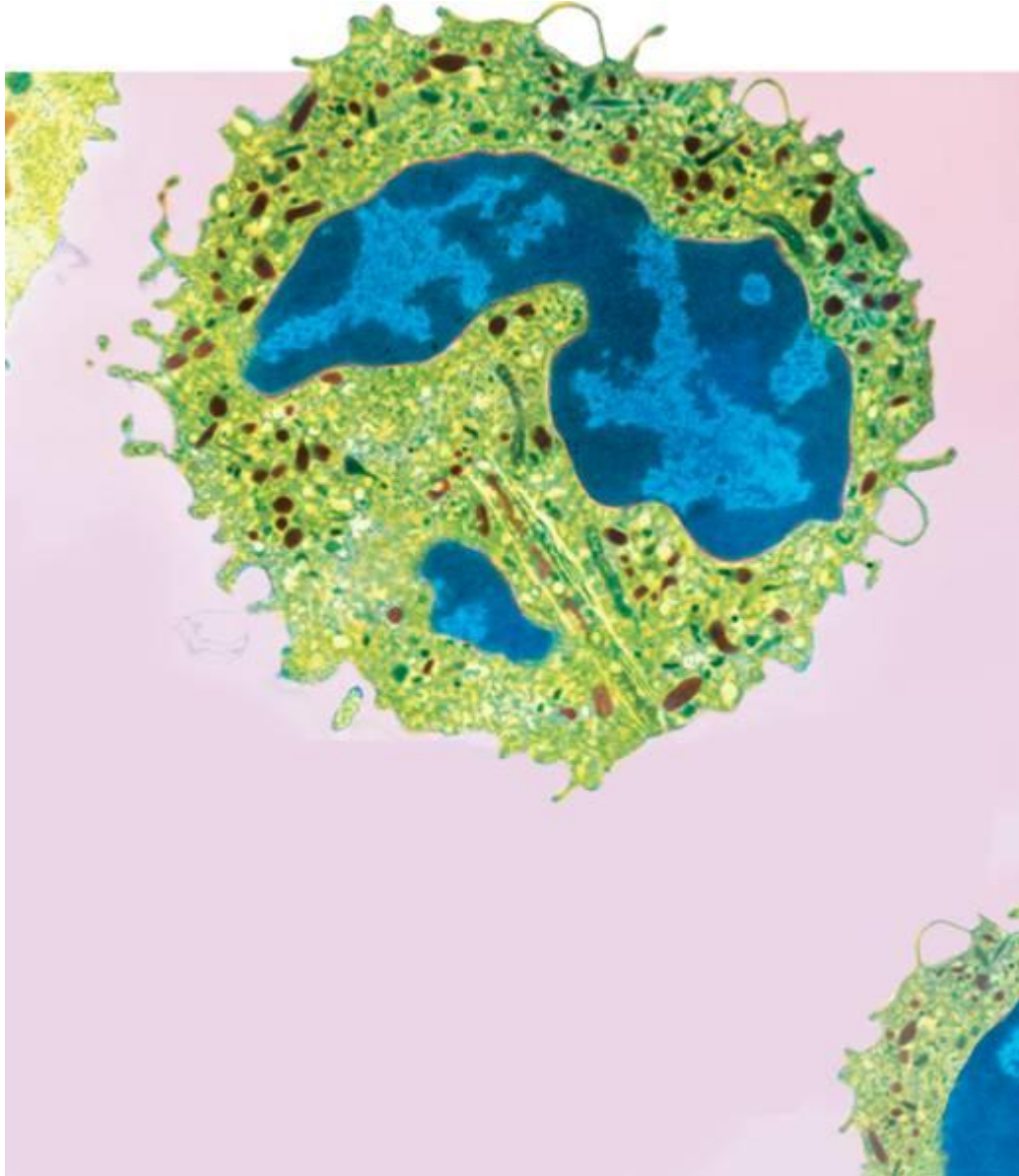
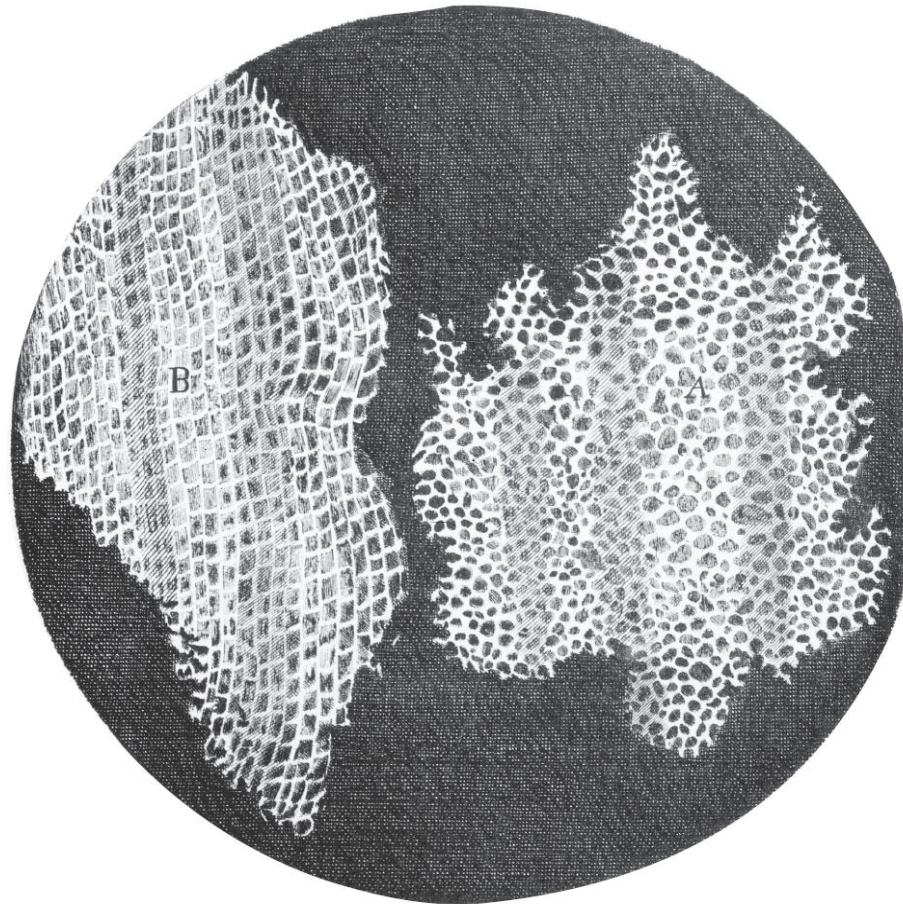


7-1 Life Is Cellular



Hooke's Drawing of Cork Cells





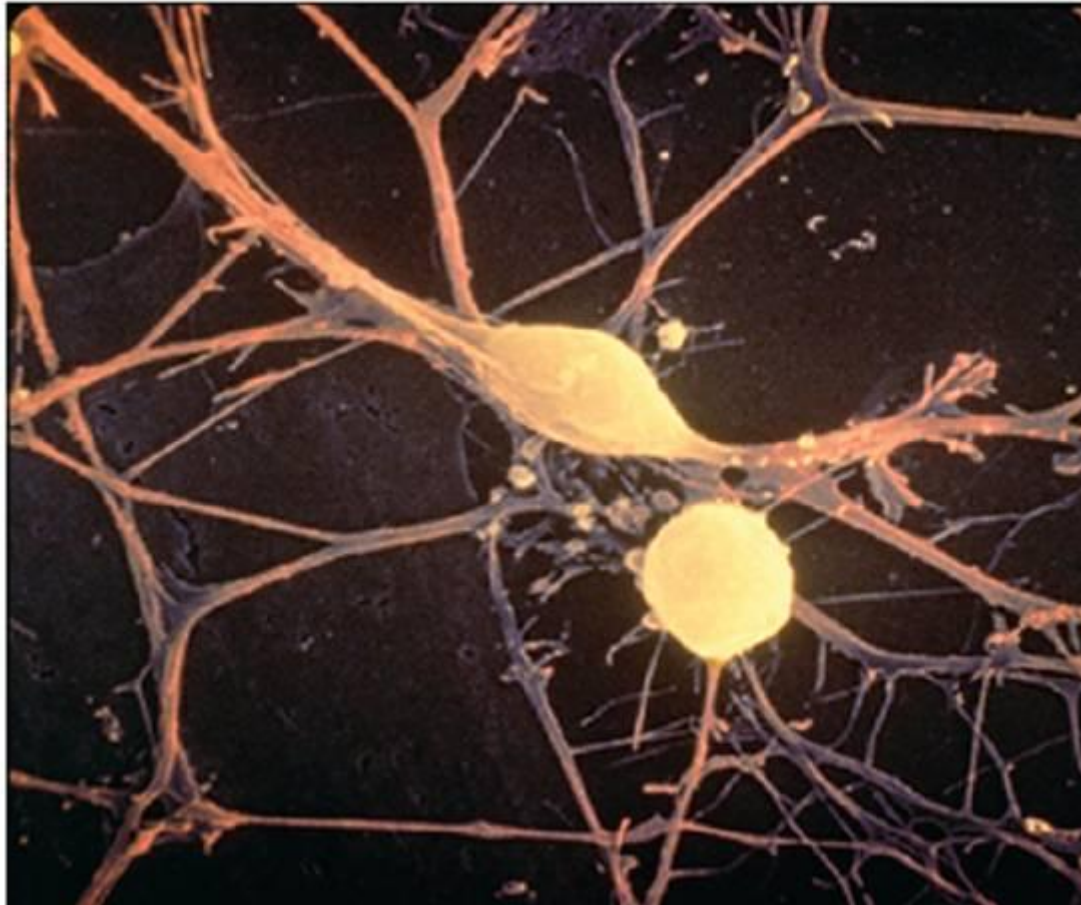
What is the cell theory?



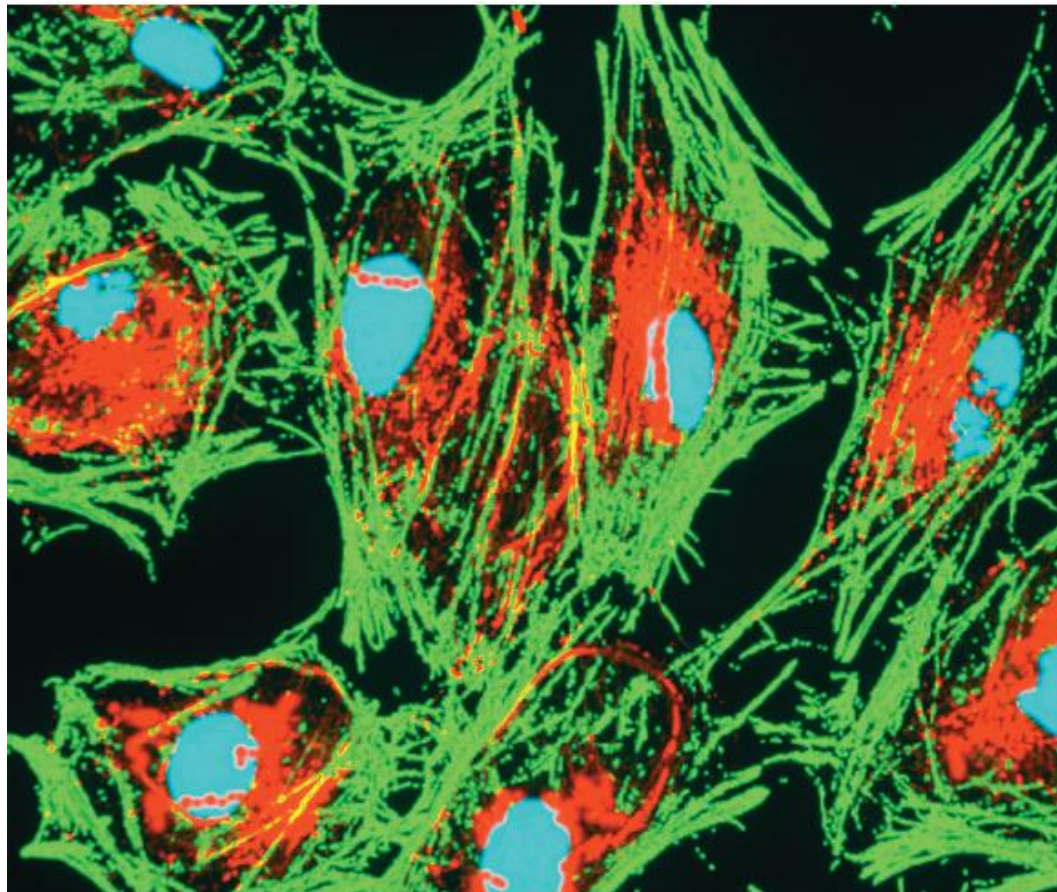
The cell theory states:

- **All living things are composed of cells.**
- **Cells are the basic units of structure and function in living things.**
- **New cells are produced from existing cells.**

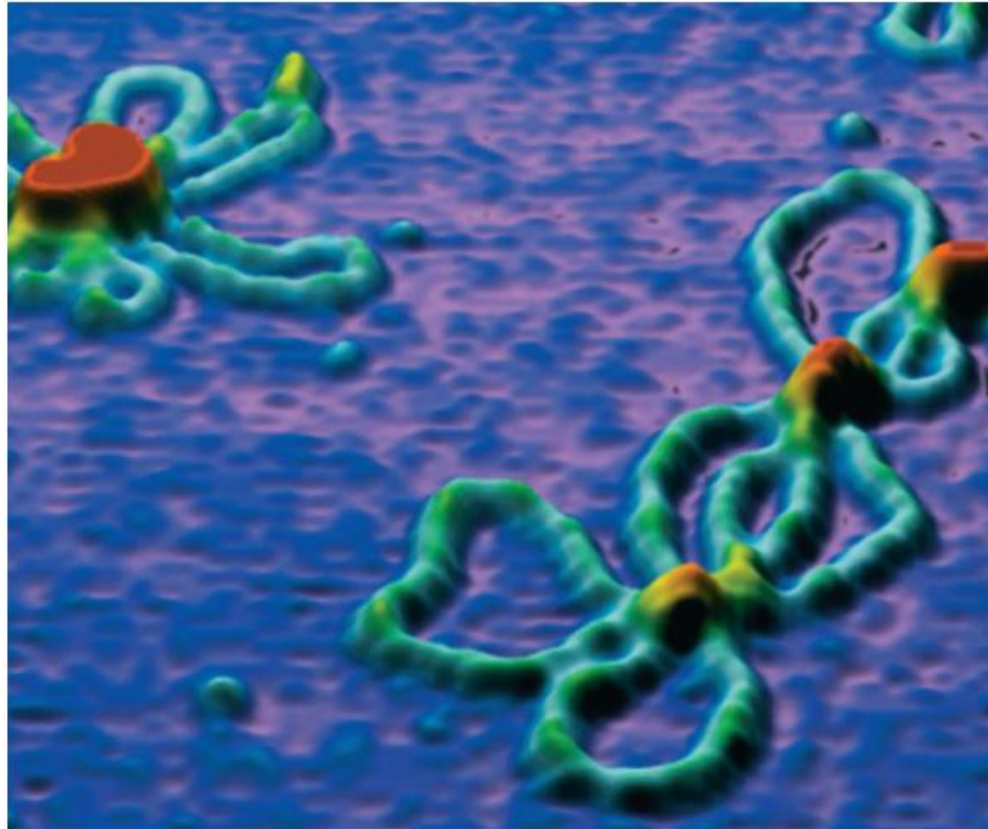
Scanning Electron Micrograph of Neurons



Confocal Light Micrograph of HeLa Cells



Scanning Probe Micrograph of DNA



Prokaryotes and Eukaryotes

Cells come in a variety of shapes and sizes.

All cells:

- are surrounded by a barrier called a cell membrane.
- at some point contain DNA.

Cells are classified into two categories, depending on whether they contain a nucleus.

The **nucleus** is a large membrane-enclosed structure that contains the cell's genetic material in the form of DNA.

The nucleus controls many of the cell's activities.

Eukaryotes are cells that contain nuclei.

Prokaryotes are cells that do not contain nuclei.



What are the characteristics of prokaryotes and eukaryotes?

Prokaryotes



Prokaryotic cells have genetic material that is not contained in a nucleus.

Prokaryotes do not have membrane-bound organelles.

Prokaryotic cells are generally smaller and simpler than eukaryotic cells.

Bacteria are prokaryotes.

Eukaryotes



Eukaryotic cells contain a nucleus in which their genetic material is separated from the rest of the cell.

Eukaryotic cells are generally larger and more complex than prokaryotic cells.

Eukaryotic cells generally contain dozens of structures and internal membranes.

Many eukaryotic cells are highly specialized.

Plants, animals, fungi, and protists are eukaryotes.

7-1 Section QUIZ

Continue to:

Section QUIZ

- or -

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7-1 Section QUIZ

1 The cell theory states that new cells are produced from

a. nonliving material.

A b. existing cells.

c. cytoplasm.

d. animals.

7-1 Section QUIZ

2 The person who first used the term *cell* was

- a. Matthias Schleiden.
- b. Lynn Margulis.
- c. Anton van Leeuwenhoek.

A d. Robert Hooke.

7-1 Section QUIZ

- 3** Electron microscopes are capable of revealing more details than light microscopes because
- a. electron microscopes can be used with live organisms.
 - b. light microscopes cannot be used to examine thin tissues.
 - c. the wavelengths of electrons are longer than those of light.
 - d. the wavelengths of electrons are shorter than those of light.**

A

7-1 Section QUIZ

4 Which organism listed is a prokaryote?

a. protist

A b. bacterium

c. fungus

d. plant

7-1 Section QUIZ

5 One way prokaryotes differ from eukaryotes is that they

a. contain DNA, which carries biological information.

b. have a surrounding barrier called a cell membrane.

A c. do not have a membrane separating DNA from the rest of the cell.

d. are usually larger and more complex.

END OF SECTION