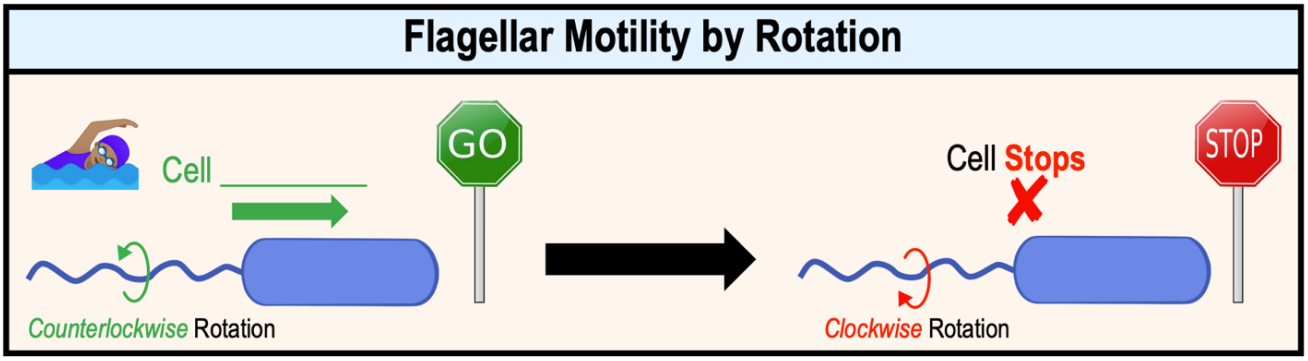
CONCEPT: PROKARYOTIC FLAGELLAR MOVEMENT

●*Recall:* **motility** is the ability for an organism to _____ on its own.

●_____ or **Flagellar Motility:** the process of cell movement powered by rotation of *flagella*.

□ When flagella start to rotate in the _____ direction, the cell *stops* swimming.

EXAMPLE: Rotational direction of the flagellum controls the swimming motility of a monotrichous cell.



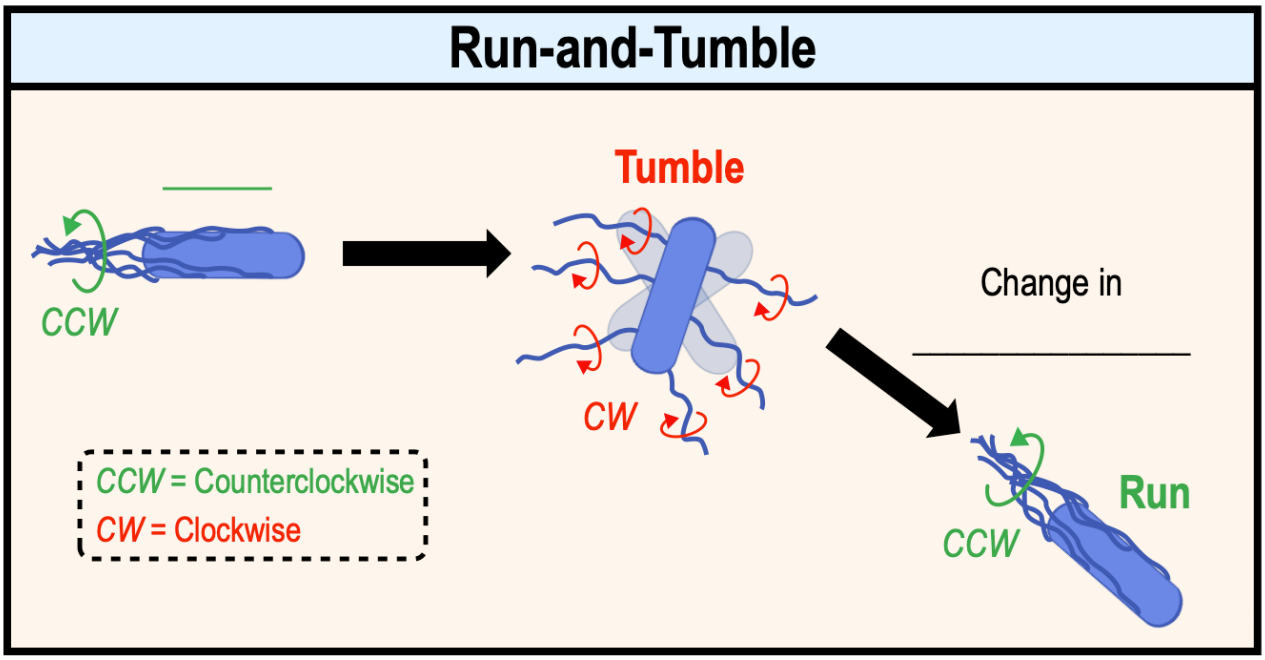
Runs and Tumbles

●A swimming cell typically moves in a pattern of stop-and-go repeats called _____ & *tumbles*.

1) Run: a _____ swimming movement of the cell as the flagella rotate.

2) _____**:** random, abrupt change in direction as the flagella rotate in the *opposite* direction.

EXAMPLE: The Run-and-Tumble method of swimming motility by a peritrichous bacterial cell.



●Like all other motors, rotation of the flagella requires _____ in the form of a *Proton Motive Force (PMF)*.

CONCEPT: PROKARYOTIC FLAGELLAR MOVEMENT

PRACTICE: Movement in bacteria

a) Is directly to or away from a stimulus.
b) Relies on the beating of cilia.
c) Is often referred to as run and tumble.
d) May involve pili.
e) Includes many types of movement that utilize pili and flagella.

PRACTICE: "Tumbles" and straight-line "runs" are associated with:

a) The action of fimbriae.
b) How a pilus transfers DNA.
c) Flagellar motility.
d) Twitching motility.
e) None of the above.

PRACTICE: A bacteria can rotate its flagellum clockwise or counterclockwise. If the bacterial cell wants to stop swimming, which direction will it rotate its flagellum?

a) Clockwise.
b) Counterclockwise.
c) To stop moving the bacterium will not rotate its flagellum at all.