ALLEN INSTITUTE *for* CELL SCIENCE

ALLENCELL.ORG TEACHER QUICK-START GUIDE

Get started teaching with resources that are particularly popular with educators. This quick-start guide for teachers provides in-depth tips for new users, detailed information on how to view and interact with data online, and use cases for each resource in classrooms and curricula. This guide is also available as a webpage at allencell.org/link-to-this-page.

All of our resources feature data derived from human cells, and all of the tools featured for educators can be used entirely online, with no software or downloading required.

All Allen Institute for Cell Science resources are based on our fluorescently labeled human induced pluripotent stem cells (hiPS cells), which enable scientists to precisely visualize one or several cell structures while the cell functions normally. For a brief overview of our research goals, process, and cells, see What We Do (allencell.org/what-we-do).

INTEGRATED MITOTIC STEM CELL
imsc.allencell.org

Overview: This visual essay introduces an advanced data-driven model and visualization tool that captures human cell division by integrating 3D data from 75 single-cell images. The model and the visualizations in the essay follow 15 cell structures through the whole cell cycle.

Primary audience level: This resource is written broadly for biologists and students as a self-guided reference. It is well suited for students in high school and college.

Classroom applications: This visual essay can be used to follow and reinforce an introduction to the stages of mitosis by introducing imagery and demonstrating how the cell structures fit together during mitosis. The 3D viewer (imsc.allencell.org/?page=3d-viewer) and the Z-stack viewer (imsc.allencell.org/?page=zstack-viewer) can also be used by biology teachers to describe cell and cell organelle/structure anatomy across the major stages of the cell cycle.

Interpretation and use: To use this visual essay, just follow the prompts on screen to scroll through. To explore additional quantitative representations of data like those shown in the interactive portions of the essay, visit the Cell Feature Explorer (cfe.allencell.org).

Citation: Allen Institute for Cell Science (2019). Integrated Mitotic Stem Cell [cell model and visualization tool]. Available from imsc.allencell.org.

