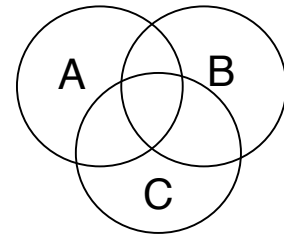


VENN DIAGRAM: COMPARING MODES OF MEMBRANE TRANSPORT



A only:

transports nonpolar molecules

molecules move directly through the phospholipid bilayer

C only:

uses protein channels

common to A and C only:

passive process

moves molecules down/with concentration gradient

requires no cellular energy

molecules move from high concentration to low

common to A, B and C:

move molecules through/across cellular membranes

transports small molecules

molecules may move into the cell

molecules may move out of the cell

B only:

molecules move against a concentration gradient

moves molecules from low concentration to high

requires the expenditure of cellular energy

active process

uses protein “pumps”

requires ATP

common to B and C only:

requires intrinsic membrane protein

transports polar molecules

transports ionic molecules

transports charged molecules

extremely specific