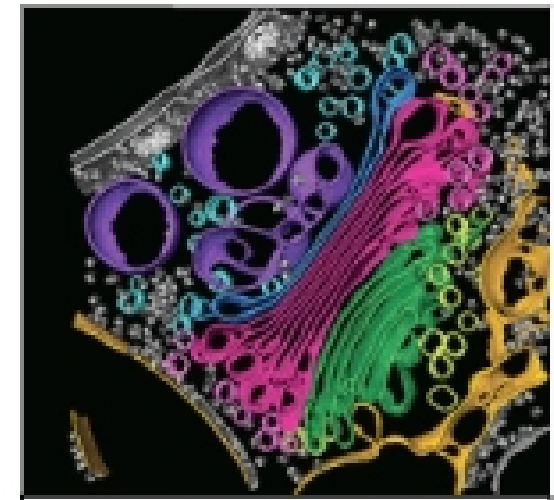


Learning Guide

Tutorial: Subcellular Architecture of the Eukaryotic Cell

In this tutorial, we will investigate eukaryotic cells and the roles of their various structures and organelles. Read through the questions below before you begin reading the eukaryotic cell tutorial. Then as you read the tutorial, fill in your answers to help you prepare for our class session. In addition to the questions below, as you read through the tutorial, ask yourself what did I learn on this page?

Before our class session answer the following questions from the online tutorial:



Morphology of intracellular membranes revealed by in situ cryo-electron tomography. What cellular structures can you make out in the above image?

IMAGE: Y. S. BYKOV et al. 2017, eLIFE 6, e32493

1. Membranes play four general roles in the cell. Briefly explain those roles in your own words.
2. What property allows O_2 and CO_2 to cross a lipid bilayer without aid or membrane proteins? Why do water, glucose, and other sugars need transport proteins?
3. You are looking under a microscope and observe a cell with a well-defined nucleus, rough endoplasmic reticulum with bound ribosomes, smooth endoplasmic reticulum, and free ribosomes suspended in the cytoplasm.
 - a. Given these features, is this most likely a prokaryotic or eukaryotic cell?
 - b. How do you know?
 - c. Which of these features will also be found in both prokaryotic and eukaryotic cells?

