# James A Spudich

List of Publications by Year
in descending order

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|---|---|---|---|
| 115 papers | 14,886 citations | 25014 57 h-index | 22808 112 g-index |
| 128 all docs | 128 docs citations | 128 times ranked | 7682 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Single myosin molecule mechanics: piconewton forces and nanometre steps. Nature, 1994, 368, 113-119. | 13.7 | 1,861 |
| 2 | Myosin-V is a processive actin-based motor. Nature, 1999, 400, 590-593. | 13.7 | 759 |
| 3 | Myosin subfragment-1 is sufficient to move actin filaments in vitro. Nature, 1987, 328, 536-539. | 13.7 | 516 |
| 4 | Movement of myosin-coated fluorescent beads on actin cables in vitro. Nature, 1983, 303, 31-35. | 13.7 | 507 |
| 5 | A small-molecule inhibitor of sarcomere contractility suppresses hypertrophic cardiomyopathy in mice. Science, 2016, 351, 617-621. | 6.0 | 494 |
| 6 | Myosin step size. Journal of Molecular Biology, 1990, 214, 699-710. | 2.0 | 457 |
| 7 | How molecular motors work. Nature, 1994, 372, 515-518. | 13.7 | 451 |
| 8 | Cytoskeletal elements of chick embryo fibroblasts revealed by detergent extraction. Journal of Supramolecular Structure, 1976, 5, 119-130. | 2.3 | 397 |
| 9 | [33] Assays for actin sliding movement over myosin-coated surfaces. Methods in Enzymology, 1991, 196, 399-416. | 0.4 | 382 |
| 10 | Single molecule high-resolution colocalization of Cy3 and Cy5 attached to macromolecules measures intramolecular distances through time. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 1419-1423. | 3.3 | 321 |
| 11 | Three-dimensional atomic model of F-actin decorated with Dictyostelium myosin S1. Nature, 1993, 364, 171-174. | 13.7 | 311 |
| 12 | Capping of surface receptors and concomitant cortical tension are generated by conventional myosin. Nature, 1989, 341, 549-551. | 13.7 | 272 |
| 13 | Dictyostelium myosin heavy chain phosphorylation sites regulate myosin filament assembly and localization in vivo. Cell, 1993, 75, 363-371. | 13.5 | 269 |
| 14 | The myosin swinging cross-bridge model. Nature Reviews Molecular Cell Biology, 2001, 2, 387-392. | 16.1 | 268 |
| 15 | Deciphering the super relaxed state of human Î²-cardiac myosin and the mode of action of mavacamten from myosin molecules to muscle fibers. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E8143-E8152. | 3.3 | 248 |
| 16 | A mitochondria-anchored isoform of the actin-nucleating spire protein regulates mitochondrial division. ELife, 2015, 4, . | 2.8 | 246 |
| 17 | The Mechanism of Myosin VI Translocation and Its Load-Induced Anchoring. Cell, 2004, 116, 737-749. | 13.5 | 243 |
| 18 | The myosin superfamily at a glance. Journal of Cell Science, 2012, 125, 1627-1632. | 1.2 | 236 |

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|---|---|---|---|
| 19 | Hypertrophic and Dilated Cardiomyopathy: Four Decades of Basic Research on Muscle Lead to Potential Therapeutic Approaches to These Devastating Genetic Diseases. Biophysical Journal, 2014, 106, 1236-1249. | 0.2 | 226 |
| 20 | Biochemical and structural studies of actomyosin-like proteins from non-muscle cells. Journal of Molecular Biology, 1974, 86, 209-222. | 2.0 | 217 |
| 21 | Enzymatic activities correlate with chimaeric substitutions at the actin-binding face of myosin. Nature, 1994, 368, 567-569. | 13.7 | 211 |
| 22 | Regulation of skeletal muscle contraction. Journal of Molecular Biology, 1972, 72, 619-632. | 2.0 | 200 |
| 23 | Quantized velocities at low myosin densities in an in vitro motility. Nature, 1991, 352, 307-311. | 13.7 | 187 |
| 24 | Dynamics of the unbound head during myosin V processive translocation. Nature Structural and Molecular Biology, 2007, 14, 246-248. | 3.6 | 165 |
| 25 | A force-dependent state controls the coordination of processive myosin V. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 13873-13878. | 3.3 | 164 |
| 26 | The myosin mesa and the basis of hypercontractility caused by hypertrophic cardiomyopathy mutations. Nature Structural and Molecular Biology, 2017, 24, 525-533. | 3.6 | 164 |
| 27 | Biochemical and Structural Studies of Actomyosin-like Proteins from Non-Muscle Cells. Journal of Biological Chemistry, 1974, 249, 6013-6020. | 1.6 | 157 |
| 28 | Role of the lever arm in the processive stepping of myosin V. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 14159-14164. | 3.3 | 154 |
| 29 | Principles of Unconventional Myosin Function and Targeting. Annual Review of Cell and Developmental Biology, 2011, 27, 133-155. | 4.0 | 147 |
| 30 | Molecular consequences of the R453C hypertrophic cardiomyopathy mutation on human Î²-cardiac myosin motor function. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 12607-12612. | 3.3 | 144 |
| 31 | On the Role of Myosin-II in Cytokinesis: Division ofDictyosteliumCells under Adhesive and Nonadhesive Conditions. Molecular Biology of the Cell, 1997, 8, 2617-2629. | 0.9 | 137 |
| 32 | A FRET-Based Sensor Reveals Large ATP Hydrolysisâ€“Induced Conformational Changes and Three Distinct States of the Molecular Motor Myosin. Cell, 2000, 102, 683-694. | 13.5 | 137 |
| 33 | Movement of myosin-coated beads on oriented filaments reconstituted from purified actin. Nature, 1985, 315, 584-586. | 13.7 | 132 |
| 34 | Myosin VI walks hand-over-hand along actin. Nature Structural and Molecular Biology, 2004, 11, 884-887. | 3.6 | 126 |
| 35 | SETD3 is an actin histidine methyltransferase that prevents primary dystocia. Nature, 2019, 565, 372-376. | 13.7 | 116 |
| 36 | Hypertrophic cardiomyopathy and the myosin mesa: viewing an old disease in a new light. Biophysical Reviews, 2018, 10, 27-48. | 1.5 | 115 |

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|---|---|---|---|
| 37 | Three perspectives on the molecular basis of hypercontractility caused by hypertrophic cardiomyopathy mutations. Pflugers Archiv European Journal of Physiology, 2019, 471, 701-717. | 1.3 | 115 |
| 38 | The myosin mesa and a possible unifying hypothesis for the molecular basis of human hypertrophic cardiomyopathy. Biochemical Society Transactions, 2015, 43, 64-72. | 1.6 | 111 |
| 39 | Long single Î±-helical tail domains bridge the gap between structure and function of myosin VI. Nature Structural and Molecular Biology, 2008, 15, 591-597. | 3.6 | 109 |
| 40 | Contractility parameters of human Î²-cardiac myosin with the hypertrophic cardiomyopathy mutation R403Q show loss of motor function. Science Advances, 2015, 1, e1500511. | 4.7 | 102 |
| 41 | Dynacortin, a Genetic Link between Equatorial Contractility and Global Shape Control Discovered by Library Complementation of a Dictyostelium discoideum Cytokinesis Mutant. Journal of Cell Biology, 2000, 150, 823-838. | 2.3 | 100 |
| 42 | Myosin VI: an innovative motor that challenged the swinging lever arm hypothesis. Nature Reviews Molecular Cell Biology, 2010, 11, 128-137. | 16.1 | 100 |
| 43 | Functional diversity among a family of human skeletal muscle myosin motors. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1053-1058. | 3.3 | 100 |
| 44 | Ensemble Force Changes that Result from Human Cardiac Myosin Mutations and a Small-Molecule Effector. Cell Reports, 2015, 11, 910-920. | 2.9 | 98 |
| 45 | Multidimensional structure-function relationships in human Î²-cardiac myosin from population-scale genetic variation. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 6701-6706. | 3.3 | 98 |
| 46 | A Flexible Domain Is Essential for the Large Step Size and Processivity of Myosin VI. Molecular Cell, 2005, 17, 603-609. | 4.5 | 95 |
| 47 | Dynamic charge interactions create surprising rigidity in the ER/K Î±-helical protein motif. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 13356-13361. | 3.3 | 94 |
| 48 | The power stroke of myosin VI and the basis of reverse directionality. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 772-777. | 3.3 | 93 |
| 49 | Altered Cardiac Energetics and Mitochondrial Dysfunction in Hypertrophic Cardiomyopathy. Circulation, 2021, 144, 1714-1731. | 1.6 | 90 |
| 50 | Movement of myosin fragments in vitro: Domains involved in force production. Cell, 1987, 48, 953-963. | 13.5 | 88 |
| 51 | Bidirectional movement of actin filaments along tracks of myosin heads. Nature, 1989, 341, 154-156. | 13.7 | 85 |
| 52 | STRUCTURE-FUNCTION ANALYSIS OF THE MOTOR DOMAIN OF MYOSIN. Annual Review of Cell and Developmental Biology, 1996, 12, 543-573. | 4.0 | 85 |
| 53 | Myosin Heavy Chain Phosphorylation Sites Regulate Myosin Localization during Cytokinesis in Live Cells. Molecular Biology of the Cell, 1997, 8, 2605-2615. | 0.9 | 83 |
| 54 | The Sequence of the Myosin 50â˜20K Loop Affects Myosin's Affinity for Actin throughout the Actinâ˜Myosin ATPase Cycle and Its Maximum ATPase Activityâ€. Biochemistry, 1999, 38, 3785-3792. | 1.2 | 83 |

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|---|---|---|---|
| 55 | Identification and molecular characterization of a yeast myosin I. Cytoskeleton, 1995, 30, 73-84. | 4.4 | 79 |
| 56 | A myosin II mutation uncouples ATPase activity from motility and shortens step size. Nature Cell Biology, 2001, 3, 311-315. | 4.6 | 73 |
| 57 | Early-Onset Hypertrophic Cardiomyopathy Mutations Significantly Increase the Velocity, Force, and Actin-Activated ATPase Activity of Human Î²-Cardiac Myosin. Cell Reports, 2016, 17, 2857-2864. | 2.9 | 69 |
| 58 | Harmonic force spectroscopy measures load-dependent kinetics of individual human Î²-cardiac myosin molecules. Nature Communications, 2015, 6, 7931. | 5.8 | 65 |
| 59 | Biophysical properties of human Î²-cardiac myosin with converter mutations that cause hypertrophic cardiomyopathy. Science Advances, 2017, 3, e1601959. | 4.7 | 64 |
| 60 | Effects of hypertrophic and dilated cardiomyopathy mutations on power output by human Î²-cardiac myosin. Journal of Experimental Biology, 2016, 219, 161-167. | 0.8 | 60 |
| 61 | The hypertrophic cardiomyopathy mutations R403Q and R663H increase the number of myosin heads available to interact with actin. Science Advances, 2020, 6, eaax0069. | 4.7 | 60 |
| 62 | Rho Kinase's Role in Myosin Recruitment to the Equatorial Cortex of Mitotic Drosophila S2 Cells Is for Myosin Regulatory Light Chain Phosphorylation. PLoS ONE, 2006, 1, e131. | 1.1 | 60 |
| 63 | Dilated cardiomyopathy myosin mutants have reduced force-generating capacity. Journal of Biological Chemistry, 2018, 293, 9017-9029. | 1.6 | 57 |
| 64 | Controlling load-dependent kinetics of Î²-cardiac myosin at the single-molecule level. Nature Structural and Molecular Biology, 2018, 25, 505-514. | 3.6 | 56 |
| 65 | Î²-Cardiac myosin hypertrophic cardiomyopathy mutations release sequestered heads and increase enzymatic activity. Nature Communications, 2019, 10, 2685. | 5.8 | 54 |
| 66 | Cold-sensitive Mutants G680V and G691C ofDictyostelium Myosin II Confer Dramatically Different Biochemical Defects. Journal of Biological Chemistry, 1997, 272, 27612-27617. | 1.6 | 53 |
| 67 | Effects of Troponin T Cardiomyopathy Mutations on the Calcium Sensitivity of the Regulated Thin Filament and the Actomyosin Cross-Bridge Kinetics of Human Î²-Cardiac Myosin. PLoS ONE, 2013, 8, e83403. | 1.1 | 53 |
| 68 | Coupled myosin VI motors facilitate unidirectional movement on an F-actin network. Journal of Cell Biology, 2009, 187, 53-60. | 2.3 | 52 |
| 69 | Precise Positioning of Myosin VI on Endocytic Vesicles In Vivo. PLoS Biology, 2007, 5, e210. | 2.6 | 51 |
| 70 | Variable surface loops and myosin activity: accessories to a motor. , 2000, 21, 139-151. | | 45 |
| 71 | The Myosin Family of Mechanoenzymes: From Mechanisms to Therapeutic Approaches. Annual Review of Biochemistry, 2020, 89, 667-693. | 5.0 | 45 |
| 72 | Hypertrophic cardiomyopathy Î²-cardiac myosin mutation (P710R) leads to hypercontractility by disrupting super relaxed state. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 3.3 | 43 |

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| 73 | A Structural Model for Phosphorylation Control of Dictyostelium Myosin II Thick Filament Assembly. Journal of Cell Biology, 1999, 147, 1039-1048. | 2.3 | 41 |
| 74 | Mechanistic Heterogeneity in Contractile Properties of Î±-Tropomyosin (TPM1) Mutants Associated with Inherited Cardiomyopathies. Journal of Biological Chemistry, 2015, 290, 7003-7015. | 1.6 | 41 |
| 75 | On the molecular basis of action of cytochalasin B. Journal of Supramolecular Structure, 1974, 2, 728-736. | 2.3 | 39 |
| 76 | Detailed Tuning of Structure and Intramolecular Communication Are Dispensable for Processive Motion of Myosin VI. Biophysical Journal, 2011, 100, 430-439. | 0.2 | 39 |
| 77 | Movement of myosin-coated structures on actin cables. Cell Motility, 1983, 3, 485-489. | 1.9 | 37 |
| 78 | Structure of an F-actin Trimer Disrupted by Gelsolin and Implications for the Mechanism of Severing. Journal of Biological Chemistry, 2003, 278, 1229-1238. | 1.6 | 37 |
| 79 | Motor molecules in motion. Nature, 1990, 348, 284-285. | 13.7 | 36 |
| 80 | Phenotypically Selected Mutations in Myosin's Actin Binding Domain Demonstrate Intermolecular Contacts Important for Motor Function. Biochemistry, 1997, 36, 8465-8473. | 1.2 | 36 |
| 81 | Structural and Functional Insights on the Myosin Superfamily. Bioinformatics and Biology Insights, 2012, 6, BBI.S8451. | 1.0 | 36 |
| 82 | Cold-Sensitive Mutations of Dictyostelium Myosin Heavy Chain Highlight Functional Domains of the Myosin Motor. Genetics, 1996, 143, 801-810. | 1.2 | 36 |
| 83 | Optimized measurements of separations and angles between intra-molecular fluorescent markers. Nature Communications, 2015, 6, 8621. | 5.8 | 34 |
| 84 | Engineered Myosin VI Motors Reveal Minimal Structural Determinants of Directionality and Processivity. Journal of Molecular Biology, 2009, 392, 862-867. | 2.0 | 33 |
| 85 | Observation of correlated X-ray scattering at atomic resolution. Philosophical Transactions of the Royal Society B: Biological Sciences, 2014, 369, 20130315. | 1.8 | 33 |
| 86 | Helicity of short Eâ€R/K peptides. Protein Science, 2010, 19, 2001-2005. | 3.1 | 32 |
| 87 | Single-Molecule Dual-Beam Optical Trap Analysis of Protein Structure and Function. Methods in Enzymology, 2010, 475, 321-375. | 0.4 | 32 |
| 88 | Molecular Motors Take Tension in Stride. Cell, 2006, 126, 242-244. | 13.5 | 30 |
| 89 | Molecular Motors, Beauty in Complexity. Science, 2011, 331, 1143-1144. | 6.0 | 30 |
| 90 | [6] Building and using optical traps to study properties of molecular motors. Methods in Enzymology, 2003, 361, 112-133. | 0.4 | 29 |

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| 91 | Proteomics approach to study the functions of Drosophila myosin VI through identification of multiple cargo-binding proteins. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 5566-5571. | 3.3 | 28 |
| 92 | Dictyostelium Myosin Bipolar Thick Filament Formation: Importance of Charge and Specific Domains of the Myosin Rod. PLoS Biology, 2004, 2, e356. | 2.6 | 27 |
| 93 | Myosin motor domains carrying mutations implicated in early or late onset hypertrophic cardiomyopathy have similar properties. Journal of Biological Chemistry, 2019, 294, 17451-17462. | 1.6 | 26 |
| 94 | Insights into Human Î²-Cardiac Myosin Function from Single Molecule and Single Cell Studies. Journal of Cardiovascular Translational Research, 2009, 2, 426-440. | 1.1 | 24 |
| 95 | Single Residue Variation in Skeletal Muscle Myosin Enables Direct and Selective Drug Targeting for Spasticity and Muscle Stiffness. Cell, 2020, 183, 335-346.e13. | 13.5 | 21 |
| 96 | Structural states of dictyostelium myosin. Journal of Supramolecular Structure, 1979, 12, 1-14. | 2.3 | 19 |
| 97 | The contractile proteins of dictyostelium discoideum. Journal of Supramolecular Structure, 1974, 2, 150-162. | 2.3 | 18 |
| 98 | Single molecule biochemistry using optical tweezers. FEBS Letters, 1998, 430, 23-27. | 1.3 | 18 |
| 99 | Cell-Intrinsic Functional Effects of the Î±-Cardiac Myosin Arg-403-Gln Mutation in Familial Hypertrophic Cardiomyopathy. Biophysical Journal, 2012, 102, 2782-2790. | 0.2 | 18 |
| 100 | Nanomechanical Phenotypes in Cardiac Myosin-Binding Protein C Mutants That Cause Hypertrophic Cardiomyopathy. ACS Nano, 2021, 15, 10203-10216. | 7.3 | 16 |
| 101 | An approach to reconstituting motility of single myosin molecules. Journal of Cell Science, 1991, 1991, 129-133. | 1.2 | 15 |
| 102 | Mutational analysis of phosphorylation sites in theDictyosteliummyosin II tail: disruption of myosin function by a single charge change. FEBS Letters, 2000, 466, 267-272. | 1.3 | 14 |
| 103 | (Symposium on Bacterial Spores: Paper III). Biochemical Studies of Spore Core and Coat Protein Synthesis. Journal of Applied Bacteriology, 1970, 33, 25-33. | 1.1 | 11 |
| 104 | Molecular motors: forty years of interdisciplinary research. Molecular Biology of the Cell, 2011, 22, 3936-3939. | 0.9 | 11 |
| 105 | One path to understanding energy transduction in biological systems. Nature Medicine, 2012, 18, 1478-1482. | 15.2 | 11 |
| 106 | Functional analysis of a cardiac myosin rod inDictyostelium discoideum. Cytoskeleton, 1994, 27, 313-326. | 4.4 | 9 |
| 107 | Hypertrophic cardiomyopathy mutations in the pliant and light chain-binding regions of the lever arm of human Î²-cardiac myosin have divergent effects on myosin function. ELife, 0, 11, . | 2.8 | 9 |
| 108 | Biochemical Studies of Bacterial Sporulation and Germination XIII. Adenylate Kinase of Vegetative Cells and Spores of Bacillus subtilis. Journal of Bacteriology, 1969, 98, 69-74. | 1.0 | 8 |

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| 109 | 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. BMC Medical Genetics, 2015, 16, 97. | 2.1 | 4 |
| 110 | Two important polymers cross paths. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 15825-15826. | 3.3 | 3 |
| 111 | Molecular Motors: A Surprising Twist in Myosin VI Translocation. Current Biology, 2008, 18, R68-R70. | 1.8 | 2 |
| 112 | Memories of Hugh E. Huxley (1924â€“2013). Molecular Biology of the Cell, 2013, 24, 2769-2771. | 0.9 | 2 |
| 113 | Dynamic Organization of Gene Loci and Transcription Compartments in the Cell Nucleus. Biophysical Journal, 2008, 95, 5003-5004. | 0.2 | 1 |
| 114 | Studies on the Dynamic Localization of GFP-Myosin During Cytokinesis in Live Cells. Microscopy and Microanalysis, 1997, 3, 129-130. | 0.2 | 0 |
| 115 | Quantitative Measurements of Myosin MovementIn Vitro: The Reductionist Approach Carried to Single Molecules. , 0, , 271-286. | | 0 |