Roeland M H Merks

List of Publications by Year
in descending order

71 papers	3,398 citations	172457 29 h-index	155660 55 g-index
92 all docs	92 docs citations	92 times ranked	4049 citing authors

#	Article	IF	Citations
1	Cell elongation is key to in silico replication of in vitro vasculogenesis and subsequent remodeling. Developmental Biology, 2006, 289, 44-54.	2.0	213
2	A cell-centered approach to developmental biology. Physica A: Statistical Mechanics and Its Applications, 2005, 352, 113-130.	2.6	201
3	Endothelial microparticles affect angiogenesis in vitro: role of oxidative stress. American Journal of Physiology - Heart and Circulatory Physiology, 2005, 289, H1106-H1114.	3.2	198
4	Contact-Inhibited Chemotaxis in De Novo and Sprouting Blood-Vessel Growth. PLoS Computational Biology, 2008, 4, e1000163.	3.2	185
5	Mechanical Cell-Matrix Feedback Explains Pairwise and Collective Endothelial Cell Behavior In Vitro. PLoS Computational Biology, 2014, 10, e1003774.	3.2	160
6	Cellular Potts Modeling of Tumor Growth, Tumor Invasion, and Tumor Evolution. Frontiers in Oncology, 2013, 3, 87.	2.8	147
7	VirtualLeaf: An Open-Source Framework for Cell-Based Modeling of Plant Tissue Growth and Development Â Â Â. Plant Physiology, 2011, 155, 656-666.	4.8	132
8	Glycolytic regulation of cell rearrangement in angiogenesis. Nature Communications, 2016, 7, 12240.	12.8	131
9	Emergence of tissue polarization from synergy of intracellular and extracellular auxin signaling. Molecular Systems Biology, 2010, 6, 447.	7.2	126
10	Canalization without flux sensors: a traveling-wave hypothesis. Trends in Plant Science, 2007, 12, 384-390.	8.8	98
11	SHORT-ROOT and SCARECROW Regulate Leaf Growth in Arabidopsis by Stimulating S-Phase Progression of the Cell Cycle. Plant Physiology, 2010, 154, 1183-1195.	4.8	98
12	Redox balance is key to explaining full vs. partial switching to low-yield metabolism. BMC Systems Biology, 2012, 6, 22.	3.0	97
13	A Cell-Based Model of Extracellular-Matrix-Guided Endothelial Cell Migration During Angiogenesis. Bulletin of Mathematical Biology, 2013, 75, 1377-1399.	1.9	93
14	Emergence of microbial diversity due to cross-feeding interactions in a spatial model of gut microbial metabolism. BMC Systems Biology, 2017, 11, 56.	3.0	83
15	Cellular Potts modeling of complex multicellular behaviors in tissue morphogenesis. Development Growth and Differentiation, 2017, 59, 329-339.	1.5	80
16	Morphogenesis of the branching reef coral Madracis mirabilis. Proceedings of the Royal Society B: Biological Sciences, 2005, 272, 127-133.	2.6	76
17	Dynamic mechanisms of blood vessel growth. Nonlinearity, 2006, 19, C1-C10.	1.4	72
18	Modeling Morphogenesis<i>in silico</i>and<i>in vitro</i>: Towards Quantitative, Predictive, Cell-based Modeling. Mathematical Modelling of Natural Phenomena, 2009, 4, 149-171.	2.4	64

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19	From Genes to Organisms Via the Cell: A Problem-Solving Environment for Multicellular Development. Computing in Science and Engineering, 2007, 9, 50-60.	1.2	61
20	Modeling Lignin Polymerization. I. Simulation Model of Dehydrogenation Polymers Â. Plant Physiology, 2010, 153, 1332-1344.	4.8	61
21	Cell Shape and Durotaxis Explained from Cell-Extracellular Matrix Forces and Focal Adhesion Dynamics. IScience, 2020, 23, 101488.	4.1	60
22	The Moment Propagation Method for Advectionâ€"Diffusion in the Lattice Boltzmann Method: Validation and PÃ©clet Number Limits. Journal of Computational Physics, 2002, 183, 563-576.	3.8	56
23	Quantitative analysis of venation patterns of Arabidopsis leaves by supervised image analysis. Plant Journal, 2012, 69, 553-563.	5.7	52
24	Models of coral growth: spontaneous branching, compactification and the Laplacian growth assumption. Journal of Theoretical Biology, 2003, 224, 153-166.	1.7	51
25	Tip cell overtaking occurs as a side effect of sprouting in computational models of angiogenesis. BMC Systems Biology, 2015, 9, 86.	3.0	47
26	Polyp oriented modelling of coral growth. Journal of Theoretical Biology, 2004, 228, 559-576.	1.7	43
27	Simulation of Organ Patterning on the Floral Meristem Using a Polar Auxin Transport Model. PLoS ONE, 2012, 7, e28762.	2.5	41
28	An <i>in silico</i> study on the role of smooth muscle cell migration in neointimal formation after coronary stenting. Journal of the Royal Society Interface, 2015, 12, 20150358.	3.4	38
29	Memory of cell shape biases stochastic fate decision-making despite mitotic rounding. Nature Communications, 2016, 7, 11963.	12.8	36
30	Cell Contractility Facilitates Alignment of Cells and Tissues to Static Uniaxial Stretch. Biophysical Journal, 2017, 112, 755-766.	0.5	36
31	Hyaluronan: A critical regulator of endothelial-to-mesenchymal transition during cardiac valve formation. Trends in Cardiovascular Medicine, 2013, 23, 135-142.	4.9	30
32	Mechanical interplay between cell shape and actin cytoskeleton organization. Soft Matter, 2020, 16, 6328-6343.	2.7	30
33	Cell-Oriented Modeling of In Vitro Capillary Development. Lecture Notes in Computer Science, 2004, , 425-434.	1.3	29
34	The Glazier-Graner-Hogeweg Model: Extensions, Future Directions, and Opportunities for Further Study. , 2007, , 151-167.		28
35	Computational Screening of Tip and Stalk Cell Behavior Proposes a Role for Apelin Signaling in Sprout Progression. PLoS ONE, 2016, 11, e0159478.	2.5	27
36	Vascular networks due to dynamically arrested crystalline ordering of elongated cells. Physical Review E, 2013, 87, 012725.	2.1	24

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37	Synergy of cellâ€“cell repulsion and vacuolation in a computational model of lumen formation. Journal of the Royal Society Interface, 2014, 11, 20131049.	3.4	23
38	Topotaxis of active Brownian particles. Physical Review E, 2020, 101, 032602.	2.1	23
39	Cell-Based Computational Modeling of Vascular Morphogenesis Using Tissue Simulation Toolkit. Methods in Molecular Biology, 2015, 1214, 67-127.	0.9	21
40	Predicting Metabolism from Gene Expression in an Improved Whole-Genome Metabolic Network Model of<i>Danio rerio</i>. Zebrafish, 2019, 16, 348-362.	1.1	20
41	Individual cell-based models of cell scatter of ARO and MLP-29 cells in response to hepatocyte growth factor. Journal of Theoretical Biology, 2009, 260, 151-160.	1.7	19
42	Nodal Signaling Range Is Regulated by Proprotein Convertase-Mediated Maturation. Developmental Cell, 2015, 32, 631-639.	7.0	17
43	Cytoskeletal Anisotropy Controls Geometry and Forces of Adherent Cells. Physical Review Letters, 2018, 121, 178101.	7.8	17
44	Chiral stresses in nematic cell monolayers. Soft Matter, 2020, 16, 764-774.	2.7	15
45	Somite Division and New Boundary Formation by Mechanical Strain. IScience, 2020, 23, 100976.	4.1	15
46	Evolution of multicellularity by collective integration of spatial information. ELife, 2020, 9, .	6.0	15
47	Large-Scale Parameter Studies of Cell-Based Models of Tissue Morphogenesis Using CompuCell3D or VirtualLeaf. Methods in Molecular Biology, 2015, 1189, 301-322.	0.9	13
48	Blood vessel tortuosity selects against evolution of aggressive tumor cells in confined tissue environments: A modeling approach. PLoS Computational Biology, 2017, 13, e1005635.	3.2	13
49	A global sensitivity analysis approach for morphogenesis models. BMC Systems Biology, 2015, 9, 85.	3.0	12
50	Particle-based simulation of ellipse-shaped particle aggregation as a model for vascular network formation. Computational Particle Mechanics, 2015, 2, 371-379.	3.0	11
51	Implementing Computational Modeling in Tissue Engineering: Where Disciplines Meet. Tissue Engineering - Part A, 2022, 28, 542-554.	3.1	11
52	Twisting of the zebrafish heart tube during cardiac looping is a tbx5-dependent and tissue-intrinsic process. ELife, 2021, 10, .	6.0	10
53	Building Simulation Models of Developing Plant Organs Using VirtualLeaf. Methods in Molecular Biology, 2013, 959, 333-352.	0.9	10
54	Computational Modeling of Angiogenesis: Towards a Multi-Scale Understanding of Cellâ€“Cell and Cellâ€“Matrix Interactions. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2013, , 161-183.	1.0	9

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55	Cellular Potts Model: Applications to Vasculogenesis and Angiogenesis. Emergence, Complexity and Computation, 2018, , 279-310.	0.3	9
56	A Novel Function of TLR2 and MyD88 in the Regulation of Leukocyte Cell Migration Behavior During Wounding in Zebrafish Larvae. Frontiers in Cell and Developmental Biology, 2021, 9, 624571.	3.7	9
57	Computational modelling of cell motility modes emerging from cell-matrix adhesion dynamics. PLoS Computational Biology, 2022, 18, e1009156.	3.2	9
58	DIFFUSION-LIMITED AGGREGATION IN LAMINAR FLOWS. International Journal of Modern Physics C, 2003, 14, 1171-1182.	1.7	8
59	Adapting a Plant Tissue Model to Animal Development: Introducing Cell Sliding into VirtualLeaf. Bulletin of Mathematical Biology, 2019, 81, 3322-3341.	1.9	7
60	Problem-solving environments for biological morphogenesis. Computing in Science and Engineering, 2006, 8, 61-72.	1.2	6
61	A Problem Solving Environment for Modelling Stony Coral Morphogenesis. Lecture Notes in Computer Science, 2003, , 639-648.	1.3	5
62	The Cellular Potts Model in Biomedicine. , 2007, , 137-150.		4
63	Cell-Based Modeling. , 2015, , 195-201.		4
64	A local uPAR-plasmin-TGFÎ²1 positive feedback loop in a qualitative computational model of angiogenic sprouting explains the in vitro effect of fibrinogen variants. PLoS Computational Biology, 2018, 14, e1006239.	3.2	3
65	Autocrine inhibition of cell motility can drive epithelial branching morphogenesis in the absence of growth. Philosophical Transactions of the Royal Society B: Biological Sciences, 2020, 375, 20190386.	4.0	3
66	Modeling Plant Tissue Development Using VirtualLeaf. Methods in Molecular Biology, 2022, 2395, 165-198.	0.9	3
67	Glycated Collagen I (GC) impairs angiogenesis in vitroâ€"A study using an innovative chamber for cell research. Diabetes Research and Clinical Practice, 2007, 76, 463-467.	2.8	2
68	Shaping the cell fate. Cell Cycle, 2017, 16, 149-150.	2.6	2
69	Spontaneous Branching in a Polyp Oriented Model of Stony Coral Growth. Lecture Notes in Computer Science, 2002, , 88-96.	1.3	2
70	Cell-based modeling of cell-matrix interactions in angiogenesis. ITM Web of Conferences, 2015, 5, 00015.	0.5	1
71	Integrating two patterning processes in the flower. Plant Signaling and Behavior, 2012, 7, 682-684.	2.4	0