

Albert Hudspeth

List of Publications by Year in descending order

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123
papers

12,378
citations

31976

53
h-index

24982

109
g-index

136
all docs

136
docs citations

136
times ranked

4353
citing authors

#	ARTICLE	IF	CITATIONS
1	How the ear's works work. <i>Nature</i> , 1989, 341, 397-404.	27.8	782
2	Compliance of the hair bundle associated with gating of mechano-electrical transduction channels in the Bullfrog's saccular hair cell. <i>Neuron</i> , 1988, 1, 189-199.	8.1	590
3	Kinetics of the receptor current in bullfrog saccular hair cells. <i>Journal of Neuroscience</i> , 1983, 3, 962-976.	3.6	522
4	Making an Effort to Listen: Mechanical Amplification in the Ear. <i>Neuron</i> , 2008, 59, 530-545.	8.1	355
5	Mechanical relaxation of the hair bundle mediates adaptation in mechano-electrical transduction by the bullfrog's saccular hair cell.. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1987, 84, 3064-3068.	7.1	352
6	Essential Nonlinearities in Hearing. <i>Physical Review Letters</i> , 2000, 84, 5232-5235.	7.8	340
7	Extracellular current flow and the site of transduction by vertebrate hair cells. <i>Journal of Neuroscience</i> , 1982, 2, 1-10.	3.6	331
8	Adaptation of mechano-electrical transduction in hair cells of the bullfrog's sacculus. <i>Journal of Neuroscience</i> , 1987, 7, 2821-2836.	3.6	324
9	Pulling springs to tune transduction: Adaptation by hair cells. <i>Neuron</i> , 1994, 12, 1-9.	8.1	322
10	Active hair-bundle movements can amplify a hair cell's response to oscillatory mechanical stimuli. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1999, 96, 14306-14311.	7.1	296
11	Kinetic analysis of voltage- and ion-dependent conductances in saccular hair cells of the bullfrog, <i>Rana catesbeiana</i> .. <i>Journal of Physiology</i> , 1988, 400, 237-274.	2.9	283
12	Integrating the active process of hair cells with cochlear function. <i>Nature Reviews Neuroscience</i> , 2014, 15, 600-614.	10.2	269
13	Spontaneous Oscillation by Hair Bundles of the Bullfrog's Sacculus. <i>Journal of Neuroscience</i> , 2003, 23, 4533-4548.	3.6	263
14	Mechano-electrical Transduction by Hair Cells. <i>Annual Review of Biophysics and Biophysical Chemistry</i> , 1988, 17, 99-124.	12.2	262
15	Stereocilia mediate transduction in vertebrate hair cells (auditory system/cilium/vestibular system).. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1979, 76, 1506-1509.	7.1	256
16	Blockage of the transduction channels of hair cells in the bullfrog's sacculus by aminoglycoside antibiotics. <i>Hearing Research</i> , 1989, 37, 203-217.	2.0	253
17	Putting ion channels to work: Mechano-electrical transduction, adaptation, and amplification by hair cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2000, 97, 11765-11772.	7.1	243
18	Negative hair-bundle stiffness betrays a mechanism for mechanical amplification by the hair cell. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2000, 97, 12026-12031.	7.1	241

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19	DIRECTIONAL SENSITIVITY OF INDIVIDUAL VERTEBRATE HAIR CELLS TO CONTROLLED DEFLECTION OF THEIR HAIR BUNDLES. <i>Annals of the New York Academy of Sciences</i> , 1981, 374, 1-10.	3.8	228
20	Response latency of vertebrate hair cells. <i>Biophysical Journal</i> , 1979, 26, 499-506.	0.5	218
21	A model for amplification of hair-bundle motion by cyclical binding of Ca ²⁺ to mechano-electrical-transduction channels. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1998, 95, 15321-15326.	7.1	214
22	How Hearing Happens. <i>Neuron</i> , 1997, 19, 947-950.	8.1	212
23	Plasma Membrane Ca ²⁺ -ATPase Extrudes Ca ²⁺ from Hair Cell Stereocilia. <i>Journal of Neuroscience</i> , 1998, 18, 610-624.	3.6	212
24	Comparison of a hair bundle's spontaneous oscillations with its response to mechanical stimulation reveals the underlying active process. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2001, 98, 14380-14385.	7.1	212
25	The remarkable cochlear amplifier. <i>Hearing Research</i> , 2010, 266, 1-17.	2.0	208
26	Ca ²⁺ current-driven nonlinear amplification by the mammalian cochlea in vitro. <i>Nature Neuroscience</i> , 2005, 8, 149-155.	14.8	205
27	Distribution of Ca ²⁺ -Activated K ⁺ Channel Isoforms along the Tonotopic Gradient of the Chicken's Cochlea. <i>Neuron</i> , 1997, 19, 1061-1075.	8.1	202
28	Analysis of the microphonic potential of the bullfrog's sacculus. <i>Journal of Neuroscience</i> , 1983, 3, 942-961.	3.6	177
29	Compressive nonlinearity in the hair bundle's active response to mechanical stimulation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2001, 98, 14386-14391.	7.1	172
30	Mechano-electrical Transduction by Hair Cells in the Acousticolateralis Sensory System. <i>Annual Review of Neuroscience</i> , 1983, 6, 187-215.	10.7	165
31	A two-step mechanism underlies the planar polarization of regenerating sensory hair cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006, 103, 18615-18620.	7.1	164
32	Rapid, Active Hair Bundle Movements in Hair Cells from the Bullfrog's Sacculus. <i>Journal of Neuroscience</i> , 1996, 16, 5629-5643.	3.6	162
33	Identification of a 120 kd hair-bundle myosin located near stereociliary tips. <i>Neuron</i> , 1993, 11, 581-594.	8.1	145
34	Gating-Spring Models of Mechano-electrical Transduction by Hair Cells of the Internal Ear. <i>Annual Review of Biophysics and Biomolecular Structure</i> , 1995, 24, 59-83.	18.3	139
35	Regulation of Free Ca ²⁺ Concentration in Hair-Cell Stereocilia. <i>Journal of Neuroscience</i> , 1998, 18, 6300-6318.	3.6	127
36	Auditory illusions and the single hair cell. <i>Nature</i> , 1993, 364, 527-529.	27.8	122

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37	Ultrastructural Correlates of Mechanoelectrical Transduction in Hair Cells of the Bullfrog's Internal Ear. Cold Spring Harbor Symposia on Quantitative Biology, 1990, 55, 547-561.	1.1	118
38	A Critique of the Critical Cochlea: Hopf's Bifurcation Is Better Than None. Journal of Neurophysiology, 2010, 104, 1219-1229.	1.8	108
39	The physics of hearing: fluid mechanics and the active process of the inner ear. Reports on Progress in Physics, 2014, 77, 076601.	20.1	108
40	Displacement-clamp measurement of the forces exerted by gating springs in the hair bundle.. Proceedings of the National Academy of Sciences of the United States of America, 1993, 90, 1330-1334.	7.1	107
41	Specificity of Afferent Synapses onto Plane-Polarized Hair Cells in the Posterior Lateral Line of the Zebrafish. Journal of Neuroscience, 2008, 28, 8442-8453.	3.6	95
42	Coherent motion of stereocilia assures the concerted gating of hair-cell transduction channels. Nature Neuroscience, 2007, 10, 87-92.	14.8	94
43	Mechanical properties of sensory hair bundles are reflected in their Brownian motion measured with a laser differential interferometer.. Proceedings of the National Academy of Sciences of the United States of America, 1989, 86, 5371-5375.	7.1	92
44	NOVA2-mediated RNA regulation is required for axonal pathfinding during development. ELife, 2016, 5, .	6.0	90
45	How the ear's works work: mechanoelectrical transduction and amplification by hair cells. Comptes Rendus - Biologies, 2005, 328, 155-162.	0.2	87
46	Mechanical stimulation and micromanipulation with piezoelectric bimorph elements. Journal of Neuroscience Methods, 1980, 3, 183-202.	2.5	83
47	Hair-bundle movements elicited by transepithelial electrical stimulation of hair cells in the sacculus of the bullfrog. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 958-963.	7.1	81
48	Effects of extracellular Ca ²⁺ concentration on hair-bundle stiffness and gating-spring integrity in hair cells. Proceedings of the National Academy of Sciences of the United States of America, 1997, 94, 11923-11928.	7.1	78
49	Small-molecule inhibition of Lats kinases may promote Yap-dependent proliferation in postmitotic mammalian tissues. Nature Communications, 2021, 12, 3100.	12.8	76
50	Mechanical Responses of the Organ of Corti to Acoustic and Electrical Stimulation In Vitro. Biophysical Journal, 2005, 89, 4382-4395.	0.5	71
51	Hair-bundle stiffness dominates the elastic reactance to otolithic-membrane shear. Hearing Research, 1993, 68, 243-252.	2.0	68
52	Hair cell-specific splicing of mRNA for the β 1D subunit of voltage-gated Ca ²⁺ channels in the chicken's cochlea. Proceedings of the National Academy of Sciences of the United States of America, 1997, 94, 14889-14893.	7.1	68
53	Adenine nucleoside diphosphates block adaptation of mechanoelectrical transduction in hair cells.. Proceedings of the National Academy of Sciences of the United States of America, 1993, 90, 2710-2714.	7.1	60
54	Forces between clustered stereocilia minimize friction in the ear on a subnanometre scale. Nature, 2011, 474, 376-379.	27.8	58

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55	Elasticity of individual protocadherin 15 molecules implicates tip links as the gating springs for hearing. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 11048-11056.	7.1	55
56	The diverse effects of mechanical loading on active hair bundles. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 1943-1948.	7.1	53
57	Effects of cochlear loading on the motility of active outer hair cells. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 5474-5479.	7.1	53
58	The entry and clearance of Ca ²⁺ at individual presynaptic active zones of hair cells from the bullfrog's sacculus.. Proceedings of the National Academy of Sciences of the United States of America, 1996, 93, 9527-9532.	7.1	51
59	Control of a hair bundle's mechanosensory function by its mechanical load. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, E1000-9.	7.1	50
60	SoxC transcription factors are essential for the development of the inner ear. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 14066-14071.	7.1	50
61	Adaptive shift in the domain of negative stiffness during spontaneous oscillation by hair bundles from the internal ear. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 16996-17001.	7.1	47
62	Modeling the active process of the cochlea: phase relations, amplification, and spontaneous oscillation. Biophysical Journal, 1995, 69, 138-147.	0.5	46
63	Highly Specific Alternative Splicing of Transcripts Encoding BK Channels in the Chicken's Cochlea Is a Minor Determinant of the Tonotopic Gradient. Molecular and Cellular Biology, 2010, 30, 3646-3660.	2.3	43
64	A ratchet mechanism for amplification in low-frequency mammalian hearing. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 4973-4978.	7.1	40
65	Rearrangements between differentiating hair cells coordinate planar polarity and the establishment of mirror symmetry in lateral-line neuromasts. Biology Open, 2012, 1, 498-505.	1.2	40
66	Connectomics of the zebrafish's lateral-line neuromast reveals wiring and miswiring in a simple microcircuit. ELife, 2018, 7, .	6.0	40
67	Interactions between Hair Cells Shape Spontaneous Otoacoustic Emissions in a Model of the Tokay Gecko's Cochlea. PLoS ONE, 2010, 5, e11116.	2.5	35
68	Hair-bundle mechanics and a model for mechano-electrical transduction by hair cells. Society of General Physiologists Series, 1992, 47, 357-70.	0.6	35
69	Daple coordinates organ-wide and cell-intrinsic polarity to pattern inner-ear hair bundles. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E11170-E11179.	7.1	34
70	Sensory systems. Current Opinion in Neurobiology, 2000, 10, 631-641.	4.2	31
71	Elastic force restricts growth of the murine utricle. ELife, 2017, 6, .	6.0	31
72	The steady-state response of the cerebral cortex to the beat of music reflects both the comprehension of music and attention. Frontiers in Human Neuroscience, 2015, 9, 436.	2.0	30

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73	Notch-Mediated Determination of Hair-Bundle Polarity in Mechanosensory Hair Cells of the Zebrafish Lateral Line. <i>Current Biology</i> , 2019, 29, 3579-3587.e7.	3.9	30
74	Controlled bending of high-resistance glass microelectrodes. <i>American Journal of Physiology - Cell Physiology</i> , 1978, 234, C56-C57.	4.6	29
75	Identification of Bifurcations from Observations of Noisy Biological Oscillators. <i>Biophysical Journal</i> , 2016, 111, 798-812.	0.5	28
76	Contribution of active hair-bundle motility to nonlinear amplification in the mammalian cochlea. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 21076-21080.	7.1	27
77	Direct mechanical stimulation of tip links in hair cells through DNA tethers. <i>ELife</i> , 2016, 5, .	6.0	26
78	Efferent Control of the Electrical and Mechanical Properties of Hair Cells in the Bullfrog's Sacculus. <i>PLoS ONE</i> , 2010, 5, e13777.	2.5	25
79	Three-dimensional Architecture of Hair-bundle Linkages Revealed by Electron-microscopic Tomography. <i>JARO - Journal of the Association for Research in Otolaryngology</i> , 2008, 9, 215-224.	1.8	24
80	Waves on Reissner's Membrane: A Mechanism for the Propagation of Otoacoustic Emissions from the Cochlea. <i>Cell Reports</i> , 2012, 1, 374-384.	6.4	24
81	Reaction-diffusion model of hair-bundle morphogenesis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 15444-15449.	7.1	24
82	Activity-independent specification of synaptic targets in the posterior lateral line of the larval zebrafish. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 21948-21953.	7.1	20
83	Homeostatic enhancement of sensory transduction. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, E6794-E6803.	7.1	20
84	An In Toto Approach to Dissecting Cellular Interactions in Complex Tissues. <i>Developmental Cell</i> , 2017, 43, 530-540.e4.	7.0	20
85	Dual Contribution to Amplification in the Mammalian Inner Ear. <i>Physical Review Letters</i> , 2010, 105, 118102.	7.8	18
86	Mechanochemical symmetry breaking during morphogenesis of lateral-line sensory organs. <i>Nature Physics</i> , 2020, 16, 949-957.	16.7	16
87	INTRODUCTION – Auditory neuroscience: Development, transduction, and integration. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2000, 97, 11690-11691.	7.1	15
88	Thermal Excitation of the Mechanotransduction Apparatus of Hair Cells. <i>Neuron</i> , 2018, 97, 586-595.e4.	8.1	14
89	Unidirectional Mechanical Amplification as a Design Principle for an Active Microphone. <i>Physical Review Letters</i> , 2011, 106, 158701.	7.8	11
90	Bilateral Spontaneous Otoacoustic Emissions Show Coupling between Active Oscillators in the Two Ears. <i>Biophysical Journal</i> , 2019, 116, 2023-2034.	0.5	11

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91	Relative stereociliary motion in a hair bundle opposes amplification at distortion frequencies. <i>Journal of Physiology</i> , 2012, 590, 301-308.	2.9	10
92	The Auditory-Brainstem Response to Continuous, Non-repetitive Speech Is Modulated by the Speech Envelope and Reflects Speech Processing. <i>Frontiers in Computational Neuroscience</i> , 2016, 10, 47.	2.1	10
93	Volterra-series approach to stochastic nonlinear dynamics: Linear response of the Van der Pol oscillator driven by white noise. <i>Physical Review E</i> , 2020, 102, 032209.	2.1	10
94	SnapShot: Auditory Transduction. <i>Neuron</i> , 2013, 80, 536-536.e1.	8.1	8
95	Role of YAP in early ectodermal specification and a Huntington's Disease model of human neurulation. <i>ELife</i> , 2022, 11, .	6.0	8
96	Divalent Counterions Tether Membrane-Bound Carbohydrates To Promote the Cohesion of Auditory Hair Bundles. <i>Biophysical Journal</i> , 2011, 101, 1316-1325.	0.5	7
97	Volterra-series approach to stochastic nonlinear dynamics: The Duffing oscillator driven by white noise. <i>Physical Review E</i> , 2019, 99, 042204.	2.1	7
98	Discrimination of Low-Frequency Tones Employs Temporal Fine Structure. <i>PLoS ONE</i> , 2012, 7, e45579.	2.5	7
99	Rapid mechanical stimulation of inner-ear hair cells by photonic pressure. <i>ELife</i> , 2021, 10, .	6.0	6
100	Fast recovery of disrupted tip links induced by mechanical displacement of hair bundles. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 30722-30727.	7.1	5
101	Chemomechanical regulation of myosin Ic cross-bridges: Deducing the elastic properties of an ensemble from single-molecule mechanisms. <i>PLoS Computational Biology</i> , 2017, 13, e1005566.	3.2	5
102	Development of an improved inhibitor of Lats kinases to promote regeneration of mammalian organs. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	7.1	5
103	Hearing and Deafness. <i>Neurobiology of Disease</i> , 2000, 7, 511-514.	4.4	3
104	A New Twist on Tip Links. <i>Neuron</i> , 2018, 99, 423-425.	8.1	3
105	Measurement of hindered diffusion in complex geometries for high-speed studies of single-molecule forces. <i>Scientific Reports</i> , 2021, 11, 2196.	3.3	3
106	How the ear's works work: mechano-electrical transduction and amplification by hair cells of the internal ear. <i>Harvey Lectures</i> , 2001, 97, 41-54.	0.2	3
107	Vibrational modes and damping in the cochlear partition. <i>AIP Conference Proceedings</i> , 2015, , .	0.4	2
108	Three-dimensional Organotypic Cultures of Vestibular and Auditory Sensory Organs. <i>Journal of Visualized Experiments</i> , 2018, , .	0.3	2

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109	THE CONTRIBUTION OF TRANSDUCTION CHANNELS AND ADAPTATION MOTORS TO THE HAIR CELL'S ACTIVE PROCESS. , 2003, , .		2
110	Frequency decoding of periodically timed action potentials through distinct activity patterns in a random neural network. <i>New Journal of Physics</i> , 2012, 14, 113022.	2.9	1
111	Characterization of active hair-bundle motility by a mechanical-load clamp. <i>AIP Conference Proceedings</i> , 2015, , .	0.4	1
112	The Energetic Ear. <i>Daedalus</i> , 2015, 144, 42-52.	1.8	1
113	Fluctuation theory in space and time: White noise in reaction-diffusion models of morphogenesis. <i>Physical Review E</i> , 2018, 98, .	2.1	1
114	Confocal-microscopic visualization of membrane addition during synaptic exocytosis at presynaptic active zones of hair cells. <i>Cold Spring Harbor Symposia on Quantitative Biology</i> , 1996, 61, 303-7.	1.1	1
115	Unidirectional Amplification as a Mechanism for Low-Frequency Hearing in Mammals. , 2011, , .		0
116	Damping Properties of the Hair Bundle. , 2011, , .		0
117	High-Frequency Power Gain in the Mammalian Cochlea. , 2011, , .		0
118	Micromechanics of hearing. <i>AIP Conference Proceedings</i> , 2015, , .	0.4	0
119	Otoacoustic emission through waves on Reissner's membrane. <i>AIP Conference Proceedings</i> , 2015, , .	0.4	0
120	Signal detection by active, noisy hair bundles. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	0
121	Homeostatic enhancement of active mechanotransduction. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	0
122	Stimulation of hair cells with ultraviolet light. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	0
123	Synchronization of spontaneous otoacoustic emissions in the tokay gecko. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	0