Michael Levin

List of Publications by Year
in descending order

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384
papers

19,918
citations

10389

72
h-index

18647

119
g-index

429
all docs

429
docs citations

429
times ranked

10064
citing authors

#	ARTICLE	IF	CITATIONS
1	A molecular pathway determining left-right asymmetry in chick embryogenesis. Cell, 1995, 82, 803-814.	28.9	777
2	Leftâ€“right asymmetry in embryonic development: a comprehensive review. Mechanisms of Development, 2005, 122, 3-25.	1.7	426
3	Role of Membrane Potential in the Regulation of Cell Proliferation and Differentiation. Stem Cell Reviews and Reports, 2009, 5, 231-246.	5.6	388
4	Asymmetries in H+/K+-ATPase and Cell Membrane Potentials Comprise a Very Early Step in Left-Right Patterning. Cell, 2002, 111, 77-89.	28.9	366
5	Bioelectric controls of cell proliferation: Ion channels, membrane voltage and the cell cycle. Cell Cycle, 2009, 8, 3527-3536.	2.6	359
6	Molecular bioelectricity: how endogenous voltage potentials control cell behavior and instruct pattern regulation in vivo. Molecular Biology of the Cell, 2014, 25, 3835-3850.	2.1	269
7	A scalable pipeline for designing reconfigurable organisms. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 1853-1859.	7.1	255
8	Serotonin Signaling Is a Very Early Step in Patterning of the Left-Right Axis in Chick and Frog Embryos. Current Biology, 2005, 15, 794-803.	3.9	245
9	Early, H+-V-ATPase-dependent proton flux is necessary for consistent left-right patterning of non-mammalian vertebrates. Development (Cambridge), 2006, 133, 1657-1671.	2.5	238
10	Large-scale biophysics: ion flows and regeneration. Trends in Cell Biology, 2007, 17, 261-270.	7.9	235
11	H+ pump-dependent changes in membrane voltage are an early mechanism necessary and sufficient to induce Xenopus tail regeneration. Development (Cambridge), 2007, 134, 1323-1335.	2.5	233
12	Apoptosis is required during early stages of tail regeneration in Xenopus laevis. Developmental Biology, 2007, 301, 62-69.	2.0	214
13	Molecular bioelectricity in developmental biology: New tools and recent discoveries. BioEssays, 2012, 34, 205-217.	2.5	214
14	On Having No Head: Cognition throughout Biological Systems. Frontiers in Psychology, 2016, 7, 902.	2.1	209
15	Left/Right Patterning Signals and the Independent Regulation of Different Aspects ofSitusin the Chick Embryo. Developmental Biology, 1997, 189, 57-67.	2.0	207
16	Membrane Potential Controls Adipogenic and Osteogenic Differentiation of Mesenchymal Stem Cells. PLoS ONE, 2008, 3, e3737.	2.5	206
17	Gap Junctions Are Involved in the Early Generation of Leftâ€“Right Asymmetry. Developmental Biology, 1998, 203, 90-105.	2.0	195
18	Left-Right Asymmetry Determination in Vertebrates. Annual Review of Cell and Developmental Biology, 2001, 17, 779-805.	9.4	192

#	ARTICLE	IF	CITATIONS
19	Regulation of Cell Behavior and Tissue Patterning by Bioelectrical Signals: Challenges and Opportunities for Biomedical Engineering. Annual Review of Biomedical Engineering, 2012, 14, 295-323.	12.3	185
20	Endogenous Bioelectric Signaling Networks: Exploiting Voltage Gradients for Control of Growth and Form. Annual Review of Biomedical Engineering, 2017, 19, 353-387.	12.3	182
21	Morphogenetic fields in embryogenesis, regeneration, and cancer: Non-local control of complex patterning. BioSystems, 2012, 109, 243-261.	2.0	178
22	Long-range neural and gap junction protein-mediated cues control polarity during planarian regeneration. Developmental Biology, 2010, 339, 188-199.	2.0	176
23	Induction of Vertebrate Regeneration by a Transient Sodium Current. Journal of Neuroscience, 2010, 30, 13192-13200.	3.6	171
24	A Chemical Genetics Approach Reveals H,K-ATPase-Mediated Membrane Voltage Is Required for Planarian Head Regeneration. Chemistry and Biology, 2011, 18, 77-89.	6.0	165
25	Bioelectric mechanisms in regeneration: Unique aspects and future perspectives. Seminars in Cell and Developmental Biology, 2009, 20, 543-556.	5.0	164
26	Bioelectric signaling in regeneration: Mechanisms of ionic controls of growth and form. Developmental Biology, 2018, 433, 177-189.	2.0	163
27	Endogenous bioelectrical networks store nonâ€genetic patterning information during development and regeneration. Journal of Physiology, 2014, 592, 2295-2305.	2.9	158
28	Bioelectric signaling: Reprogrammable circuits underlying embryogenesis, regeneration, and cancer. Cell, 2021, 184, 1971-1989.	28.9	157
29	Transmembrane voltage potential controls embryonic eye patterning in <i>Xenopus laevis</i>. Development (Cambridge), 2012, 139, 313-323.	2.5	156
30	Gap junction-mediated transfer of left-right patterning signals in the early chick blastoderm is upstream of <i>Shh</i> asymmetry in the node. Development (Cambridge), 1999, 126, 4703-4714.	2.5	156
31	Knowing one's place: a free-energy approach to pattern regulation. Journal of the Royal Society Interface, 2015, 12, 20141383.	3.4	153
32	Endogenous voltage gradients as mediators of cell-cell communication: strategies for investigating bioelectrical signals during pattern formation. Cell and Tissue Research, 2013, 352, 95-122.	2.9	151
33	Characterization of innexin gene expression and functional roles of gap-junctional communication in planarian regeneration. Developmental Biology, 2005, 287, 314-335.	2.0	144
34	A unified model for leftâ€“right asymmetry? Comparison and synthesis of molecular models of embryonic laterality. Developmental Biology, 2013, 379, 1-15.	2.0	141
35	The bioelectric code: An ancient computational medium for dynamic control of growth and form. BioSystems, 2018, 164, 76-93.	2.0	139
36	Formin Is Associated with Left-Right Asymmetry in the Pond Snail and the Frog. Current Biology, 2016, 26, 654-660.	3.9	135

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37	Resting potential, oncogene-induced tumorigenesis, and metastasis: the bioelectric basis of cancer<i>in vivo</i>. Physical Biology, 2012, 9, 065002.	1.8	134
38	Top-down models in biology: explanation and control of complex living systems above the molecular level. Journal of the Royal Society Interface, 2016, 13, 20160555.	3.4	131
39	Bioelectric signaling regulates head and organ size during planarian regeneration. Development (Cambridge), 2013, 140, 313-322.	2.5	128
40	Cerberus regulates leftâ€“right asymmetry of the embryonic head and heart. Current Biology, 1999, 9, 931-938.	3.9	125
41	Cracking the bioelectric code: Probing endogenous ionic controls of pattern formation. Communicative and Integrative Biology, 2013, 6, e22595.	1.4	124
42	Transmembrane voltage potential is an essential cellular parameter for the detection and control of tumor development in a<i>Xenopus</i>model. DMM Disease Models and Mechanisms, 2013, 6, 595-607.	2.4	121
43	Of Minds and Embryos: Left-Right Asymmetry and the Serotonergic Controls of Pre-Neural Morphogenesis. Developmental Neuroscience, 2006, 28, 171-185.	2.0	119
44	Transmembrane potential of GlyCl-expressing instructor cells induces a neoplastic-like conversion of melanocytes via a serotonergic pathway. DMM Disease Models and Mechanisms, 2011, 4, 67-85.	2.4	119
45	Re-membering the body: applications of computational neuroscience to the top-down control of regeneration of limbs and other complex organs. Integrative Biology (United Kingdom), 2015, 7, 1487-1517.	1.3	117
46	Laterality defects in conjoined twins. Nature, 1996, 384, 321-321.	27.8	116
47	Bioelectromagnetics in morphogenesis. Bioelectromagnetics, 2003, 24, 295-315.	1.6	116
48	The Computational Boundary of a â€œSelfâ€ Developmental Bioelectricity Drives Multicellularity and Scale-Free Cognition. Frontiers in Psychology, 2019, 10, 2688.	2.1	114
49	Leftâ€“right patterning from the inside out: Widespread evidence for intracellular control. BioEssays, 2007, 29, 271-287.	2.5	113
50	Bioelectric signalling via potassium channels: a mechanism for craniofacial dysmorphogenesis in KCNJ2â€associated Andersenâ€“Tawil Syndrome. Journal of Physiology, 2016, 594, 3245-3270.	2.9	110
51	Perspective: The promise of multi-cellular engineered living systems. APL Bioengineering, 2018, 2, 040901.	6.2	110
52	Leftâ€right asymmetry in vertebrate embryogenesis. BioEssays, 1997, 19, 287-296.	2.5	105
53	Gap junctional communication in morphogenesis. Progress in Biophysics and Molecular Biology, 2007, 94, 186-206.	2.9	105
54	Endogenous Gradients of Resting Potential Instructively Pattern Embryonic Neural Tissue via Notch Signaling and Regulation of Proliferation. Journal of Neuroscience, 2015, 35, 4366-4385.	3.6	103

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55	The compulsion of chirality: toward an understanding of left-rightÂasymmetry. Genes and Development, 1998, 12, 763-769.	5.9	103
56	Fusicoccin signaling reveals 14-3-3 protein function as a novel step in left-right patterning during amphibian embryogenesis. Development (Cambridge), 2003, 130, 4847-4858.	2.5	102
57	Serotonin Transporter Function Is an Early Step in Left-Right Patterning in Chick and Frog Embryos. Developmental Neuroscience, 2005, 27, 349-363.	2.0	102
58	Modulation of potassium channel function confers a hyperproliferative invasive phenotype on embryonic stem cells. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 16608-16613.	7.1	101
59	Long-Term, Stochastic Editing of Regenerative Anatomy via Targeting Endogenous Bioelectric Gradients. Biophysical Journal, 2017, 112, 2231-2243.	0.5	101
60	Reprogramming cells and tissue patterning via bioelectrical pathways: molecular mechanisms and biomedical opportunities. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2013, 5, 657-676.	6.6	97
61	smedinx-11 is a planarian stem cell gap junction gene required for regeneration and homeostasis. Development (Cambridge), 2007, 134, 3121-3131.	2.5	95
62	Transmembrane voltage potential of somatic cells controls oncogene-mediated tumorigenesis at long-range. Oncotarget, 2014, 5, 3287-3306.	1.8	95
63	Measuring Resting Membrane Potential Using the Fluorescent Voltage Reporters DiBAC₄(3) and CC2-DMPE. Cold Spring Harbor Protocols, 2012, 2012, pdb.prot067702.	0.3	93
64	Xenopus TRPN1 (NOMPC) localizes to microtubule-based cilia in epithelial cells, including inner-ear hair cells. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 12572-12577.	7.1	92
65	Far from solved: A perspective on what we know about early mechanisms of leftâ€"right asymmetry. Developmental Dynamics, 2010, 239, 3131-3146.	1.8	90
66	Normalized shape and location of perturbed craniofacial structures in the <i>Xenopus</i> tadpole reveal an innate ability to achieve correct morphology. Developmental Dynamics, 2012, 241, 863-878.	1.8	88
67	A cellular platform for the development of synthetic living machines. Science Robotics, 2021, 6, .	17.6	86
68	Reframing cognition: getting down to biological basics. Philosophical Transactions of the Royal Society B: Biological Sciences, 2021, 376, 20190750.	4.0	85
69	Gap Junctional Blockade Stochastically Induces Different Species-Specific Head Anatomies in Genetically Wild-Type Girardia dorotocephala Flatworms. International Journal of Molecular Sciences, 2015, 16, 27865-27896.	4.1	84
70	H,K-ATPase protein localization and Kir4.1 function reveal concordance of three axes during early determination of leftâ€"right asymmetry. Mechanisms of Development, 2008, 125, 353-372.	1.7	82
71	The body electric 2.0: recent advances in developmental bioelectricity for regenerative and synthetic bioengineering. Current Opinion in Biotechnology, 2018, 52, 134-144.	6.6	81
72	An automated training paradigm reveals long-term memory in planaria and its persistence through head regeneration. Journal of Experimental Biology, 2013, 216, 3799-810.	1.7	80

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73	Isolation and Community: A Review of the Role of Gap-Junctional Communication in Embryonic Patterning. Journal of Membrane Biology, 2002, 185, 177-192.	2.1	79
74	Planarian PTEN homologs regulate stem cells and regeneration through TOR signaling. DMM Disease Models and Mechanisms, 2008, 1, 131-143.	2.4	79
75	The H⁺Vacuolar ATPase Maintains Neural Stem Cells in the Developing Mouse Cortex. Stem Cells and Development, 2011, 20, 843-850.	2.1	78
76	Modeling Planarian Regeneration: A Primer for Reverse-Engineering the Worm. PLoS Computational Biology, 2012, 8, e1002481.	3.2	78
77	Light-activation of the Archaerhodopsin H+-pump reverses age-dependent loss of vertebrate regeneration: sparking system-level controls <i>in vivo</i>. Biology Open, 2013, 2, 306-313.	1.2	77
78	The wisdom of the body: future techniques and approaches to morphogenetic fields in regenerative medicine, developmental biology and cancer. Regenerative Medicine, 2011, 6, 667-673.	1.7	76
79	Use of genetically encoded, light-gated ion translocators to control tumorigenesis. Oncotarget, 2016, 7, 19575-19588.	1.8	74
80	Morphogenesis as Bayesian inference: A variational approach to pattern formation and control in complex biological systems. Physics of Life Reviews, 2020, 33, 88-108.	2.8	73
81	Endogenous Voltage Potentials and the Microenvironment: Bioelectric Signals that Reveal, Induce and Normalize Cancer. Journal of Clinical & Experimental Oncology, 2014, s1, .	0.1	73
82	T<scp>he</scp> E<scp>mbryonic</scp> O<scp>rigins of</scp> L<scp>eft-</scp>R<scp>ight</scp> A<scp>symmetry</scp>. Critical Reviews in Oral Biology and Medicine, 2004, 15, 197-206.	4.4	72
83	Bioelectric modulation of macrophage polarization. Scientific Reports, 2016, 6, 21044.	3.3	72
84	Evidence for the regulation of left-right asymmetry inCiona intestinalis by ion flux. Developmental Dynamics, 2006, 235, 1543-1553.	1.8	71
85	Tail Regeneration in<i>Xenopus laevis</i>as a Model for Understanding Tissue Repair. Journal of Dental Research, 2008, 87, 806-816.	5.2	71
86	General Principles for Measuring Resting Membrane Potential and Ion Concentration Using Fluorescent Bioelectricity Reporters. Cold Spring Harbor Protocols, 2012, 2012, pdb.top067710.	0.3	71
87	Bioelectric gene and reaction networks: computational modelling of genetic, biochemical and bioelectrical dynamics in pattern regulation. Journal of the Royal Society Interface, 2017, 14, 20170425.	3.4	71
88	The Role of Early Bioelectric Signals in the Regeneration of Planarian Anterior/Posterior Polarity. Biophysical Journal, 2019, 116, 948-961.	0.5	70
89	Depolarization Alters Phenotype, Maintains Plasticity of Predifferentiated Mesenchymal Stem Cells. Tissue Engineering - Part A, 2013, 19, 1889-1908.	3.1	69
90	A linear-encoding model explains the variability of the target morphology in regeneration. Journal of the Royal Society Interface, 2014, 11, 20130918.	3.4	69

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91	Bioelectric modulation of wound healing in a 3D inÂvitro model of tissue-engineered bone. Biomaterials, 2013, 34, 6695-6705.	11.4	68
92	Exploring Instructive Physiological Signaling with the Bioelectric Tissue Simulation Engine. Frontiers in Bioengineering and Biotechnology, 2016, 4, 55.	4.1	68
93	Inferring Regulatory Networks from Experimental Morphological Phenotypes: A Computational Method Reverse-Engineers Planarian Regeneration. PLoS Computational Biology, 2015, 11, e1004295.	3.2	67
94	Gap junctional signaling in pattern regulation: Physiological network connectivity instructs growth and form. Developmental Neurobiology, 2017, 77, 643-673.	3.0	67
95	Slime mould: The fundamental mechanisms of biological cognition. BioSystems, 2018, 165, 57-70.	2.0	67
96	BMP-3 is a novel inhibitor of both activin and BMP-4 signaling in Xenopus embryos. Developmental Biology, 2005, 285, 156-168.	2.0	66
97	Shape Changing Robots: Bioinspiration, Simulation, and Physical Realization. Advanced Materials, 2021, 33, e2002882.	21.0	66
98	Localization and lossâ€•ofâ€•function implicates ciliary proteins in early, cytoplasmic roles in leftâ€•right asymmetry. Developmental Dynamics, 2005, 234, 176-189.	1.8	65
99	Is the early left-right axis like a plant, a kidney, or a neuron? The integration of physiological signals in embryonic asymmetry. Birth Defects Research Part C: Embryo Today Reviews, 2006, 78, 191-223.	3.6	65
100	Early, nonciliary role for microtubule proteins in leftâ€“right patterning is conserved across kingdoms. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 12586-12591.	7.1	64
101	Ion flow regulates leftâ€“right asymmetry in sea urchin development. Development Genes and Evolution, 2006, 216, 265-76.	0.9	63
102	Long-range gap junctional signaling controls oncogene-mediated tumorigenesis in Xenopus laevis embryos. Frontiers in Physiology, 2014, 5, 519.	2.8	63
103	HCN2 Rescues brain defects by enforcing endogenous voltage pre-patterns. Nature Communications, 2018, 9, 998.	12.8	63
104	Biological underpinnings for lifelong learning machines. Nature Machine Intelligence, 2022, 4, 196-210.	16.0	62
105	Motor protein control of ion flux is an early step in embryonic leftâ€“right asymmetry. BioEssays, 2003, 25, 1002-1010.	2.5	61
106	Mathematical model of morphogen electrophoresis through gap junctions. Developmental Dynamics, 2006, 235, 2144-2159.	1.8	61
107	Histone deacetylase activity is necessary for left-right patterning during vertebrate development. BMC Developmental Biology, 2011, 11, 29.	2.1	61
108	Is left-right asymmetry a form of planar cell polarity?. Development (Cambridge), 2009, 136, 355-366.	2.5	60

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109	Bioelectrical coupling in multicellular domains regulated by gap junctions: A conceptual approach. Bioelectrochemistry, 2018, 123, 45-61.	4.6	59
110	Morphological Coordination: A Common Ancestral Function Unifying Neural and Non-Neural Signaling. Physiology, 2020, 35, 16-30.	3.1	58
111	HDAC Activity Is Required during Xenopus Tail Regeneration. PLoS ONE, 2011, 6, e26382.	2.5	58
112	Kinematic self-replication in reconfigurable organisms. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	57
113	Perspectives and open problems in the early phases of leftâ€“right patterning. Seminars in Cell and Developmental Biology, 2009, 20, 456-463.	5.0	56
114	Transducing Bioelectric Signals into Epigenetic Pathways During Tadpole Tail Regeneration. Anatomical Record, 2012, 295, 1541-1551.	1.4	56
115	Growing Neural Cellular Automata. Distill, 2020, 5, .	5.3	56
116	Physiological inputs regulate species-specific anatomy during embryogenesis and regeneration. Communicative and Integrative Biology, 2016, 9, e1192733.	1.4	55
117	Automated analysis of behavior: A computer-controlled system for drug screening and the investigation of learning. Journal of Neurobiology, 2006, 66, 977-990.	3.6	53
118	Genomeâ€wide analysis reveals conserved transcriptional responses downstream of resting potential change in <i>Xenopus</i> embryos, axolotl regeneration, and human mesenchymal cell differentiation. Regeneration (Oxford, England), 2016, 3, 3-25.	6.3	53
119	KCNQ1 and KCNE1 K<sup>&plus;</sup> Channel Components are Involved in Early Left-Right Patterning in <i>Xenopus laevis</i> Embryos. Cellular Physiology and Biochemistry, 2008, 21, 357-372.	1.6	52
120	Leftâ€“right asymmetry and the chick embryo. Seminars in Cell and Developmental Biology, 1998, 9, 67-76.	5.0	51
121	Inverse drug screens: a rapid and inexpensive method for implicating molecular targets. Genesis, 2006, 44, 530-540.	1.6	50
122	Establishing and Maintaining a Colony of Planarians. Cold Spring Harbor Protocols, 2008, 2008, pdb.prot5053.	0.3	50
123	The ATP-sensitive K+-channel (KATP) controls early leftâ€“right patterning in Xenopus and chick embryos. Developmental Biology, 2010, 346, 39-53.	2.0	49
124	Ectopic eyes outside the head in<i>Xenopus</i>tadpoles provide sensory data for light-mediated learning. Journal of Experimental Biology, 2013, 216, 1031-1040.	1.7	49
125	Local and long-range endogenous resting potential gradients antagonistically regulate apoptosis and proliferation in the embryonic CNS. International Journal of Developmental Biology, 2015, 59, 327-340.	0.6	49
126	Serotonergic regulation of melanocyte conversion: A bioelectrically regulated network for stochastic all-or-none hyperpigmentation. Science Signaling, 2015, 8, ra99.	3.6	49

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127	Two molecular models of initial left-right asymmetry generation. Medical Hypotheses, 1997, 49, 429-435.	1.5	47
128	Live Imaging of Planarian Membrane Potential Using DiBAC₄(3): Figure 1.. Cold Spring Harbor Protocols, 2008, 2008, pdb.prot5055.	0.3	47
129	Bioelectric Control of Metastasis in Solid Tumors. Bioelectricity, 2019, 1, 114-130.	1.1	47
130	Planarian regeneration as a model of anatomical homeostasis: Recent progress in biophysical and computational approaches. Seminars in Cell and Developmental Biology, 2019, 87, 125-144.	5.0	47
131	Optogenetics in Developmental Biology: using light to control ion flux-dependent signals in Xenopus embryos. International Journal of Developmental Biology, 2014, 58, 851-861.	0.6	46
132	A Novel Method for Inducing Nerve Growth via Modulation of Host Resting Potential: Gap Junction-Mediated and Serotonergic Signaling Mechanisms. Neurotherapeutics, 2015, 12, 170-184.	4.4	46
133	A flow through device for simultaneous dielectrophoretic cell trapping and AC electroporation. Scientific Reports, 2019, 9, 11988.	3.3	46
134	Bioelectrical Mechanisms for Programming Growth and Form: Taming Physiological Networks for Soft Body Robotics. Soft Robotics, 2014, 1, 169-191.	8.0	44
135	Physiological controls of largeâ€scale patterning in planarian regeneration: a molecular and computational perspective on growth and form. Regeneration (Oxford, England), 2016, 3, 78-102.	6.3	44
136	The Cognitive Lens: a primer on conceptual tools for analysing information processing in developmental and regenerative morphogenesis. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20180369.	4.0	44
137	Technological Approach to Mind Everywhere: An Experimentally-Grounded Framework for Understanding Diverse Bodies and Minds. Frontiers in Systems Neuroscience, 2022, 16, 768201.	2.5	44
138	A Second-Generation Device for Automated Training and Quantitative Behavior Analyses of Molecularly-Tractable Model Organisms. PLoS ONE, 2010, 5, e14370.	2.5	43
139	Bioelectric memory: modeling resting potential bistability in amphibian embryos and mammalian cells. Theoretical Biology and Medical Modelling, 2015, 12, 22.	2.1	42
140	Life, death, and self: Fundamental questions of primitive cognition viewed through the lens of body plasticity and synthetic organisms. Biochemical and Biophysical Research Communications, 2021, 564, 114-133.	2.1	42
141	Gap junction-mediated transfer of left-right patterning signals in the early chick blastoderm is upstream of Shh asymmetry in the node. Development (Cambridge), 1999, 126, 4703-14.	2.5	42
142	Applied DC magnetic fields cause alterations in the time of cell divisions and developmental abnormalities in early sea urchin embryos. Bioelectromagnetics, 1997, 18, 255-263.	1.6	41
143	L-type voltage-gated Ca ²⁺ channel Ca _V 1.2 regulates chondrogenesis during limb development. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 21592-21601.	7.1	41
144	A call for a better understanding of causation in cell biology. Nature Reviews Molecular Cell Biology, 2019, 20, 261-262.	37.0	41

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145	The brain is required for normal muscle and nerve patterning during early Xenopus development. Nature Communications, 2017, 8, 587.	12.8	40
146	Endogenous Bioelectrics in Development, Cancer, and Regeneration: Drugs and Bioelectronic Devices as Electroceuticals for Regenerative Medicine. IScience, 2019, 22, 519-533.	4.1	40
147	Scalable sim-to-real transfer of soft robot designs. , 2020, , .		40
148	Leftâ€right asymmetry in the chick embryo requires core planar cell polarity protein Vangl2. Genesis, 2009, 47, 719-728.	1.6	39
149	Living Things Are Not (20th Century) Machines: Updating Mechanism Metaphors in Light of the Modern Science of Machine Behavior. Frontiers in Ecology and Evolution, 2021, 9, .	2.2	39
150	Are Planaria Individuals? What Regenerative Biology is Telling Us About the Nature of Multicellularity. Evolutionary Biology, 2018, 45, 237-247.	1.1	38
151	Bioelectrical controls of morphogenesis: from ancient mechanisms of cell coordination to biomedical opportunities. Current Opinion in Genetics and Development, 2019, 57, 61-69.	3.3	38
152	Competency in Navigating Arbitrary Spaces as an Invariant for Analyzing Cognition in Diverse Embodiments. Entropy, 2022, 24, 819.	2.2	37
153	Fishing on chips: Upâ€andâ€coming technological advances in analysis of zebrafish and <scp><i>X</i></scp><i>enopus</i> embryos. Cytometry Part A: the Journal of the International Society for Analytical Cytology, 2014, 85, 921-932.	1.5	36
154	The stability of memories during brain remodeling: A perspective. Communicative and Integrative Biology, 2015, 8, e1073424.	1.4	36
155	Neural control of body-plan axis in regenerating planaria. PLoS Computational Biology, 2019, 15, e1006904.	3.2	36
156	A novel immunohistochemical method for evaluation of antibody specificity and detection of labile targets in biological tissue. Journal of Proteomics, 2004, 58, 85-96.	2.4	35
157	Modeling regenerative processes with membrane computing. Information Sciences, 2017, 381, 229-249.	6.9	35
158	Cancer as a disorder of patterning information: computational and biophysical perspectives on the cancer problem. Convergent Science Physical Oncology, 2017, 3, 043001.	2.6	35
159	Bioelectrical control of positional information in development and regeneration: A review of conceptual and computational advances. Progress in Biophysics and Molecular Biology, 2018, 137, 52-68.	2.9	35
160	Synthetic living machines: A new window on life. IScience, 2021, 24, 102505.	4.1	35
161	Bioelectrical approaches to cancer as a problem of the scaling of the cellular self. Progress in Biophysics and Molecular Biology, 2021, 165, 102-113.	2.9	35
162	Light-Activated Serotonin for Exploring Its Action in Biological Systems. Chemistry and Biology, 2013, 20, 1536-1546.	6.0	34

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163	Planarians: A Versatile and Powerful Model System for Molecular Studies of Regeneration, Adult Stem Cell Regulation, Aging, and Behavior. Cold Spring Harbor Protocols, 2008, 2008, pdb.emo101.	0.3	33
164	Serotonin has early, cilia-independent roles in<i>Xenopus</i>left-right patterning. DMM Disease Models and Mechanisms, 2013, 6, 261-8.	2.4	33
165	Alteration of bioelectrically-controlled processes in the embryo: a teratogenic mechanism for anticonvulsants. Reproductive Toxicology, 2014, 47, 111-114.	2.9	33
166	Brief Local Application of Progesterone via a Wearable Bioreactor Induces Long-Term Regenerative Response in Adult Xenopus Hindlimb. Cell Reports, 2018, 25, 1593-1609.e7.	6.4	33
167	Inform: Efficient Information-Theoretic Analysis of Collective Behaviors. Frontiers in Robotics and AI, 2018, 5, 60.	3.2	33
168	What's left in asymmetry?. Developmental Dynamics, 2008, 237, 3453-3463.	1.8	32
169	Ion Channel and Neurotransmitter Modulators as Electroceutical Approaches to the Control of Cancer. Current Pharmaceutical Design, 2017, 23, 4827-4841.	1.9	32
170	Multiscale memory and bioelectric error correction in the cytoplasmâ€“cytoskeletonâ€membrane system. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2018, 10, e1410.	6.6	32
171	Membrane Potential Depolarization Alters Calcium Flux and Phosphate Signaling During Osteogenic Differentiation of Human Mesenchymal Stem Cells. Bioelectricity, 2019, 1, 56-66.	1.1	32
172	HCN2 Channel-Induced Rescue of Brain Teratogenesis via Local and Long-Range Bioelectric Repair. Frontiers in Cellular Neuroscience, 2020, 14, 136.	3.7	32
173	Applied AC and DC magnetic fields cause alterations in the mitotic cycle of early sea urchin embryos. Bioelectromagnetics, 1995, 16, 231-240.	1.6	31
174	Repeated removal of developing limb buds permanently reduces appendage size in the highly-regenerative axolotl. Developmental Biology, 2017, 424, 1-9.	2.0	31
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