

# Shin'ichi Ishiwata

## List of Publications by Year in descending order

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110  
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4,822  
citations

101496

36  
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102432

66  
g-index

110  
all docs

110  
docs citations

110  
times ranked

3953  
citing authors

#	ARTICLE	IF	CITATIONS
1	Microscopic analysis of polymerization dynamics with individual actin filaments. <i>Nature Cell Biology</i> , 2002, 4, 666-673.	4.6	349
2	Unbinding force of a single motor molecule of muscle measured using optical tweezers. <i>Nature</i> , 1995, 377, 251-254.	13.7	249
3	A Nanoparticle-Based Ratiometric and Self-Calibrated Fluorescent Thermometer for Single Living Cells. <i>ACS Nano</i> , 2014, 8, 198-206.	7.3	183
4	Dynamic study of F-actin by quasielastic scattering of laser light. <i>Journal of Molecular Biology</i> , 1971, 62, 251-265.	2.0	182
5	F1-ATPase: A Rotary Motor Made of a Single Molecule. <i>Cell</i> , 1998, 93, 21-24.	13.5	175
6	Mechanochemical coupling of two substeps in a single myosin V motor. <i>Nature Structural and Molecular Biology</i> , 2004, 11, 877-883.	3.6	166
7	Microscopic Detection of Thermogenesis in a Single HeLa Cell. <i>Biophysical Journal</i> , 2007, 92, L46-L48.	0.2	149
8	Effect of calcium ions on the flexibility of reconstituted thin filaments of muscle studied by quasielastic scattering of laser light. <i>Journal of Molecular Biology</i> , 1972, 68, 511-522.	2.0	137
9	Uni-Directional Growth of F-Actin. <i>Journal of Biochemistry</i> , 1976, 79, 159-171.	0.9	129
10	Myosin V is a left-handed spiral motor on the right-handed actin helix. <i>Nature Structural Biology</i> , 2002, 9, 464-467.	9.7	127
11	Right-handed rotation of an actin filament in an in vitro motile system. <i>Nature</i> , 1993, 361, 269-271.	13.7	126
12	Cell-sized spherical confinement induces the spontaneous formation of contractile actomyosin rings in vitro. <i>Nature Cell Biology</i> , 2015, 17, 480-489.	4.6	126
13	Nucleotide-Dependent Single- to Double-Headed Binding of Kinesin. <i>Science</i> , 2001, 291, 667-669.	6.0	123
14	Kinesin-microtubule binding depends on both nucleotide state and loading direction. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 5977-5981.	3.3	122
15	Temperature Dependence of Force, Velocity, and Processivity of Single Kinesin Molecules. <i>Biochemical and Biophysical Research Communications</i> , 2000, 272, 895-899.	1.0	114
16	Loading direction regulates the affinity of ADP for kinesin. <i>Nature Structural and Molecular Biology</i> , 2003, 10, 308-311.	3.6	108
17	Temporal identity transition from Purkinje cell progenitors to GABAergic interneuron progenitors in the cerebellum. <i>Nature Communications</i> , 2014, 5, 3337.	5.8	92
18	Load-dependent ADP binding to myosins V and VI: Implications for subunit coordination and function. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 7714-7719.	3.3	91

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19	The 105 gap issue between calculation and measurement in single-cell thermometry. <i>Nature Methods</i> , 2015, 12, 802-803.	9.0	85
20	Walking nanothermometers: spatiotemporal temperature measurement of transported acidic organelles in single living cells. <i>Lab on A Chip</i> , 2012, 12, 1591.	3.1	84
21	Optical visualisation of thermogenesis in stimulated single-cell brown adipocytes. <i>Scientific Reports</i> , 2017, 7, 1383.	1.6	77
22	Stepwise Motion of an Actin Filament over a Small Number of Heavy Meromyosin Molecules Is Revealed in an In Vitro Motility Assay. <i>Journal of Biochemistry</i> , 1994, 115, 644-647.	0.9	71
23	Quantitative Analysis of the Lamellarity of Giant Liposomes Prepared by the Inverted Emulsion Method. <i>Biophysical Journal</i> , 2014, 107, 346-354.	0.2	67
24	Spatial confinement of active microtubule networks induces large-scale rotational cytoplasmic flow. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 2922-2927.	3.3	63
25	Identification of a strong binding site for kinesin on the microtubule using mutant analysis of tubulin. <i>EMBO Journal</i> , 2006, 25, 5932-5941.	3.5	60
26	Key residues on microtubule responsible for activation of kinesin ATPase. <i>EMBO Journal</i> , 2010, 29, 1167-1175.	3.5	52
27	Visualization and force measurement of branching by Arp2/3 complex and N-WASP in actin filament. <i>Biochemical and Biophysical Research Communications</i> , 2002, 293, 1550-1555.	1.0	51
28	Nano-imaging of the beating mouse heart in vivo: Importance of sarcomere dynamics, as opposed to sarcomere length per se, in the regulation of cardiac function. <i>Journal of General Physiology</i> , 2016, 147, 53-62.	0.9	51
29	Elementary Steps of the Cross-Bridge Cycle in Bovine Myocardium with and without Regulatory Proteins. <i>Biophysical Journal</i> , 2002, 82, 915-928.	0.2	50
30	Equilibrium and Transition between Single- and Double-Headed Binding of Kinesin as Revealed by Single-Molecule Mechanics. <i>Biophysical Journal</i> , 2003, 84, 1103-1113.	0.2	48
31	Thermal activation of single kinesin molecules with temperature pulse microscopy. <i>Cytoskeleton</i> , 2001, 49, 41-47.	4.4	46
32	Sarcomere length nanometry in rat neonatal cardiomyocytes expressed with $\beta$ -actinin $\alpha$ AcGFP in Z discs. <i>Journal of General Physiology</i> , 2014, 143, 513-524.	0.9	45
33	A novel method of thermal activation and temperature measurement in the microscopic region around single living cells. <i>Journal of Neuroscience Methods</i> , 2004, 139, 69-77.	1.3	44
34	Direct organelle thermometry with fluorescence lifetime imaging microscopy in single myotubes. <i>Chemical Communications</i> , 2016, 52, 4458-4461.	2.2	44
35	Contractile system of muscle as an auto-oscillator. <i>Progress in Biophysics and Molecular Biology</i> , 2011, 105, 187-198.	1.4	41
36	Super helix formation of actin filaments in an in vitro motile system. <i>BBA - Proteins and Proteomics</i> , 1992, 1159, 94-98.	2.1	40

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37	Mechanical Distortion of Single Actin Filaments Induced by External Force: Detection by Fluorescence Imaging. <i>Biophysical Journal</i> , 2009, 96, 1036-1044.	0.2	37
38	Biphasic Effect of Profilin Impacts the Formin mDia1 Force-Sensing Mechanism in Actin Polymerization. <i>Biophysical Journal</i> , 2017, 113, 461-471.	0.2	37
39	Triggering of high-speed neurite outgrowth using an optical microheater. <i>Scientific Reports</i> , 2015, 5, 16611.	1.6	36
40	Mechano-chemical coupling in spontaneous oscillatory contraction of muscle. <i>Phase Transitions</i> , 1993, 45, 105-136.	0.6	35
41	Nonlinear Force-Length Relationship in the ADP-Induced Contraction of Skeletal Myofibrils. <i>Biophysical Journal</i> , 2007, 93, 4330-4341.	0.2	33
42	Auto-oscillations of Skinned Myocardium Correlating with Heartbeat. <i>Journal of Muscle Research and Cell Motility</i> , 2005, 26, 93-101.	0.9	31
43	Temperature change does not affect force between regulated actin filaments and heavy meromyosin in single-molecule experiments. <i>Journal of Physiology</i> , 2006, 574, 877-887.	1.3	31
44	Temperature dependence of the flexural rigidity of single microtubules. <i>Biochemical and Biophysical Research Communications</i> , 2008, 366, 637-642.	1.0	31
45	High-frequency sarcomeric auto-oscillations induced by heating in living neonatal cardiomyocytes of the rat. <i>Biochemical and Biophysical Research Communications</i> , 2015, 457, 165-170.	1.0	30
46	Tug-of-war between actomyosin-driven antagonistic forces determines the positioning symmetry in cell-sized confinement. <i>Nature Communications</i> , 2020, 11, 3063.	5.8	30
47	Focal Extraction of Surface-Bound DNA from a Microchip Using Photo-Thermal Denaturation. <i>BioTechniques</i> , 2000, 28, 1006-1011.	0.8	28
48	The effect of tropomyosin on force and elementary steps of the cross-bridge cycle in reconstituted bovine myocardium. <i>Journal of Physiology</i> , 2004, 556, 637-649.	1.3	28
49	Regulatory mechanism of length-dependent activation in skinned porcine ventricular muscle: role of thin filament cooperative activation in the Frank-Starling relation. <i>Journal of General Physiology</i> , 2010, 136, 469-482.	0.9	28
50	A theory on auto-oscillation and contraction in striated muscle. <i>Progress in Biophysics and Molecular Biology</i> , 2011, 105, 199-207.	1.4	28
51	Locally and Globally Coupled Oscillators in Muscle. <i>Physical Review Letters</i> , 2013, 111, 108104.	2.9	28
52	Purification of cytoplasmic actin by affinity chromatography using the C-terminal half of gelsolin. <i>Biochemical and Biophysical Research Communications</i> , 2009, 383, 146-150.	1.0	27
53	A study on the F-actin-tropomyosin-troponin complex. <i>Biochimica Et Biophysica Acta (BBA) - Protein Structure</i> , 1973, 303, 77-89.	1.7	26
54	Micro-thermography in millimeter-scale animals by using orally-dosed fluorescent nanoparticle thermosensors. <i>Analyst, The</i> , 2015, 140, 7534-7539.	1.7	25

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55	Dynamic light scattering study of muscle f-actin. <i>Biophysical Chemistry</i> , 1984, 20, 1-21.	1.5	23
56	Robust processivity of myosin V under off-axis loads. <i>Nature Chemical Biology</i> , 2010, 6, 300-305.	3.9	23
57	Characterization of Olig2 expression during cerebellar development. <i>Gene Expression Patterns</i> , 2014, 15, 1-7.	0.3	22
58	Micromechanics of the Vertebrate Meiotic Spindle Examined by Stretching along the Pole-to-Pole Axis. <i>Biophysical Journal</i> , 2014, 106, 735-740.	0.2	22
59	A New Muscle Contractile System Composed of a Thick Filament Lattice and a Single Actin Filament. <i>Biophysical Journal</i> , 2005, 89, 321-328.	0.2	21
60	Studies on the F-actin $\hat{\cdot}$ tropomyosin $\hat{\cdot}$ troponin complex III. Effects of troponin components and calcium ion on the binding affinity between tropomyosin and F-actin. <i>Biochimica Et Biophysica Acta (BBA) - Protein Structure</i> , 1978, 534, 350-357.	1.7	19
61	Simultaneous imaging of local calcium and single sarcomere length in rat neonatal cardiomyocytes using yellow Cameleon-Nano140. <i>Journal of General Physiology</i> , 2016, 148, 341-355.	0.9	19
62	A Dynamic Study of F-Actin-Heavy Meromyosin Solutions by Quasi-Elastic Light Scattering. <i>Journal of the Physical Society of Japan</i> , 1970, 29, 1651-1651.	0.7	19
63	Microscopic heat pulse-induced calcium dynamics in single WI-38 fibroblasts. <i>Biophysics (Nagoya-shi.) Tj ETQq1 1 0,784314 rgBT /Over</i>	0.4	17
64	Spontaneous oscillatory contraction (SPOC) in cardiomyocytes. <i>Biophysical Reviews</i> , 2015, 7, 15-24.	1.5	16
65	Single-cell temperature mapping with fluorescent thermometer nanosheets. <i>Journal of General Physiology</i> , 2020, 152, .	0.9	16
66	Effect of Ca <sup>++</sup> on the F-Actin-Tropomyosin-Troponin Complex Studied by Quasi-Elastic Light Scattering. <i>Journal of the Physical Society of Japan</i> , 1971, 30, 303-303.	0.7	15
67	Dynamic light-scattering study on polymerization process of muscle actin. <i>Biophysical Chemistry</i> , 1986, 25, 253-269.	1.5	15
68	F-actin-heavy meromyosin complex studied by optical homodyne and heterodyne methods. <i>Biochimica Et Biophysica Acta - Bioenergetics</i> , 1972, 283, 351-363.	0.5	14
69	Regulation of Muscle Contraction by Ca <sup>2+</sup> and ADP: Focusing on the Auto-Oscillation (SPOC). , 2007, 592, 341-358.		14
70	A Dynamic Study of F-Actin-Tropomyosin Solutions by Quasi-Elastic Light Scattering. <i>Journal of the Physical Society of Japan</i> , 1971, 30, 302-302.	0.7	13
71	Effect of Ca <sup>2+</sup> on Dynamic Properties of Muscle Proteins Studied by Quasielastic Light Scattering. <i>Journal of the Physical Society of Japan</i> , 1971, 31, 1601-1601.	0.7	13
72	Size Distribution of Linear and Helical Polymers in Actin Solution Analyzed by Photon Counting Histogram. <i>Biophysical Journal</i> , 2007, 92, 2162-2171.	0.2	13

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73	Processivity of kinesin motility is enhanced on increasing temperature. <i>Biophysics (Nagoya-shi, Japan)</i> , 2006, 2, 13-21.	0.4	12
74	D-loop of Actin Differently Regulates the Motor Function of Myosins II and V. <i>Journal of Biological Chemistry</i> , 2009, 284, 35251-35258.	1.6	11
75	Modulation of the mechano-chemical properties of myosin V by drebrin-E. <i>Biochemical and Biophysical Research Communications</i> , 2010, 400, 643-648.	1.0	11
76	A Beetle Flight Muscle Displays Leg Muscle Microstructure. <i>Biophysical Journal</i> , 2016, 111, 1295-1303.	0.2	11
77	SPontaneous Oscillatory Contraction (SPOC): auto-oscillations observed in striated muscle at partial activation. <i>Biophysical Reviews</i> , 2011, 3, 53-62.	1.5	10
78	Insights into the mechanisms of myosin and kinesin molecular motors from the single-molecule unbinding force measurements. <i>Journal of the Royal Society Interface</i> , 2010, 7, S295-306.	1.5	9
79	Sarcomeric Auto-Oscillations in Single Myofibrils From the Heart of Patients With Dilated Cardiomyopathy. <i>Circulation: Heart Failure</i> , 2018, 11, e004333.	1.6	9
80	Synchrony of sarcomeric movement regulates left ventricular pump function in the in vivo beating mouse heart. <i>Journal of General Physiology</i> , 2021, 153, .	0.9	9
81	Model simulation of the SPOC wave in a bundle of striated myofibrils. <i>Biophysics and Physicobiology</i> , 2016, 13, 217-226.	0.5	8
82	Nanoscope changes in the lattice structure of striated muscle sarcomeres involved in the mechanism of spontaneous oscillatory contraction (SPOC). <i>Scientific Reports</i> , 2020, 10, 16372.	1.6	8
83	Actin oligomers at the initial stage of polymerization induced by increasing temperature at low ionic strength: Study with small-angle X-ray scattering. <i>Biophysics (Nagoya-shi, Japan)</i> , 2010, 6, 1-11.	0.4	7
84	Quasiperiodic Distribution of Rigor Cross-Bridges Along a Reconstituted Thin Filament in a Skeletal Myofibril. <i>Biophysical Journal</i> , 2011, 101, 2740-2748.	0.2	7
85	Dynamic properties of bio-motile systems with a liquid-crystalline structure. <i>Molecular Crystals and Liquid Crystals</i> , 2017, 647, 127-150.	0.4	6
86	Processive Nanosteping of Formin mDia1 Loosely Coupled with Actin Polymerization. <i>Nano Letters</i> , 2018, 18, 6617-6624.	4.5	6
87	Thermal Activation of Thin Filaments in Striated Muscle. <i>Frontiers in Physiology</i> , 2020, 11, 278.	1.3	6
88	Estimation of actomyosin active force maintained by tropomyosin and troponin complex under vertical forces in the in vitro motility assay system. <i>PLoS ONE</i> , 2018, 13, e0192558.	1.1	6
89	Functional significance of HCM mutants of tropomyosin, V95A and D175N, studied with <i>in vitro</i> motility assays. <i>Biophysics and Physicobiology</i> , 2019, 16, 28-40.	0.5	6
90	Length Regulation of Thin Filaments without Nebulin.. <i>Proceedings of the Japan Academy Series B: Physical and Biological Sciences</i> , 1994, 70, 151-156.	1.6	5

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91	Optimization of Fluorescent Labeling for <i>In Vivo</i> Nanoimaging of Sarcomeres in the Mouse Heart. <i>BioMed Research International</i> , 2018, 2018, 1-8.	0.9	5
92	Light-beating study of the effect of $\hat{\Gamma}^2$ -actinin on the interaction between F-actin and heavy meromyosin. <i>Biochimica Et Biophysica Acta (BBA) - Protein Structure</i> , 1974, 336, 445-452.	1.7	4
93	Oral Dosing of Chemical Indicators for <i>In Vivo</i> Monitoring of Ca <sup>2+</sup> Dynamics in Insect Muscle. <i>PLoS ONE</i> , 2015, 10, e0116655.	1.1	4
94	Radial stiffness characteristics of the overlap regions of sarcomeres in isolated skeletal myofibrils in pre-force generating state. <i>Biophysics and Physicobiology</i> , 2017, 14, 207-220.	0.5	4
95	Real-Time <i>In Vivo</i> Imaging of Mouse Left Ventricle Reveals Fluctuating Movements of the Intercalated Discs. <i>Nanomaterials</i> , 2020, 10, 532.	1.9	4
96	Dynamic light-scattering study of muscle F-actin. II. <i>Biophysical Chemistry</i> , 1987, 27, 211-224.	1.5	3
97	Molecular Synchronization in Actomyosin Motors " From Single Molecule to Muscle Fiber Via Nanomuscle. , 2005, 565, 25-36.		3
98	Regulatory mechanism of smooth muscle contraction studied with gelsolin-treated strips of taenia caeci in guinea pig. <i>American Journal of Physiology - Cell Physiology</i> , 2009, 296, C1024-C1033.	2.1	3
99	On the on-line journal "Biophysics and Physicobiology (BPPB)" <i>Biophysical Reviews</i> , 2020, 12, 217-219.	1.5	3
100	How the Load and the Nucleotide State Affect the Actin Filament Binding Mode of the Molecular Motor Myosin V. <i>Journal of the Korean Physical Society</i> , 2008, 53, 1726-1731.	0.3	3
101	Microscopic Temperature Control Reveals Cooperative Regulation of Actin-Myosin Interaction by Drebrin E. <i>Nano Letters</i> , 2021, 21, 9526-9533.	4.5	3
102	Two-dimensional periodic texture of actin filaments formed upon drying. <i>Biophysics (Nagoya-shi)</i> , 2014, 10, 50-52.	0.4	2
103	Self-calibrated fluorescent thermometer nanoparticles enable <i>in vivo</i> micro thermography in millimeter scale living animals. , 2015, , .		2
104	Research exchange with Cris: from fluorescence spectroscopy to human myocardium. <i>Biophysical Reviews</i> , 2020, 12, 773-775.	1.5	2
105	1P310 Mechanical properties of a single microtubule measured by optical tweezers; The effect of kinesin binding(10. Cytoskeleton,Poster Session,Abstract,Meeting Program of EABS & BSJ 2006). <i>Seibutsu Butsuri</i> , 2006, 46, S224.	0.0	0
106	2P476 Model of collective motion of motors in muscle oscillation(50. Non-equilibrium and complex) <i>Biophysical Reviews</i> , 2020, 12, 773-775.	0.0	0
107	Single-molecular analysis of the binding state of myosin V and actin. <i>Journal of Physics: Conference Series</i> , 2006, 31, 239-240.	0.3	0
108	1P140 Correlation between changes in lattice spacing and half-sarcomere length during SPOC studied with high spatial and temporal resolution(Muscle-muscle proteins and contraction,Poster) <i>Biophysical Reviews</i> , 2020, 12, 773-775.	0.0	0

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109	2P144 High-frequency sarcomeric auto-oscillations in living cardiomyocytes under hyperthermal conditions(10. Muscle,Poster,The 52nd Annual Meeting of the Biophysical Society of Japan(BSJ2014)). Seibutsu Butsuri, 2014, 54, S218.	0.0	0
110	Mechanical properties of spindle poles are symmetrically balanced. Biophysics and Physicobiology, 2017, 14, 1-11.	0.5	0