

Roderick MacKinnon

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

109
papers

33,507
citations

73
h-index

128
g-index

128
ext. papers

37,024
ext. citations

25.4
avg, IF

7.59
L-index

#	Paper	IF	Citations
109	Correlation between structure and function in phosphatidylinositol lipid-dependent Kir2.2 gating.. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022 , 119, e2114046119	11.5	0
108	Molecular structure of an open human K channel. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	7
107	Analysis of the mechanosensor channel functionality of TACAN. <i>ELife</i> , 2021 , 10,	8.9	7
106	Cryo-EM analysis of PIP regulation in mammalian GIRK channels. <i>ELife</i> , 2020 , 9,	8.9	21
105	Structural Basis of Human KCNQ1 Modulation and Gating. <i>Cell</i> , 2020 , 180, 340-347.e9	56.2	85
104	Force-induced conformational changes in PIEZO1. <i>Nature</i> , 2019 , 573, 230-234	50.4	106
103	Regulation of Eag1 gating by its intracellular domains. <i>ELife</i> , 2019 , 8,	8.9	9
102	The mechanosensitive ion channel TRAAK is localized to the mammalian node of Ranvier. <i>ELife</i> , 2019 , 8,	8.9	33
101	Molecular structures of the human Slo1 K channel in complex with β . <i>ELife</i> , 2019 , 8,	8.9	35
100	Cryo-EM structure of the KvAP channel reveals a non-domain-swapped voltage sensor topology. <i>ELife</i> , 2019 , 8,	8.9	10
99	Voltage Sensor Movements during Hyperpolarization in the HCN Channel. <i>Cell</i> , 2019 , 179, 1582-1589.e7	56.2	41
98	Activation mechanism of a human SK-calmodulin channel complex elucidated by cryo-EM structures. <i>Science</i> , 2018 , 360, 508-513	33.3	87
97	Piezo1 forms a slowly-inactivating mechanosensory channel in mouse embryonic stem cells. <i>ELife</i> , 2018 , 7,	8.9	38
96	Piezo's membrane footprint and its contribution to mechanosensitivity. <i>ELife</i> , 2018 , 7,	8.9	67
95	Molecular basis of signaling specificity between GIRK channels and GPCRs. <i>ELife</i> , 2018 , 7,	8.9	20
94	Author response: Piezo's membrane footprint and its contribution to mechanosensitivity 2018 ,		2
93	Structure of the CLC-1 chloride channel from. <i>ELife</i> , 2018 , 7,	8.9	52

92	Structural Titration of Slo2.2, a Na-Dependent K Channel. <i>Cell</i> , 2017 , 168, 390-399.e11	56.2	74
91	Structures of the Human HCN1 Hyperpolarization-Activated Channel. <i>Cell</i> , 2017 , 168, 111-120.e11	56.2	185
90	Cryo-EM Structure of the Open Human Ether-à-go-go-Related K Channel hERG. <i>Cell</i> , 2017 , 169, 422-430.e10	56.2	262
89	Cryo-EM Structure of a KCNQ1/CaM Complex Reveals Insights into Congenital Long QT Syndrome. <i>Cell</i> , 2017 , 169, 1042-1050.e9	56.2	182
88	Structure of a CLC chloride ion channel by cryo-electron microscopy. <i>Nature</i> , 2017 , 541, 500-505	50.4	87
87	Cryo-EM structure of the open high-conductance Ca-activated K channel. <i>Nature</i> , 2017 , 541, 46-51	50.4	134
86	Structural basis for gating the high-conductance Ca-activated K channel. <i>Nature</i> , 2017 , 541, 52-57	50.4	103
85	Structure-based membrane dome mechanism for Piezo mechanosensitivity. <i>ELife</i> , 2017 , 6,	8.9	175
84	Molecular structure of human KATP in complex with ATP and ADP. <i>ELife</i> , 2017 , 6,	8.9	89
83	Author response: Structure-based membrane dome mechanism for Piezo mechanosensitivity 2017 ,		3
82	The GIRK1 subunit potentiates G protein activation of cardiac GIRK1/4 hetero-tetramers. <i>ELife</i> , 2016 , 5,	8.9	7
81	Cooperative regulation by G proteins and Na(+) of neuronal GIRK2 K(+) channels. <i>ELife</i> , 2016 , 5,	8.9	26
80	Novel cell-free high-throughput screening method for pharmacological tools targeting K+ channels. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 5748-53	11.5	62
79	Structure of the voltage-gated K+ channel Eag1 reveals an alternative voltage sensing mechanism. <i>Science</i> , 2016 , 353, 664-9	33.3	190
78	Cryo-electron microscopy structure of the Slo2.2 Na(+)-activated K(+) channel. <i>Nature</i> , 2015 , 527, 198-203	50.4	83
77	Quantitative analysis of mammalian GIRK2 channel regulation by G proteins, the signaling lipid PIP2 and Na+ in a reconstituted system. <i>ELife</i> , 2014 , 3, e03671	8.9	133
76	Mechanosensitivity is mediated directly by the lipid membrane in TRAAK and TREK1 K+ channels. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 3614-9	11.5	249
75	Physical mechanism for gating and mechanosensitivity of the human TRAAK K+ channel. <i>Nature</i> , 2014 , 516, 126-30	50.4	190

74	Phosphatidic acid modulation of Kv channel voltage sensor function. <i>ELife</i> , 2014 , 3,	8.9	41
73	Author response: Phosphatidic acid modulation of Kv channel voltage sensor function 2014 ,		2
72	X-ray structure of the mammalian GIRK2- β -protein complex. <i>Nature</i> , 2013 , 498, 190-7	50.4	218
71	Domain-swapped chain connectivity and gated membrane access in a Fab-mediated crystal of the human TRAAK K ⁺ channel. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, 2129-34	11.5	91
70	Structure of a pore-blocking toxin in complex with a eukaryotic voltage-dependent K ⁽⁺⁾ channel. <i>ELife</i> , 2013 , 2, e00594	8.9	139
69	Crystal structure of the human K2P TRAAK, a lipid- and mechano-sensitive K ⁺ ion channel. <i>Science</i> , 2012 , 335, 436-41	33.3	307
68	Functional and structural analysis of the human SLO3 pH- and voltage-gated K ⁺ channel. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012 , 109, 19274-9	11.5	42
67	Molecular mechanism of proton transport in CLC Cl ⁻ /H ⁺ exchange transporters. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012 , 109, 11699-704	11.5	47
66	Open structure of the Ca ²⁺ gating ring in the high-conductance Ca ²⁺ -activated K ⁺ channel. <i>Nature</i> , 2011 , 481, 94-7	50.4	109
65	Structural basis of PIP ₂ activation of the classical inward rectifier K ⁺ channel Kir2.2. <i>Nature</i> , 2011 , 477, 495-8	50.4	456
64	Crystal structure of the mammalian GIRK2 K ⁺ channel and gating regulation by G proteins, PIP ₂ , and sodium. <i>Cell</i> , 2011 , 147, 199-208	56.2	340
63	Structure of the human BK channel Ca ²⁺ -activation apparatus at 3.0 Å resolution. <i>Science</i> , 2010 , 329, 182-6	33.3	249
62	A gating charge transfer center in voltage sensors. <i>Science</i> , 2010 , 328, 67-73	33.3	357
61	Solution structure and phospholipid interactions of the isolated voltage-sensor domain from KvAP. <i>Journal of Molecular Biology</i> , 2010 , 403, 591-606	6.5	81
60	Structure of a eukaryotic CLC transporter defines an intermediate state in the transport cycle. <i>Science</i> , 2010 , 330, 635-41	33.3	207
59	Crystal structure of the eukaryotic strong inward-rectifier K ⁺ channel Kir2.2 at 3.1 Å resolution. <i>Science</i> , 2009 , 326, 1668-74	33.3	274
58	Functional reconstitution of purified human Hv1 H ⁺ channels. <i>Journal of Molecular Biology</i> , 2009 , 387, 1055-60	6.5	85
57	A gating model for the archeal voltage-dependent K ⁽⁺⁾ channel KvAP in DPhPC and POPE:POPG decane lipid bilayers. <i>Journal of Molecular Biology</i> , 2009 , 390, 902-12	6.5	58

56	Two separate interfaces between the voltage sensor and pore are required for the function of voltage-dependent K(+) channels. <i>PLoS Biology</i> , 2009 , 7, e47	9.7	125
55	Inferred motions of the S3a helix during voltage-dependent K+ channel gating. <i>Journal of Molecular Biology</i> , 2008 , 381, 569-80	6.5	23
54	Functional analysis of Kv1.2 and paddle chimera Kv channels in planar lipid bilayers. <i>Journal of Molecular Biology</i> , 2008 , 382, 24-33	6.5	38
53	Voltage-dependent K+ channel gating and voltage sensor toxin sensitivity depend on the mechanical state of the lipid membrane. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008 , 105, 19276-81	11.5	133
52	Potassium Channels and the Atomic Basis of Selective Ion Conduction 2008 , 431-461		
51	Crystal structure of a Kir3.1-prokaryotic Kir channel chimera. <i>EMBO Journal</i> , 2007 , 26, 4005-15	13	257
50	Atomic structure of a voltage-dependent K+ channel in a lipid membrane-like environment. <i>Nature</i> , 2007 , 450, 376-82	50.4	1164
49	Structural and thermodynamic properties of selective ion binding in a K+ channel. <i>PLoS Biology</i> , 2007 , 5, e121	9.7	183
48	Ion selectivity in a semisynthetic K+ channel locked in the conductive conformation. <i>Science</i> , 2006 , 314, 1004-7	33.3	113
47	Structural and functional consequences of an amide-to-ester substitution in the selectivity filter of a potassium channel. <i>Journal of the American Chemical Society</i> , 2006 , 128, 11591-9	16.4	47
46	Phospholipids and the origin of cationic gating charges in voltage sensors. <i>Nature</i> , 2006 , 444, 775-9	50.4	336
45	Principles of selective ion transport in channels and pumps. <i>Science</i> , 2005 , 310, 1461-5	33.3	672
44	Crystal structure of a mammalian voltage-dependent Shaker family K+ channel. <i>Science</i> , 2005 , 309, 897-903	33.3	1835
43	Voltage sensor of Kv1.2: structural basis of electromechanical coupling. <i>Science</i> , 2005 , 309, 903-8	33.3	819
42	Calibrated measurement of gating-charge arginine displacement in the KvAP voltage-dependent K+ channel. <i>Cell</i> , 2005 , 123, 463-75	56.2	182
41	Structural biology. Membrane protein insertion and stability. <i>Science</i> , 2005 , 307, 1425-6	33.3	25
40	Structure of the KvAP voltage-dependent K+ channel and its dependence on the lipid membrane. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005 , 102, 15441-6	11.5	265
39	Structural biology. Voltage sensor meets lipid membrane. <i>Science</i> , 2004 , 306, 1304-5	33.3	30

38	A membrane-access mechanism of ion channel inhibition by voltage sensor toxins from spider venom. <i>Nature</i> , 2004 , 430, 232-5	50.4	239
37	Electron microscopic analysis of KvAP voltage-dependent K ⁺ channels in an open conformation. <i>Nature</i> , 2004 , 430, 806-10	50.4	116
36	Nobel Lecture. Potassium channels and the atomic basis of selective ion conduction. <i>Bioscience Reports</i> , 2004 , 24, 75-100	4.1	63
35	Potassium channels and the atomic basis of selective ion conduction (Nobel Lecture). <i>Angewandte Chemie - International Edition</i> , 2004 , 43, 4265-77	16.4	293
34	Kaliumkanäle und die atomare Basis der selektiven Ionenleitung (Nobel-Vortrag). <i>Angewandte Chemie</i> , 2004 , 116, 4363-4376	3.6	47
33	Ion binding affinity in the cavity of the KcsA potassium channel. <i>Biochemistry</i> , 2004 , 43, 4978-82	3.2	74
32	Localization of the voltage-sensor toxin receptor on KvAP. <i>Biochemistry</i> , 2004 , 43, 10071-9	3.2	76
31	A mutant KcsA K ⁺ channel with altered conduction properties and selectivity filter ion distribution. <i>Journal of Molecular Biology</i> , 2004 , 338, 839-46	6.5	104
30	Functional analysis of an archaebacterial voltage-dependent K ⁺ channel. <i>Nature</i> , 2003 , 422, 180-5	50.4	193
29	X-ray structure of a voltage-dependent K ⁺ channel. <i>Nature</i> , 2003 , 423, 33-41	50.4	1630
28	The principle of gating charge movement in a voltage-dependent K ⁺ channel. <i>Nature</i> , 2003 , 423, 42-8	50.4	691
27	The occupancy of ions in the K ⁺ selectivity filter: charge balance and coupling of ion binding to a protein conformational change underlie high conduction rates. <i>Journal of Molecular Biology</i> , 2003 , 333, 965-75	6.5	340
26	Potassium channels. <i>FEBS Letters</i> , 2003 , 555, 62-5	3.8	348
25	Gating the selectivity filter in ClC chloride channels. <i>Science</i> , 2003 , 300, 108-12	33.3	659
24	X-ray structure of a ClC chloride channel at 3.0 Å reveals the molecular basis of anion selectivity. <i>Nature</i> , 2002 , 415, 287-94	50.4	1364
23	Crystal structure and mechanism of a calcium-gated potassium channel. <i>Nature</i> , 2002 , 417, 515-22	50.4	1227
22	The open pore conformation of potassium channels. <i>Nature</i> , 2002 , 417, 523-6	50.4	1064
21	Lipids in the structure, folding, and function of the KcsA K ⁺ channel. <i>Biochemistry</i> , 2002 , 41, 10771-7	3.2	295

20	Potassium channel receptor site for the inactivation gate and quaternary amine inhibitors. <i>Nature</i> , 2001 , 411, 657-61	50.4	497
19	Energetic optimization of ion conduction rate by the K ⁺ selectivity filter. <i>Nature</i> , 2001 , 414, 37-42	50.4	660
18	Chemistry of ion coordination and hydration revealed by a K ⁺ channel-Fab complex at 2.0 Å resolution. <i>Nature</i> , 2001 , 414, 43-8	50.4	1713
17	Structure of the RCK domain from the E. coli K ⁺ channel and demonstration of its presence in the human BK channel. <i>Neuron</i> , 2001 , 29, 593-601	13.9	264
16	The cavity and pore helices in the KcsA K ⁺ channel: electrostatic stabilization of monovalent cations. <i>Science</i> , 1999 , 285, 100-2	33.3	389
15	Crystal structure and functional analysis of the HERG potassium channel N terminus: a eukaryotic PAS domain. <i>Cell</i> , 1998 , 95, 649-55	56.2	385
14	A snake toxin inhibitor of inward rectifier potassium channel ROMK1. <i>Biochemistry</i> , 1998 , 37, 14867-74	3.2	47
13	The structure of the potassium channel: molecular basis of K ⁺ conduction and selectivity. <i>Science</i> , 1998 , 280, 69-77	33.3	5694
12	Purification, characterization, and synthesis of an inward-rectifier K ⁺ channel inhibitor from scorpion venom. <i>Biochemistry</i> , 1997 , 36, 6936-40	3.2	42
11	Hanatoxin modifies the gating of a voltage-dependent K ⁺ channel through multiple binding sites. <i>Neuron</i> , 1997 , 18, 665-73	13.9	226
10	Mapping the receptor site for hanatoxin, a gating modifier of voltage-dependent K ⁺ channels. <i>Neuron</i> , 1997 , 18, 675-82	13.9	215
9	Contribution of the S4 segment to gating charge in the Shaker K ⁺ channel. <i>Neuron</i> , 1996 , 16, 1169-77	13.9	600
8	Solution structure of the potassium channel inhibitor agitoxin 2: caliper for probing channel geometry. <i>Protein Science</i> , 1995 , 4, 1478-89	6.3	112
7	An inhibitor of the Kv2.1 potassium channel isolated from the venom of a Chilean tarantula. <i>Neuron</i> , 1995 , 15, 941-9	13.9	228
6	Electrostatic tuning of Mg ²⁺ affinity in an inward-rectifier K ⁺ channel. <i>Nature</i> , 1994 , 371, 243-6	50.4	288
5	Purification and characterization of three inhibitors of voltage-dependent K ⁺ channels from <i>Leiurus quinquestriatus</i> var. <i>hebraeus</i> venom. <i>Biochemistry</i> , 1994 , 33, 6834-9	3.2	243
4	Determination of the subunit stoichiometry of a voltage-activated potassium channel. <i>Nature</i> , 1991 , 350, 232-5	50.4	853
3	The mechanosensitive ion channel TRAAK is localized to the mammalian node of Ranvier		1

2	Analysis of the Mechanosensor Channel Functionality of TACAN	3
1	Correlation between structure and function in phosphatidylinositol lipid-dependent Kir2.2 gating	1