Lecture 1: Introduction to Cell Biology

History of Cells
Some key figures & dates in the history of cell biology:
- 1600s - invention of microscope
- Hooke 1665
- Leeuwenhoek 1673
- Brown 1833
- Schleiden and Schwann 1838
- Virchow (pictured) 1855
- Flemming 1882

"Omnis cellula e cellula"

Cell unity and diversity

Unity:
The cell is the basic unit of life. Anything less than a cell cannot be considered living.
All cells share certain features.

Diversity:
Differences between Prokaryotic and Eukaryotic cells
Differences between Plant and Animal Cells

Parts of a Eukaryotic cell

Plasma membrane
Membrane-bound organelles compartmentalize functions and biochemical processes:
- Nucleus
- Mitochondria
- Endoplasmic reticulum (ER)
- Golgi apparatus
- Lysosomes
- Peroxisomes
**Cytosol**
**Ribosomes**

**Cytoskeleton**: 3 classes of filamentous polymers (microtubules, microfilaments, intermediate filaments)

**Centrosome**

**Intercellular junctions**

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**Mitochondria and Chloroplasts** are believed to be derived from symbiotic bacteria (**endosymbiont theory**).
Types of cells (hundreds)
- Epithelial cells
- Muscle cells
- Connective tissue
- Neurons and glial cells
- Blood cells
- Germ cells - sperm and eggs
- Sensory cells

Cell shape is related to function.