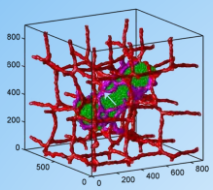
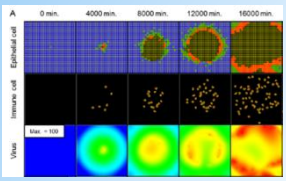
2021 Multicell Virtual Tissue Modeling
ONLINE Summer School & Hackathon

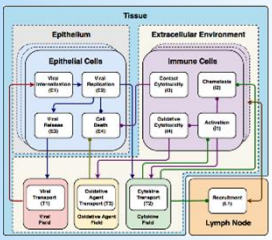
Intro to Computational Modeling & Python: August 1st, 2021 (Sun)
Summer School: August 2nd – 6th, 2021 (Mon – Fri)
Model-Building Hackathon: Aug. 7th – 8th, 2021 (Sat/Sun)

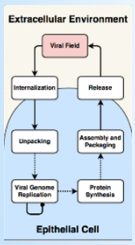


Vascular Tumor Growth



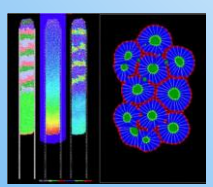
Viral Infection Modeling





Biochemical Networks

Cell Migration Modeling



Developmental Bio

Background: Mechanistic modeling is an integral part of contemporary bioscience, used for hypothesis generation and testing, experiment design and interpretation, and the design of therapeutic interventions. The CompuCell3D modeling environment allow researchers with modest programing experience to rapidly build and execute complex Virtual Tissue simulations. With CompuCell3D you can simulate biology from the subcellular scale to the tissue scale. For instance, you can model tumor growth, what happens to tissues and cells when exposed to toxic compounds, viral spread in tissues, early embryonic development, intra- and extra-cellular biochemical networks, and more. CompuCell3D natively supports SBML and MaBoSS model integration. Try out models without any installation **https://compucell3d.org/Models-nanoHub**. For more information please visit: **www.compucell3d.org**

Goal: By the end of the summer school and hackathon, participants will have implemented a basic simulation of their biological problem of interest. Post-course support and collaboration will be available to continue simulation development.

Topics: Python scripting. Introduction to Virtual-Tissue simulations using CompuCell3D. How to integrate SBML and MaBoSS models into CC3D models. Principles of biological model building and practical examples in diverse biological systems.

Format: Daily Zoom classes (available on YouTube afterwards) with live support & daily group discussion sections (zoom). The classes will be held from 10:30 AM to 5:30 PM eastern daylight time (UTC−04:00).

Instructors: James A. Glazier (Indiana University), Julio Belmonte (North Carolina State University), Maciek Swat, Juliano Gianlupi (Indiana University), Andy Somogyi (Indiana University), Josua Aponte (indiana University), James Sluka (Indiana University), Gilberto L Thomas (UFRGS), Bobby Madamanchi (University of Michigan).

Target Audience: Experimental Biologists, Medical Scientists, Biophysicists, Mathematical Biologists and Computational Biologists from advanced undergraduates to senior faculty, who want to develop multi-scale Virtual-Tissue simulations or learn how such simulations might help their research. No specific programming or mathematical experience is required.

Fees: FREE. **Registration:** Enrollment is limited & by application only. Kindly apply by **June 1**, at **www.tinyurl.com/557ve5se** with a c.v., a brief statement describing your current research interests and the specific problem you would like to model. If you're currently a student, please include a letter of support from your advisor.

www.compucell3d.org | Email: **compucell3d.iu@gmail.com** | twitter: **@CompuCell3D**
Support forum: **www.reddit.com/r/CompuCell3D**

Supported and funded by:

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NIH U24 EB028887, NIH R01 GM122424, NSF 1720625