

Advanced Undergraduate Seminar

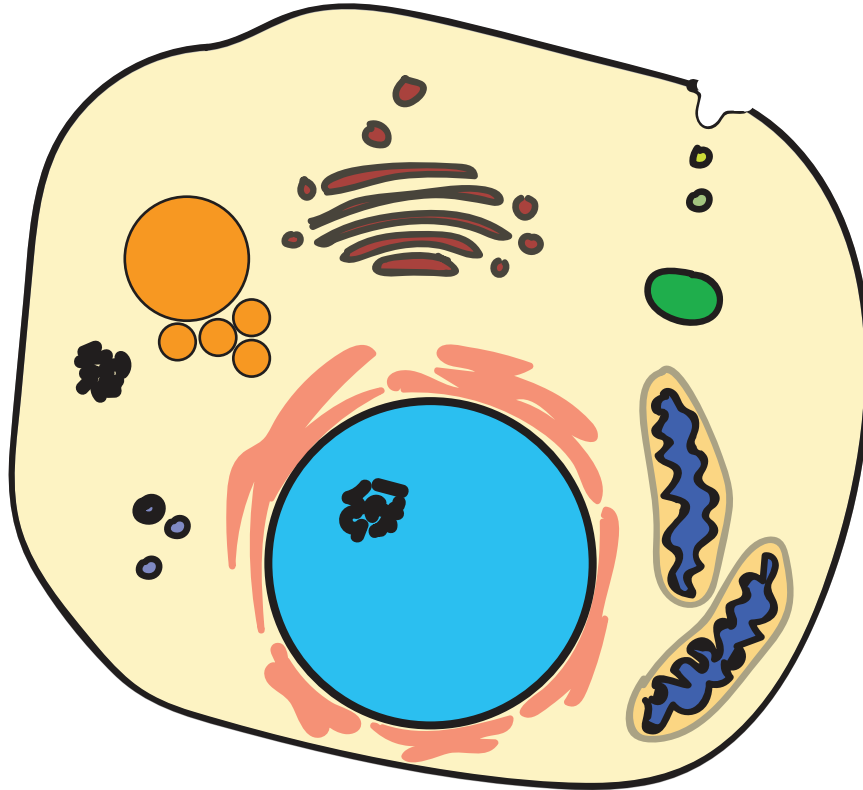
7.342 Cellular Organelles in Health and Disease

Instructors:

Nora Kory (617-840-5206; nkory@wi.mit.edu) &

Monther Abu-Remaileh (617-840-5206; monther@wi.mit.edu), Sabatini Lab

Spring 2019. Wednesdays 1 pm-3 pm (Day and class time are flexible) Room 68-180



The cell is the basic functional unit of life. Cells perform their diverse functions through a versatile series of biochemical reactions that require different chemical and physical environments. In eukaryotic cells, a complex compartmentalized system consisting of membrane-bound organelles allows these reactions to occur under optimal conditions and prevents accumulation of harmful metabolic intermediates in the wrong places. Additionally, these organelles are sites of signaling and metabolic regulation that enable cells to survive and perform their specialized functions in the body.

During this seminar, we'll have an interactive discussion of the papers assigned from the primary research literature. You will learn to (1) describe an experimental design, (2) define the proper use of positive and negative controls and (3) interpret data critically.

We will learn about the nucleus, endoplasmic reticulum, mitochondrion, lysosome, lipid droplets, peroxisome and the Golgi, in addition to the new emerging field of phase-separated compartments. We will also visit a Cambridge-based biotechnology company to learn about current efforts to target organellar metabolism to treat cancer and rare diseases.

Prerequisites

Students are expected to have taken at least one of the following courses: 7.03 (Genetics), 7.06 (Cell Biology), or 7.28 (Molecular Biology). Prerequisites may be waived with permission by the instructors.