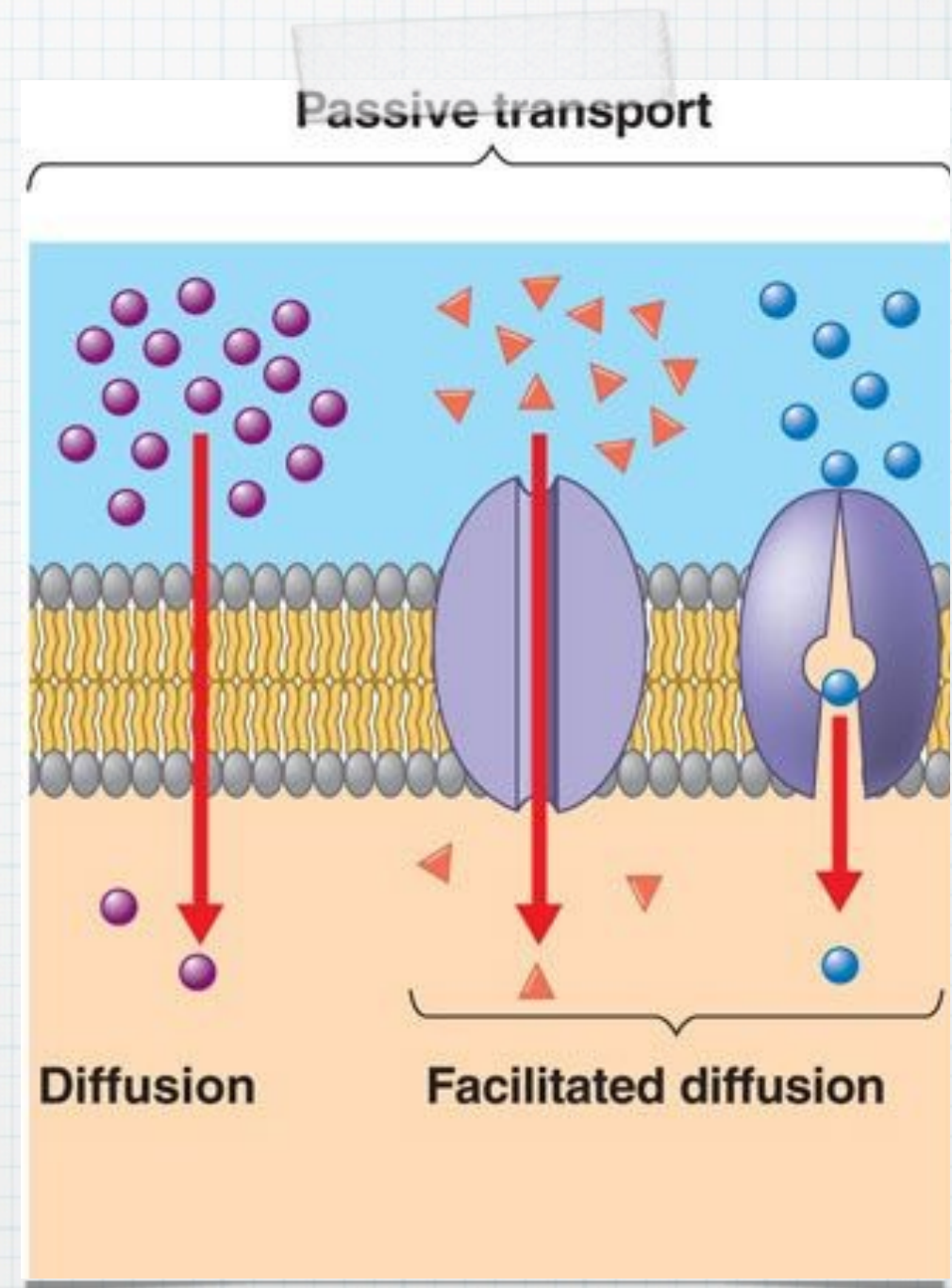


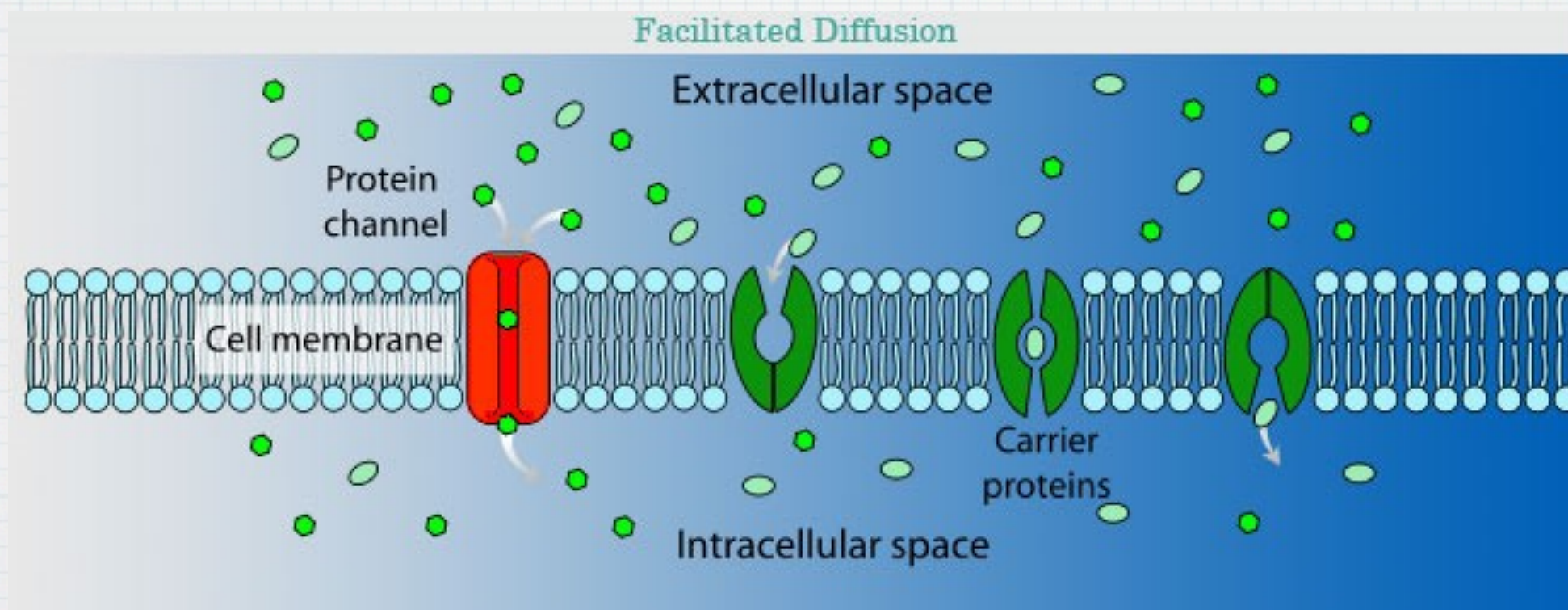
Facilitated Diffusion and Active Transport

Facilitated Diffusion

- * Enhanced diffusion, down a concentration gradient, of a molecule that is too large or hydrophilic
- * Requires the assistance of carrier protein molecules
- * No energy required, therefore a form of passive transport



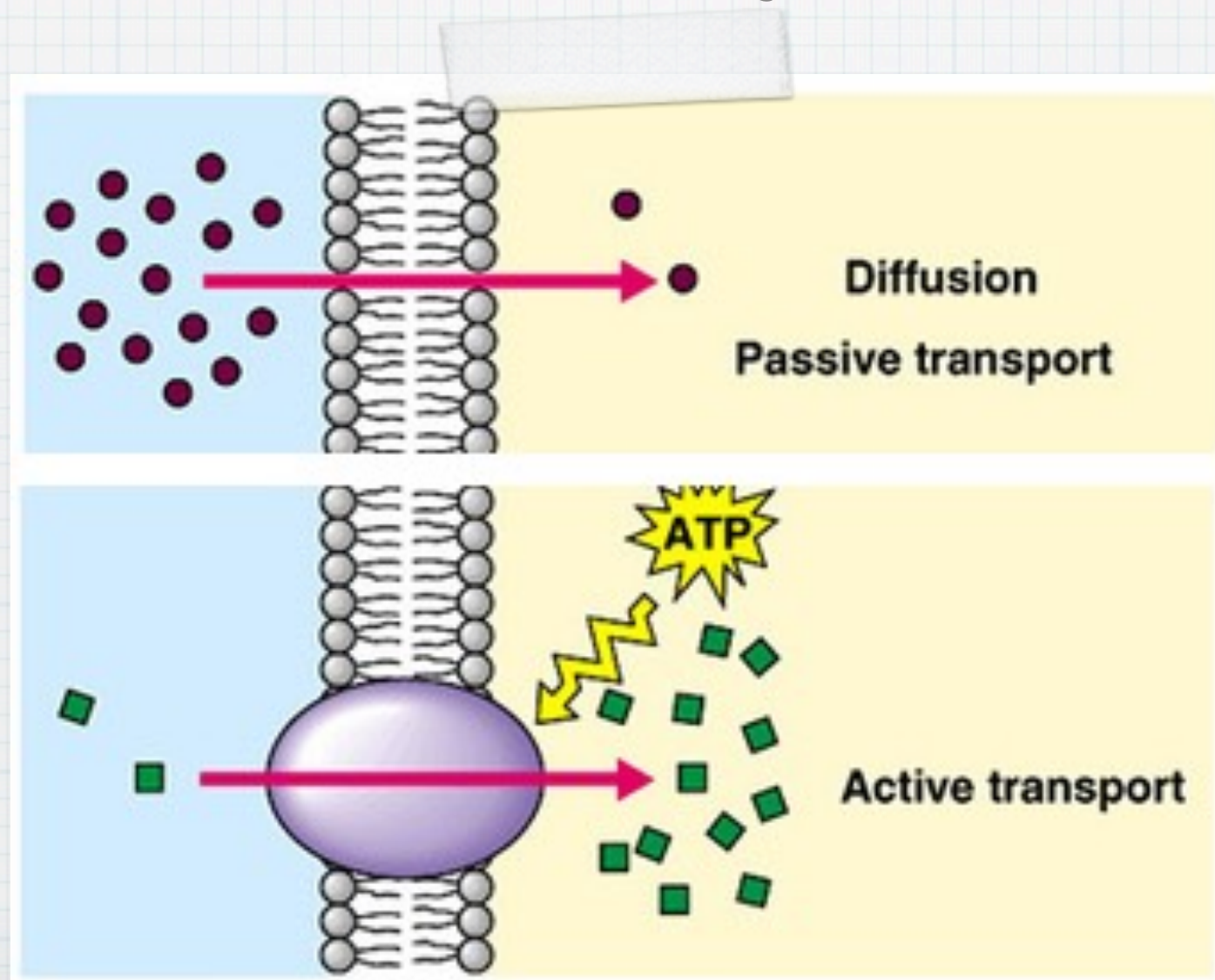
- * Proteins can act as:
- * Channels through which the diffusing molecule passes
- * Molecule binds with the carrier protein. Protein changes shape allowing molecule to get to other side of membrane.



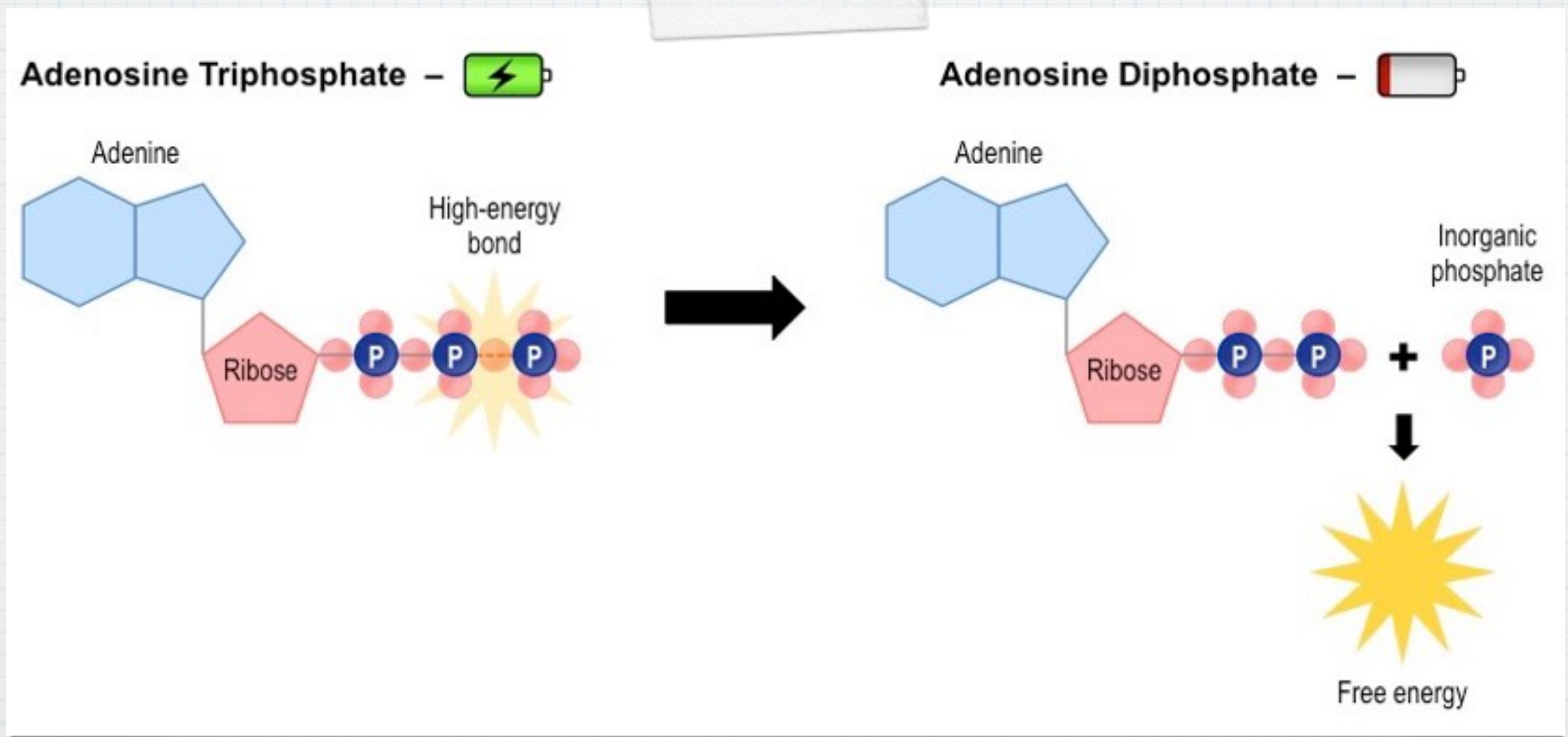
- * Diabetes (type II) – inability to transport glucose into the cells due to lack of insulin**
- * Insulin binds to transport proteins which allows glucose to enter the cell. No insulin means glucose stays in bloodstream.**

Active Transport

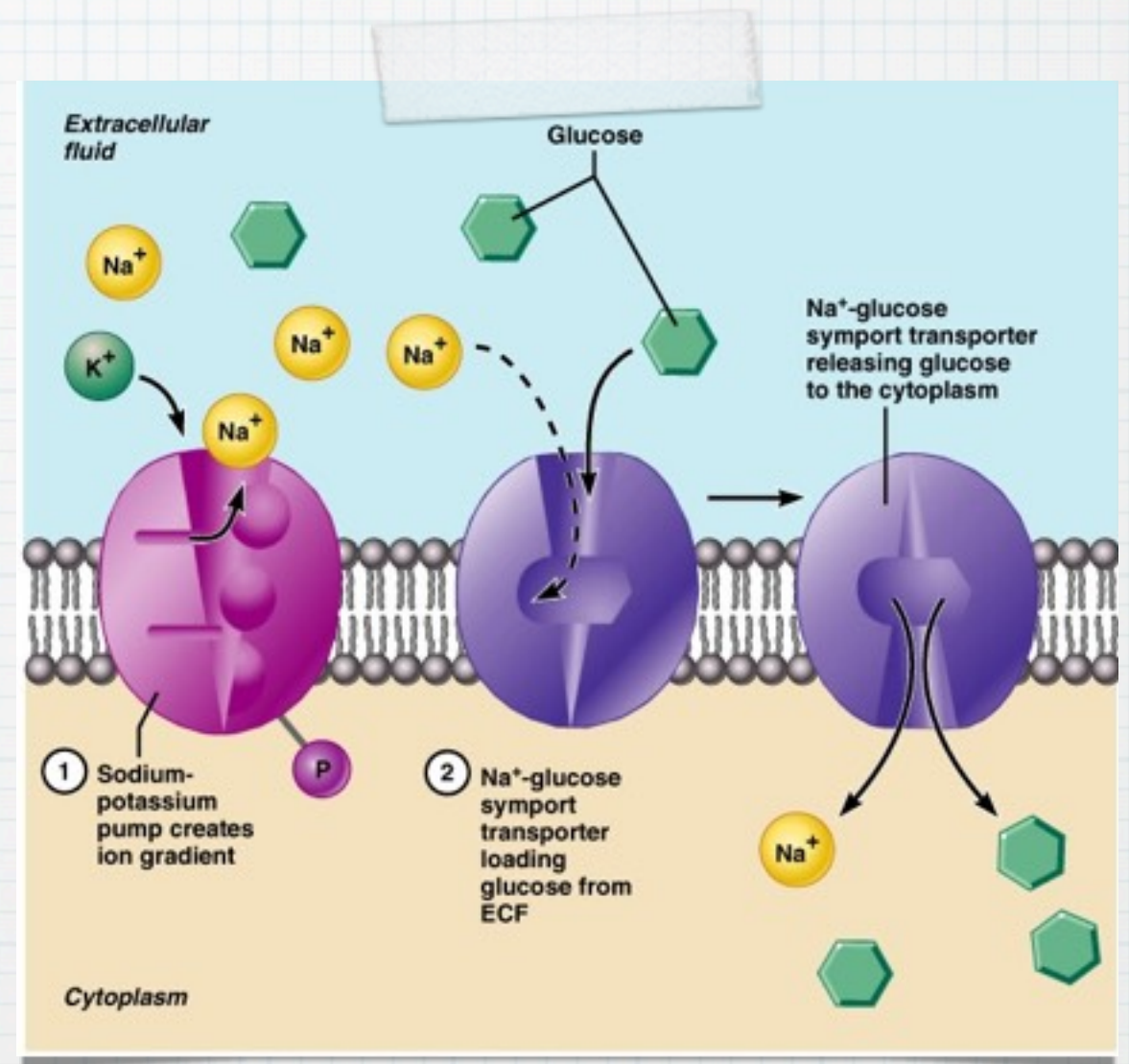
- * The movement of molecules from an area of [low] to an area of [high]
- * Against the concentration gradient



- * Requires energy - in the form of ATP (adenosine triphosphate)
- * ATP will lose a phosphate molecule to form ADP - this process releases energy that can be used by the cell



- * Also requires protein assistance
- * Process is highly selective (because of proteins)
- * Sometimes called membrane pumps



Bulk Transport

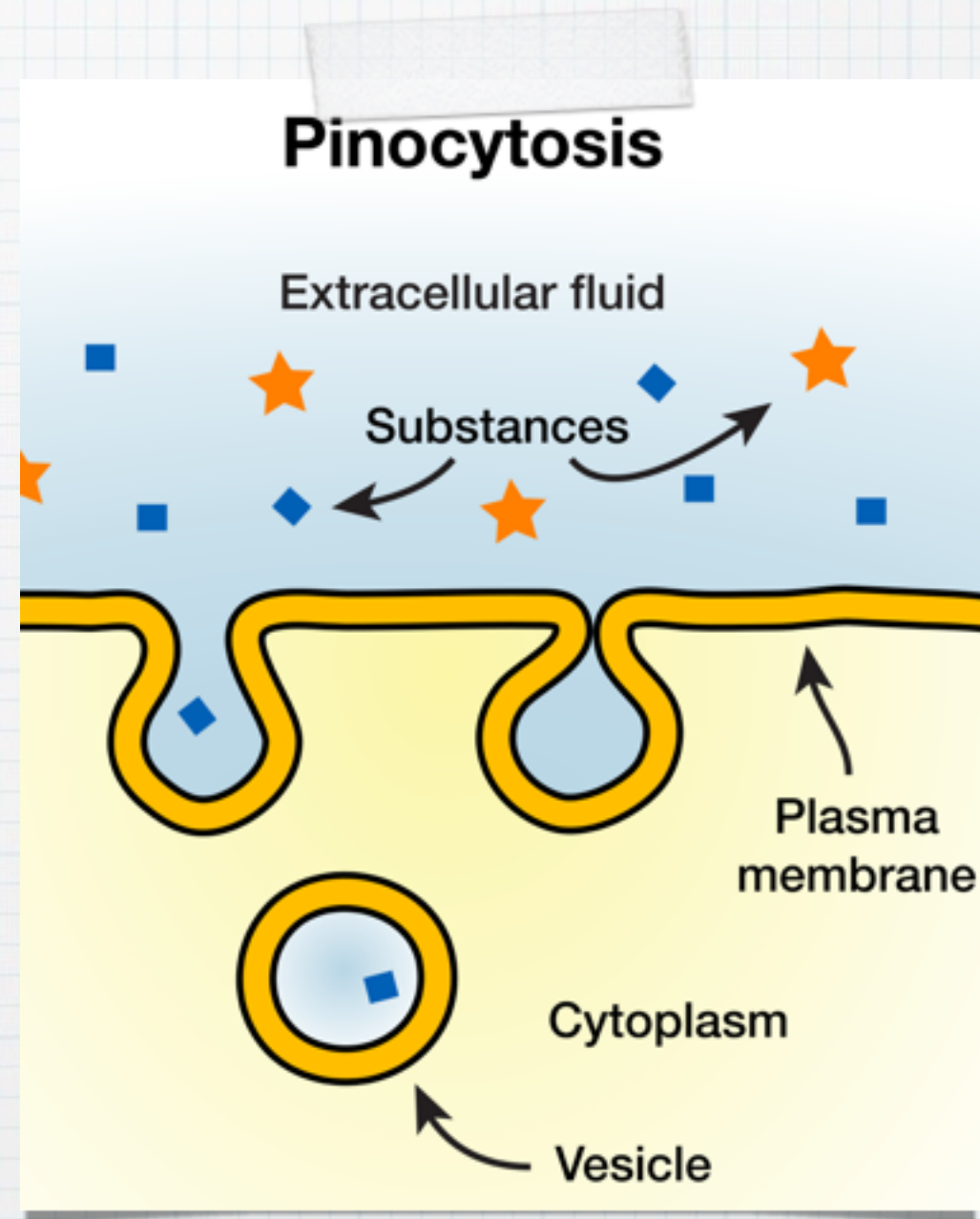
- * Used to transport proteins, hormones and polysaccharides across a cell membrane.
- * Require energy because changes the shape of the cell membrane, considered active transport
- * Two types:
 - * Endocytosis and exocytosis

Endocytosis

- * drawing a substance into a cell in a membrane bound vesicle

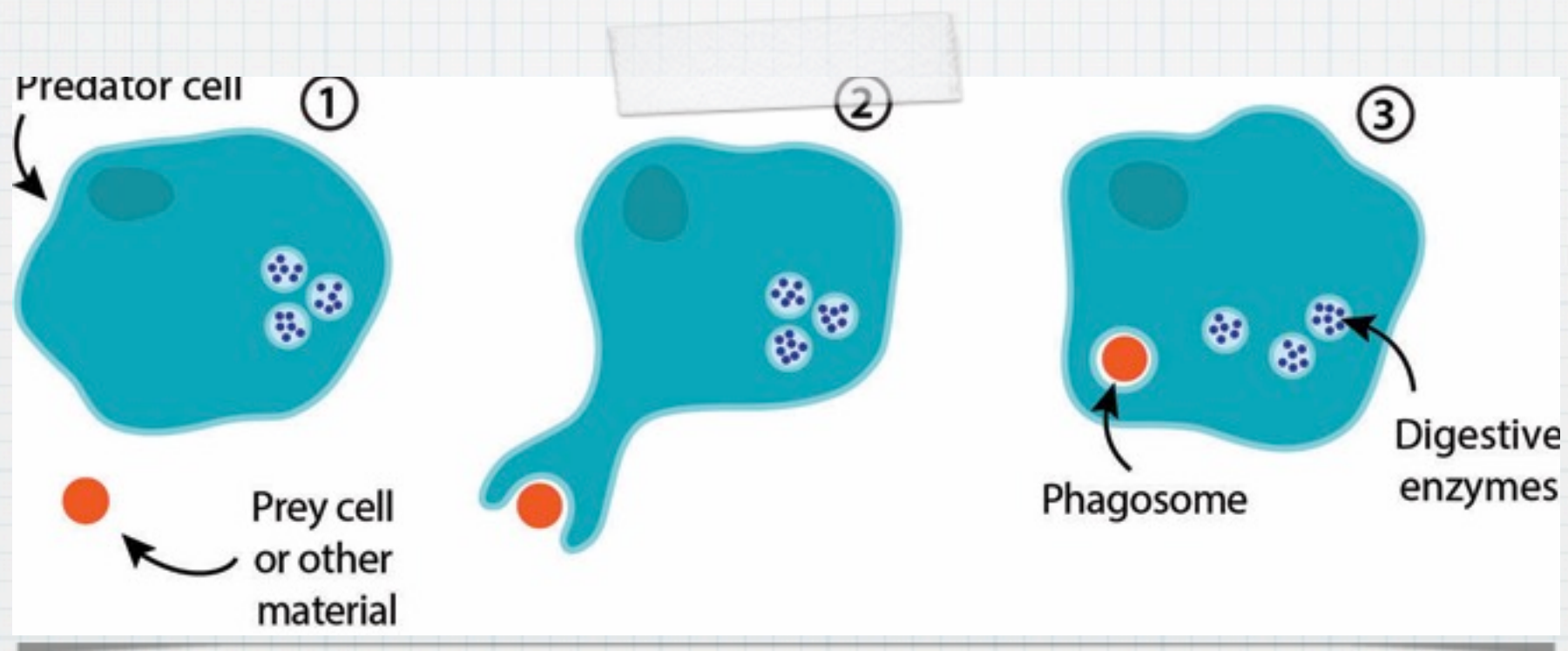
Endocytosis

- * a) Pinocytosis (cell drinking)
- * bring in liquids with invaginations (vacuole formation)
- * Used to bring cholesterol into the cell



Endocytosis

- * b) Phagocytosis (cell eating) intake of solids
- * used to kill old cells, harmful chemicals, viruses and waste in cells



Exocytosis

- * Waste materials or other products (eg. Hormones) made by the cell accumulate in a vacuole
- * The vacuole joins with the cell membrane and the contents will get expelled

