

James A Spudich

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121
papers

12,175
citations

55
h-index

110
g-index

128
ext. papers

13,651
ext. citations

17.2
avg. IF

6.45
L-index

#	Paper	IF	Citations
121	Single myosin molecule mechanics: piconewton forces and nanometre steps. <i>Nature</i> , 1994 , 368, 113-9	50.4	1589
120	Myosin-V is a processive actin-based motor. <i>Nature</i> , 1999 , 400, 590-3	50.4	695
119	Myosin subfragment-1 is sufficient to move actin filaments in vitro. <i>Nature</i> , 1987 , 328, 536-9	50.4	456
118	Movement of myosin-coated fluorescent beads on actin cables in vitro. <i>Nature</i> , 1983 , 303, 31-5	50.4	441
117	How molecular motors work. <i>Nature</i> , 1994 , 372, 515-8	50.4	415
116	Myosin step size. Estimation from slow sliding movement of actin over low densities of heavy meromyosin. <i>Journal of Molecular Biology</i> , 1990 , 214, 699-710	6.5	395
115	Cytoskeletal elements of chick embryo fibroblasts revealed by detergent extraction. <i>Journal of Supramolecular Structure</i> , 1976 , 5, 119-30		353
114	Assays for actin sliding movement over myosin-coated surfaces. <i>Methods in Enzymology</i> , 1991 , 196, 399-416		333
113	Three-dimensional atomic model of F-actin decorated with Dictyostelium myosin S1. <i>Nature</i> , 1993 , 364, 171-4	50.4	292
112	A small-molecule inhibitor of sarcomere contractility suppresses hypertrophic cardiomyopathy in mice. <i>Science</i> , 2016 , 351, 617-21	33.3	282
111	Single molecule high-resolution colocalization of Cy3 and Cy5 attached to macromolecules measures intramolecular distances through time. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005 , 102, 1419-23	11.5	272
110	Capping of surface receptors and concomitant cortical tension are generated by conventional myosin. <i>Nature</i> , 1989 , 341, 549-51	50.4	255
109	Dictyostelium myosin heavy chain phosphorylation sites regulate myosin filament assembly and localization in vivo. <i>Cell</i> , 1993 , 75, 363-71	56.2	250
108	The myosin swinging cross-bridge model. <i>Nature Reviews Molecular Cell Biology</i> , 2001 , 2, 387-92	48.7	217
107	The mechanism of myosin VI translocation and its load-induced anchoring. <i>Cell</i> , 2004 , 116, 737-49	56.2	214
106	Enzymatic activities correlate with chimaeric substitutions at the actin-binding face of myosin. <i>Nature</i> , 1994 , 368, 567-9	50.4	198
105	Biochemical and structural studies of actomyosin-like proteins from non-muscle cells. Isolation and characterization of myosin from amoebae of Dictyostelium discoideum. <i>Journal of Molecular Biology</i> , 1974 , 86, 209-22	6.5	192

104	Hypertrophic and dilated cardiomyopathy: four decades of basic research on muscle lead to potential therapeutic approaches to these devastating genetic diseases. <i>Biophysical Journal</i> , 2014 , 106, 1236-49	2.9	178
103	Regulation of skeletal muscle contraction. II. Structural studies of the interaction of the tropomyosin-troponin complex with actin. <i>Journal of Molecular Biology</i> , 1972 , 72, 619-32	6.5	172
102	A mitochondria-anchored isoform of the actin-nucleating spire protein regulates mitochondrial division. <i>ELife</i> , 2015 , 4,	8.9	171
101	Quantized velocities at low myosin densities in an in vitro motility assay. <i>Nature</i> , 1991 , 352, 307-11	50.4	169
100	The myosin superfamily at a glance. <i>Journal of Cell Science</i> , 2012 , 125, 1627-32	5.3	167
99	A force-dependent state controls the coordination of processive myosin V. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005 , 102, 13873-8	11.5	155
98	Dynamics of the unbound head during myosin V processive translocation. <i>Nature Structural and Molecular Biology</i> , 2007 , 14, 246-8	17.6	152
97	Role of the lever arm in the processive stepping of myosin V. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002 , 99, 14159-64	11.5	145
96	A FRET-based sensor reveals large ATP hydrolysis-induced conformational changes and three distinct states of the molecular motor myosin. <i>Cell</i> , 2000 , 102, 683-94	56.2	132
95	On the role of myosin-II in cytokinesis: division of Dictyostelium cells under adhesive and nonadhesive conditions. <i>Molecular Biology of the Cell</i> , 1997 , 8, 2617-29	3.5	127
94	Movement of myosin-coated beads on oriented filaments reconstituted from purified actin. <i>Nature</i> , 1985 , 315, 584-6	50.4	119
93	Principles of unconventional myosin function and targeting. <i>Annual Review of Cell and Developmental Biology</i> , 2011 , 27, 133-55	12.6	118
92	Deciphering the super relaxed state of human β cardiac myosin and the mode of action of mavacamten from myosin molecules to muscle fibers. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018 , 115, E8143-E8152	11.5	117
91	Myosin VI walks hand-over-hand along actin. <i>Nature Structural and Molecular Biology</i> , 2004 , 11, 884-7	17.6	116
90	Molecular consequences of the R453C hypertrophic cardiomyopathy mutation on human β cardiac myosin motor function. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, 12607-12	11.5	110
89	The myosin mesa and the basis of hypercontractility caused by hypertrophic cardiomyopathy mutations. <i>Nature Structural and Molecular Biology</i> , 2017 , 24, 525-533	17.6	101
88	Long single alpha-helical tail domains bridge the gap between structure and function of myosin VI. <i>Nature Structural and Molecular Biology</i> , 2008 , 15, 591-7	17.6	98
87	Biochemical and Structural Studies of Actomyosin-like Proteins from Non-Muscle Cells. <i>Journal of Biological Chemistry</i> , 1974 , 249, 6013-6020	5.4	94

86	Dynacortin, a genetic link between equatorial contractility and global shape control discovered by library complementation of a <i>Dictyostelium discoideum</i> cytokinesis mutant. <i>Journal of Cell Biology</i> , 2000 , 150, 823-38	7.3	88
85	A flexible domain is essential for the large step size and processivity of myosin VI. <i>Molecular Cell</i> , 2005 , 17, 603-9	17.6	86
84	The power stroke of myosin VI and the basis of reverse directionality. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007 , 104, 772-7	11.5	84
83	The myosin mesa and a possible unifying hypothesis for the molecular basis of human hypertrophic cardiomyopathy. <i>Biochemical Society Transactions</i> , 2015 , 43, 64-72	5.1	82
82	Movement of myosin fragments in vitro: domains involved in force production. <i>Cell</i> , 1987 , 48, 953-63	56.2	80
81	Myosin heavy chain phosphorylation sites regulate myosin localization during cytokinesis in live cells. <i>Molecular Biology of the Cell</i> , 1997 , 8, 2605-15	3.5	78
80	The sequence of the myosin 50-20K loop affects Myosin's affinity for actin throughout the actin-myosin ATPase cycle and its maximum ATPase activity. <i>Biochemistry</i> , 1999 , 38, 3785-92	3.2	78
79	Dynamic charge interactions create surprising rigidity in the ER/K alpha-helical protein motif. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008 , 105, 13356-61	11.5	77
78	Structure-function analysis of the motor domain of myosin. <i>Annual Review of Cell and Developmental Biology</i> , 1996 , 12, 543-73	12.6	77
77	Myosin VI: an innovative motor that challenged the swinging lever arm hypothesis. <i>Nature Reviews Molecular Cell Biology</i> , 2010 , 11, 128-37	48.7	76
76	Functional diversity among a family of human skeletal muscle myosin motors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 1053-8	11.5	74
75	Bidirectional movement of actin filaments along tracks of myosin heads. <i>Nature</i> , 1989 , 341, 154-6	50.4	72
74	Ensemble force changes that result from human cardiac myosin mutations and a small-molecule effector. <i>Cell Reports</i> , 2015 , 11, 910-920	10.6	71
73	Hypertrophic cardiomyopathy and the myosin mesa: viewing an old disease in a new light. <i>Biophysical Reviews</i> , 2018 , 10, 27-48	3.7	71
72	A myosin II mutation uncouples ATPase activity from motility and shortens step size. <i>Nature Cell Biology</i> , 2001 , 3, 311-5	23.4	70
71	Multidimensional structure-function relationships in human cardiac myosin from population-scale genetic variation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 6701-6	11.5	68
70	Contractility parameters of human cardiac myosin with the hypertrophic cardiomyopathy mutation R403Q show loss of motor function. <i>Science Advances</i> , 2015 , 1, e1500511	14.3	68
69	Identification and molecular characterization of a yeast myosin I. <i>Cytoskeleton</i> , 1995 , 30, 73-84		67

68	SETD3 is an actin histidine methyltransferase that prevents primary dystocia. <i>Nature</i> , 2019 , 565, 372-376	50.4	64
67	Rho kinase's role in myosin recruitment to the equatorial cortex of mitotic <i>Drosophila</i> S2 cells is for myosin regulatory light chain phosphorylation. <i>PLoS ONE</i> , 2006 , 1, e131	3.7	56
66	Coupled myosin VI motors facilitate unidirectional movement on an F-actin network. <i>Journal of Cell Biology</i> , 2009 , 187, 53-60	7.3	49
65	Cold-sensitive mutants G680V and G691C of <i>Dictyostelium</i> myosin II confer dramatically different biochemical defects. <i>Journal of Biological Chemistry</i> , 1997 , 272, 27612-7	5.4	46
64	Early-Onset Hypertrophic Cardiomyopathy Mutations Significantly Increase the Velocity, Force, and Actin-Activated ATPase Activity of Human β Cardiac Myosin. <i>Cell Reports</i> , 2016 , 17, 2857-2864	10.6	45
63	Three perspectives on the molecular basis of hypercontractility caused by hypertrophic cardiomyopathy mutations. <i>Pflugers Archiv European Journal of Physiology</i> , 2019 , 471, 701-717	4.6	44
62	Effects of hypertrophic and dilated cardiomyopathy mutations on power output by human β cardiac myosin. <i>Journal of Experimental Biology</i> , 2016 , 219, 161-7	3	44
61	Precise positioning of myosin VI on endocytic vesicles in vivo. <i>PLoS Biology</i> , 2007 , 5, e210	9.7	44
60	Variable surface loops and myosin activity: accessories to a motor. <i>Journal of Muscle Research and Cell Motility</i> , 2000 , 21, 139-51	3.5	44
59	Harmonic force spectroscopy measures load-dependent kinetics of individual human β cardiac myosin molecules. <i>Nature Communications</i> , 2015 , 6, 7931	17.4	43
58	Biophysical properties of human β cardiac myosin with converter mutations that cause hypertrophic cardiomyopathy. <i>Science Advances</i> , 2017 , 3, e1601959	14.3	41
57	Effects of troponin T cardiomyopathy mutations on the calcium sensitivity of the regulated thin filament and the actomyosin cross-bridge kinetics of human β cardiac myosin. <i>PLoS ONE</i> , 2013 , 8, e83403	3.7	41
56	A structural model for phosphorylation control of <i>Dictyostelium</i> myosin II thick filament assembly. <i>Journal of Cell Biology</i> , 1999 , 147, 1039-48	7.3	37
55	Controlling load-dependent kinetics of β cardiac myosin at the single-molecule level. <i>Nature Structural and Molecular Biology</i> , 2018 , 25, 505-514	17.6	36
54	Phenotypically selected mutations in myosin's actin binding domain demonstrate intermolecular contacts important for motor function. <i>Biochemistry</i> , 1997 , 36, 8465-73	3.2	35
53	On the molecular basis of action of cytochalasin B. <i>Journal of Supramolecular Structure</i> , 1974 , 2, 728-36		35
52	Dilated cardiomyopathy myosin mutants have reduced force-generating capacity. <i>Journal of Biological Chemistry</i> , 2018 , 293, 9017-9029	5.4	34
51	Mechanistic heterogeneity in contractile properties of β ropomyosin (TPM1) mutants associated with inherited cardiomyopathies. <i>Journal of Biological Chemistry</i> , 2015 , 290, 7003-15	5.4	33

50	Cold-sensitive mutations of Dictyostelium myosin heavy chain highlight functional domains of the myosin motor. <i>Genetics</i> , 1996 , 143, 801-10	4	33
49	Detailed tuning of structure and intramolecular communication are dispensable for processive motion of myosin VI. <i>Biophysical Journal</i> , 2011 , 100, 430-9	2.9	32
48	Movement of myosin-coated structures on actin cables. <i>Cell Motility</i> , 1983 , 3, 485-9		32
47	Observation of correlated X-ray scattering at atomic resolution. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2014 , 369, 20130315	5.8	31
46	Structure of an F-actin trimer disrupted by gelsolin and implications for the mechanism of severing. <i>Journal of Biological Chemistry</i> , 2003 , 278, 1229-38	5.4	31
45	Molecular motors take tension in stride. <i>Cell</i> , 2006 , 126, 242-4	56.2	30
44	Structural and functional insights on the Myosin superfamily. <i>Bioinformatics and Biology Insights</i> , 2012 , 6, 11-21	5.3	29
43	Single-molecule dual-beam optical trap analysis of protein structure and function. <i>Methods in Enzymology</i> , 2010 , 475, 321-75	1.7	28
42	Cardiac myosin hypertrophic cardiomyopathy mutations release sequestered heads and increase enzymatic activity. <i>Nature Communications</i> , 2019 , 10, 2685	17.4	26
41	Optimized measurements of separations and angles between intra-molecular fluorescent markers. <i>Nature Communications</i> , 2015 , 6, 8621	17.4	26
40	Engineered myosin VI motors reveal minimal structural determinants of directionality and processivity. <i>Journal of Molecular Biology</i> , 2009 , 392, 862-7	6.5	26
39	Building and using optical traps to study properties of molecular motors. <i>Methods in Enzymology</i> , 2003 , 361, 112-33	1.7	26
38	Proteomics approach to study the functions of Drosophila myosin VI through identification of multiple cargo-binding proteins. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, 5566-71	11.5	25
37	Helicity of short E-R/K peptides. <i>Protein Science</i> , 2010 , 19, 2001-5	6.3	24
36	Insights into human beta-cardiac myosin function from single molecule and single cell studies. <i>Journal of Cardiovascular Translational Research</i> , 2009 , 2, 426-40	3.3	22
35	Biochemistry. Molecular motors, beauty in complexity. <i>Science</i> , 2011 , 331, 1143-4	33.3	22
34	Dictyostelium myosin bipolar thick filament formation: importance of charge and specific domains of the myosin rod. <i>PLoS Biology</i> , 2004 , 2, e356	9.7	22
33	The hypertrophic cardiomyopathy mutations R403Q and R663H increase the number of myosin heads available to interact with actin. <i>Science Advances</i> , 2020 , 6, eaax0069	14.3	19

32	Structural states of dictyostelium myosin. <i>Journal of Supramolecular Structure</i> , 1979 , 12, 1-14		18
31	The Myosin Family of Mechanoenzymes: From Mechanisms to Therapeutic Approaches. <i>Annual Review of Biochemistry</i> , 2020 , 89, 667-693	29.1	16
30	Cell-intrinsic functional effects of the cardiac myosin Arg-403-Gln mutation in familial hypertrophic cardiomyopathy. <i>Biophysical Journal</i> , 2012 , 102, 2782-90	2.9	16
29	Single molecule biochemistry using optical tweezers. <i>FEBS Letters</i> , 1998 , 430, 23-7	3.8	16
28	The contractile proteins of Dictyostelium discoideum. <i>Journal of Supramolecular Structure</i> , 1974 , 2, 150-62		15
27	Mutational analysis of phosphorylation sites in the Dictyostelium myosin II tail: disruption of myosin function by a single charge change. <i>FEBS Letters</i> , 2000 , 466, 267-72	3.8	14
26	An approach to reconstituting motility of single myosin molecules. <i>Journal of Cell Science</i> , 1991 , 14, 129-33	3.3	14
25	Myosin motor domains carrying mutations implicated in early or late onset hypertrophic cardiomyopathy have similar properties. <i>Journal of Biological Chemistry</i> , 2019 , 294, 17451-17462	5.4	13
24	Altered Cardiac Energetics and Mitochondrial Dysfunction in Hypertrophic Cardiomyopathy. <i>Circulation</i> , 2021 , 144, 1714-1731	16.7	11
23	Molecular motors: forty years of interdisciplinary research. <i>Molecular Biology of the Cell</i> , 2011 , 22, 3936-9,5	3.5	10
22	One path to understanding energy transduction in biological systems. <i>Nature Medicine</i> , 2012 , 18, 1478-83	30.5	9
21	Symposium on bacterial spores: 3. Biochemical studies of spore core and coat protein synthesis. <i>Journal of Applied Bacteriology</i> , 1970 , 33, 25-33		9
20	Functional analysis of a cardiac myosin rod in Dictyostelium discoideum. <i>Cytoskeleton</i> , 1994 , 27, 313-26		8
19	Biochemical studies of bacterial sporulation and germination. 13. Adenylate kinase of vegetative cells and spores of Bacillus subtilis. <i>Journal of Bacteriology</i> , 1969 , 98, 69-74	3.5	8
18	Nanomechanical Phenotypes in Cardiac Myosin-Binding Protein C Mutants That Cause Hypertrophic Cardiomyopathy. <i>ACS Nano</i> , 2021 , 15, 10203-10216	16.7	8
17	Hypertrophic cardiomyopathy cardiac myosin mutation (P710R) leads to hypercontractility by disrupting super relaxed state. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	7
16	Mavacamten stabilizes a folded-back sequestered super-relaxed state of cardiac myosin		6
15	Author response: A mitochondria-anchored isoform of the actin-nucleating spire protein regulates mitochondrial division 2015 ,		4

14	Beyond the myosin mesa: a potential unifying hypothesis on the underlying molecular basis of hyper-contractility caused by a majority of hypertrophic cardiomyopathy mutations		4
13	Controlling load-dependent contractility of the heart at the single molecule level		4
12	Hypertrophic cardiomyopathy mutations at the folded-back sequestered β -cardiac myosin S1-S2 and S1-S1 interfaces release sequestered heads and increase myosin enzymatic activity		4
11	Single Residue Variation in Skeletal Muscle Myosin Enables Direct and Selective Drug Targeting for Spasticity and Muscle Stiffness. <i>Cell</i> , 2020 , 183, 335-346.e13	56.2	4
10	Establishing disease causality for a novel gene variant in familial dilated cardiomyopathy using a functional in-vitro assay of regulated thin filaments and human cardiac myosin. <i>BMC Medical Genetics</i> , 2015 , 16, 97	2.1	3
9	Two important polymers cross paths. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004 , 101, 15825-6	11.5	3
8	Molecular motors: a surprising twist in myosin VI translocation. <i>Current Biology</i> , 2008 , 18, R68-70	6.3	2
7	Memories of Hugh E. Huxley (1924-2013). <i>Molecular Biology of the Cell</i> , 2013 , 24, 2769-71	3.5	1
6	Hypertrophic cardiomyopathy β -cardiac myosin mutation (P710R) leads to hypercontractility by disrupting super-relaxed state		1
5	The molecular basis of hypercontractility caused by the hypertrophic cardiomyopathy mutations R403Q and R663H		1
4	Mutations in the catalytic domain of human β -cardiac myosin that cause early onset hypertrophic cardiomyopathy significantly increase the fundamental parameters that determine ensemble force and velocity		1
3	Studies on the Dynamic Localization of GFP-Myosin During Cytokinesis in Live Cells. <i>Microscopy and Microanalysis</i> , 1997 , 3, 129-130	0.5	
2	Dynamic organization of gene loci and transcription compartments in the cell nucleus. <i>Biophysical Journal</i> , 2008 , 95, 5003-4	2.9	
1	Quantitative Measurements of Myosin Movement In Vitro: The Reductionist Approach Carried to Single Molecules 271-286		