Resource Summary Report

Generated by NIF on May 4, 2025

CompuCell3D

RRID:SCR_003052
Type: Tool

Proper Citation

CompuCell3D (RRID:SCR_003052)

Resource Information

URL: http://www.compucell3d.org/

Proper Citation: CompuCell3D (RRID:SCR_003052)

Description: Open-source simulation environment for multi-cell, single-cell-based modeling of tissues, organs and organisms. It uses Cellular Potts Model to model cell behavior.

Abbreviations: CC3D

Resource Type: simulation software, software resource, software application

Defining Citation: PMID:22482955

Keywords: model, simulation, cellular, multi-cellular, windows, mac os x, linux, tissue, organ, organism, cell behavior

Funding: NIH ;
EPA

Availability: Acknowledgement requested, Open unspecified license

Resource Name: CompuCell3D

Resource ID: SCR_003052

Alternate IDs: nlx_157668

Record Creation Time: 20220129T080216+0000

Record Last Update: 20250503T055551+0000

Ratings and Alerts

No rating or validation information has been found for CompuCell3D.

No alerts have been found for CompuCell3D.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 61 mentions in open access literature.

Listed below are recent publications. The full list is available at NIF.

Bruch R, et al. (2025) Improving 3D deep learning segmentation with biophysically motivated cell synthesis. Communications biology, 8(1), 43.

Una R, et al. (2024) A Cellular Potts Model of the interplay of synchronization and aggregation. PeerJ, 12, e16974.

Haase M, et al. (2024) Agent-based model demonstrates the impact of nonlinear, complex interactions between cytokinces on muscle regeneration. eLife, 13.

Chandrasegaran S, et al. (2024) Modelling the spatiotemporal dynamics of senescent cells in wound healing, chronic wounds, and fibrosis. bioRxiv : the preprint server for biology.

Korkmaz HI, et al. (2024) An in silico modeling approach to understanding the dynamics of the post-burn immune response. Frontiers in immunology, 15, 1303776.

Mu DP, et al. (2024) A multiscale spatial modeling framework for the germinal center response. Frontiers in immunology, 15, 1377303.

Prasanna CVS, et al. (2024) Spatial heterogeneity in tumor adhesion qualifies collective cell invasion. Biophysical journal, 123(12), 1635.

Link R, et al. (2024) Modelling cell shape in 3D structured environments: A quantitative comparison with experiments. PLoS computational biology, 20(4), e1011412.

Lam C, et al. (2024) Mathematical and In Silico Analysis of Synthetic Inhibitory Circuits That Program Self-Organizing Multicellular Structures. ACS synthetic biology, 13(6), 1925.

Walter C, et al. (2023) Reciprocal intra- and extra-cellular polarity enables deep mechanosensing through layered matrices. Cell reports, 42(4), 112362.

Lam C, et al. (2023) Design and mathematical analysis of activating transcriptional amplifiers

that enable modular temporal control in synthetic juxtacrine circuits. Synthetic and systems biotechnology, 8(4), 654.

Sego TJ, et al. (2022) A multiscale multicellular spatiotemporal model of local influenza infection and immune response. Journal of theoretical biology, 532, 110918.

Jafari Nivlouei S, et al. (2022) A multiscale cell-based model of tumor growth for chemotherapy assessment and tumor-targeted therapy through a 3D computational approach. Cell proliferation, 55(3), e13187.

Yang Y, et al. (2022) A Negative Feedback Loop and Transcription Factor Cooperation Regulate Zonal Gene Induction by 2, 3, 7, 8-Tetrachlorodibenzo-p-Dioxin in the Mouse Liver. Hepatology communications, 6(4), 750.

Lam C, et al. (2022) Parameterized Computational Framework for the Description and Design of Genetic Circuits of Morphogenesis Based on Contact-Dependent Signaling and Changes in Cell-Cell Adhesion. ACS synthetic biology, 11(4), 1417.

Cochet-Escartin O, et al. (2021) Hypoxia triggers collective aerotactic migration in Dictyostelium discoideum. eLife, 10.

Ramos CH, et al. (2021) The environment topography alters the way to multicellularity in Myxococcus xanthus. Science advances, 7(35).

Pally D, et al. (2021) Heterogeneity in 2,6-Linked Sialic Acids Potentiates Invasion of Breast Cancer Epithelia. ACS central science, 7(1), 110.

Yang L, et al. (2021) High-Throughput Methods in the Discovery and Study of Biomaterials and Materiobiology. Chemical reviews, 121(8), 4561.

Sarper SE, et al. (2021) Polymorphism in the symmetries of gastric pouch arrangements in the sea anemone D. lineata. Zoological letters, 7(1), 12.