CONCEPT: ELECTRON MICROSCOPY

● **Electron microscopy** uses electrons to _____ cells

□ Improved *limit of resolution*, up to 0.002nm (100,000x greater than light microscope)

□ To perform electron microscopy, the samples have the be properly _____

- Specimens need to be preserved using special chemicals

- Specimens need to be sliced extremely thin (1/200 thickness of a cell)

□ There are many ways to process samples

- One way to process the sample is to use **immunogold staining**

- Immunogold staining labels specimens with electron dense gold (via antibodies)

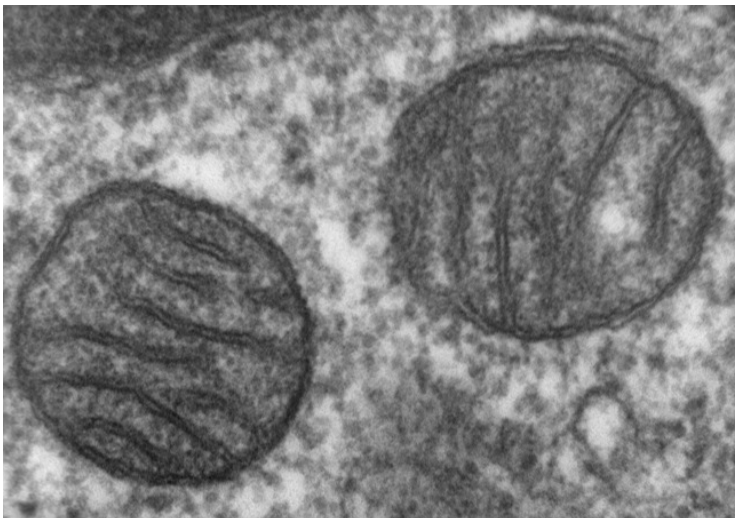
- **Metal shadowing** is used by coating specimen with metal at one angle, creating electron dense shadows

□ There are two main _____ of electron microscopy

- **Transmission electron microscopy** which shoots electrons through the samples

- **Scanning electron microscopy** which scans electrons over the specimen's surface.

EXAMPLE: Electron microscopy image of mitochondria



PRACTICE:

1. True or False: Light microscopy has an improved limit of resolution compared to electron microscopy.
    a. True
    b. False

2. Which of the following types of microscopy works by shooting electrons through the specimen?
    a. Light microscopy
    b. Transmission electron microscopy
    c. Scanning electron microscopy
    d. FRAP floruences microscopy