

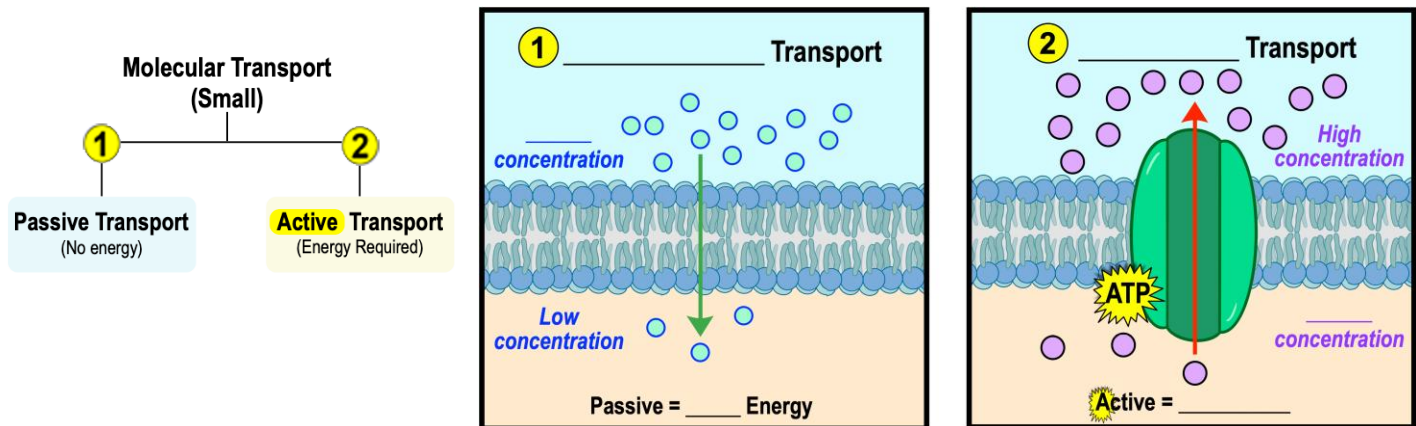
CONCEPT: PASSIVE VS. ACTIVE TRANSPORT

- _____ general types of molecular transport across *biological membranes*:

① **Passive Transport** (*no energy*): transports molecules from a _____ to _____ concentration.

② **Active Transport** (*requires energy*): transports molecules from a _____ to a _____ concentration.

EXAMPLE: Passive vs. Active Membrane Transport.



PRACTICE: Passive membrane transport processes include _____.

- Consumption of ATP for energy.
- The use of transport proteins to move a substance from low to high concentration.
- Movement of a substance down its concentration gradient.
- Movement of a substance up its concentration gradient.

PRACTICE: What is the difference between active and passive transport across a membrane?

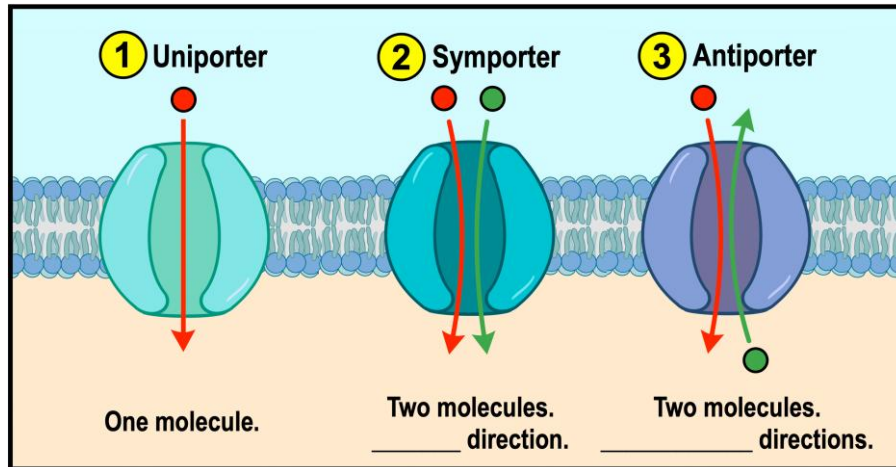
- Both active and passive transport move substances down their concentration gradients.
- Active transport is ATP dependent. Passive transport does not require energy.
- Active transport requires cell to cell communication. Passive transport does not require cell communication.
- Active transport can be performed without transport proteins while passive transport cannot.

CONCEPT: PASSIVE VS. ACTIVE TRANSPORT

Classes of Membrane Transport Proteins

- _____ types of *transport* proteins are classified according to how they operate:

- ① _____ **porters**: transport _____ molecule at a time in just _____ direction.
- ② _____ **porters**: cotransport ≥ 2 molecules at a time in the _____ direction.
- ③ _____ **porters**: cotransport ≥ 2 molecules at a time in _____ directions.



PRACTICE: A transport protein that simultaneously transports two different molecules in different directions is called:

- a) A uniporter.
- b) A symporter.
- c) An equilibrium protein.
- d) An antiporter.
- e) A simple diffuser.

PRACTICE: Which option below best describes a transporter that requires ATP to move molecules A and B out of the cell?

- a) An active antiporter.
- b) A passive antiporter.
- c) A passive symporter.
- d) An active uniporter.
- e) An active symporter.