Min Zhao

List of Publications by Year
in descending order

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Version: 2024-02-01

116 papers	8,100 citations	46984 47 h-index	51562 86 g-index
122 all docs	122 docs citations	122 times ranked	5640 citing authors

#	Article	IF	Citations
1	Electrical signals control wound healing through phosphatidylinositol-3-OH kinase-Î³ and PTEN. Nature, 2006, 442, 457-460.	13.7	880
2	Controlling Cell Behavior Electrically: Current Views and Future Potential. Physiological Reviews, 2005, 85, 943-978.	13.1	842
3	Electrical fields in wound healingâ€"An overriding signal that directs cell migration. Seminars in Cell and Developmental Biology, 2009, 20, 674-682.	2.3	462
4	Electrical stimulation directly induces pre-angiogenic responses in vascular endothelial cells by signaling through VEGF receptors. Journal of Cell Science, 2004, 117, 397-405.	1.2	340
5	Application of direct current electric fields to cells and tissues in vitro and modulation of wound electric field in vivo. Nature Protocols, 2007, 2, 1479-1489.	5.5	257
6	Electrical cues regulate the orientation and frequency of cell division and the rate of wound healing in vivo. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 13577-13582.	3.3	208
7	Membrane lipids, EGF receptors, and intracellular signals colocalize and are polarized in epithelial cells moving directionally in a physiological electric field. FASEB Journal, 2002, 16, 857-859.	0.2	180
8	Wound healing in rat cornea: the role of electric currents. FASEB Journal, 2005, 19, 379-386.	0.2	163
9	Electric Fieldâ€“directed Cell Motility Involves Up-regulated Expression and Asymmetric Redistribution of the Epidermal Growth Factor Receptors and Is Enhanced by Fibronectin and Laminin. Molecular Biology of the Cell, 1999, 10, 1259-1276.	0.9	154
10	Effects of Physiological Electric Fields on Migration of Human Dermal Fibroblasts. Journal of Investigative Dermatology, 2010, 130, 2320-2327.	0.3	153
11	Nerve regeneration and wound healing are stimulated and directed by an endogenous electrical field in vivo. Journal of Cell Science, 2004, 117, 4681-4690.	1.2	147
12	Guided Migration of Neural Stem Cells Derived from Human Embryonic Stem Cells by an Electric Field. Stem Cells, 2012, 30, 349-355.	1.4	136
13	Non-invasive measurement of bioelectric currents with a vibrating probe. Nature Protocols, 2007, 2, 661-669.	5.5	134
14	Physiological electrical fields modify cell behaviour. BioEssays, 1997, 19, 819-826.	1.2	133
15	Has electrical growth cone guidance found its potential?. Trends in Neurosciences, 2002, 25, 354-359.	4.2	123
16	EGF receptor signalling is essential for electric-field-directed migration of breast cancer cells. Journal of Cell Science, 2007, 120, 3395-3403.	1.2	122
17	E-cadherin plays an essential role in collective directional migration of large epithelial sheets. Cellular and Molecular Life Sciences, 2012, 69, 2779-2789.	2.4	119
18	Small applied electric fields guide migration of hippocampal neurons. Journal of Cellular Physiology, 2008, 216, 527-535.	2.0	117

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19	Electrically stimulated cell migration and its contribution to wound healing. Burns and Trauma, 2018, 6, 20.	2.3	116
20	The Electrical Response to Injury: Molecular Mechanisms and Wound Healing. Advances in Wound Care, 2014, 3, 184-201.	2.6	110
21	DC Electric Fields Induce Distinct Preangiogenic Responses in Microvascular and Macrovascular Cells. Arteriosclerosis, Thrombosis, and Vascular Biology, 2004, 24, 1234-1239.	1.1	106
22	PI3K mediated electrotaxis of embryonic and adult neural progenitor cells in the presence of growth factors. Experimental Neurology, 2011, 227, 210-217.	2.0	104
23	Collective cell migration: Implications for wound healing and cancer invasion. Burns and Trauma, 2013, 1, 21.	0.7	100
24	Synergistic effect of highly aligned bacterial cellulose/gelatin membranes and electrical stimulation on directional cell migration for accelerated wound healing. Chemical Engineering Journal, 2021, 424, 130563.	6.6	91
25	Endogenous electric currents might guide rostral migration of neuroblasts. EMBO Reports, 2013, 14, 184-190.	2.0	85
26	Electrical signals polarize neuronal organelles, direct neuron migration, and orient cell division. Hippocampus, 2009, 19, 855-868.	0.9	83
27	KCNJ15/Kir4.2 couples with polyamines to sense weak extracellular electric fields in galvanotaxis. Nature Communications, 2015, 6, 8532.	5.8	83
28	Electrically Guiding Migration of Human Induced Pluripotent Stem Cells. Stem Cell Reviews and Reports, 2011, 7, 987-996.	5.6	80
29	Direct visualization of a stratified epithelium reveals that wounds heal by unified sliding of cell sheets. FASEB Journal, 2003, 17, 397-406.	0.2	78
30	Keratocyte Fragments and Cells Utilize Competing Pathways to Move in Opposite Directions in an Electric Field. Current Biology, 2013, 23, 569-574.	1.8	77
31	Bi-directional migration of lens epithelial cells in a physiological electrical field. Experimental Eye Research, 2003, 76, 29-37.	1.2	75
32	Biomedical applications of electrical stimulation. Cellular and Molecular Life Sciences, 2020, 77, 2681-2699.	2.4	75
33	Electrical Guidance of Human Stem Cells in the Rat Brain. Stem Cell Reports, 2017, 9, 177-189.	2.3	72
34	Human corneal epithelial cells reorient and migrate cathodally in a small applied electric field. Current Eye Research, 1997, 16, 973-984.	0.7	71
35	Electrotaxis and Wound Healing: Experimental Methods to Study Electric Fields as a Directional Signal for Cell Migration. Methods in Molecular Biology, 2009, 571, 77-97.	0.4	70
36	Proximity between Glu126 and Arg144 in the Lactose Permease of Escherichia coli. Biochemistry, 1999, 38, 7407-7412.	1.2	67

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37	The roles of calcium signaling and ERK1/2 phosphorylation in a Pax6+/- mouse model of epithelial wound-healing delay. BMC Biology, 2006, 4, 27.	1.7	67
38	Golgi polarization in a strong electric field. Journal of Cell Science, 2005, 118, 1117-1128.	1.2	64
39	Genetic analysis of the role of G proteinâ€“coupled receptor signaling in electrotaxis. Journal of Cell Biology, 2002, 157, 921-928.	2.3	60
40	Directing migration of endothelial progenitor cells with applied DC electric fields. Stem Cell Research, 2012, 8, 38-48.	0.3	59
41	Electrical inhibition of lens epithelial cell proliferation: an additional factor in secondary cataract?. FASEB Journal, 2005, 19, 1-16.	0.2	58
42	Influx of extracellular Ca2+ is necessary for electrotaxis in Dictyostelium. Journal of Cell Science, 2006, 119, 4741-4748.	1.2	56
43	Early redox activities modulate Xenopus tail regeneration. Nature Communications, 2018, 9, 4296.	5.8	56
44	Electric Fields and MAP Kinase Signaling Can Regulate Early Wound Healing in Lens Epithelium. , 2003, 44, 244.		55
45	Re-orientation and Faster, Directed Migration of Lens Epithelial Cells in a Physiological Electric Field. Experimental Eye Research, 2000, 71, 91-98.	1.2	53
46	Different Roles of Membrane Potentials in Electrotaxis and Chemotaxis of Dictyostelium Cells. Eukaryotic Cell, 2011, 10, 1251-1256.	3.4	53
47	Physiological electric fields control the G1/S phase cell cycle checkpoint to inhibit endothelial cell proliferation. FASEB Journal, 2003, 17, 1-14.	0.2	52
48	Electrical signaling in control of ocular cell behaviors. Progress in Retinal and Eye Research, 2012, 31, 65-88.	7.3	51
49	Early bioelectric activities mediate redox-modulated regeneration. Development (Cambridge), 2016, 143, 4582-4594.	1.2	50
50	Electric fields guide migration of epidermal stem cells and promote skin wound healing. Wound Repair and Regeneration, 2012, 20, 840-851.	1.5	46
51	A timeâ€lapse and quantitative modelling analysis of neural stem cell motion in the absence of directional cues and in electric fields. Journal of Neuroscience Research, 2010, 88, 3267-3274.	1.3	45
52	Electrical Activation of Wound-Healing Pathways. Advances in Skin and Wound Care, 2010, 1, 567-573.	0.5	44
53	Electric currents in Xenopus tadpole tail regeneration. Developmental Biology, 2009, 335, 198-207.	0.9	42
54	Calcium oscillations coordinate feather mesenchymal cell movement by SHH dependent modulation of gap junction networks. Nature Communications, 2018, 9, 5377.	5.8	40

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55	A large-scale screen reveals genes that mediate electrotaxis in Dictyostelium discoideum. Science Signaling, 2015, 8, ra50.	1.6	39
56	Ionic Components of Electric Current at Rat Corneal Wounds. PLoS ONE, 2011, 6, e17411.	1.1	39
57	Proinflammatory Secreted Phospholipase A2 Type IIA (sPLA-IIA) Induces Integrin Activation through Direct Binding to a Newly Identified Binding Site (Site 2) in Integrins Î±vÎ²3, Î±4Î²1, and Î±5Î²1. Journal of Biological Chemistry, 2015, 290, 259-271.	1.6	38
58	GSK-3Î² is essential for physiological electric field-directed Golgi polarization and optimal electrotaxis. Cellular and Molecular Life Sciences, 2011, 68, 3081-3093.	2.4	36
59	The role of electrical signals in murine corneal wound reâ€epithelialization. Journal of Cellular Physiology, 2011, 226, 1544-1553.	2.0	36
60	Collective cell migration has distinct directionality and speed dynamics. Cellular and Molecular Life Sciences, 2017, 74, 3841-3850.	2.4	33
61	Chloride channels and transporters in human corneal epithelium. Experimental Eye Research, 2010, 90, 771-779.	1.2	32
62	Physiologic Electrical Fields Direct Retinal Ganglion Cell Axon Growth In Vitro. , 2019, 60, 3659.		31
63	Airway epithelial wounds in rhesus monkey generate ionic currents that guide cell migration to promote healing. Journal of Applied Physiology, 2011, 111, 1031-1041.	1.2	29
64	Infection-generated electric field in gut epithelium drives bidirectional migration of macrophages. PLoS Biology, 2019, 17, e3000044.	2.6	28
65	GÎ² Regulates Coupling between Actin Oscillators for Cell Polarity and Directional Migration. PLoS Biology, 2016, 14, e1002381.	2.6	28
66	Diabetic cornea wounds produce significantly weaker electric signals that may contribute to impaired healing. Scientific Reports, 2016, 6, 26525.	1.6	27
67	Investigations on T cell transmigration in a human skin-on-chip (SoC) model. Lab on A Chip, 2021, 21, 1527-1539.	3.1	27
68	The Spark of Life: The Role of Electric Fields in Regulating Cell Behaviour Using the Eye as a Model System. Ophthalmic Research, 2007, 39, 4-16.	1.0	24
69	Expression of integrins to control migration direction of electrotaxis. FASEB Journal, 2019, 33, 9131-9141.	0.2	24
70	Biomimetic stochastic topography and electric fields synergistically enhance directional migration of corneal epithelial cells in a MMP-3-dependent manner. Acta Biomaterialia, 2015, 12, 102-112.	4.1	23
71	ElectroTaxis-on-a-Chip (ETC): an integrated quantitative high-throughput screening platform for electrical field-directed cell migration. Lab on A Chip, 2014, 14, 4398-4405.	3.1	22
72	Electric Fields at Breast Cancer and Cancer Cell Collective Galvanotaxis. Scientific Reports, 2020, 10, 8712.	1.6	22

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73	Intracellular Ca²⁺ stores are essential for injury induced Ca²⁺ signaling and reâ€endothelialization. Journal of Cellular Physiology, 2008, 214, 595-603.	2.0	21
74	Electric currents and lens regeneration in the rat. Experimental Eye Research, 2010, 90, 316-323.	1.2	21
75	Modulating Endogenous Electric Currents in Human Corneal Woundsâ€"A Novel Approach of Bioelectric Stimulation Without Electrodes. Cornea, 2011, 30, 338-343.	0.9	21
76	Electrical estimulation of retinal pigment epithelial cells. Experimental Eye Research, 2010, 91, 195-204.	1.2	20
77	Real-time physiological measurements of oxygen using a non-invasive self-referencing optical fiber microsensor. Nature Protocols, 2020, 15, 207-235.	5.5	20
78	Single cell wound generates electric current circuit and cell membrane potential variations that requires calcium influx. Integrative Biology (United Kingdom), 2014, 6, 662-672.	0.6	15
79	Intracranial alternating current stimulation facilitates neurogenesis in a mouse model of Alzheimerâ€™s disease. Alzheimer's Research and Therapy, 2020, 12, 89.	3.0	15
80	Electric Field-controlled Directed Migration of Neural Progenitor Cells in 2D and 3D Environments. Journal of Visualized Experiments, 2012, , 3453.	0.2	14
81	Ion-selective self-referencing probes for measuring specific ion flux. Communicative and Integrative Biology, 2011, 4, 524-527.	0.6	13
82	3<scp>D</scp> Arrays for high throughput assay of cell migration and electrotaxis. Cell Biology International, 2013, 37, 995-1002.	1.4	13
83	Optimization of Electrical Stimulation for Safe and Effective Guidance of Human Cells. Bioelectricity, 2020, 2, 372-381.	0.6	13
84	Caveolin-1-mediated STAT3 activation determines electrotaxis of human lung cancer cells. Oncotarget, 2017, 8, 95741-95754.	0.8	13
85	Polarizing intestinal epithelial cells electrically through Ror2. Journal of Cell Science, 2014, 127, 3233-9.	1.2	12
86	Drawnâ€onâ€Skin Sensors from Fully Biocompatible Inks toward Highâ€Quality Electrophysiology. Small, 2022, 18, .	5.2	12
87	Synchronization Modulation Increases Transepithelial Potentials in MDCK Monolayers through Na/K Pumps. PLoS ONE, 2013, 8, e61509.	1.1	11
88	Cell migration directionality and speed are independently regulated by RasG and GÎ² inDictyosteliumcells in electrotaxis. Biology Open, 2019, 8, .	0.6	11
89	Measurement of Bioelectric Current with a Vibrating Probe. Journal of Visualized Experiments, 2011, , .	0.2	10
90	NHE3 phosphorylation via PKCÎ· marks the polarity and orientation of directionally migrating cells. Cellular and Molecular Life Sciences, 2014, 71, 4653-4663.	2.4	10

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91	cAMP and cGMP Play an Essential Role in Galvanotaxis of Cell Fragments. Journal of Cellular Physiology, 2016, 231, 1291-1300.	2.0	10
92	Controlling ERK Activation Dynamics in Mammary Epithelial Cells with Alternating Electric Fields through Microelectrodes. Nano Letters, 2019, 19, 7526-7533.	4.5	10
93	Physiological electric fields induce directional migration of mammalian cranial neural crest cells. Developmental Biology, 2021, 471, 97-105.	0.9	10
94	Electrically synchronizing and modulating the dynamics of ERK activation to regulate cell fate. IScience, 2021, 24, 103240.	1.9	9
95	Electric fields accelerate cell polarization and bypass myosin action in motility initiation. Journal of Cellular Physiology, 2018, 233, 2378-2385.	2.0	8
96	Ion-selective self-referencing probes for measuring specific ion flux. Communicative and Integrative Biology, 2011, 4, 524-7.	0.6	8
97	A Molecular Link Between Interleukin 22 and Intestinal Mucosal Wound Healing. Advances in Wound Care, 2012, 1, 231-237.	2.6	7
98	Whorl pattern keratopathies in veterinary and human patients. Veterinary Ophthalmology, 2018, 21, 661-667.	0.6	7
99	Actin Dynamics as a Multiscale Integrator of Cellular Guidance Cues. Frontiers in Cell and Developmental Biology, 2022, 10, 873567.	1.8	7
100	An Essential and Synergistic Role of Purinergic Signaling in Guided Migration of Corneal Epithelial Cells in Physiological Electric Fields. Cellular Physiology and Biochemistry, 2019, 52, 198-211.	1.1	6
101	Specific ion fluxes generate cornea wound electric currents. Communicative and Integrative Biology, 2011, 4, 462-5.	0.6	6
102	An Experimental Model for Simultaneous Study of Migration of Cell Fragments, Single Cells, and Cell Sheets. Methods in Molecular Biology, 2016, 1407, 251-272.	0.4	5
103	Quantifying the impact of electric fields on single-cell motility. Biophysical Journal, 2021, 120, 3363-3373.	0.2	5
104	Concerted action of KCNJ15/Kir4.2 and intracellular polyamines in sensing physiological electric fields for galvanotaxis. Channels, 2016, 10, 264-266.	1.5	4
105	Applied electric fields suppress osimertinib-induced cytotoxicity via inhibiting FOXO3a nuclear translocation through AKT activation. Carcinogenesis, 2020, 41, 600-610.	1.3	4
106	Global feather orientations changed by electric current. IScience, 2021, 24, 102671.	1.9	4
107	AcanthamoebaMigration in an Electric Field. , 2013, 54, 4225.		3
108	Measurement of Extracellular Ion Fluxes Using the Ion-selective Self-referencing Microelectrode Technique. Journal of Visualized Experiments, 2015, , e52782.	0.2	3

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109	A machine learning based model accurately predicts cellular response to electric fields in multiple cell types. Scientific Reports, 2022, 12, .	1.6	3
110	Src activation decouples cell division orientation from cell geometry in mammalian cells. Biomaterials, 2018, 170, 82-94.	5.7	2
111	The Use of Electrotherapeutics in Ophthalmology. American Journal of Ophthalmology, 2020, 211, 4-14.	1.7	2
112	Electric signals counterbalanced posterior vs anterior PTEN signaling in directed migration of Dictyostelium. Cell and Bioscience, 2021, 11, 111.	2.1	2
113	3D arrays for high throughput assay of cell migration and electrotaxis. Cell Biology International, 2014, 38, 987-987.	1.4	1
114	The Bioelectricity Revolution: A Discussion Among the Founding Associate Editors. Bioelectricity, 2019, 1, 8-15.	0.6	1
115	Methodology of Research and Applications of Electric Fields. Bioelectricity, 2020, 2, 320-320.	0.6	1
116	Polarizing intestinal epithelial cells electrically through Ror2. Development (Cambridge), 2014, 141, e1605-e1605.	1.2	0