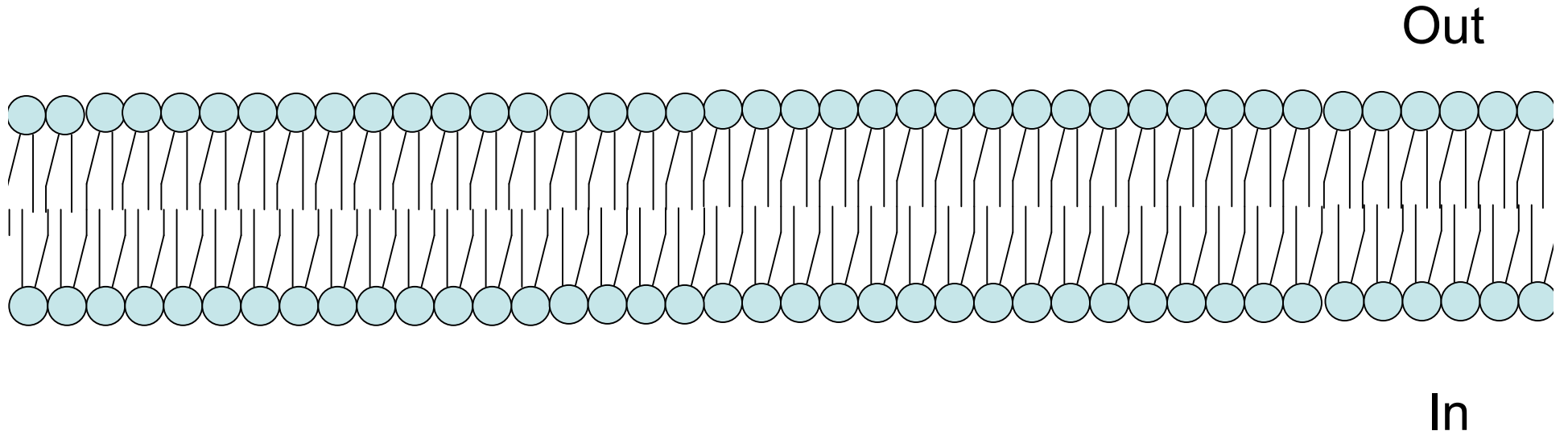


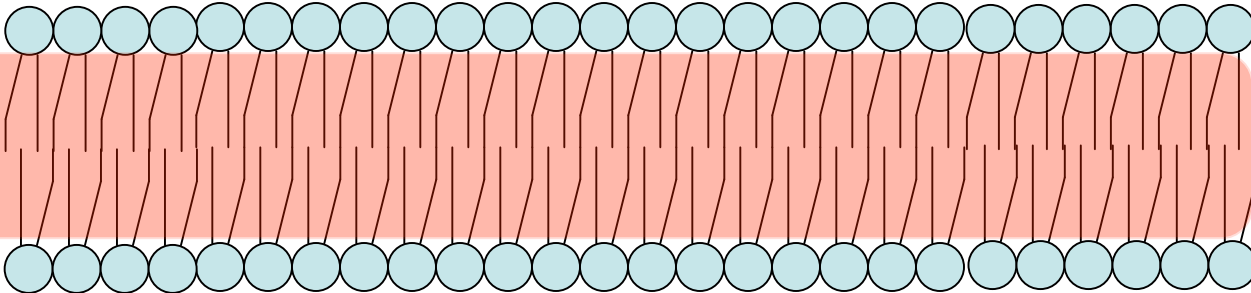
The Cell Membrane

Phospholipid Bilayer

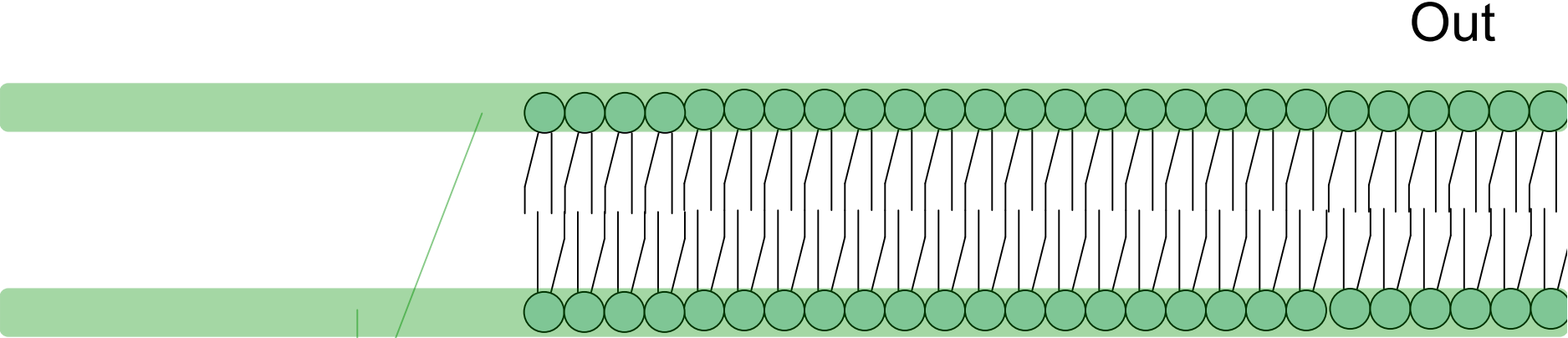


Out

Hydrophobic zone
Repels water or water-like
substances



In

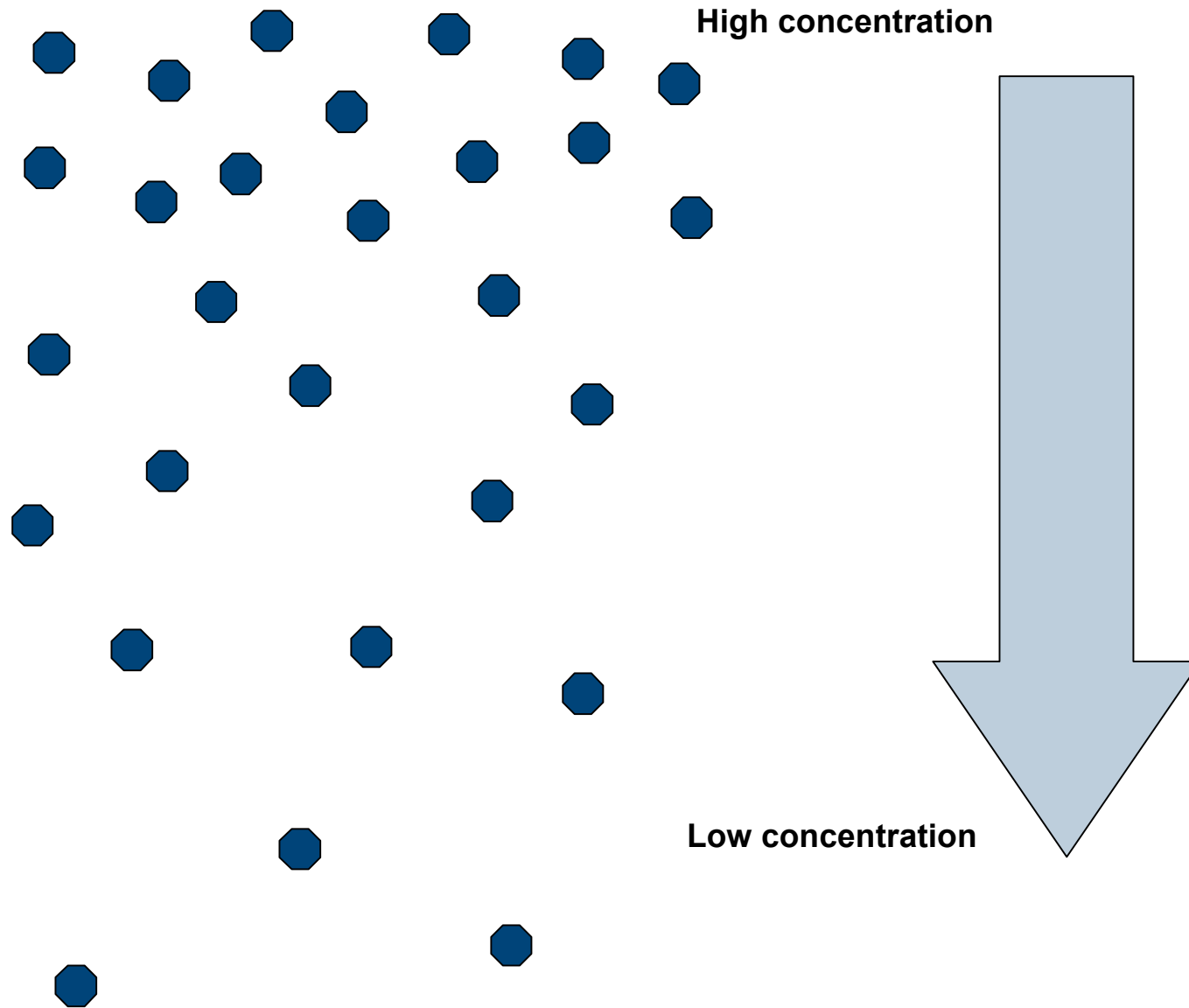


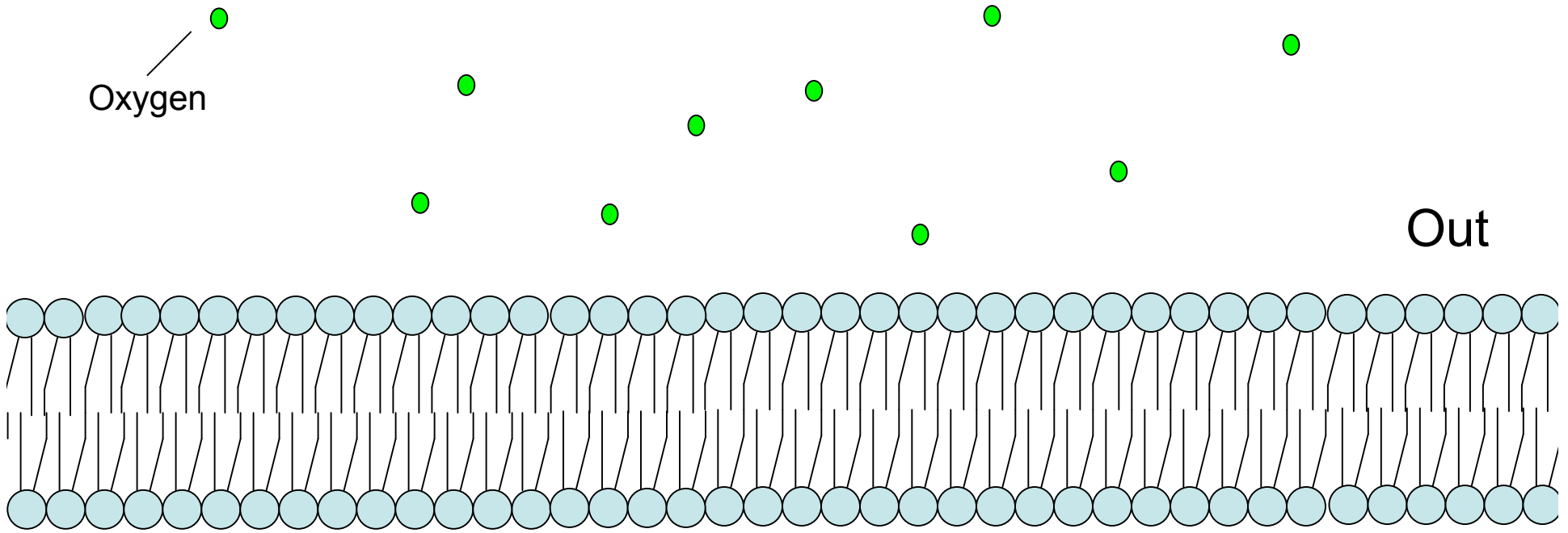
Out

In

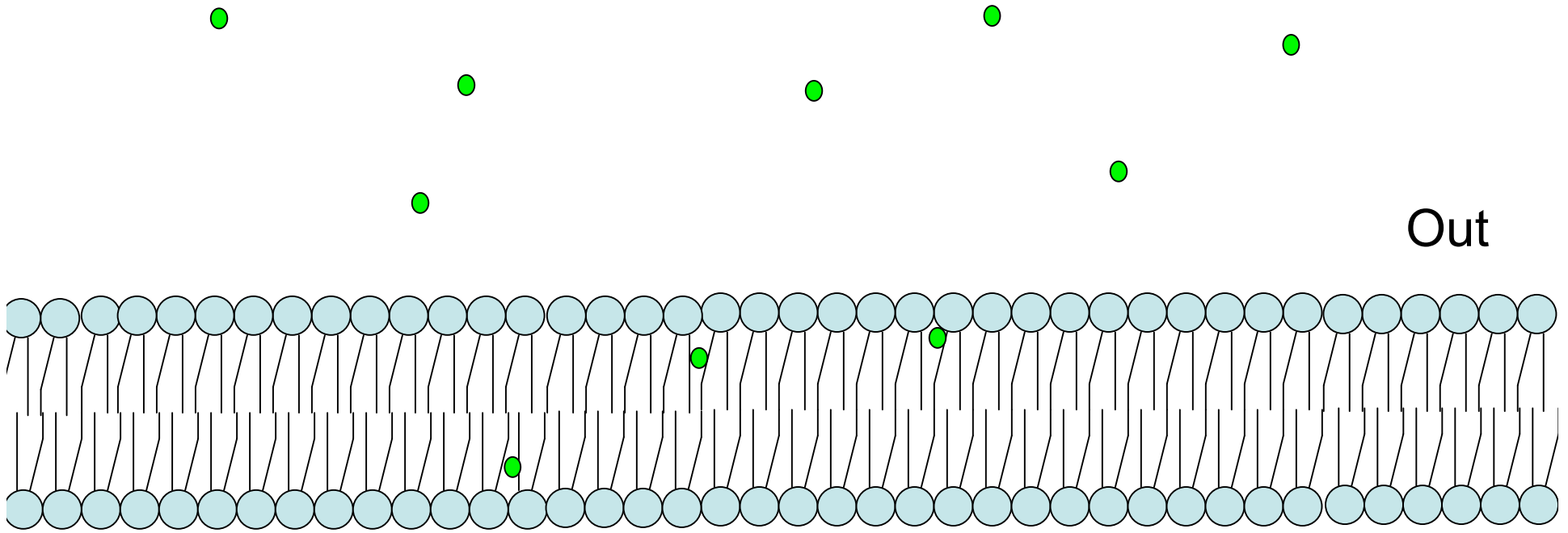
Hydrophilic zones
Attracted to water or
water-like substances

Substances tend to move down a concentration gradient

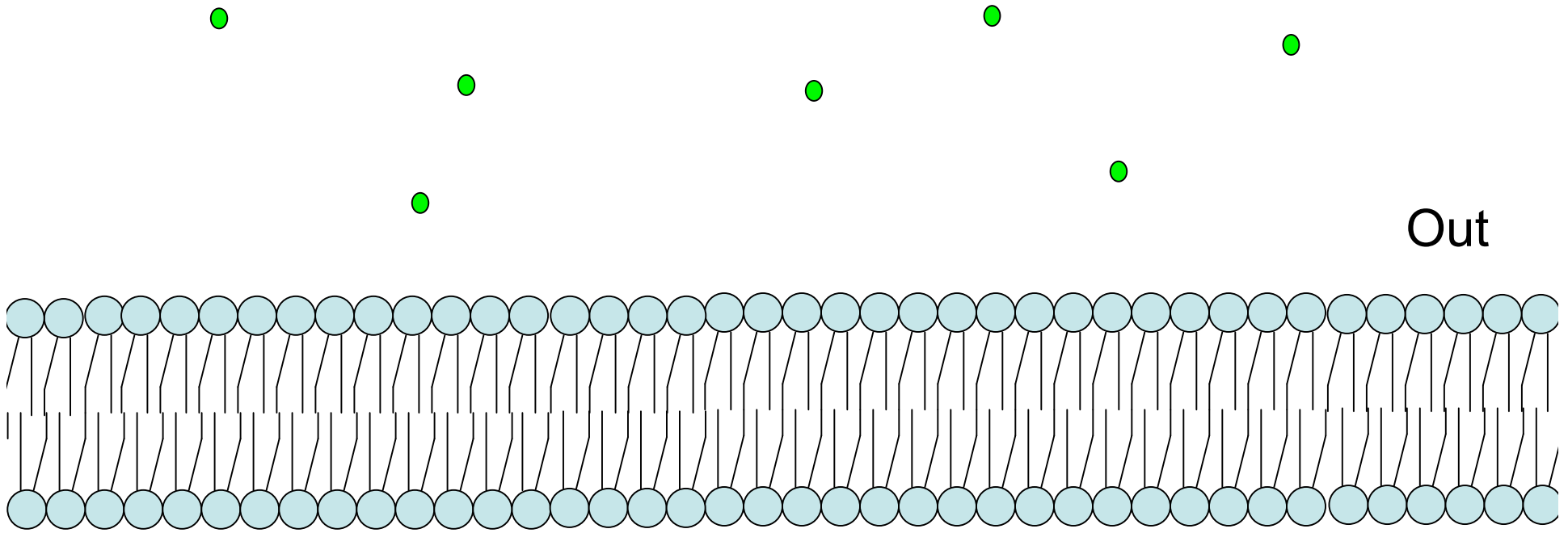




Diffusion



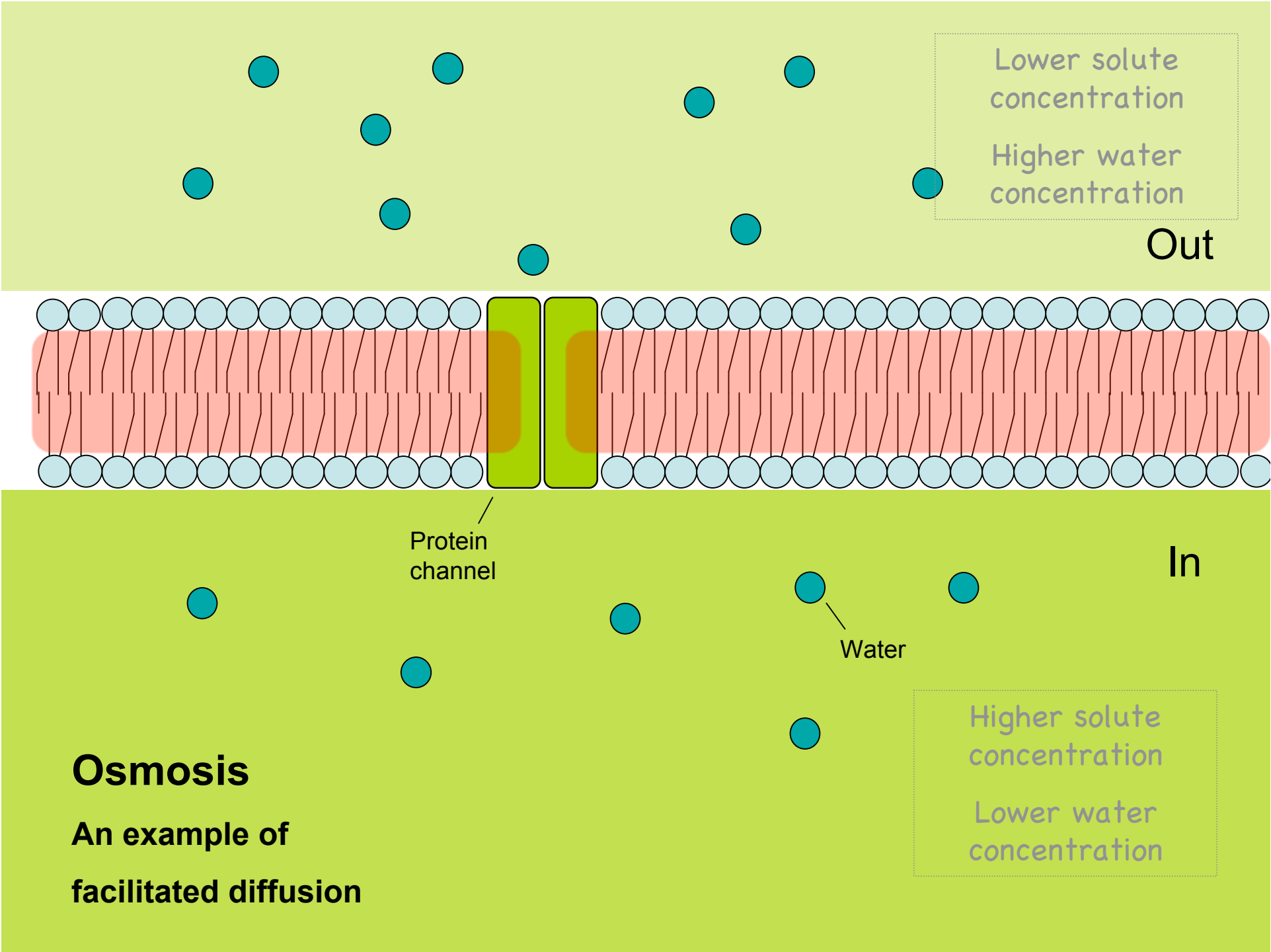
Diffusion



Out

In

Equal concentration on
both sides and equal
movement in and out =
equilibrium



Lower solute concentration

Higher water concentration

Out

Protein channel

Water

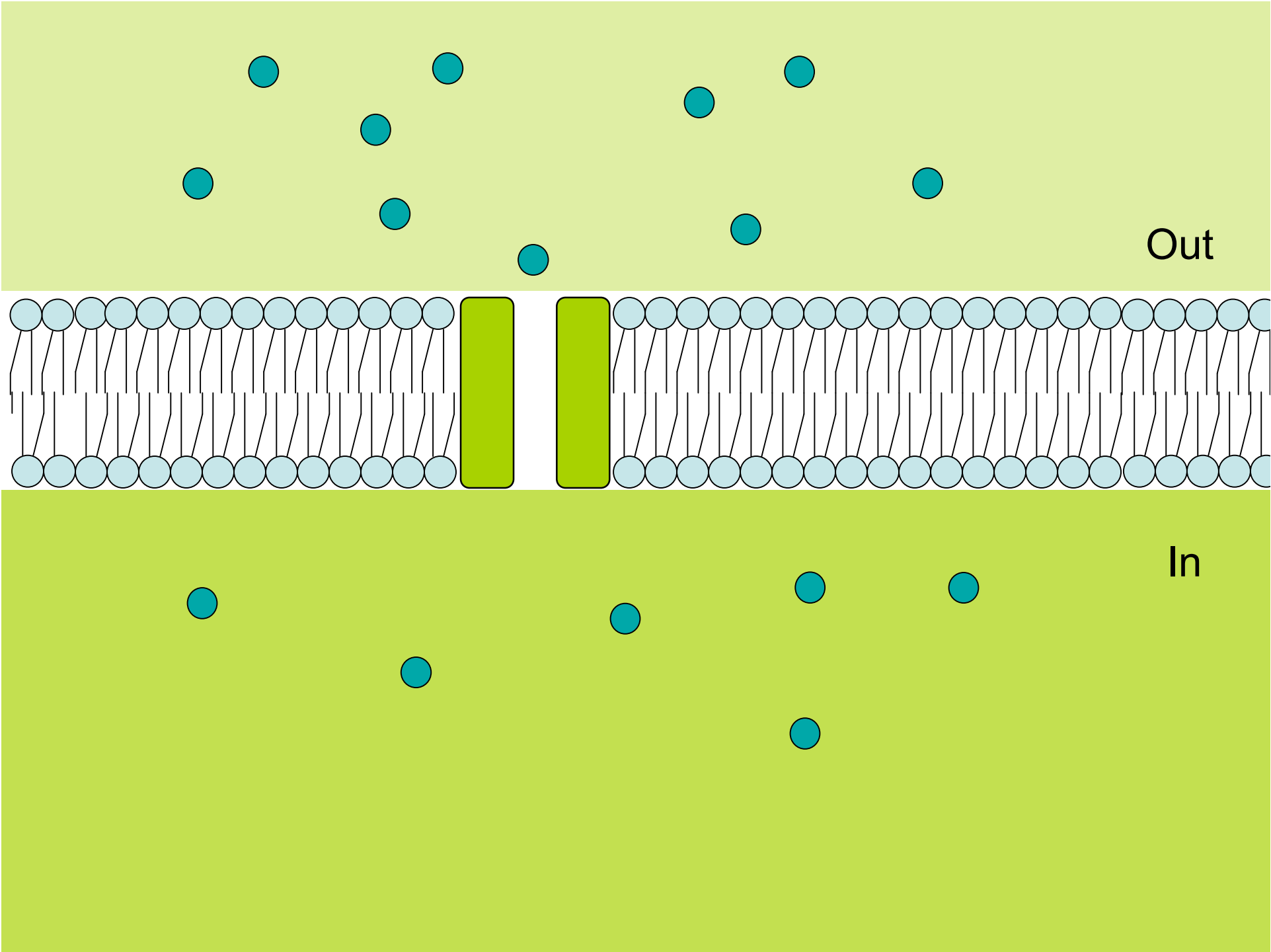
In

Higher solute concentration

Lower water concentration

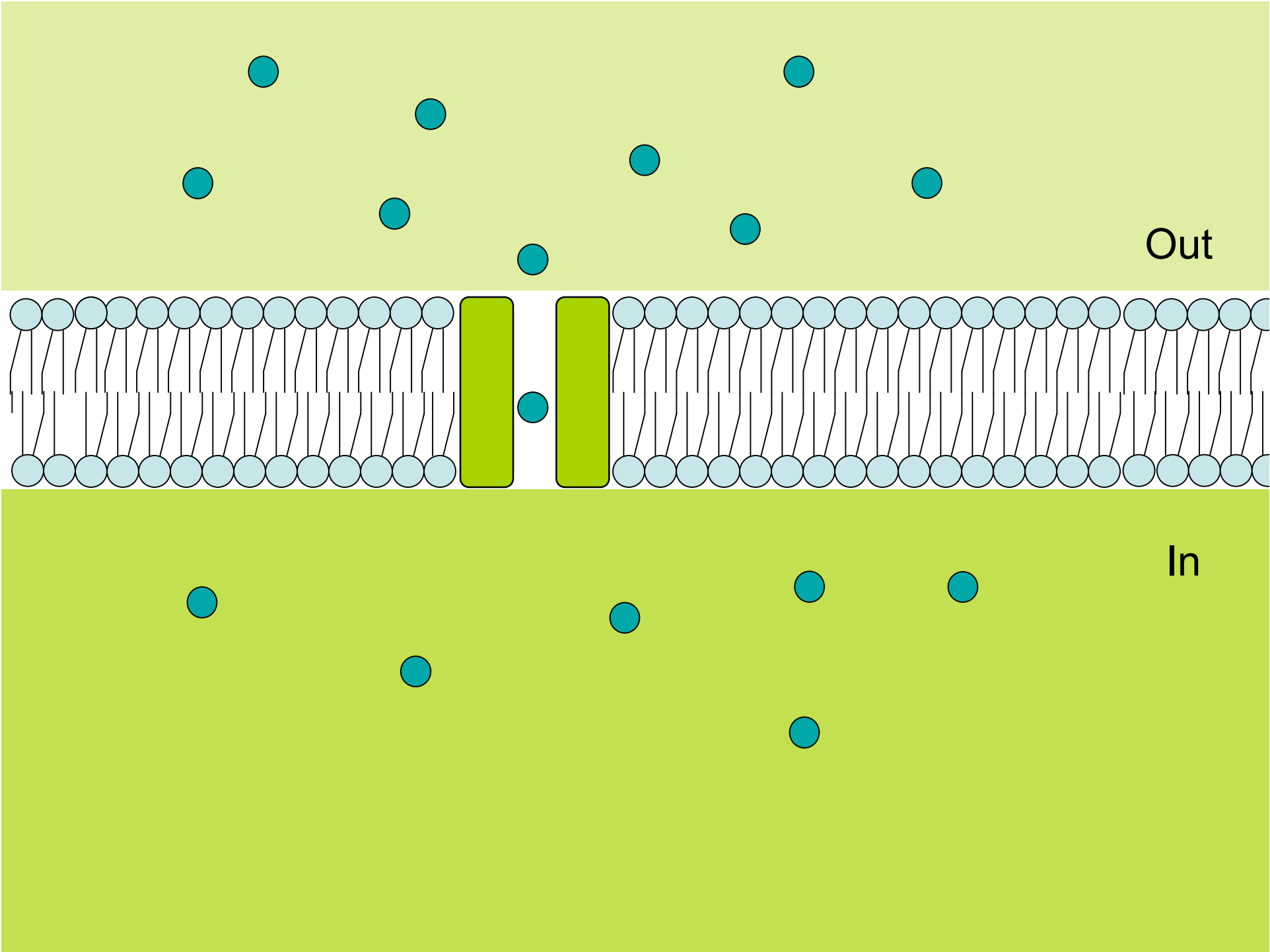
Osmosis

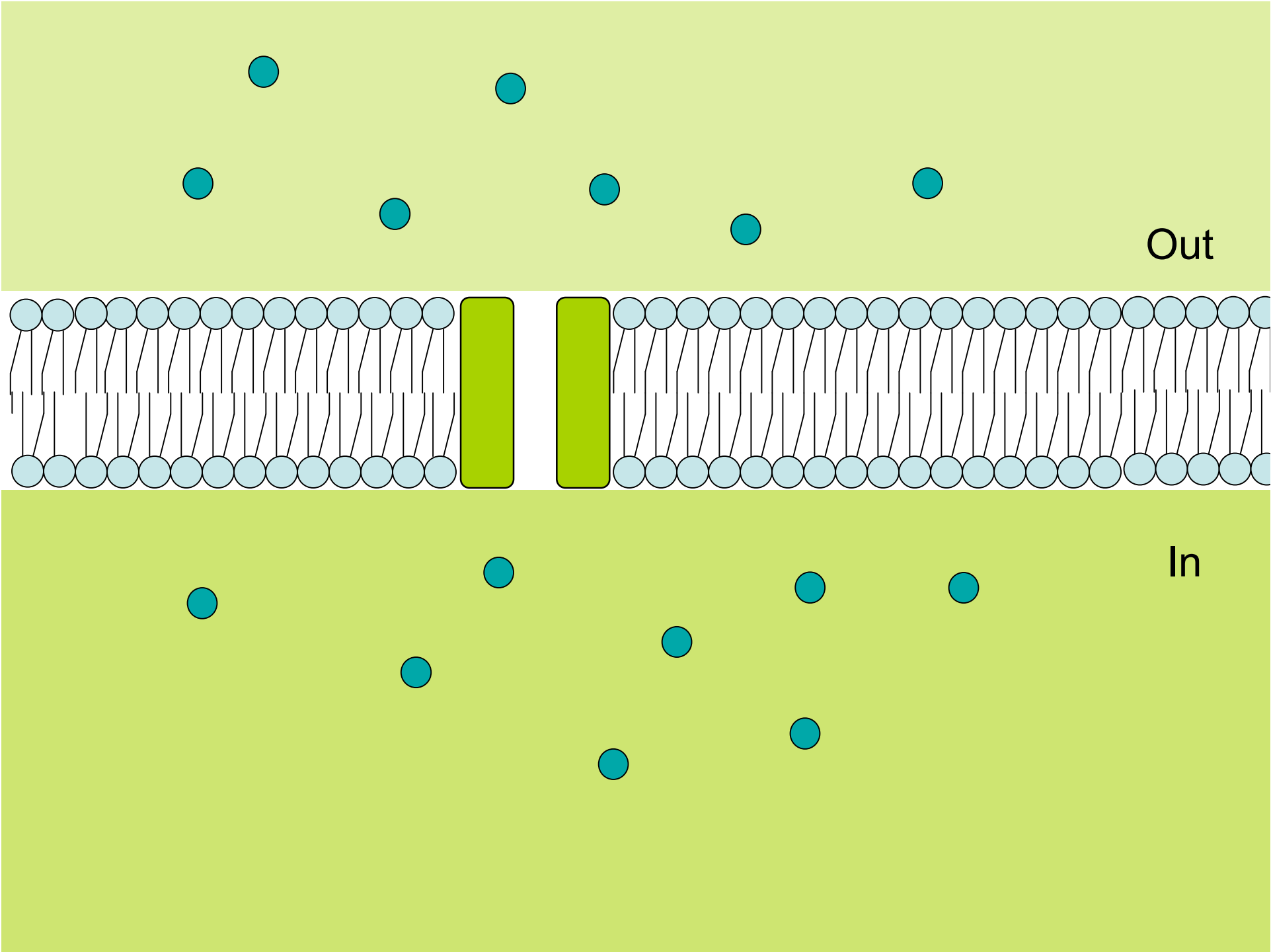
An example of facilitated diffusion



Out

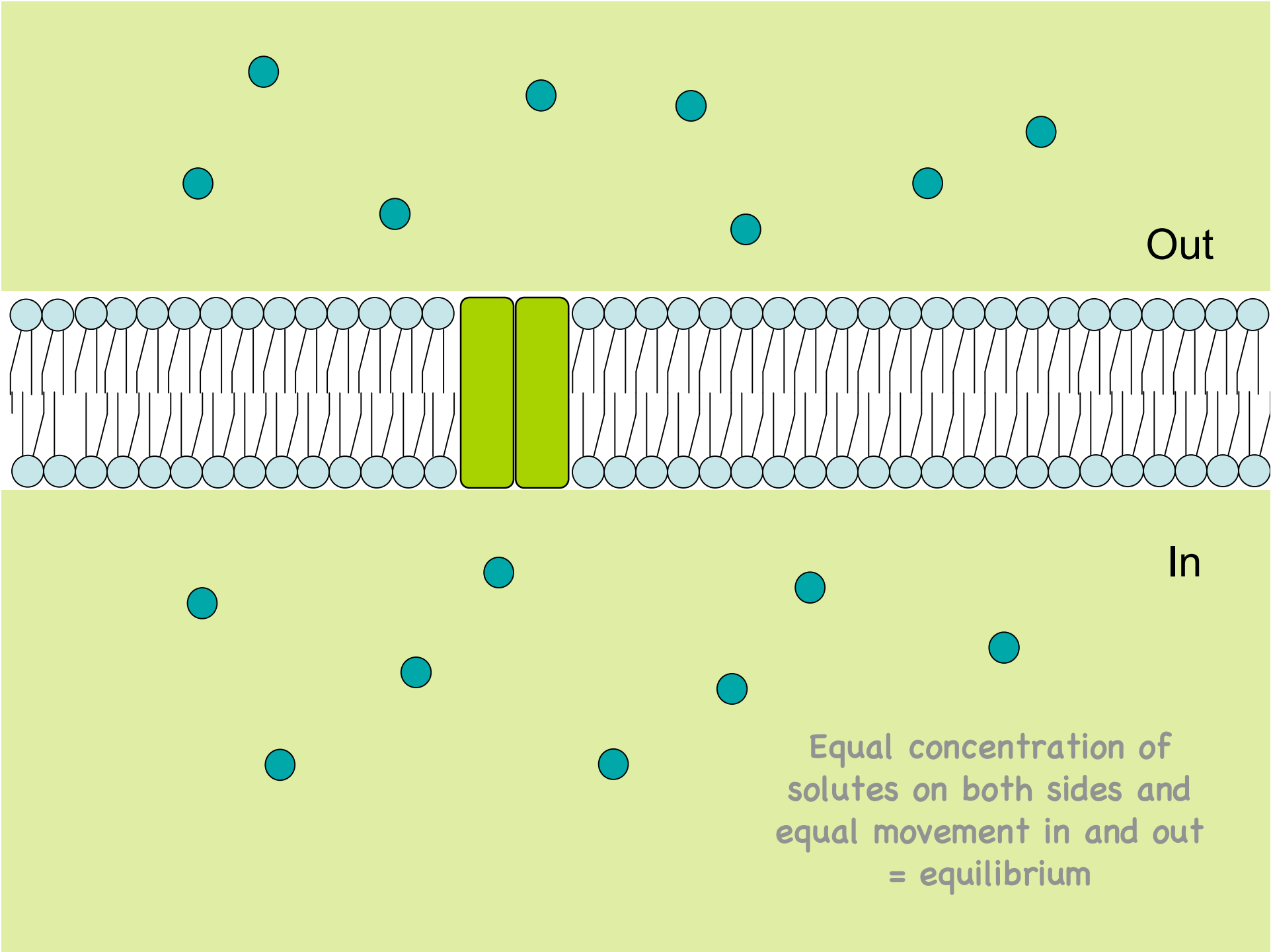
In





Out

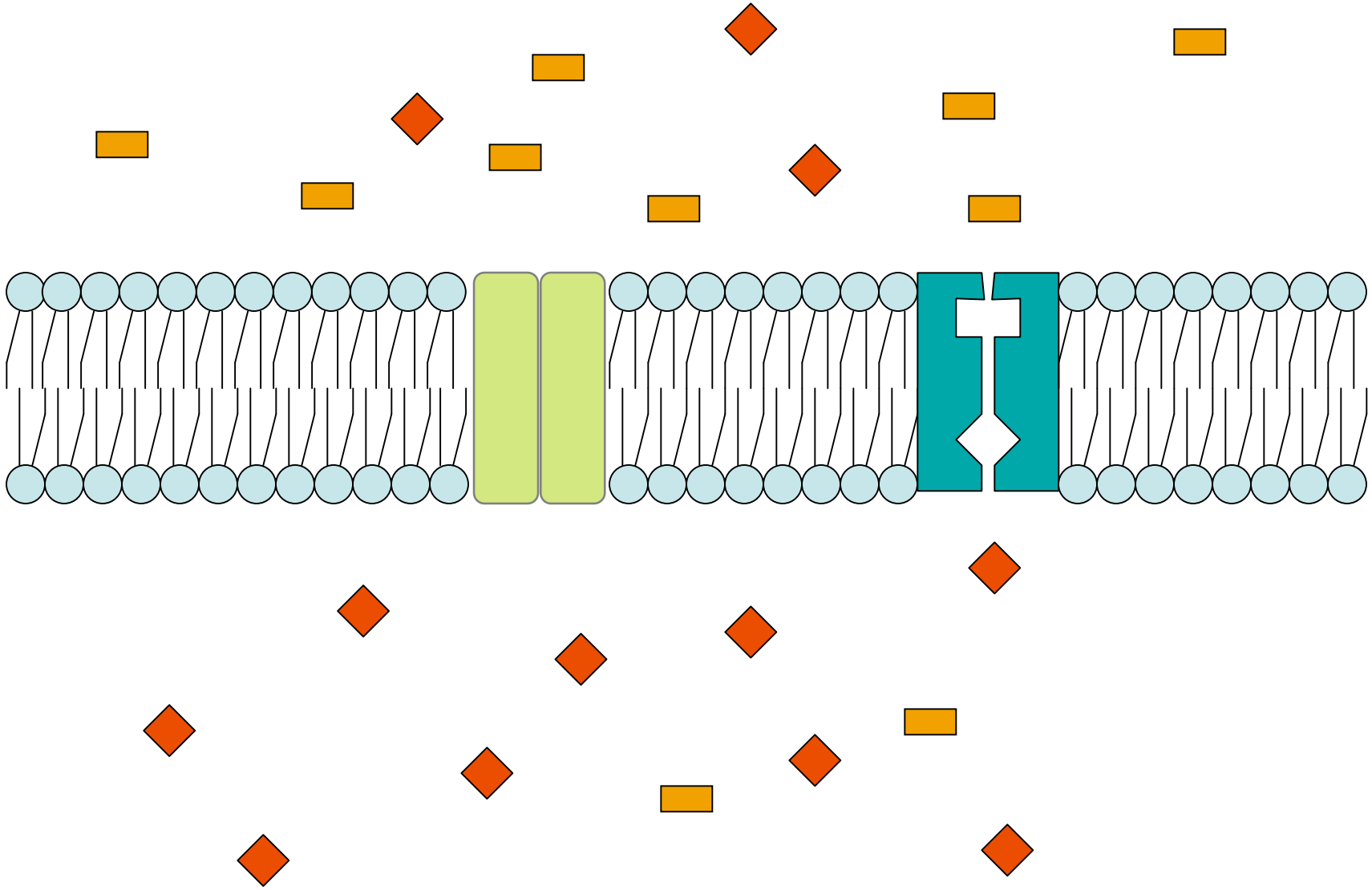
In



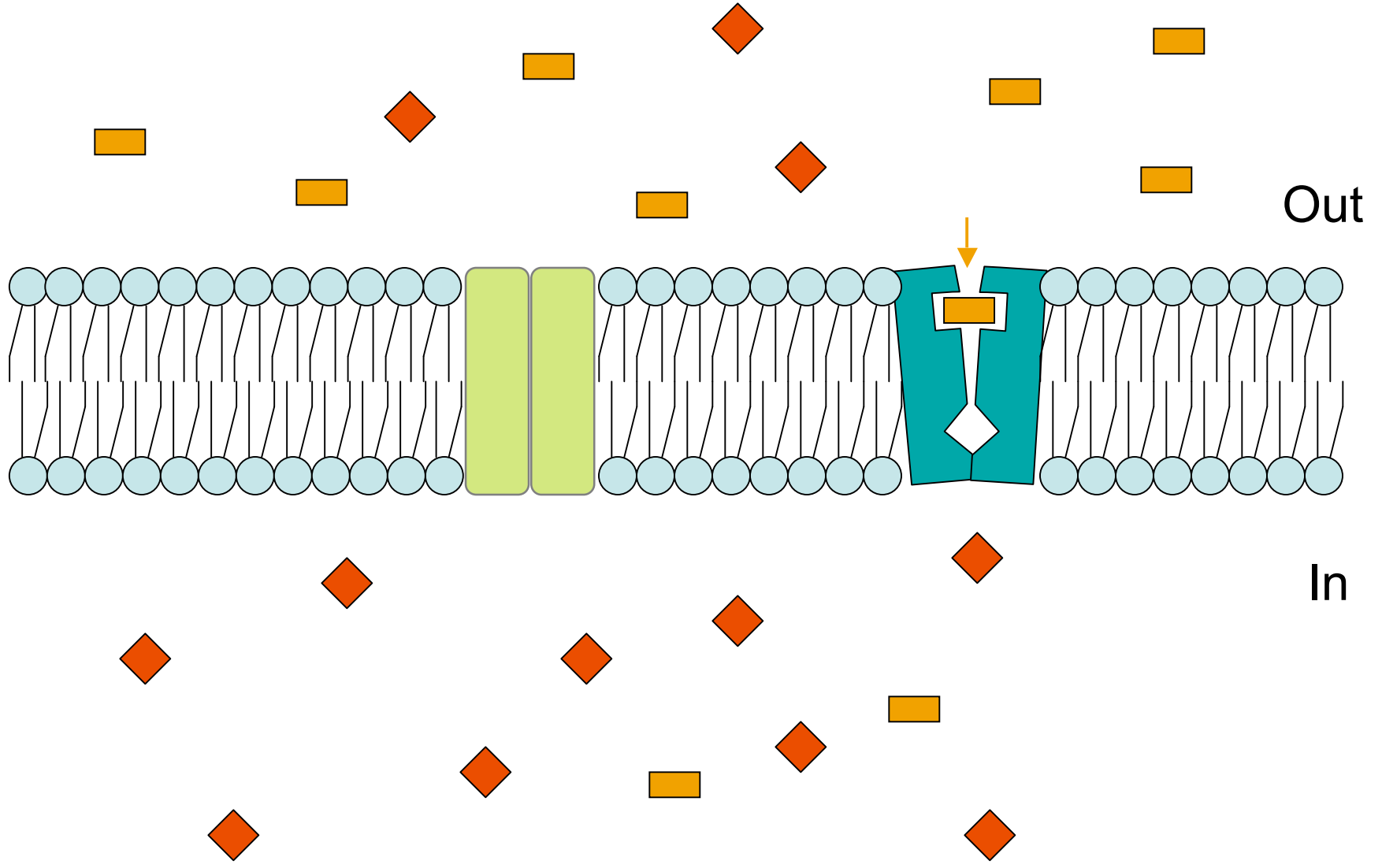
Out

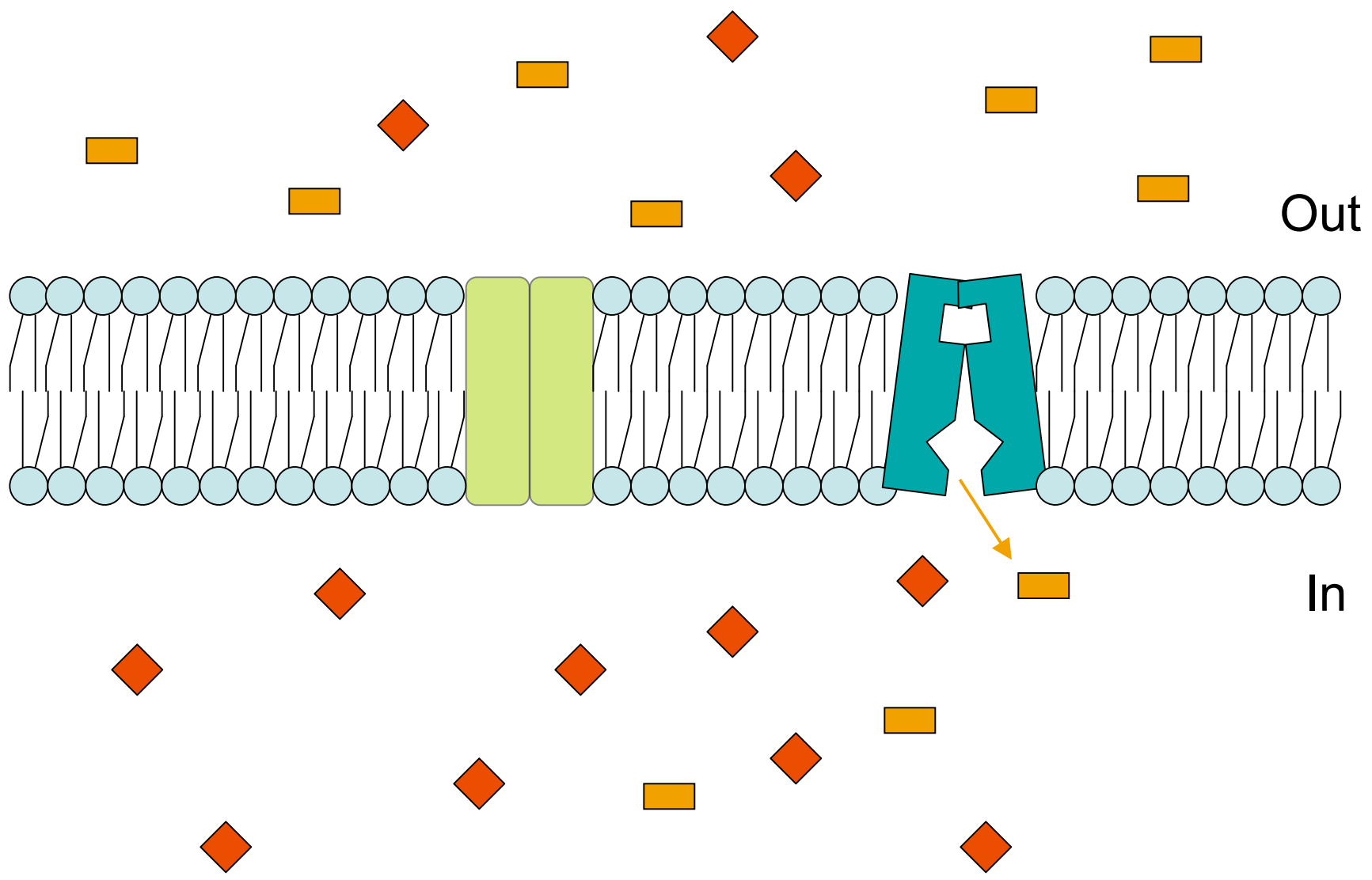
In

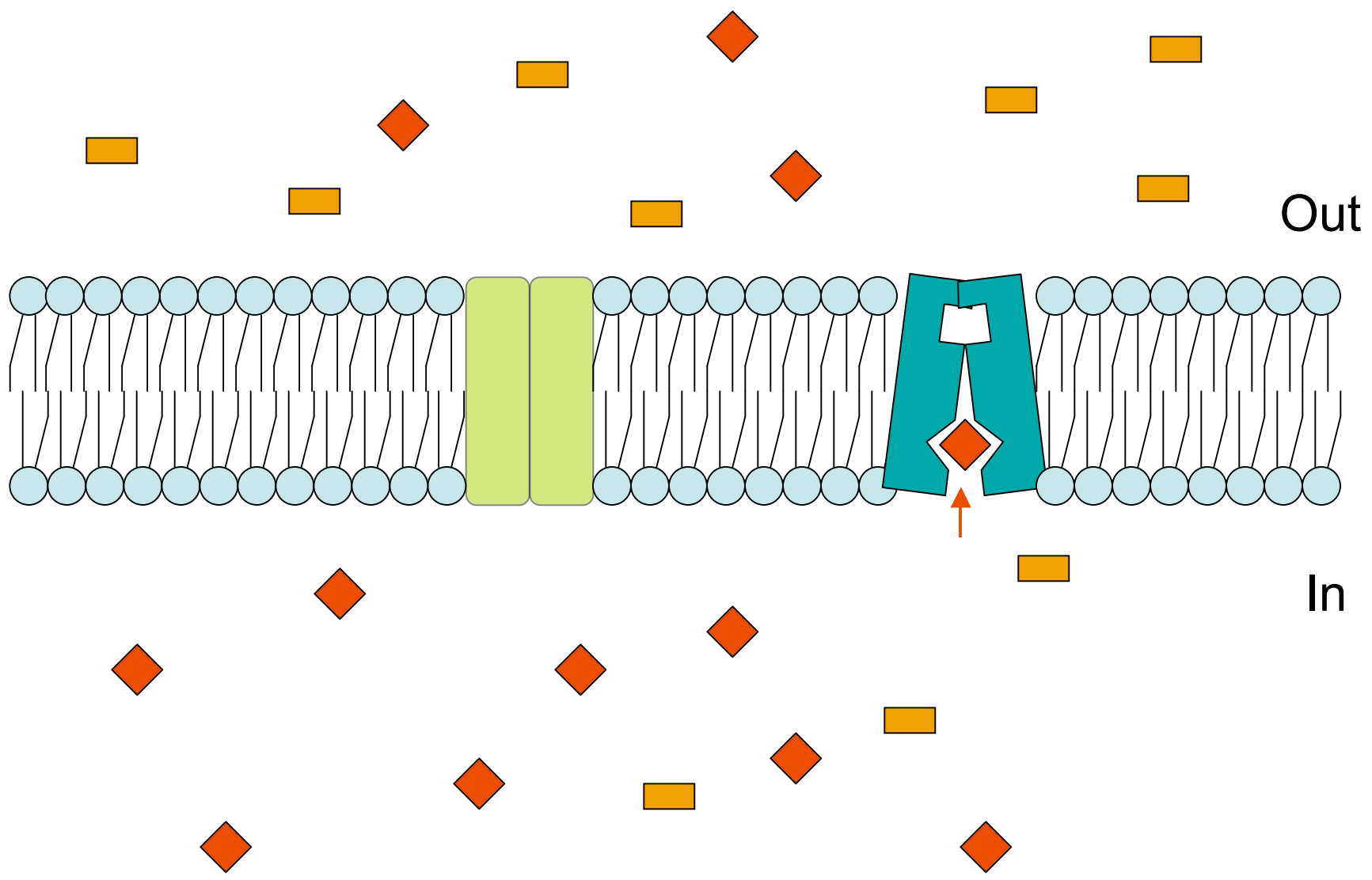
Equal concentration of solutes on both sides and equal movement in and out = equilibrium



Facilitated diffusion

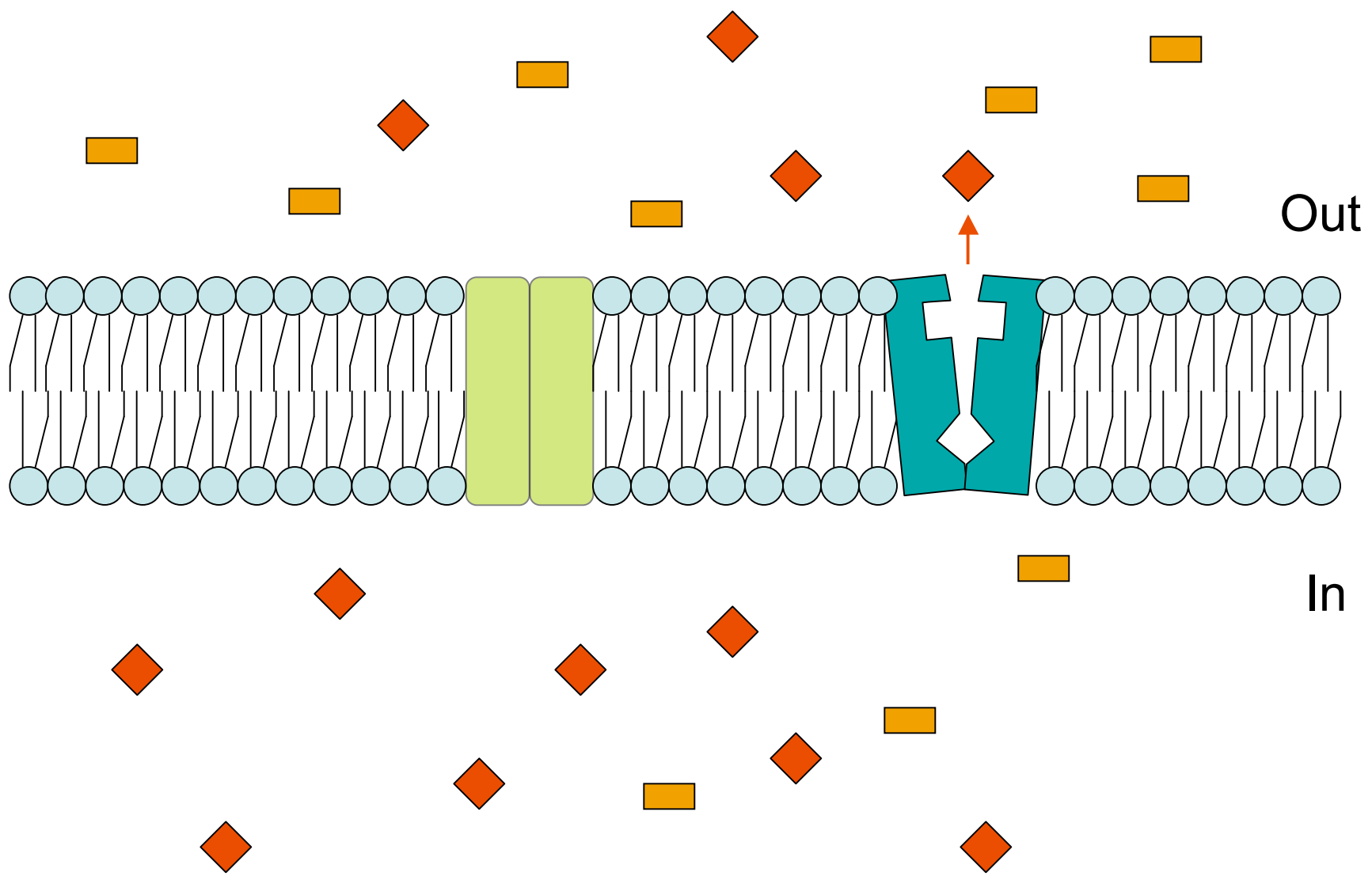


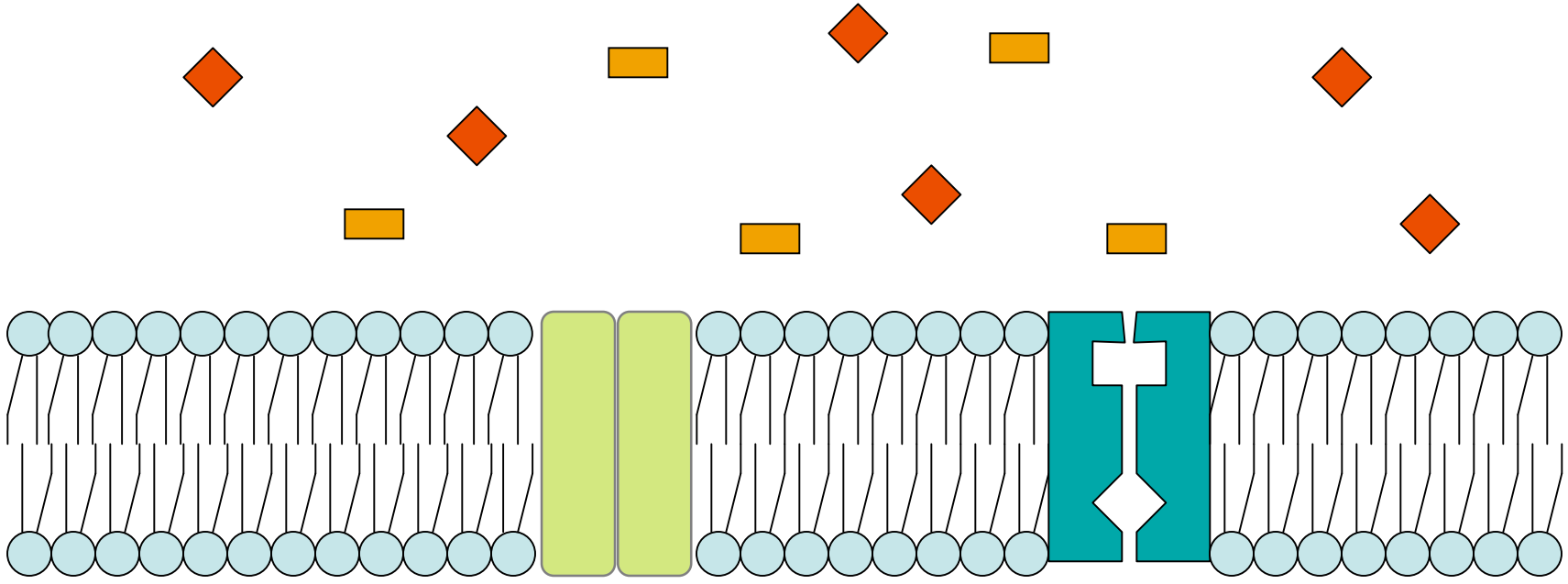




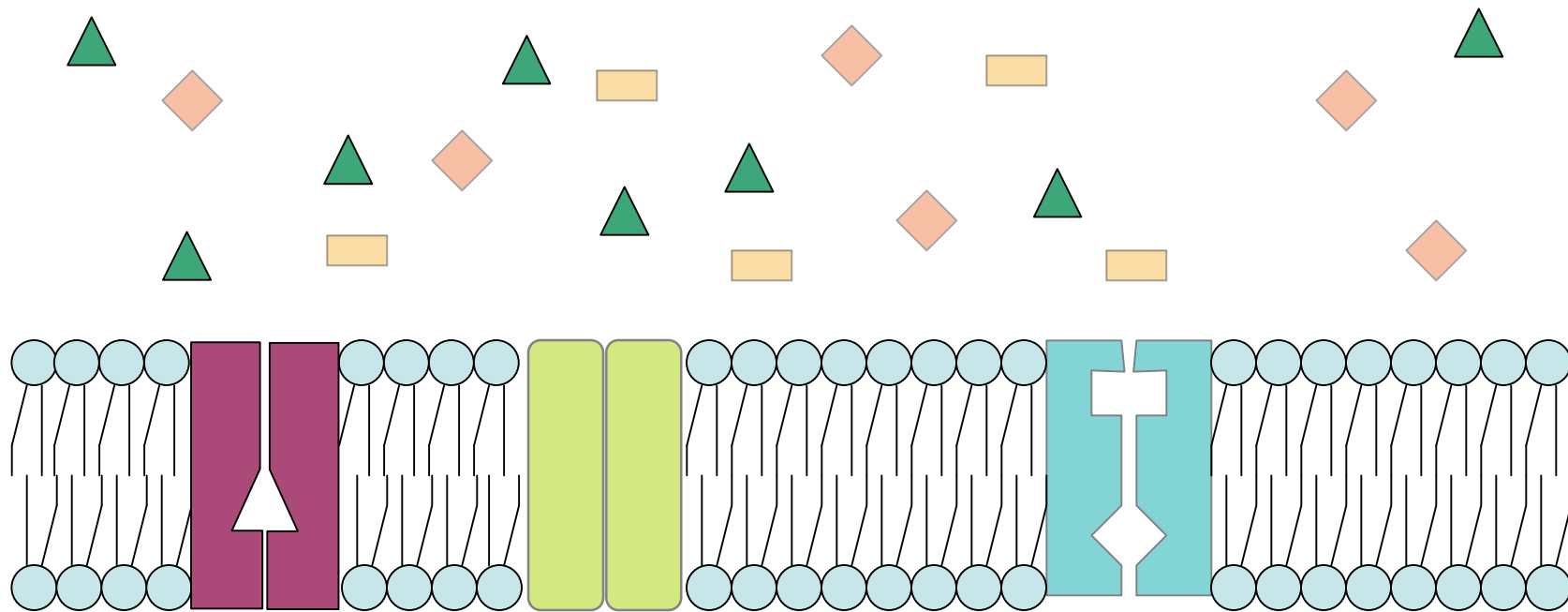
Out

In

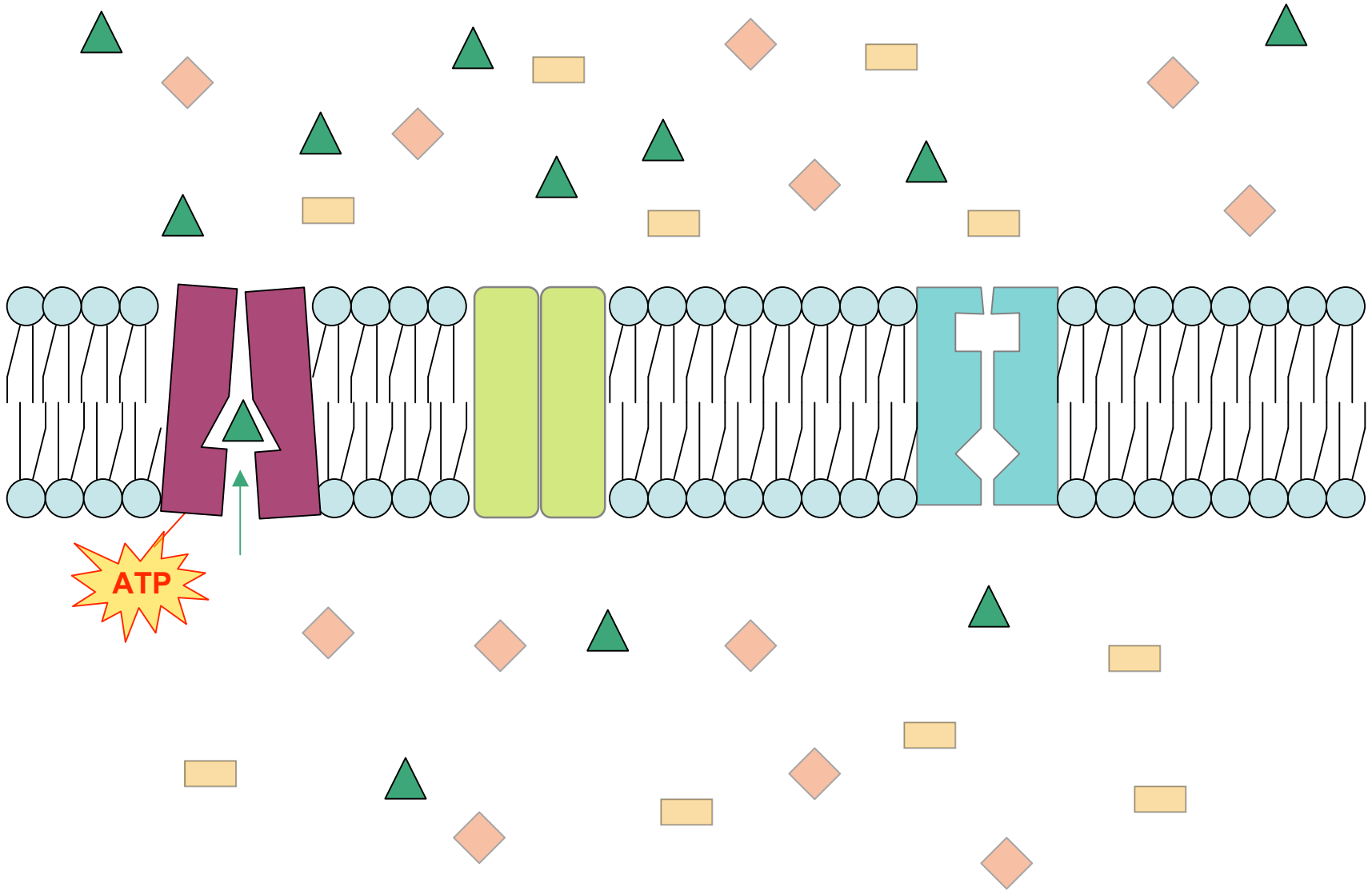





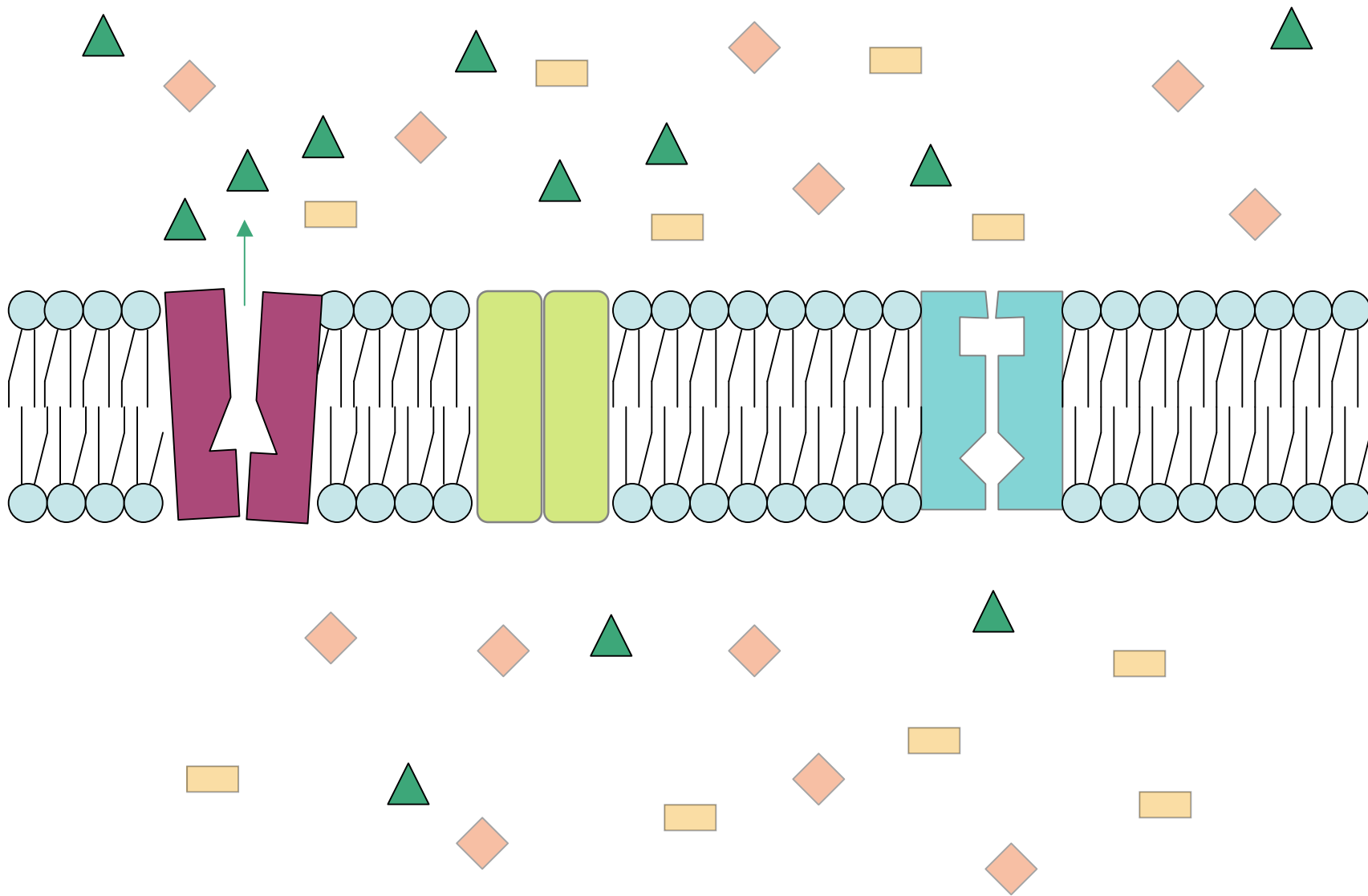
Concentration of each solute is the same on both sides and equal movement in and out = equilibrium

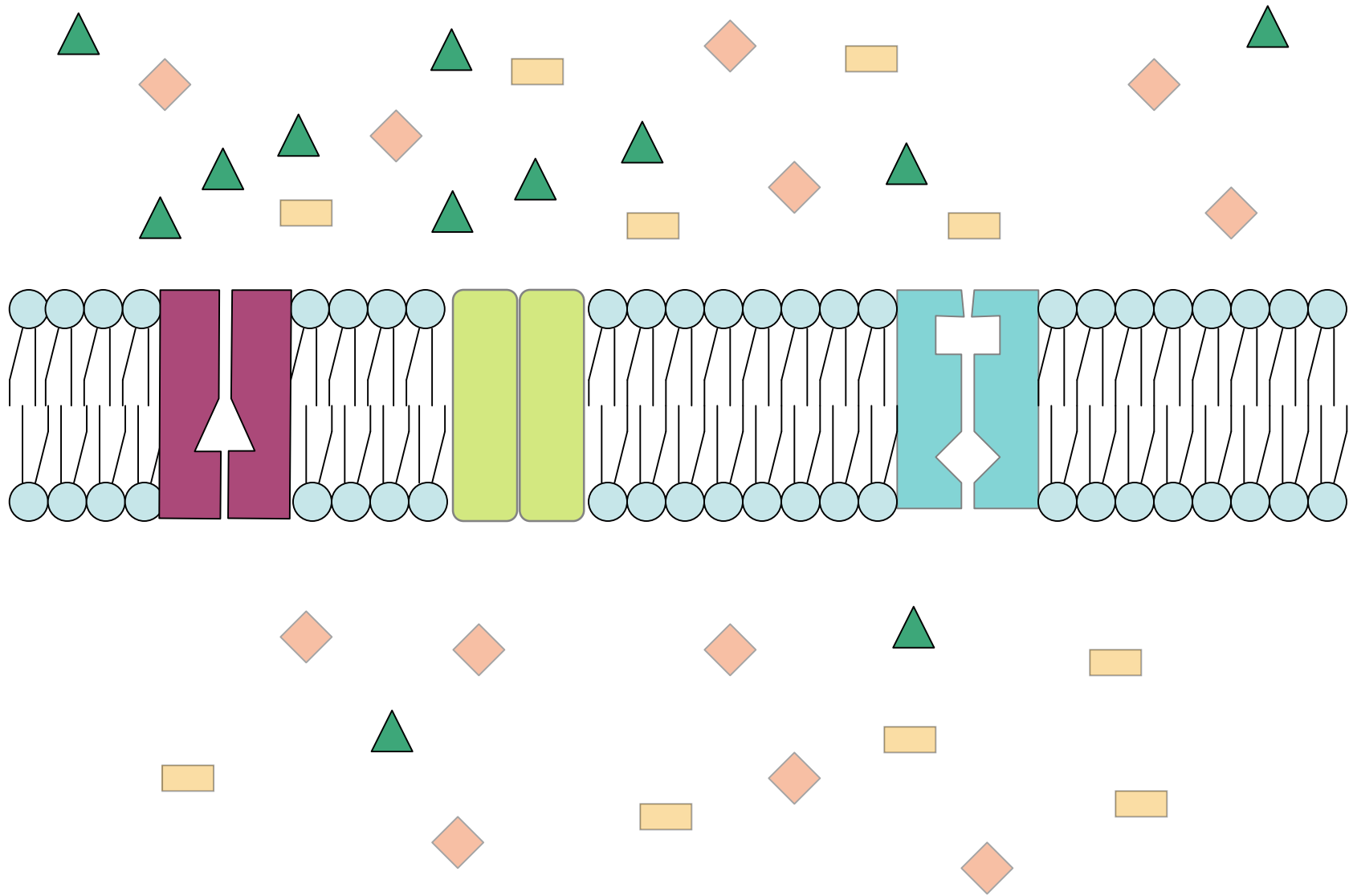


Active Transport



 = energy





Concentration of solute is NOT the same on both sides