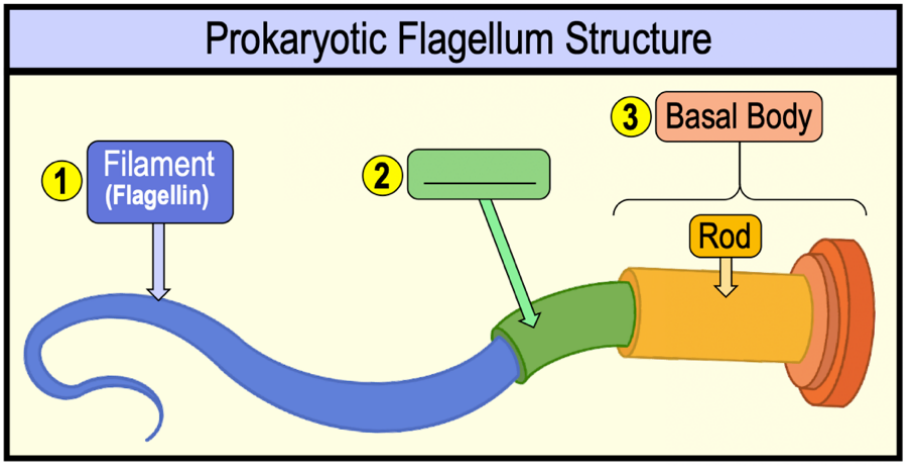
CONCEPT: PROKARYOTIC FLAGELLAR STRUCTURE

●A flagellum consists of ____ parts:

1) **Filament:** primary component of the flagellum made of the globular protein _____.

2) **Hook:** a flexible curved protein that connects the _____ to the *basal body.*

3) _____ **Body:** component *embedded* in membrane(s) of the cell envelope by a series of protein rings.

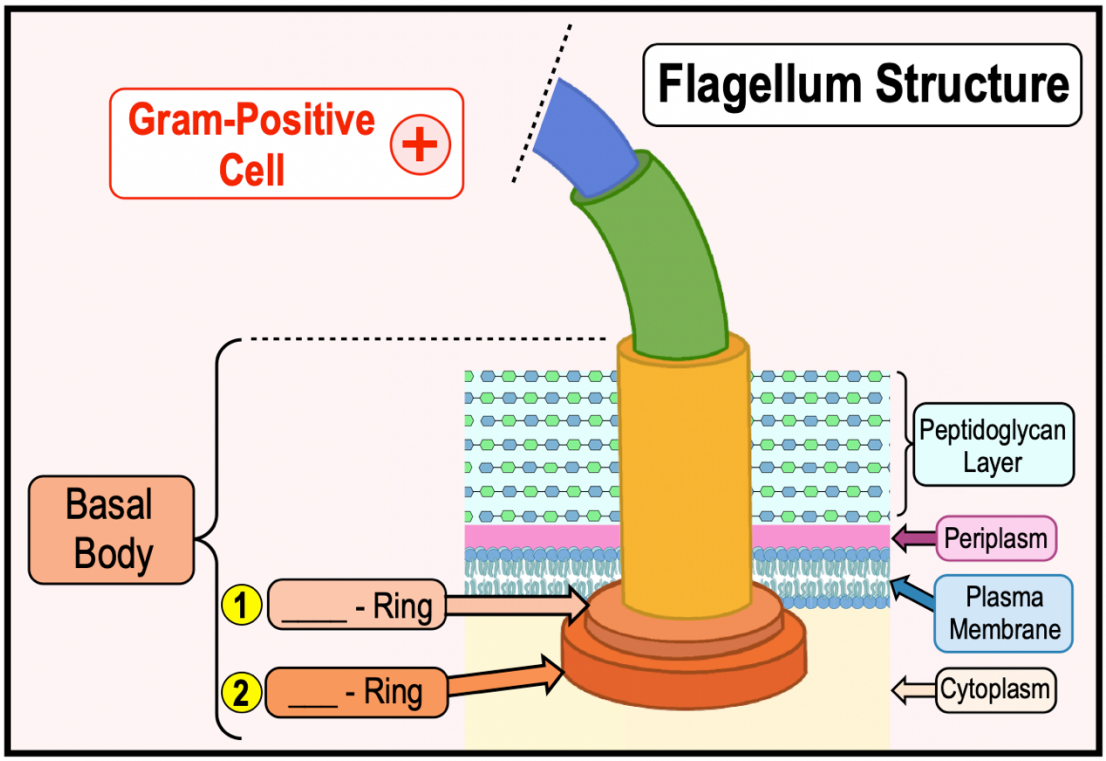


PRACTICE: Which of the following is NOT a component of bacterial flagella?

a) Flagellin b) Basal body. c) Tubulin. d) Filament. e) Hook.

Structure of Gram-Positive Basal Body

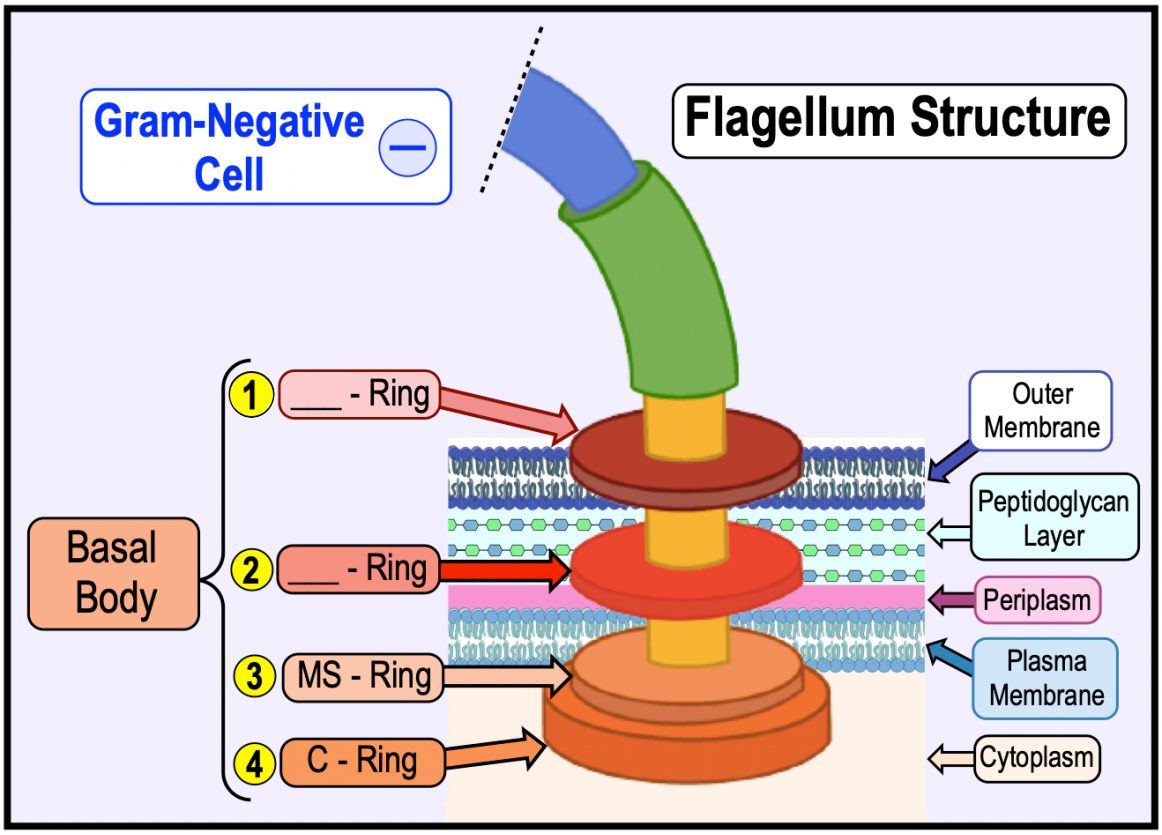
●Basal bodies of gram-*positive* cells consist of ____ complex protein rings:



CONCEPT: PROKARYOTIC FLAGELLAR STRUCTURE

Structure of Gram-Negative Basal Body

●Because of the additional outer membrane, gram-negative cell basal bodies have ____ protein rings:



PRACTICE: Which of the following is NOT a ring in the gram-negative cell basal body structure?

a) MS-Ring.
b) C-Ring.
c) A-Ring.
d) P-Ring.

PRACTICE: Which of the following statements is TRUE?

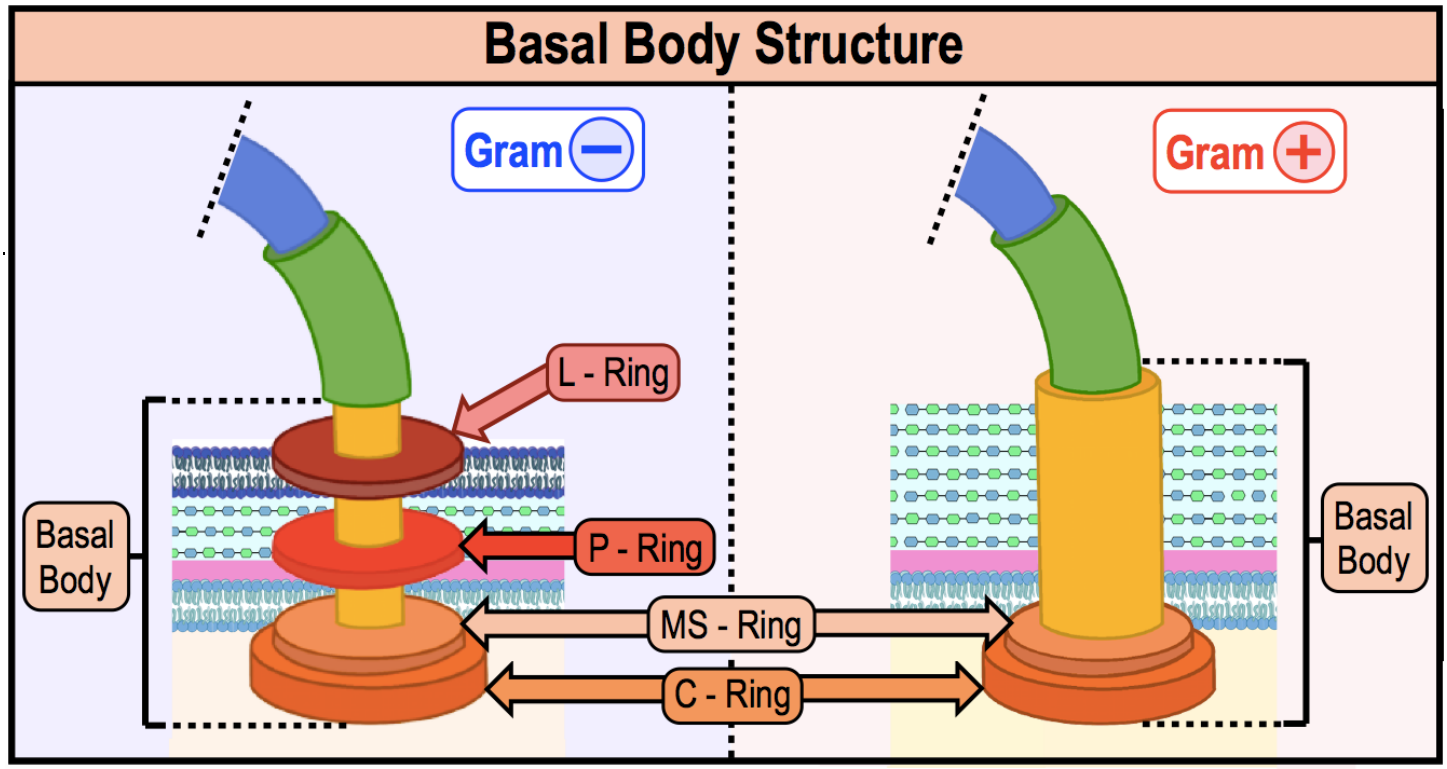
a) Gram-positive flagellar basal bodies have 4 protein rings.
b) Gram-negative flagellar basal bodies have 2 protein rings.
c) Gram-positive flagellar basal bodies have 2 protein rings.
d) Gram-positive & gram-negative flagellar basal bodies have 4 protein rings.

CONCEPT: PROKARYOTIC FLAGELLAR STRUCTURE

Gram-Negative vs. Gram-Positive Basal Body Structure

●Due to the presence of an _____ membrane in gram-*negative* cells, they require an additional ____ rings.

EXAMPLE: Gram-negative vs. Gram-positive basal body structure.



PRACTICE: Why do gram-negative flagellar basal bodies have an L-ring while gram-positive flagellar basal bodies do not?

a) Gram-positive bacterial cells do not have an outer membrane where the L-ring is located.

b) Gram-negative bacterial cells have larger flagella and require more basal body rings for support.

c) Gram-negative bacterial cells have a thicker cell wall and require the L-ring for support.

d) Gram-positive bacterial cells have a P-ring which performs the same functions as the L-ring in gram-negative cells.