Resource Summary Report

Generated by PRECISE-TBI on Jul 31, 2026

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: software resource, software application, simulation software

Defining Citation: PMID:22482955

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

Funding: NIH ;
EPA

Availability: Free, Available for download, Freely available

Resource Name: CompuCell3D

Resource ID: SCR_003052

Alternate IDs: nlx_157668

Record Creation Time: 20220129T080216+0000

Record Last Update: 20260801T042526+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 70 mentions in open access literature.

Listed below are recent publications. The full list is available at PRECISE-TBI .

Vanin J, et al. (2025) V-Cornea: A computational model of corneal epithelium homeostasis, injury, and recovery. bioRxiv : the preprint server for biology.

Berkhout JH, et al. (2025) A computational dynamic systems model for in silico prediction of neural tube closure defects. Current research in toxicology, 8, 100210.

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

Dutt T, et al. (2025) Rheological transition driven by matrix makes cancer spheroids resilient under confinement. Life science alliance, 8(6).

Siegel F, et al. (2025) Proliferation and regeneration of the healthy human urothelium: A multi-scale simulation approach with 16 hypotheses of cell differentiation. PloS one, 20(6), e0325132.

Braat QJS, et al. (2025) Shape matters: inferring the motility of confluent cells from static images. Soft matter, 21(33), 6504.

Vanin J, et al. (2025) V-Cornea: A computational model of corneal epithelium homeostasis, injury, and recovery. PLoS computational biology, 21(12), e1013410.

Shen Y, et al. (2025) Simulation approach for common female cancers: a brief review. Frontiers in oncology, 15, 1479225.

Wang H, et al. (2025) Protrusion force and cell-cell adhesion-induced polarity alignment govern collective migration modes. Biophysical journal, 124(10), 1674.

Wang H, et al. (2025) Protrusion force and cell-cell adhesion-induced polarity alignment govern collective migration modes. bioRxiv : the preprint server for biology.

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.

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

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

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

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.