Malcolm Irving

List of Publications by Year
in descending order

59 papers	3,673 citations	136885 32 h-index	133188 59 g-index
63 all docs	63 docs citations	63 times ranked	1600 citing authors

#	Article	IF	Citations
1	Skeletal Muscle Performance Determined by Modulation of Number of Myosin Motors Rather Than Motor Force or Stroke Size. Cell, 2007, 131, 784-795.	13.5	274
2	Force generation by skeletal muscle is controlled by mechanosensing in myosin filaments. Nature, 2015, 528, 276-279.	13.7	249
3	Myosin head movements are synchronous with the elementary force-generating process in muscle. Nature, 1992, 357, 156-158.	13.7	205
4	Tilting of the light-chain region of myosin during step length changes and active force generation in skeletal muscle. Nature, 1995, 375, 688-691.	13.7	201
5	The myosin motor in muscle generates a smaller and slower working stroke at higher load. Nature, 2004, 428, 578-581.	13.7	183
6	The Stiffness of Skeletal Muscle in Isometric Contraction and Rigor: The Fraction of Myosin Heads Bound to Actin. Biophysical Journal, 1998, 74, 2459-2473.	0.2	168
7	Elastic bending and active tilting of myosin heads during muscle contraction. Nature, 1998, 396, 383-387.	13.7	155
8	Mechanism of force generation by myosin heads in skeletal muscle. Nature, 2002, 415, 659-662.	13.7	133
9	Regulation of Contraction by the Thick Filaments inÂSkeletal Muscle. Biophysical Journal, 2017, 113, 2579-2594.	0.2	129
10	Elastic distortion of myosin heads and repriming of the working stroke in muscle. Nature, 1995, 374, 553-555.	13.7	115
11	Myosin light chain phosphorylation enhances contraction of heart muscle via structural changes in both thick and thin filaments. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E3039-47.	3.3	105
12	Myosin binding protein-C activates thin filaments and inhibits thick filaments in heart muscle cells. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 18763-18768.	3.3	103
13	Conformation of the myosin motor during force generation in skeletal muscle. Nature Structural Biology, 2000, 7, 482-485.	9.7	98
14	Skeletal muscle resists stretch by rapid binding of the second motor domain of myosin to actin. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 20114-20119.	3.3	95
15	Myosin filament-based regulation of the dynamics of contraction in heart muscle. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 8177-8186.	3.3	94
16	Calciumâ€•and myosinâ€dependent changes in troponin structure during activation of heart muscle. Journal of Physiology, 2009, 587, 155-163.	1.3	89
17	Fluorescence Polarization Transients from Rhodamine Isomers on the Myosin Regulatory Light Chain in Skeletal Muscle Fibers. Biophysical Journal, 1998, 74, 3093-3110.	0.2	83
18	Omecamtiv mercabil and blebbistatin modulate cardiac contractility by perturbing the regulatory state of the myosin filament. Journal of Physiology, 2018, 596, 31-46.	1.3	83

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19	Orientation Changes of the Myosin Light Chain Domain During Filament Sliding in Active and Rigor Muscle. Journal of Molecular Biology, 2002, 318, 1275-1291.	2.0	69
20	Sarcomereâ€length dependence of myosin filament structure in skeletal muscle fibres of the frog. Journal of Physiology, 2014, 592, 1119-1137.	1.3	62
21	Motion of myosin head domains during activation and force development in skeletal muscle. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 7236-7240.	3.3	59
22	Phosphorylation of myosin regulatory light chain controls myosin head conformation in cardiac muscle. Journal of Molecular and Cellular Cardiology, 2015, 85, 199-206.	0.9	52
23	In Situ Orientations of Protein Domains. Molecular Cell, 2003, 11, 865-874.	4.5	51
24	The molecular basis of the steep forceâ€"calcium relation in heart muscle. Journal of Molecular and Cellular Cardiology, 2010, 48, 859-865.	0.9	50
25	The contributions of filaments and crossâ€bridges to sarcomere compliance in skeletal muscle. Journal of Physiology, 2014, 592, 3881-3899.	1.3	50
26	Distinct contributions of the thin and thick filaments to length-dependent activation in heart muscle. ELife, 2017, 6, .	2.8	48
27	Site-specific phosphorylation of myosin binding protein-C coordinates thin and thick filament activation in cardiac muscle. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 15485-15494.	3.3	48
28	The Conformation of Myosin Heads in Relaxed Skeletal Muscle: Implications for Myosin-Based Regulation. Biophysical Journal, 2015, 109, 783-792.	0.2	47
29	Structural changes in troponin in response to Ca2+ and myosin binding to thin filaments during activation of skeletal muscle. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 17771-17776.	3.3	40
30	Low temperature traps myosin motors of mammalian muscle in a refractory state that prevents activation. Journal of General Physiology, 2019, 151, 1272-1286.	0.9	40
31	Changes in conformation of myosin heads during the development of isometric contraction and rapid shortening in single frog muscle fibres. Journal of Physiology, 1999, 514, 305-312.	1.3	36
32	Structural dynamics of troponin during activation of skeletal muscle. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 4626-4631.	3.3	35
33	NMR Structure of a Bifunctional Rhodamine Labeled N-Domain of Troponin C Complexed with the Regulatory â€œSwitchâ€•Peptide from Troponin I:â€‰ Implications for in Situ Fluorescence Studies in Muscle Fibers,. Biochemistry, 2003, 42, 4333-4348.	1.2	33
34	X-ray diffraction studies of the contractile mechanism in single muscle fibres. Philosophical Transactions of the Royal Society B: Biological Sciences, 2004, 359, 1883-1893.	1.8	33
35	Bifunctional Rhodamine Probes of Myosin Regulatory Light Chain Orientation in Relaxed Skeletal Muscle Fibers. Biophysical Journal, 2004, 86, 2329-2341.	0.2	27
36	Conformation of the Troponin Core Complex in the Thin Filaments of Skeletal Muscle during Relaxation and Active Contraction. Journal of Molecular Biology, 2012, 421, 125-137.	2.0	26

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37	Structure-Function Relation of the Myosin Motor in Striated Muscle. Annals of the New York Academy of Sciences, 2005, 1047, 232-247.	1.8	22
38	Hypertrophic cardiomyopathy mutation R58Q in the myosin regulatory light chain perturbs thick filament-based regulation in cardiac muscle. Journal of Molecular and Cellular Cardiology, 2018, 117, 72-81.	0.9	22
39	Myosin-based regulation of twitch and tetanic contractions in mammalian skeletal muscle. ELife, 2021, 10, .	2.8	22
40	Dependence of thick filament structure in relaxed mammalian skeletal muscle on temperature and interfilament spacing. Journal of General Physiology, 2021, 153, .	0.9	21
41	Stress-dependent activation of myosin in the heart requires thin filament activation and thick filament mechanosensing. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	21
42	Structural and functional effects of myosin-binding protein-C phosphorylation in heart muscle are not mimicked by serine-to-aspartate substitutions. Journal of Biological Chemistry, 2018, 293, 14270-14275.	1.6	19
43	The structural and functional effects of the familial hypertrophic cardiomyopathy-linked cardiac troponin C mutation, L29Q. Journal of Molecular and Cellular Cardiology, 2015, 87, 257-269.	0.9	18
44	Probing the mechanism of cardiovascular drugs using a covalent levosimendan analog. Journal of Molecular and Cellular Cardiology, 2016, 92, 174-184.	0.9	16
45	Cardiac myosin regulatory light chain kinase modulates cardiac contractility by phosphorylating both myosin regulatory light chain and troponin I. Journal of Biological Chemistry, 2020, 295, 4398-4410.	1.6	16
46	Orientation of the N- and C-Terminal Lobes of the Myosin Regulatory Light Chain in Cardiac Muscle. Biophysical Journal, 2015, 108, 304-314.	0.2	15
47	Reversible Covalent Binding to Cardiac Troponin C by the Ca²⁺-Sensitizer Levosimendan. Biochemistry, 2016, 55, 6032-6045.	1.2	14
48	Biomechanics goes quantum. Nature, 1991, 352, 284-285.	13.7	13
49	Conformation and Dynamics of a Rhodamine Probe Attached at Two Sites on a Protein: Implications for Molecular Structure Determination <i>in situ</i>. Journal of the American Chemical Society, 2008, 130, 17120-17128.	6.6	13
50	Muscle contraction: Weak and strong crossbridges. Nature, 1985, 316, 292-293.	13.7	11
51	Thick Filament Length Changes in Muscle Have Both Elastic and Structural Components. Biophysical Journal, 2019, 116, 983-984.	0.2	11
52	Toward Protein Structure In Situ: Comparison of Two Bifunctional Rhodamine Adducts of Troponin C. Biophysical Journal, 2007, 93, 1008-1020.	0.2	10
53	The regulatory light chain mediates inactivation of myosin motors during active shortening of cardiac muscle. Nature Communications, 2021, 12, 5272.	5.8	10
54	Orientation of the N-Terminal Lobe of the Myosin Regulatory Light Chain inÂSkeletal Muscle Fibers. Biophysical Journal, 2012, 102, 1418-1426.	0.2	8

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55	Reversible Covalent Reaction of Levosimendan with Cardiac Troponin C <i>in Vitro</i> and <i>in Situ</i>. Biochemistry, 2018, 57, 2256-2265.	1.2	8
56	Cooling intact and demembranated trabeculae from rat heart releases myosin motors from their inhibited conformation. Journal of General Physiology, 2022, 154, .	0.9	7
57	Myosin motors that cannot bind actin leave their folded OFF state on activation of skeletal muscle. Journal of General Physiology, 2021, 153, .	0.9	4
58	The Off-To-On Transition of Thick Filaments in Isolated Trabeculae from Rat Heart Induced by Cooling. Biophysical Journal, 2019, 116, 263a.	0.2	3
59	Changes in the Orientation of the Myosin Light Chain Domain (LCD) Associated with Thick Filament-Based Regulation of Skeletal Muscle. Biophysical Journal, 2014, 106, 724a-725a.	0.2	1