CONCEPT: GRAM STAIN

●Recall: _____**-Stain**: a *differential* stain separating bacteria into 2 major groups based on *cell wall* differences.

□ Consists of a series of _____ steps:

Gram-Staining		Gram ⊕	Gram ⊖
Steps	**State of Bacteria**		
1 Sample is stained with ***crystal*** _____ dye.	All cells are stained **purple**.		
2 Sample is treated with an _____ solution.	All cells remain **purple**. Iodine ensures crystal violet dye is affixed to gram ⊕ cells.		
3 Sample is treated with _____ (alcohol & acetone).	**Gram** ◯ cells remain **purple**. **Gram** ◯ cells become colorless.		
4 Sample is stained with the counterstain _____.	**Gram** ◯ cells remain **purple**. **Gram** ◯ cells become **pink**.		

PRACTICE: Which of the following answers lists the steps of gram-staining in the correct order?

a) Stain with primary stain (crystal violet), add iodine, add decolorizer, stain with counterstain (safranin).
b) Add iodine, add decolorizer, stain with primary stain (crystal violet), stain with counterstain (safranin).
c) Stain with primary stain (crystal violet), add decolorizer, stain with counterstain (safranin), add iodine.
d) None of the above are correct.

PRACTICE: Which of the following reagents is used to stain gram negative cells pink (or red) in the gram stain?

a) Iodine.
b) Safranin.
c) Crystal violet.
d) Decolorizing agent.

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PRACTICE: Which of the following statements is false?

a) Crystal violet is used to stain the cells purple.

b) Alcohol is used to kill the bacteria that are not stained.

c) Gram positive cells end up being stained purple.

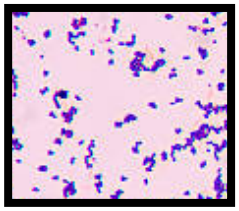
d) Iodine is used to affix the crystal violet dye to gram positive cells.

PRACTICE: Results from a gram stain show that these bacteria are:

a) Gram negative.

b) Gram positive.

c) Gram neutral.



PRACTICE: A scientists has a sample with two different species of bacteria. The first species is *Staphylococcus aureus*, a gram-positive bacterium. The second species is *Escherichia coli*, a gram-negative bacterium. The scientist gram-stains his sample of bacteria. What colors will the two species of bacteria be after staining?

a) *Staphylococcus aureus*: pink; *Escherichia coli*: purple.

b) *Staphylococcus aureus*: purple; *Escherichia coli*: pink.

c) Both *Staphylococcus aureus* and *Escherichia coli* will be purple.