>Nature Methods</i> , 2004, 1, 133-139.	19.0	218
33	Resource Letter: LBOT-1: Laser-based optical tweezers. <i>American Journal of Physics</i> , 2003, 71, 201-215.	0.7	213
34	Dynein-Mediated Cargo Transport in Vivo. <i>Journal of Cell Biology</i> , 2000, 148, 945-956.	5.2	211
35	Passive All-Optical Force Clamp for High-Resolution Laser Trapping. <i>Physical Review Letters</i> , 2005, 95, 208102.	7.8	201
36	Reconstructing Folding Energy Landscapes by Single-Molecule Force Spectroscopy. <i>Annual Review of Biophysics</i> , 2014, 43, 19-39.	10.0	200

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37	A universal pathway for kinesin stepping. <i>Nature Structural and Molecular Biology</i> , 2011, 18, 1020-1027.	8.2	182
38	Single-Molecule Studies of RNA Polymerase: Motoring Along. <i>Annual Review of Biochemistry</i> , 2008, 77, 149-176.	11.1	179
39	Making light work with optical tweezers. <i>Nature</i> , 1992, 360, 493-495.	27.8	176
40	A DNA-based molecular probe for optically reporting cellular traction forces. <i>Nature Methods</i> , 2014, 11, 1229-1232.	19.0	171
41	Applied Force Reveals Mechanistic and Energetic Details of Transcription Termination. <i>Cell</i> , 2008, 132, 971-982.	28.9	168
42	Direct Observation of Cotranscriptional Folding in an Adenine Riboswitch. <i>Science</i> , 2012, 338, 397-400.	12.6	168
43	Stepping and Stretching. <i>Journal of Biological Chemistry</i> , 2003, 278, 18550-18556.	3.4	159
44	Examining kinesin processivity within a general gating framework. <i>ELife</i> , 2015, 4, .	6.0	158
45	Forward and Reverse Motion of Single RecBCD Molecules on DNA. <i>Biophysical Journal</i> , 2004, 86, 1640-1648.	0.5	134
46	[38] Versatile optical traps with feedback control. <i>Methods in Enzymology</i> , 1998, 298, 460-489.	1.0	133
47	Sequence-Dependent Pausing of Single Lambda Exonuclease Molecules. <i>Science</i> , 2003, 301, 1914-1918.	12.6	128
48	Backsteps induced by nucleotide analogs suggest the front head of kinesin is gated by strain. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006, 103, 8054-8059.	7.1	123
49	Trigger loop dynamics mediate the balance between the transcriptional fidelity and speed of RNA polymerase II. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 6555-6560.	7.1	118
50	Kinesin processivity is gated by phosphate release. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 14136-14140.	7.1	113
51	<i>E. coli</i> NusG Inhibits Backtracking and Accelerates Pause-Free Transcription by Promoting Forward Translocation of RNA Polymerase. <i>Journal of Molecular Biology</i> , 2010, 399, 17-30.	4.2	108
52	Direct observation of the binding state of the kinesin head to the microtubule. <i>Nature</i> , 2009, 461, 125-128.	27.8	106
53	Kinesin: What Gives?. <i>Cell</i> , 1998, 93, 5-8.	28.9	103
54	Single-Molecule, Motion-Based DNA Sequencing Using RNA Polymerase. <i>Science</i> , 2006, 313, 801-801.	12.6	102

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55	Single-Molecule Studies of RNA Polymerase: One Singular Sensation, Every Little Step It Takes. <i>Molecular Cell</i> , 2011, 41, 249-262.	9.7	95
56	Fifty Ways to Love Your Lever: Myosin Motors. <i>Cell</i> , 1996, 87, 151-157.	28.9	92
57	Folding and unfolding single RNA molecules under tension. <i>Current Opinion in Chemical Biology</i> , 2008, 12, 640-646.	6.1	92
58	Combined optical trapping and single-molecule fluorescence. <i>Journal of Biology</i> , 2003, 2, 6.	2.7	90
59	Real-time observation of the initiation of RNA polymerase II transcription. <i>Nature</i> , 2015, 525, 274-277.	27.8	90
60	Movement of myosin fragments in vitro: Domains involved in force production. <i>Cell</i> , 1987, 48, 953-963.	28.9	88
61	Measurement of the effective focal shift in an optical trap. <i>Optics Letters</i> , 2005, 30, 1318.	3.3	82
62	Compliance of bacterial polyhooks measured with optical tweezers. <i>Cytometry</i> , 1991, 12, 492-496.	1.8	78
63	Statistical Kinetics of Macromolecular Dynamics. <i>Biophysical Journal</i> , 2005, 89, 2277-2285.	0.5	76
64	Factor-dependent processivity in human eIF4A DEAD-box helicase. <i>Science</i> , 2015, 348, 1486-1488.	12.6	76
65	The Mechanochemical Cycle of Mammalian Kinesin-2 KIF3A/B under Load. <i>Current Biology</i> , 2015, 25, 1166-1175.	3.9	75
66	Folding energy landscape of the thiamine pyrophosphate riboswitch aptamer. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 1485-1489.	7.1	71
67	Transcription factors TFIIF and TFIIS promote transcript elongation by RNA polymerase II by synergistic and independent mechanisms. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 6642-6647.	7.1	68
68	[50] Myosin movement in Vitro: A quantitative assay using oriented actin cables from <i>Nitella</i> . <i>Methods in Enzymology</i> , 1986, 134, 531-544.	1.0	65
69	Precision steering of an optical trap by electro-optic deflection. <i>Optics Letters</i> , 2008, 33, 599.	3.3	64
70	Eg5 steps it up!. <i>Cell Division</i> , 2006, 1, 31.	2.4	62
71	Nanometres and piconewtons: the macromolecular mechanics of kinesin. <i>Trends in Cell Biology</i> , 1995, 5, 169-175.	7.9	61
72	Picalorimetry of Transcription by RNA Polymerase. <i>Biophysical Journal</i> , 2005, 89, L61-L63.	0.5	58

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73	Pulling on the Nascent RNA during Transcription Does Not Alter Kinetics of Elongation or Ubiquitous Pausing. <i>Molecular Cell</i> , 2006, 23, 231-239.	9.7	54
74	Real engines of creation. <i>Nature</i> , 1997, 386, 217-218.	27.8	52
75	Binding and Translocation of Termination Factor Rho Studied at the Single-Molecule Level. <i>Journal of Molecular Biology</i> , 2012, 423, 664-676.	4.2	50
76	Intraflagellar transport velocity is governed by the number of active KIF17 and KIF3AB motors and their motility properties under load. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, E6830-E6838.	7.1	50
77	Single-molecule studies of riboswitch folding. <i>Biochimica Et Biophysica Acta - Gene Regulatory Mechanisms</i> , 2014, 1839, 1030-1045.	1.9	49
78	Applied Force Provides Insight into Transcriptional Pausing and Its Modulation by Transcription Factor NusA. <i>Molecular Cell</i> , 2011, 44, 635-646.	9.7	47
79	An Optical Apparatus for Rotation and Trapping. <i>Methods in Enzymology</i> , 2010, 475, 377-404.	1.0	45
80	Leading the Procession: New Insights into Kinesin Motors. <i>Journal of Cell Biology</i> , 1998, 140, 1281-1284.	5.2	40
81	KIF15 nanomechanics and kinesin inhibitors, with implications for cancer chemotherapeutics. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, E4613-E4622.	7.1	40
82	Direct measurements of kinesin torsional properties reveal flexible domains and occasional stalk reversals during stepping. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 17007-17012.	7.1	39
83	Force and Premature Binding of ADP Can Regulate the Processivity of Individual Eg5 Dimers. <i>Biophysical Journal</i> , 2009, 97, 1671-1677.	0.5	32
84	Observation of long-range tertiary interactions during ligand binding by the TPP riboswitch aptamer. <i>ELife</i> , 2015, 4, .	6.0	31
85	Electrostatics of Nucleic Acid Folding under Conformational Constraint. <i>Journal of the American Chemical Society</i> , 2012, 134, 4607-4614.	13.7	30
86	Direct observation of processive exoribonuclease motion using optical tweezers. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 15101-15106.	7.1	28
87	On the Origin of Kinesin Limping. <i>Biophysical Journal</i> , 2009, 97, 1663-1670.	0.5	27
88	Single-molecule studies of RNAPII elongation. <i>Biochimica Et Biophysica Acta - Gene Regulatory Mechanisms</i> , 2013, 1829, 29-38.	1.9	25
89	Kinesin Steps Do Not Alternate in Size. <i>Biophysical Journal</i> , 2008, 94, L20-L22.	0.5	23
90	Comprehensive sequence-to-function mapping of cofactor-dependent RNA catalysis in the glmS ribozyme. <i>Nature Communications</i> , 2020, 11, 1663.	12.8	21

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91	Efficient reconstitution of transcription elongation complexes for single-molecule studies of eukaryotic RNA polymerase II. <i>Transcription</i> , 2012, 3, 146-153.	3.1	20
92	Computerized video analysis of tethered bacteria. <i>Review of Scientific Instruments</i> , 1987, 58, 418-423.	1.3	18
93	One small step for myosin.... <i>Nature</i> , 1995, 378, 132-133.	27.8	18
94	Self-cleavage of the <i>glmS</i> ribozyme core is controlled by a fragile folding element. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 11976-11981.	7.1	14
95	Real-time observation of polymerase-promoter contact remodeling during transcription initiation. <i>Nature Communications</i> , 2017, 8, 1178.	12.8	12
96	Not So Lame After All: Kinesin Still Walks with a Hobbled Head. <i>Journal of General Physiology</i> , 2007, 130, 441-444.	1.9	6
97	Observing Single RNA Polymerase Molecules Down to Base-Pair Resolution. <i>Methods in Molecular Biology</i> , 2017, 1486, 391-409.	0.9	3
98	TFIIF and TFIIS Enhance the Mechanical Persistence of Transcript Elongation by RNA Polymerase II. <i>Biophysical Journal</i> , 2014, 106, 486a.	0.5	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. <i>Journal of Cell Biology</i> , 2007, 179, i10-i10.	5.2	0
101	Optical tweezers as a tool to study cellular function. <i>Proceedings Annual Meeting Electron Microscopy Society of America</i> , 1992, 50, 424-425.	0.0	0