

# Frederick Sachs

## List of Publications by Year in descending order

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139  
papers

10,657  
citations

36691

53  
h-index

38517

99  
g-index

142  
all docs

142  
docs citations

142  
times ranked

9895  
citing authors

#	ARTICLE	IF	CITATIONS
1	Adherent cell remodeling on micropatterns is modulated by Piezo1 channels. <i>Scientific Reports</i> , 2021, 11, 5088.	1.6	10
2	Fully implicit spectral boundary integral computation of red blood cell flow. <i>Physics of Fluids</i> , 2021, 33, .	1.6	4
3	Membrane tension. <i>Current Topics in Membranes</i> , 2021, 88, 189-203.	0.5	1
4	Genetically Engineered Myoblasts for Measuring Nuclear Lamina Stress. <i>Biophysical Journal</i> , 2020, 118, 284a.	0.2	0
5	Investigating the interaction of <i>Grammostola rosea</i> venom peptides and model lipid bilayers with solid-state NMR and electron microscopy techniques. <i>Biochimica Et Biophysica Acta - Biomembranes</i> , 2019, 1861, 151-160.	1.4	3
6	Shear stress induced nuclear shrinkage through activation of Piezo1 channels in epithelial cells. <i>Journal of Cell Science</i> , 2019, 132, .	1.2	32
7	Piezo1 Mediated Ca <sup>2+</sup> Signaling Causes Nuclear Shrinkage under Fluid Shear Stress. <i>Biophysical Journal</i> , 2019, 116, 460a.	0.2	0
8	Mechanical Transduction and the Dark Energy of Biology. <i>Biophysical Journal</i> , 2018, 114, 3-9.	0.2	14
9	Functional analyses of heteromeric human PIEZO1 Channels. <i>PLoS ONE</i> , 2018, 13, e0207309.	1.1	5
10	Enantiomeric $\hat{A}^2$ peptides inhibit the fluid shear stress response of PIEZO1. <i>Scientific Reports</i> , 2018, 8, 14267.	1.6	52
11	Cytoskeletal Contribution to Cell Stiffness Due to Osmotic Swelling; Extending the Donnan Equilibrium. <i>Current Topics in Membranes</i> , 2018, 81, 83-96.	0.5	7
12	GsMTx4-D provides protection to the D2.mdx mouse. <i>Neuromuscular Disorders</i> , 2018, 28, 868-877.	0.3	16
13	Heterogeneous Cytoskeletal Force Distribution Delineates the Onset Ca <sup>2+</sup> Influx Under Fluid Shear Stress in Astrocytes. <i>Frontiers in Cellular Neuroscience</i> , 2018, 12, 69.	1.8	19
14	GsMTx4: Mechanism of Inhibiting Mechanosensitive Ion Channels. <i>Biophysical Journal</i> , 2017, 112, 31-45.	0.2	152
15	Mechanical stress activates NMDA receptors in the absence of agonists. <i>Scientific Reports</i> , 2017, 7, 39610.	1.6	68
16	In Situ Measurements of Protein Forces and Intracellular Ca <sup>2+</sup> under Fluid Shear Stimuli. <i>Biophysical Journal</i> , 2017, 112, 310a-311a.	0.2	0
17	Investigating the structural dynamics of the PIEZO1 channel activation and inactivation by coarse-grained modeling. <i>Proteins: Structure, Function and Bioinformatics</i> , 2017, 85, 2198-2208.	1.5	7
18	Flow induced adherens junction remodeling driven by cytoskeletal forces. <i>Experimental Cell Research</i> , 2017, 359, 327-336.	1.2	13

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19	Unsupervised Idealization of Ion Channel Recordings by Minimum Description Length: Application to Human PIEZO1-Channels. <i>Frontiers in Neuroinformatics</i> , 2017, 11, 31.	1.3	17
20	Human PIEZO1 Ion Channel Functions as a Split Protein. <i>PLoS ONE</i> , 2016, 11, e0151289.	1.1	12
21	GsMTx4-D is a cardioprotectant against myocardial infarction during ischemia and reperfusion. <i>Journal of Molecular and Cellular Cardiology</i> , 2016, 98, 83-94.	0.9	32
22	Removal of the mechanoprotective influence of the cytoskeleton reveals PIEZO1 is gated by bilayer tension. <i>Nature Communications</i> , 2016, 7, 10366.	5.8	391
23	A Lamin a Chimeric Protein Containing a FRET Based Stress Sensors Reports Spatio-Temporal Forces in the Nuclear Lamina. <i>Biophysical Journal</i> , 2016, 110, 23a-24a.	0.2	0
24	Adaptation Independent Modulation of Auditory Hair Cell Mechanotransduction Channel Open Probability Implicates a Role for the Lipid Bilayer. <i>Journal of Neuroscience</i> , 2016, 36, 2945-2956.	1.7	61
25	Ionic Selectivity and Permeation Properties of Human PIEZO1 Channels. <i>PLoS ONE</i> , 2015, 10, e0125503.	1.1	125
26	Cell volume control in three dimensions: Water movement without solute movement. <i>Journal of General Physiology</i> , 2015, 145, 373-380.	0.9	45
27	Protonation of the Human PIEZO1 Ion Channel Stabilizes Inactivation. <i>Journal of Biological Chemistry</i> , 2015, 290, 5167-5173.	1.6	52
28	How to get more from less. <i>Physics of Life Reviews</i> , 2015, 13, 150-152.	1.5	1
29	Mechanical dynamics in live cells and fluorescence-based force/tension sensors. <i>Biochimica Et Biophysica Acta - Molecular Cell Research</i> , 2015, 1853, 1889-1904.	1.9	42
30	Flow-induced focal adhesion remodeling mediated by local cytoskeletal stresses and reorganization. <i>Cell Adhesion and Migration</i> , 2015, 9, 432-440.	1.1	14
31	Effects of Lys to Glu mutations in GsMTx4 on membrane binding, peptide orientation, and self-association propensity, as analyzed by molecular dynamics simulations. <i>Biochimica Et Biophysica Acta - Biomembranes</i> , 2015, 1848, 2767-2778.	1.4	14
32	A Threshold Shear Force for Calcium Influx in an Astrocyte Model of Traumatic Brain Injury. <i>Journal of Neurotrauma</i> , 2015, 32, 1020-1029.	1.7	60
33	Mechanical transduction by ion channels: A cautionary tale. <i>World Journal of Neurology</i> , 2015, 5, 74.	0.6	38
34	Synergy between Piezo1 and Piezo2 channels confers high-strain mechanosensitivity to articular cartilage. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, E5114-22.	3.3	321
35	Hereditary xerocytosis revisited. <i>American Journal of Hematology</i> , 2014, 89, 1142-1146.	2.0	47
36	Actin stress in cell reprogramming. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, E5252-61.	3.3	85

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37	Fluorescence-Based Force/Tension Sensors: A Novel Tool to Visualize Mechanical Forces in Structural Proteins in Live Cells. <i>Antioxidants and Redox Signaling</i> , 2014, 20, 986-999.	2.5	49
38	Small Quantum Dots Conjugated to Nanobodies as Immunofluorescence Probes for Nanometric Microscopy. <i>Bioconjugate Chemistry</i> , 2014, 25, 2205-2211.	1.8	29
39	Gigaseal Mechanics: Creep of the Gigaseal under the Action of Pressure, Adhesion, and Voltage. <i>Journal of Physical Chemistry B</i> , 2014, 118, 12660-12672.	1.2	25
40	Silencing of Kir2 channels by caveolin-1: cross-talk with cholesterol. <i>Journal of Physiology</i> , 2014, 592, 4025-4038.	1.3	25
41	Two Segments of the Human PIEZO1 Mechanosensitive Ion Channel Can Reassemble into a Functional Unit. <i>Biophysical Journal</i> , 2014, 106, 309a.	0.2	0
42	Abstract 12292: GsMTx4-D is a Cardioprotectant Against Myocardial Infarction During Ischemia and Reperfusion. <i>Circulation</i> , 2014, 130, .	1.6	0
43	Human PIEZO1: Removing Inactivation. <i>Biophysical Journal</i> , 2013, 105, 880-886.	0.2	64
44	Positively Charged Residues on GsMTx4 are Crucial for Inhibition of the Mechanosensitive Ion Channel Piezo1. <i>Biophysical Journal</i> , 2013, 104, 467a.	0.2	3
45	Xerocytosis is caused by mutations that alter the kinetics of the mechanosensitive channel PIEZO1. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, E1162-8.	3.3	261
46	SOLVING ION CHANNEL KINETICS WITH THE QuB SOFTWARE. <i>Biophysical Reviews and Letters</i> , 2013, 08, 191-211.	0.9	124
47	Mechanical Effects on KATP Channel Gating in Rat Ventricular Myocytes. <i>PLoS ONE</i> , 2013, 8, e63337.	1.1	15
48	Caveolae Regulation of Mechanosensitive Channel Function in Myotubes. <i>PLoS ONE</i> , 2013, 8, e72894.	1.1	32
49	Mechanoprotection by Polycystins Against Apoptosis is Mediated Through the Opening of Stretch-Activated K2P Channels. <i>FASEB Journal</i> , 2013, 27, 912.2.	0.2	0
50	Gating the mechanical channel Piezo1. <i>Channels</i> , 2012, 6, 282-289.	1.5	168
51	Piezo1. <i>Channels</i> , 2012, 6, 214-219.	1.5	103
52	Orientation-based FRET sensor for real-time imaging of cellular forces. <i>Journal of Cell Science</i> , 2012, 125, 743-750.	1.2	100
53	Shear-induced Volume Decrease in MDCK Cells. <i>Cellular Physiology and Biochemistry</i> , 2012, 30, 395-406.	1.1	20
54	A Microfluidic Assay for Measuring Electrical Conductivity of Gap Junction Channels. <i>Materials Research Society Symposia Proceedings</i> , 2012, 1415, 22.	0.1	0

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55	The sensation of stretch. <i>Nature</i> , 2012, 483, 163-164.	13.7	15
56	Molecular force transduction by ion channels – diversity and unifying principles. <i>Journal of Cell Science</i> , 2012, 125, 3075-83.	1.2	168
57	High Throughput Assay of Diffusion through Cx43 Gap Junction Channels with a Microfluidic Chip. <i>Analytical Chemistry</i> , 2011, 83, 933-939.	3.2	28
58	Modeling Ion Channels in the Gigaseal. <i>Biophysical Journal</i> , 2011, 101, 2645-2651.	0.2	12
59	The Mechanosensitive Ion Channel Piezo1 Is Inhibited by the Peptide GsMTx4. <i>Biochemistry</i> , 2011, 50, 6295-6300.	1.2	376
60	Stretch induced endothelin-1 secretion by adult rat astrocytes involves calcium influx via stretch-activated ion channels (SACs). <i>Biochemical and Biophysical Research Communications</i> , 2011, 410, 81-86.	1.0	43
61	Real Time FRET Based Detection of Mechanical Stress in Cytoskeletal and Extracellular Matrix Proteins. <i>Cellular and Molecular Bioengineering</i> , 2011, 4, 148-159.	1.0	65
62	Cholesterol Depletion Facilitates Recovery from Hypotonic Cell Swelling in CHO Cells. <i>Cellular Physiology and Biochemistry</i> , 2011, 28, 1247-1254.	1.1	7
63	Visualizing dynamic cytoplasmic forces with a compliance-matched FRET sensor. <i>Journal of Cell Science</i> , 2011, 124, 261-269.	1.2	127
64	Genetically encoded force sensors for measuring mechanical forces in proteins. <i>Communicative and Integrative Biology</i> , 2011, 4, 385-390.	0.6	24
65	Genetically encoded force sensors for measuring mechanical forces in proteins. <i>Communicative and Integrative Biology</i> , 2011, 4, 385-90.	0.6	18
66	Stretch-Activated Ion Channels: What Are They?. <i>Physiology</i> , 2010, 25, 50-56.	1.6	267
67	Mechanosensitivity of Na <sup>v</sup> 1.5, a voltage-sensitive sodium channel. <i>Journal of Physiology</i> , 2010, 588, 4969-4985.	1.3	155
68	A mechanosensitive ion channel regulating cell volume. <i>American Journal of Physiology - Cell Physiology</i> , 2010, 298, C1424-C1430.	2.1	52
69	Effects of GsMTx4 on Bacterial Mechanosensitive Channels in Inside-Out Patches from Giant Spheroplasts. <i>Biophysical Journal</i> , 2010, 99, 2870-2878.	0.2	39
70	Neurite outgrowth from PC12 cells is enhanced by an inhibitor of mechanical channels. <i>Neuroscience Letters</i> , 2010, 481, 115-119.	1.0	51
71	Hypoxia Activates a Ca <sup>2+</sup> -Permeable Cation Conductance Sensitive to Carbon Monoxide and to GsMTx-4 in Human and Mouse Sickle Erythrocytes. <i>PLoS ONE</i> , 2010, 5, e8732.	1.1	50
72	Electromechanical coupling in the membranes of Shaker-transfected HEK cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 6626-6631.	3.3	41

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73	A simple automated stimulator of mechanically induced arrhythmias in the isolated rat heart. <i>Experimental Physiology</i> , 2009, 94, 1054-1061.	0.9	6
74	Polycystin-1 and -2 Dosage Regulates Pressure Sensing. <i>Cell</i> , 2009, 139, 587-596.	13.5	299
75	Biophysics and Structure of the Patch and the Giga-seal. <i>Biophysical Journal</i> , 2009, 97, 738-747.	0.2	169
76	Stretch-Activated Potassium Channels in Hypotonically Induced Blebs of Atrial Myocytes. <i>Journal of Membrane Biology</i> , 2008, 226, 17-25.	1.0	15
77	Dynamic Effects of Hg <sup>2+</sup> -induced Changes in Cell Volume. <i>Cell Biochemistry and Biophysics</i> , 2008, 51, 21-32.	0.9	11
78	Revisiting TRPC1 and TRPC6 mechanosensitivity. <i>Pflügers Archiv European Journal of Physiology</i> , 2008, 455, 1097-1103.	1.3	229
79	Microfluidic Chip to Produce Temperature Jumps for Electrophysiology. <i>Analytical Chemistry</i> , 2008, 80, 2447-2451.	3.2	26
80	A fluorescence energy transfer-based mechanical stress sensor for specific proteins <i>in situ</i> . <i>FEBS Journal</i> , 2008, 275, 3072-3087.	2.2	144
81	The slow force response to stretch in atrial and ventricular myocardium from human heart: Functional relevance and subcellular mechanisms. <i>Progress in Biophysics and Molecular Biology</i> , 2008, 97, 250-267.	1.4	60
82	Atomic force microscopy analysis of cell volume regulation. <i>Physical Review E</i> , 2008, 78, 031916.	0.8	54
83	Angiotensin II and myosin light-chain phosphorylation contribute to the stretch-induced slow force response in human atrial myocardium. <i>Cardiovascular Research</i> , 2008, 79, 642-651.	1.8	22
84	Regulation of the Mechano-gated K <sup>2P</sup> Channel TREK-1 by Membrane Phospholipids. <i>Current Topics in Membranes</i> , 2007, 59, 155-170.	0.5	24
85	Properties and Mechanism of the Mechanosensitive Ion Channel Inhibitor GsMTx4, a Therapeutic Peptide Derived from Tarantula Venom. <i>Current Topics in Membranes</i> , 2007, 59, 81-109.	0.5	22
86	Mechanosensitive ion channels and the peptide inhibitor GsMTx-4: History, properties, mechanisms and pharmacology. <i>Toxicon</i> , 2007, 49, 249-270.	0.8	161
87	Is Lipid Bilayer Binding a Common Property of Inhibitor Cysteine Knot Ion-Channel Blockers?. <i>Biophysical Journal</i> , 2007, 93, L20-L22.	0.2	46
88	Mechanosensitive channel properties and membrane mechanics in mouse dystrophic myotubes. <i>Journal of Physiology</i> , 2007, 581, 369-387.	1.3	90
89	Up- and down-regulation of the mechano-gated K <sup>2P</sup> channel TREK-1 by PIP <sub>2</sub> and other membrane phospholipids. <i>Pflügers Archiv European Journal of Physiology</i> , 2007, 455, 97-103.	1.3	72
90	Extracting Dwell Time Sequences from Processive Molecular Motor Data. <i>Biophysical Journal</i> , 2006, 91, 3135-3150.	0.2	30

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91	Maximum Likelihood Estimation of Molecular Motor Kinetics from Staircase Dwell-Time Sequences. Biophysical Journal, 2006, 91, 1156-1168.	0.2	51
92	Probing the Double Layer: Effect of Image Forces on AFM. Biophysical Journal, 2006, 91, L14-L15.	0.2	5
93	Streptomycin reduces stretch-induced membrane permeability in muscles from mdx mice. Neuromuscular Disorders, 2006, 16, 845-854.	0.3	91
94	Microfabricated torsion levers optimized for low force and high-frequency operation in fluids. Ultramicroscopy, 2006, 106, 838-846.	0.8	17
95	Reducing probe dependent drift in atomic force microscope with symmetrically supported torsion levers. Review of Scientific Instruments, 2006, 77, 056105.	0.6	15
96	Ca <sup>2+</sup> Influx through Mechanosensitive Channels Inhibits Neurite Outgrowth in Opposition to Other Influx Pathways and Release from Intracellular Stores. Journal of Neuroscience, 2006, 26, 5656-5664.	1.7	126
97	Desensitization of mechano-gated K <sub>2</sub> P channels. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 6859-6864.	3.3	124
98	Effects of stretch-activated channel blockers on [Ca <sup>2+</sup> ] <sub>i</sub> and muscle damage in the mdx mouse. Journal of Physiology, 2005, 562, 367-380.	1.3	245
99	Volume Cytometry: A Microfluidic Sensor for High-Throughput Screening in Real Time. Analytical Chemistry, 2005, 77, 1290-1294.	3.2	43
100	Mechanosensation and endothelin in astrocytes: hypothetical roles in CNS pathophysiology. Brain Research Reviews, 2005, 48, 488-508.	9.1	87
101	Maximum Likelihood Estimation of Ion Channel Kinetics from Macroscopic Currents. Biophysical Journal, 2005, 88, 2494-2515.	0.2	119
102	Microfluidic Cell Volume Biosensor for High Throughput Drug Screening. Materials Research Society Symposia Proceedings, 2004, 845, 128.	0.1	0
103	Dynamic regulation of mechanosensitive channels: capacitance used to monitor patch tension in real time. Physical Biology, 2004, 1, 1-18.	0.8	224
104	Bilayer-dependent inhibition of mechanosensitive channels by neuroactive peptide enantiomers. Nature, 2004, 430, 235-240.	13.7	271
105	Dynamic properties of stretch-activated K <sup>+</sup> channels in adult rat atrial myocytes. Progress in Biophysics and Molecular Biology, 2003, 82, 121-135.	1.4	63
106	cDNA sequence and in vitro folding of GsMTx4, a specific peptide inhibitor of mechanosensitive channels. Toxicon, 2003, 42, 263-274.	0.8	74
107	Flexoelectricity and elasticity of asymmetric biomembranes. Physical Review E, 2002, 65, 021905.	0.8	31
108	Solution Structure of Peptide Toxins That Block Mechanosensitive Ion Channels. Journal of Biological Chemistry, 2002, 277, 34443-34450.	1.6	88

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109	Microfluidic Actuation Using Electrochemically Generated Bubbles. <i>Analytical Chemistry</i> , 2002, 74, 6392-6396.	3.2	106
110	Retaining your identity under stress. , 2002, 9, 636-637.		11
111	High-speed pressure clamp. <i>Pflugers Archiv European Journal of Physiology</i> , 2002, 445, 161-166.	1.3	82
112	Dynamic AFM of Patch Clamped Membranes. , 2001, , 425-460.		0
113	Voltage-induced membrane movement. <i>Nature</i> , 2001, 413, 428-432.	13.7	217
114	Tarantula peptide inhibits atrial fibrillation. <i>Nature</i> , 2001, 409, 35-36.	13.7	292
115	Stretch-Induced Endothelin-1 Production by Astrocytes. <i>Journal of Cardiovascular Pharmacology</i> , 2000, 36, S274-S277.	0.8	26
116	Inactivation of P2X 2 purinoceptors by divalent cations. <i>Journal of Physiology</i> , 2000, 522, 199-214.	1.3	50
117	Stretch-activated whole cell currents in adult rat cardiac myocytes. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2000, 278, H548-H557.	1.5	148
118	Identification of a Peptide Toxin from <i>Grammostola spatulata</i> Spider Venom That Blocks Cation-Selective Stretch-Activated Channels. <i>Journal of General Physiology</i> , 2000, 115, 583-598.	0.9	321
119	A Direct Optimization Approach to Hidden Markov Modeling for Single Channel Kinetics. <i>Biophysical Journal</i> , 2000, 79, 1915-1927.	0.2	203
120	Hidden Markov Modeling for Single Channel Kinetics with Filtering and Correlated Noise. <i>Biophysical Journal</i> , 2000, 79, 1928-1944.	0.2	111
121	Single Channel Properties of P2X2 Purinoceptors. <i>Journal of General Physiology</i> , 1999, 113, 695-720.	0.9	159
122	Energetic and Spatial Parameters for Gating of the Bacterial Large Conductance Mechanosensitive Channel, MscL. <i>Journal of General Physiology</i> , 1999, 113, 525-540.	0.9	364
123	Practical Limits on the Maximal Speed of Solution Exchange for Patch Clamp Experiments. <i>Biophysical Journal</i> , 1999, 77, 682-690.	0.2	44
124	The Breakdown of Cell Membranes by Electrical and Mechanical Stress. <i>Biophysical Journal</i> , 1998, 75, 247-254.	0.2	120
125	Maximum likelihood estimation of aggregated Markov processes. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 1997, 264, 375-383.	1.2	254
126	Stretch-Activated Ion Channels in the Heart. <i>Journal of Molecular and Cellular Cardiology</i> , 1997, 29, 1511-1523.	0.9	303



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127	Storing analog data in a video record. <i>Journal of Neuroscience Methods</i> , 1997, 76, 151-155.	1.3	2
128	A low drift micropipette holder. <i>Pflugers Archiv European Journal of Physiology</i> , 1995, 429, 434-435.	1.3	8
129	Mechanotransducing ion channels in astrocytes. <i>Brain Research</i> , 1992, 584, 272-286.	1.1	86
130	Alignment of tomographic projections using an incomplete set of fiducial markers. <i>Ultramicroscopy</i> , 1991, 35, 37-43.	0.8	29
131	Inhibiting synthesis of extracellular matrix improves patch clamp seal formation. <i>Pflugers Archiv European Journal of Physiology</i> , 1991, 419, 218-220.	1.3	13
132	Single-Channel Mechanosensitive Currents. <i>Science</i> , 1991, 253, 800-801.	6.0	1
133	Improving performance of motorized slides for micromanipulation. <i>Journal of Neuroscience Methods</i> , 1989, 28, 225-227.	1.3	3
134	Biophysics of Mechanoreception. <i>Membrane Biochemistry</i> , 1986, 6, 173-195.	0.6	112
135	[14] Temperature measurement and control of small volumes: Applications for single channel recording. <i>Methods in Enzymology</i> , 1986, 124, 190-206.	0.4	2
136	[9] Single-channel electrophysiology: Use of the patch clamp. <i>Methods in Enzymology</i> , 1983, 103, 147-176.	0.4	23
137	Microforge modifications useful for construction of micropipettes to record the response of single ionic channels from living cells. <i>Journal of Neuroscience Methods</i> , 1980, 2, 267-271.	1.3	3
138	Single ionic channels observed in tissue-cultured muscle. <i>Nature</i> , 1979, 282, 861-863.	13.7	77
139	Electrophysiological properties of tissue cultured heart cells grown in a linear array. <i>Journal of Membrane Biology</i> , 1976, 28, 373-399.	1.0	17