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# Help Me Understand Genetics

## Cells and DNA

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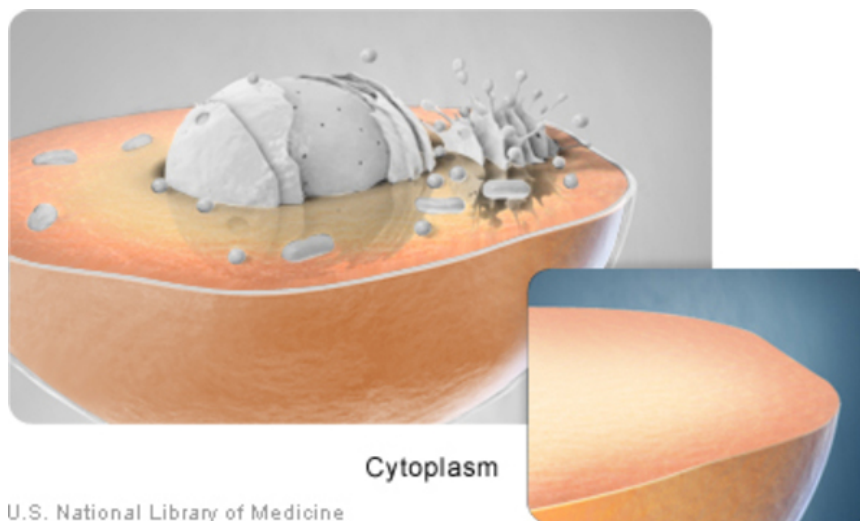
## 1 What is a cell?

Cells are the basic building blocks of all living things. The human body is composed of trillions of cells. They provide structure for the body, take in nutrients from food, convert those nutrients into energy, and carry out specialized functions. Cells also contain the body's hereditary material and can make copies of themselves.

Cells have many parts, each with a different function. Some of these parts, called organelles, are specialized structures that perform certain tasks within the cell. Human cells contain the following major parts, listed in alphabetical order:

### Cytoplasm

Within cells, the cytoplasm (Figure 1) is made up of a jelly-like fluid (called the cytosol) and other structures that surround the nucleus.



**FIGURE 1:** The cytoplasm is fluid within cells that surrounds the nucleus.

### Cytoskeleton

The cytoskeleton is a network of long fibers that make up the cell's structural framework. The cytoskeleton has several critical functions, including determining cell shape, participating in cell division, and allowing cells to move. It also provides a track-like system that directs the movement of organelles and other substances within cells.

### Endoplasmic reticulum (ER)

This organelle helps process molecules created by the cell. The endoplasmic reticulum (Figure 2) also transports these molecules to their specific destinations either inside or outside the cell.