Andras Czirok

List of Publications by Year
in descending order

133 papers	10,848 citations	76196 40 h-index	30848 102 g-index
140 all docs	140 docs citations	140 times ranked	8011 citing authors

#	Article	IF	Citations
1	Novel Type of Phase Transition in a System of Self-Driven Particles. Physical Review Letters, 1995, 75, 1226-1229.	2.9	5,647
2	Generic modelling of cooperative growth patterns in bacterial colonies. Nature, 1994, 368, 46-49.	13.7	520
3	Collective behavior of interacting self-propelled particles. Physica A: Statistical Mechanics and Its Applications, 2000, 281, 17-29.	1.2	308
4	Spontaneously ordered motion of self-propelled particles. Journal of Physics A, 1997, 30, 1375-1385.	1.6	233
5	Collective Motion of Self-Propelled Particles: Kinetic Phase Transition in One Dimension. Physical Review Letters, 1999, 82, 209-212.	2.9	220
6	Formation of complex bacterial colonies via self-generated vortices. Physical Review E, 1996, 54, 1791-1801.	0.8	219
7	Collective cell motion in endothelial monolayers. Physical Biology, 2010, 7, 046007.	0.8	177
8	Elastic fiber formation: A dynamic view of extracellular matrix assembly using timer reporters. Journal of Cellular Physiology, 2006, 207, 87-96.	2.0	170
9	Dynamic Analysis of Vascular Morphogenesis Using Transgenic Quail Embryos. PLoS ONE, 2010, 5, e12674.	1.1	153
10	Cooperative Formation of Chiral Patterns during Growth of Bacterial Colonies. Physical Review Letters, 1995, 75, 2899-2902.	2.9	124
11	Mesodermal cell displacements during avian gastrulation are due to both individual cell-autonomous and convective tissue movements. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 19806-19811.	3.3	112
12	Collective motion of organisms in three dimensions. Physica A: Statistical Mechanics and Its Applications, 1999, 264, 299-304.	1.2	105
13	Exponential Distribution of Locomotion Activity in Cell Cultures. Physical Review Letters, 1998, 81, 3038-3041.	2.9	94
14	Elastic fiber macro-assembly is a hierarchical, cell motion-mediated process. Journal of Cellular Physiology, 2006, 207, 97-106.	2.0	93
15	New insights into extracellular matrix assembly and reorganization from dynamic imaging of extracellular matrix proteins in living osteoblasts. Journal of Cell Science, 2006, 119, 1350-1360.	1.2	87
16	Extracellular matrix dynamics during vertebrate axis formation. Developmental Biology, 2004, 268, 111-122.	0.9	84
17	Cell migration or cytokinesis and proliferation? â€“ Revisiting the â€œgo or growâ€•hypothesis in cancer cells in vitro. Experimental Cell Research, 2013, 319, 3094-3103.	1.2	84
18	Chemomodulation of cellular movement, collective formation of vortices by swarming bacteria, and colonial development. Physica A: Statistical Mechanics and Its Applications, 1997, 238, 181-197.	1.2	81

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19	Proliferative and migratory responses of astrocytes to in vitro injury. Journal of Neuroscience Research, 2000, 61, 421-429.	1.3	77
20	Multi-field 3D scanning light microscopy of early embryogenesis. Journal of Microscopy, 2002, 206, 209-217.	0.8	75
21	Extracellular matrix motion and early morphogenesis. Development (Cambridge), 2016, 143, 2056-2065.	1.2	72
22	Correlations in binary sequences and a generalized Zipf analysis. Physical Review E, 1995, 52, 446-452.	0.8	67
23	Î±vÎ²3 integrin-dependent endothelial cell dynamics in vivo. Development (Cambridge), 2004, 131, 2887-2897.	1.2	61
24	Vascular sprout formation entails tissue deformations and VE-cadherin-dependent cell-autonomous motility. Developmental Biology, 2008, 313, 545-555.	0.9	61
25	COMMUNICATION, REGULATION AND CONTROL DURING COMPLEX PATTERNING OF BACTERIAL COLONIES. Fractals, 1994, 02, 15-44.	1.8	57
26	Network Formation of Tissue Cells via Preferential Attraction to Elongated Structures. Physical Review Letters, 2007, 98, 038102.	2.9	56
27	Locomotion and proliferation of glioblastoma cells in vitro: statistical evaluation of videomicroscopic observations. Journal of Neurosurgery, 2000, 92, 428-434.	0.9	55
28	Convective tissue movements play a major role in avian endocardial morphogenesis. Developmental Biology, 2012, 363, 348-361.	0.9	55
29	A Digital Image-Based Method for Computational Tissue Fate Mapping During Early Avian Morphogenesis. Annals of Biomedical Engineering, 2005, 33, 854-865.	1.3	54
30	Dynamic imaging of cell, extracellular matrix, and tissue movements during avian vertebral axis patterning. Birth Defects Research Part C: Embryo Today Reviews, 2004, 72, 267-276.	3.6	53
31	Humoral and contact interactions in astroglia/stem cell co-cultures in the course of glia-induced neurogenesis. Glia, 2005, 49, 430-444.	2.5	53
32	Application of statistical mechanics to collective motion in biology. Physica A: Statistical Mechanics and Its Applications, 1999, 274, 182-189.	1.2	49
33	Invasion from a cell aggregateâ€”the roles of active cell motion and mechanical equilibrium. Physical Biology, 2012, 9, 016010.	0.8	49
34	Theory of periodic swarming of bacteria:â€ƒApplication toProteus mirabilis. Physical Review E, 2001, 63, 031915.	0.8	48
35	Irradiation and Taxol Treatment Result in Non-Monotonous, Dose-Dependent Changes in the Motility of Glioblastoma Cells. Journal of Neuro-Oncology, 2004, 67, 147-157.	1.4	47
36	Collective cell streams in epithelial monolayers depend on cell adhesion. New Journal of Physics, 2013, 15, 075006.	1.2	47

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37	Matrix Metalloproteinase 2-Integrin Î±vÎ²3 Binding Is Required for Mesenchymal Cell Invasive Activity but Not Epithelial Locomotion: A Computational Time-Lapse Study. Molecular Biology of the Cell, 2008, 19, 5529-5540.	0.9	46
38	Optical-flow based non-invasive analysis of cardiomyocyte contractility. Scientific Reports, 2017, 7, 10404.	1.6	46
39	Extracellular Matrix Macroassembly Dynamics in Early Vertebrate Embryos. Current Topics in Developmental Biology, 2006, 73, 237-258.	1.0	44
40	The role of Allee effect in modelling post resection recurrence of glioblastoma. PLoS Computational Biology, 2017, 13, e1005818.	1.5	44
41	Experimental evidence for self-affine roughening in a micromodel of geomorphological evolution. Physical Review Letters, 1993, 71, 2154-2157.	2.9	43
42	Multicellular Sprouting In Vitro. Biophysical Journal, 2008, 95, 2702-2710.	0.2	42
43	Effects of social distancing on the spreading of COVID-19 inferred from mobile phone data. Scientific Reports, 2021, 11, 1661.	1.6	42
44	Novel Approaches for the Study of Vascular Assembly and Morphogenesis in Avian Embryosâ˜†. Trends in Cardiovascular Medicine, 2003, 13, 283-288.	2.3	41
45	Culturing of Avian Embryos for Time-Lapse Imaging. BioTechniques, 2003, 34, 274-278.	0.8	41
46	SPECC1L deficiency results in increased adherens junction stability and reduced cranial neural crest cell delamination. Scientific Reports, 2016, 6, 17735.	1.6	41
47	The endoderm and myocardium join forces to drive early heart tube assembly. Developmental Biology, 2015, 404, 40-54.	0.9	38
48	Chemotactic-based adaptive self-organization during colonial development. Physica A: Statistical Mechanics and Its Applications, 1996, 233, 678-698.	1.2	36
49	Multicellular Sprouting during Vasculogenesis. Current Topics in Developmental Biology, 2008, 81, 269-289.	1.0	36
50	The Role of Cell-Cell Adhesion in the Formation of Multicellular Sprouts. Mathematical Modelling of Natural Phenomena, 2010, 5, 106-122.	0.9	33
51	Epigenetic Priming of Human Pluripotent Stem Cell-Derived Cardiac Progenitor Cells Accelerates Cardiomyocyte Maturation. Stem Cells, 2019, 37, 910-923.	1.4	30
52	Hydrodynamics of bacterial motion. Physica A: Statistical Mechanics and Its Applications, 1997, 243, 304-318.	1.2	29
53	Endothelial cell motility, coordination and pattern formation during vasculogenesis. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2013, 5, 587-602.	6.6	29
54	Dynamics of cell aggregation during in vitro neurogenesis by immortalized neuroectodermal progenitors. Journal of Neuroscience Research, 2000, 60, 184-194.	1.3	27

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55	Patterning of embryonic blood vessels. Developmental Dynamics, 2003, 228, 21-29.	0.8	27
56	The cytoplasmic domain of TGFÎ²R3 through its interaction with the scaffolding protein, GIPC, directs epicardial cell behavior. Developmental Biology, 2011, 358, 331-343.	0.9	27
57	Software tools for cell culture-related 3D printed structures. PLoS ONE, 2018, 13, e0203203.	1.1	27
58	Pattern formation during vasculogenesis. Birth Defects Research Part C: Embryo Today Reviews, 2012, 96, 153-162.	3.6	25
59	Nintedanib Is Active in Malignant Pleural Mesothelioma Cell Models and Inhibits Angiogenesis and Tumor Growth In Vivo. Clinical Cancer Research, 2018, 24, 3729-3740.	3.2	24
60	Assessment of temporal functional changes and miRNA profiling of human iPSC-derived cardiomyocytes. Scientific Reports, 2019, 9, 13188.	1.6	24
61	Targeted adaptive isolation strategy for COVID-19 pandemic. Infectious Disease Modelling, 2020, 5, 357-361.	1.2	24
62	Scalable Biomimetic Coaxial Aligned Nanofiber Cardiac Patch: A Potential Model for â€œClinical Trials in a Dishâ€• Frontiers in Bioengineering and Biotechnology, 2020, 8, 567842.	2.0	23
63	Generation of Functional Cardiomyocytes from Efficiently Generated Human iPSCs and a Novel Method of Measuring Contractility. PLoS ONE, 2015, 10, e0134093.	1.1	22
64	Is bioconvection enhancing bacterial growth in quiescent environments?. Environmental Microbiology, 2002, 4, 525-531.	1.8	21
65	NMDA receptor NR2B subunit overâ€•expression increases cerebellar granule cell migratory activity. Journal of Neurochemistry, 2008, 104, 818-829.	2.1	21
66	Laminin-1 increases motility, path-searching, and process dynamism of rat and mouse Muller glial cells in vitro: Implication of relationship between cell behavior and formation of retinal morphology. Cytoskeleton, 2002, 53, 203-213.	4.4	19
67	Extracellular matrix fluctuations during early embryogenesis. Physical Biology, 2011, 8, 045006.	0.8	16
68	Anomalous segregation dynamics of self-propelled particles. New Journal of Physics, 2015, 17, 063013.	1.2	16
69	COOPERATIVE STRATEGIES IN FORMATION OF COMPLEX BACTERIAL PATTERNS. Fractals, 1995, 03, 849-868.	1.8	15
70	Response of bacterial colonies to imposed anisotropy. Physical Review E, 1996, 53, 1835-1843.	0.8	15
71	Development and Evaluation of a Human Skin Equivalent in a Semiautomatic Microfluidic Diffusion Chamber. Pharmaceutics, 2021, 13, 910.	2.0	15
72	Dystroglycan is involved in laminin-1-stimulated motility of MÃ¼ller glial cells: Combined velocity and directionality analysis. Glia, 2005, 49, 492-500.	2.5	14

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73	Self-affine roughening in a model experiment on erosion in geomorphology. Physica A: Statistical Mechanics and Its Applications, 1994, 205, 355-366.	1.2	13
74	Apelin promotes blood and lymph vessel formation and the growth of melanoma lung metastasis. Scientific Reports, 2021, 11, 5798.	1.6	13
75	Possible origin of power-law behavior inn-tuple Zipf analysis. Physical Review E, 1996, 53, 6371-6375.	0.8	12
76	Manipulation-free cultures of human iPSC-derived cardiomyocytes offer a novel screening method for cardiotoxicity. Acta Pharmacologica Sinica, 2018, 39, 1590-1603.	2.8	12
77	Fractal scaling and power-law landslide distribution in a micromodel of geomorphological evolution. Geologische Rundschau: Zeitschrift Fur Allgemeine Geologie, 1997, 86, 525-530.	1.3	11
78	Bistable front dynamics in a contractile medium: Travelling wave fronts and cortical advection define stable zones of RhoA signaling at epithelial adherens junctions. PLoS Computational Biology, 2017, 13, e1005411.	1.5	11
79	Multiscale modelling of motility wave propagation in cell migration. Scientific Reports, 2020, 10, 8128.	1.6	11
80	SPECC1L-deficient primary mouse embryonic palatal mesenchyme cells show speed and directionality defects. Scientific Reports, 2021, 11, 1452.	1.6	11
81	Inhibition of myosin II triggers morphological transition and increased nuclear motility. Cytoskeleton, 2011, 68, 325-339.	1.0	10
82	Cell resolved, multiparticle model of plastic tissue deformations and morphogenesis. Physical Biology, 2015, 12, 016005.	0.8	10
83	Soluble VEGFR1 signaling guides vascular patterns into dense branching morphologies. Journal of Theoretical Biology, 2018, 456, 261-278.	0.8	10
84	Absence of the Tks4 Scaffold Protein Induces Epithelial-Mesenchymal Transition-Like Changes in Human Colon Cancer Cells. Cells, 2019, 8, 1343.	1.8	10
85	Vascular Network Formation in Expanding versus Static Tissues: Embryos and Tumors. Genes and Cancer, 2011, 2, 1072-1080.	0.6	9
86	Subventricular zone neuronal progenitors undergo multiple divisions and retract their processes prior to each cytokinesis. European Journal of Neuroscience, 2007, 26, 593-604.	1.2	8
87	Cell Dispersal Influences Tumor Heterogeneity and Introduces a Bias in NGS Data Interpretation. Scientific Reports, 2017, 7, 7358.	1.6	8
88	Noonan syndrome patient-specific induced cardiomyocyte model carrying SOS1 gene variant c.1654A>G. Experimental Cell Research, 2021, 400, 112508.	1.2	8
89	Pre-Conditioning Stem Cells in a Biomimetic Environment for Enhanced Cardiac Tissue Repair: In Vitro and In Vivo Analysis. Cellular and Molecular Bioengineering, 2018, 11, 321-336.	1.0	7
90	Polarization wave at the onset of collective cell migration. Physical Review E, 2019, 100, 032403.	0.8	7

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91	Active Cell and ECM Movements During Development. Methods in Molecular Biology, 2015, 1189, 123-132.	0.4	7
92	In-frame deletion of SPECC1L microtubule association domain results in gain-of-function phenotypes affecting embryonic tissue movement and fusion events. Human Molecular Genetics, 2021, 31, 18-31.	1.4	6
93	Cerebellar granule cells show age-dependent migratory differencesin vitro. Journal of Neurobiology, 2005, 65, 135-145.	3.7	5
94	Collective motion. , 1999, , 152-164.		4
95	Individual-based Models of Cohort Migration in Cell Cultures. , 2003, , 205-219.		4
96	Enhanced endothelial motility and multicellular sprouting is mediated by the scaffold protein TKS4. Scientific Reports, 2019, 9, 14363.	1.6	4
97	Extracellular Matrix Dynamics in Early Development. Biology of Extracellular Matrix, 2013, , 19-36.	0.3	3
98	Matrigel patterning reflects multicellular contractility. PLoS Computational Biology, 2019, 15, e1007431.	1.5	3
99	Viscoelastic Properties of ECM-Rich Embryonic Microenvironments. Frontiers in Cell and Developmental Biology, 2020, 8, 674.	1.8	3
100	FRACTAL CLUSTERS AND SELF-ORGANIZED CRITICALITY. Fractals, 1994, 02, 153-168.	1.8	2
101	Multicellular contractility contributes to the emergence of mesothelioma nodules. Scientific Reports, 2020, 10, 20114.	1.6	2
102	Isolation and Time-Lapse Imaging of Primary Mouse Embryonic Palatal Mesenchyme Cells to Analyze Collective Movement Attributes. Journal of Visualized Experiments, 2021, , .	0.2	2
103	Transition from growth to decay of an epidemic due to lockdown. Biophysical Journal, 2021, 120, 2872-2879.	0.2	2
104	Contact inhibition of locomotion generates collective cell migration without chemoattractants in an open domain. Physical Review E, 2021, 104, 014405.	0.8	2
105	Nintedanib and Dasatinib Treatments Induce Protective Autophagy as a Potential Resistance Mechanism in MPM Cells. Frontiers in Cell and Developmental Biology, 2022, 10, 852812.	1.8	2
106	An active particle-based tracking framework for 2D and 3D time-lapse microscopy images. , 2011, 2011, 6613-8.		1
107	Dynamics of cell aggregation during in vitro neurogenesis by immortalized neuroectodermal progenitors. , 2000, 60, 184.		1
108	Proliferative and migratory responses of astrocytes to in vitro injury. , 2000, 61, 421.		1

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109	A mathematical model of collective cell motility and pattern formation. FASEB Journal, 2008, 22, .	0.2	1
110	ON THE EXISTENCE OF WELL DEFINED SINGULARITIES IN MULTIFRACTALS. Fractals, 1993, 01, 199-204.	1.8	0
111	Cooperative Strategies and Genome Cybernetics in Formation of Complex Bacterial Patterns. Materials Research Society Symposia Proceedings, 1994, 367, 405.	0.1	0
112	Perturbation of VEâ€cadherin and effects on the dynamics of endothelial cell behavior in the murine allantois. FASEB Journal, 2006, 20, A439.	0.2	0
113	Local microenvironments versus tissue compartments in embryos â€" which cells are â€œreallyâ€•moving and where are they going?. FASEB Journal, 2007, 21, A33.	0.2	0
114	VEâ€cadherin and avb3 integrinâ€mediated collective cell migration and patterning during vasculogenesis. FASEB Journal, 2007, 21, A35.	0.2	0
115	Multiâ€Scale Analysis of Cell and Tissue Patterning during Morphogenesis. FASEB Journal, 2007, 21, A198.	0.2	0
116	Cell motility versus tissue motion in embryos: Which cells are really moving?. FASEB Journal, 2008, 22, 101.3.	0.2	0
117	Timeâ€lapse imaging of extracellular matrix assembly. FASEB Journal, 2008, 22, 101.1.	0.2	0
118	Biomechanical gradients and early vasculogenic patterns. FASEB Journal, 2008, 22, 387.4.	0.2	0
119	Multicellular sprouting during vasculogenesis. FASEB Journal, 2009, 23, 643.3.	0.2	0
120	Statistical analysis and mathematical modeling of collective cell motion in endothelial and epithelial cultures. FASEB Journal, 2009, 23, 826.1.	0.2	0
121	The Role of Fibronectin During Vasculogenesis. FASEB Journal, 2009, 23, 299.3.	0.2	0
122	Endothelial sprout formation during vasculogenesis. FASEB Journal, 2010, 24, 9.5.	0.2	0
123	Computational Analyses of Endocardial Cell Motion During Cardiovascular Morphogenesis in Transgenic Avian Embryos. FASEB Journal, 2010, 24, 180.3.	0.2	0
124	Analysis of endothelial cell movements during aortae development. FASEB Journal, 2011, 25, 177.1.	0.2	0
125	Dynamic imaging of cardiac precursor cell movements during early avian heart morphogenesis. FASEB Journal, 2011, 25, 181.3.	0.2	0
126	Dynamic Imaging of VEGF Relative to the ECM and its Effects on Endocardial Cell Behavior During Cardiovascular Morphogenesis. FASEB Journal, 2012, 26, 209.6.	0.2	0

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127	Computational imaging and modeling approaches reveal mechanisms driving myocardial precursor movements. FASEB Journal, 2013, 27, 16.3.	0.2	0
128	COMMUNICATION, REGULATION AND CONTROL DURING COMPLEX PATTERNING OF BACTERIAL COLONIES. , 1994, , 3-32.		0
129	A Multiscale Analysis of Early Cardiogenesis Following VEGF Perturbations. FASEB Journal, 2018, 32, 94.1.	0.2	0
130	Tubastatin A attenuates chronic angiotensinâ€IIâ€induced autophagy. FASEB Journal, 2019, 33, 662.33.	0.2	0
131	SPECC1Lâ€Deficient Cells Show Impaired Collective Cell Migration Attributes that are Rescued by Upregulation of PI3Kâ€AKT Pathway. FASEB Journal, 2019, 33, 774.22.	0.2	0
132	Inâ€frame Genetic Disruption of SPECC1L Microtubuleâ€Interaction Domain Causes Embryonic Tissue Movement and Fusion Defects. FASEB Journal, 2020, 34, 1-1.	0.2	0
133	Novel insights into the fundamentals of palatal shelf elevation dynamics in normal mouse embryos. FASEB Journal, 2022, 36, .	0.2	0