LA CELLULA EUCARIOTICA

Struttura e funzione

MORFOLOGIA E FUNZIONE

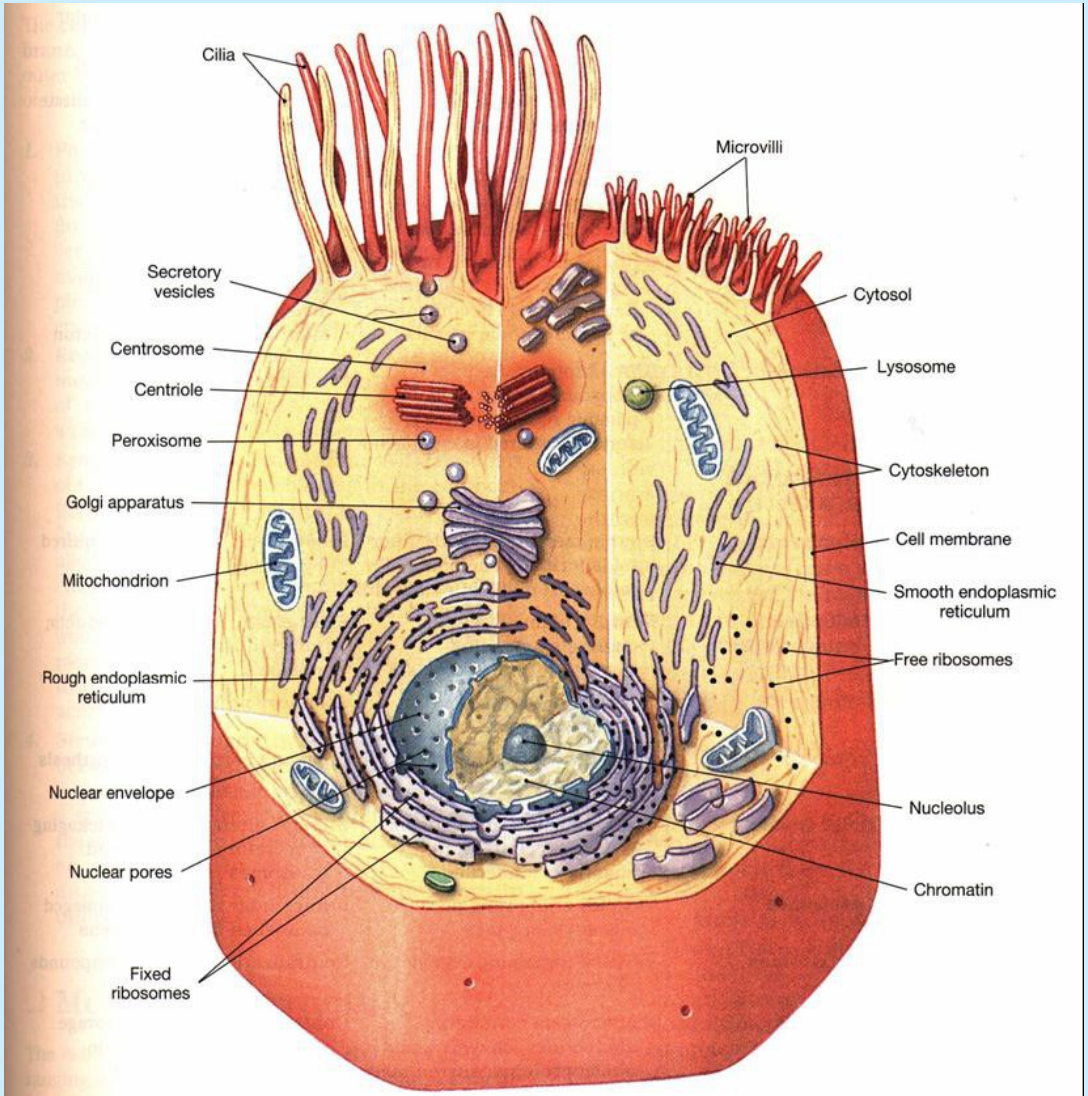


FIGURE 3-2
The Anatomy of a Typical Cell. See Table 3-1 for a summary of the functions associated with the various cell structures.

TIPI DI CELLULE

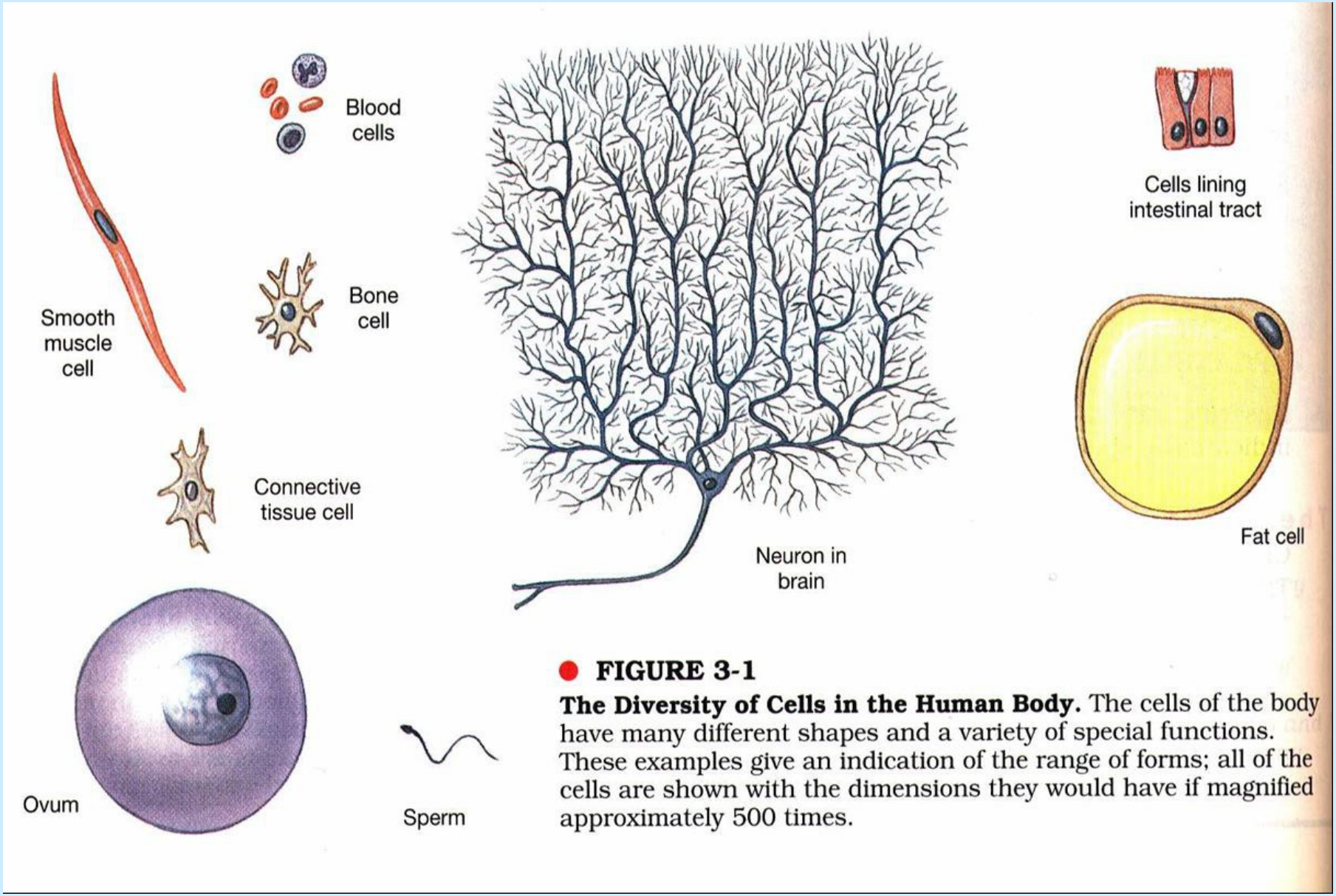
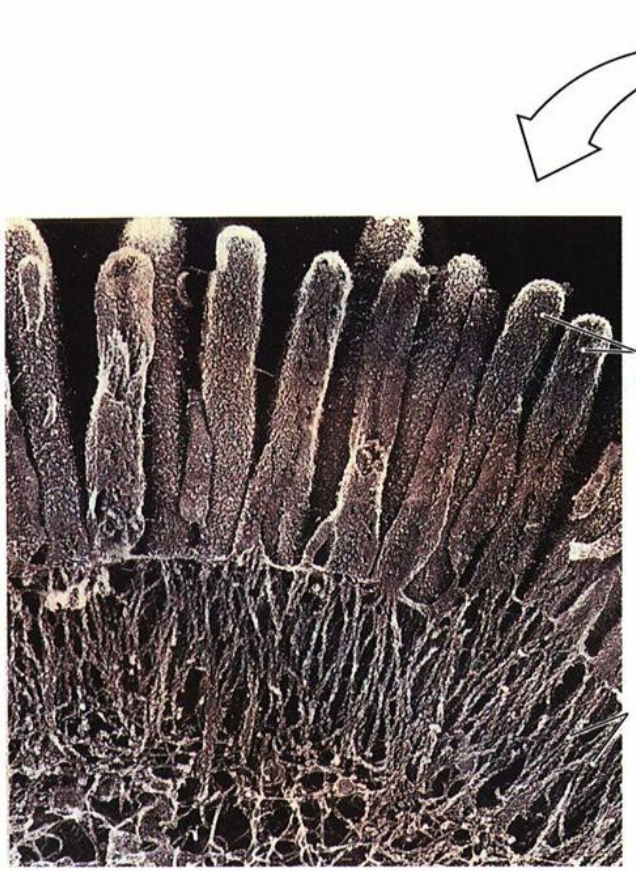


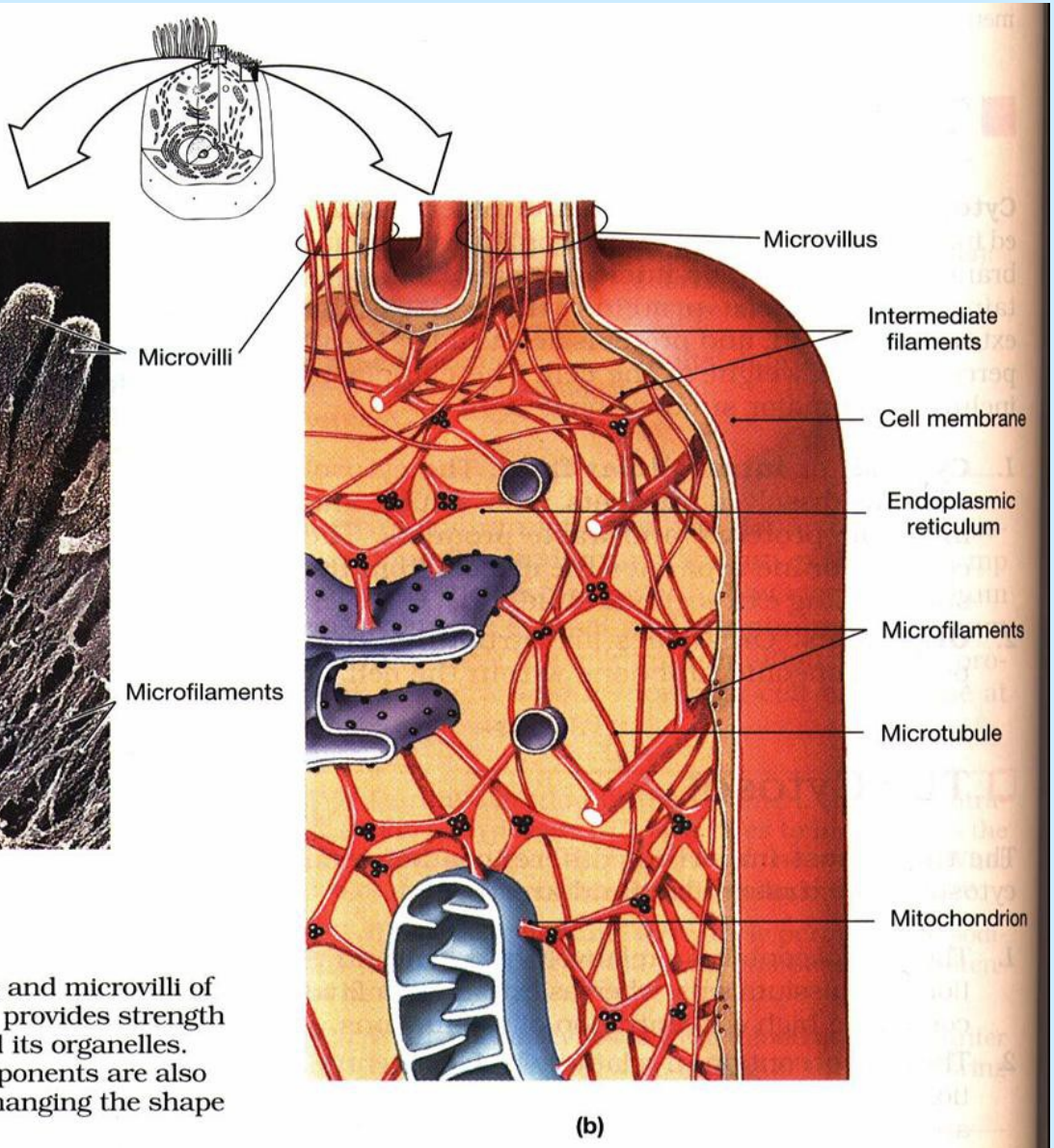
FIGURE 3-1

The Diversity of Cells in the Human Body. The cells of the body have many different shapes and a variety of special functions. These examples give an indication of the range of forms; all of the cells are shown with the dimensions they would have if magnified approximately 500 times.

IL CITOSCHELETRO



(a)



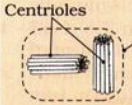
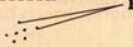
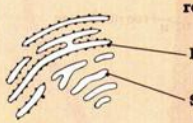
(b)

● **FIGURE 3-15**

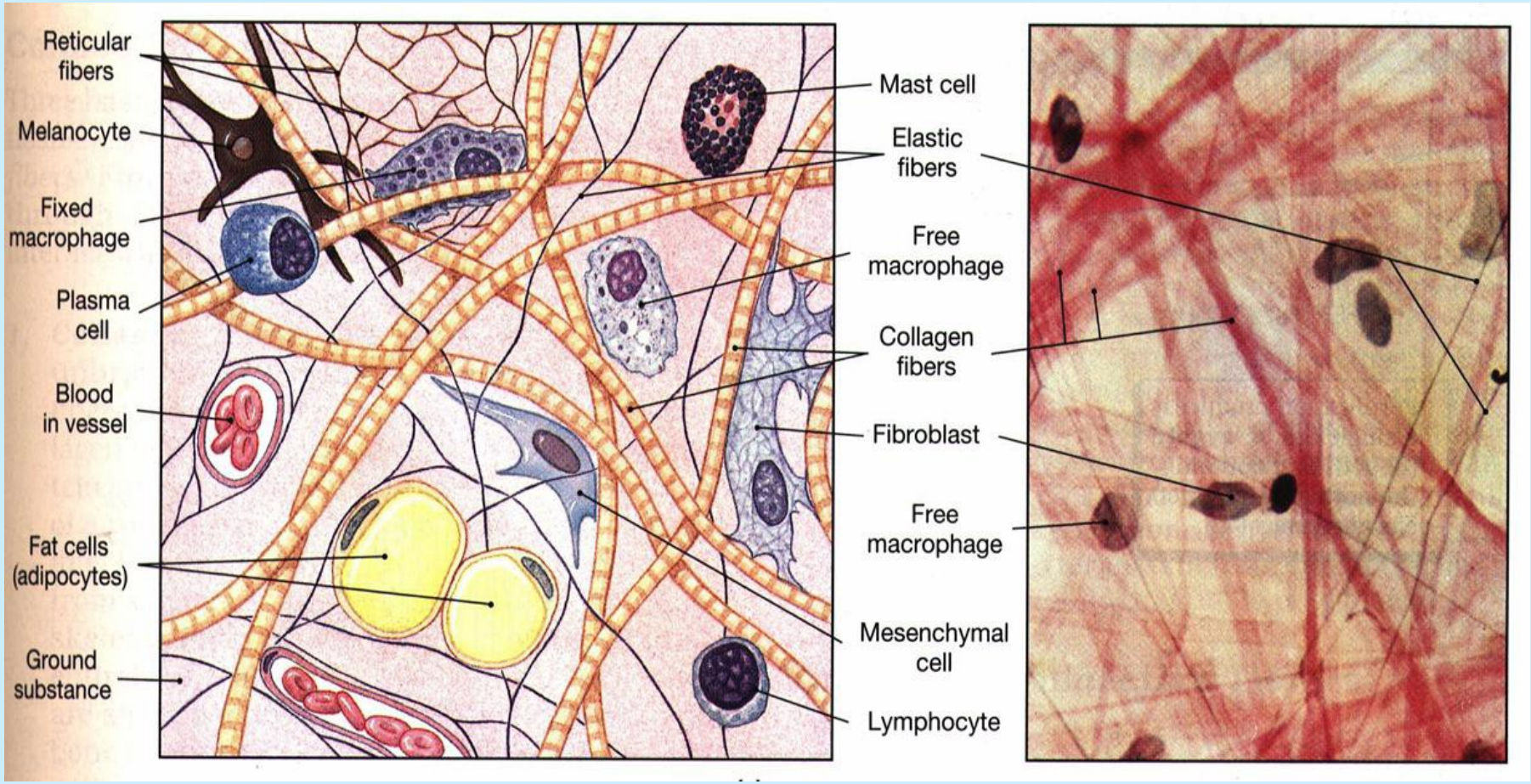
The Cytoskeleton. (a) Microfilaments and microvilli of an intestinal cell. **(b)** The cytoskeleton provides strength and structural support for the cell and its organelles. Interactions between cytoskeletal components are also important in moving organelles and changing the shape of the cell.

ORGANELLI

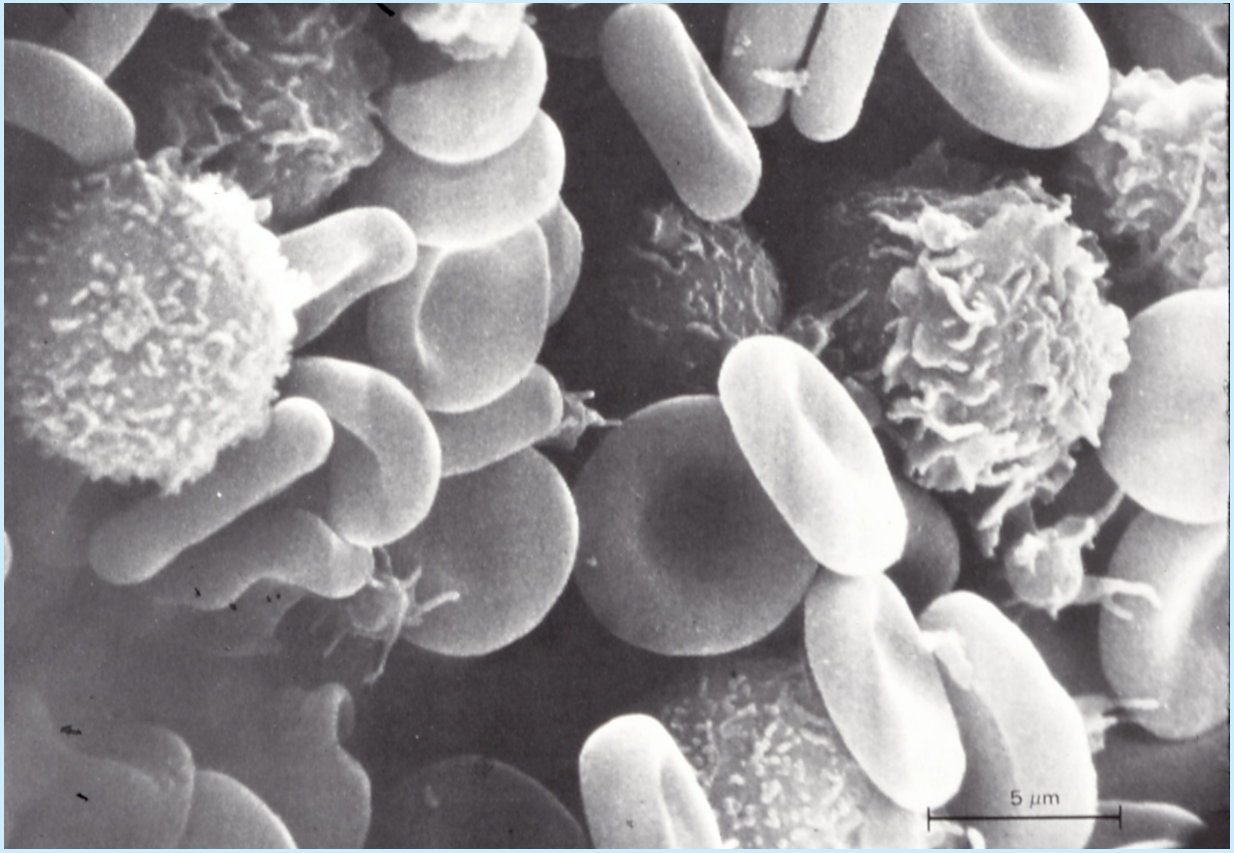
TABLE 3-1 Organelles of a Typical Cell

Appearance	*Structure*	*Composition*	*Function*
	**CELL MEMBRANE**	Lipid bilayer, containing phospholipids, steroids, and proteins	Isolation, protection, sensitivity, support; controls entrance/exit of materials
	CYTOSOL	Fluid component of cytoplasm	Distributes materials by diffusion
	NONMEMBRANOUS ORGANELLES		
	**Cytoskeleton:** **Microtubule** **Microfilament**	Proteins organized in fine filaments or slender tubes	Strength, movement of cellular structures and materials
	**Microvilli**	Membrane extensions containing microfilaments	Increase surface area to facilitate absorption of extracellular materials
	**Cilia**	Membrane extensions containing 9 microtubule doublets + a central pair	Movement of materials over surface
Centrioles 	**Centrosome**	Cytoplasm containing two centrioles, at right angles: Each centriole is composed of 9 microtubule triplets	Essential for movement of chromosomes during cell division; organization of microtubules in cytoskeleton
	**Ribosomes**	RNA + proteins; fixed ribosomes bound to endoplasmic reticulum, free ribosomes scattered in cytoplasm	Protein synthesis
	MEMBRANOUS ORGANELLES		
	**Mitochondria**	Double membrane, with inner folds (cristae) enclosing important metabolic enzymes	Produce 95% of the ATP required by the cell
	Endoplasmic reticulum (ER)	Network of membranous channels extending throughout the cytoplasm	Synthesis of secretory products; intracellular storage and transport
	**Rough ER**	Has ribosomes attached to membranes	Secretory protein synthesis
	Smooth ER	Lacks attached ribosomes	Lipid and carbohydrate synthesis
	**Golgi apparatus**	Stacks of flattened membranes (saccules) containing chambers (cisternae)	Storage, alteration, and packaging of secretory products and lysosomes
	**Lysosomes**	Vesicles containing powerful digestive enzymes	Intracellular removal of damaged organelles or of pathogens
	**Peroxisomes**	Vesicles containing degradative enzymes	Neutralization of toxic compounds
	**NUCLEUS**	Nucleoplasm containing nucleotides, enzymes, and nucleoproteins; surrounded by double membrane (nuclear envelope)	Control of metabolism; storage and processing of genetic information; control of protein synthesis
	Nucleolus	Dense region in nucleoplasm containing DNA and RNA	Site of rRNA synthesis and assembly of ribosomal subunits

TESSUTO CONNETTIVO



CELLULE DEL SANGUE



Cellule viste al microscopio a scansione, sono visibili eritrociti (dischetti biconcavi) e globuli bianchi