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STEM Sims

②复 Gram Staining

Lesson 2: Practicing the Gram Stain with a Plate Culture

Gram staining is a process used to help identify bacteria based on how they react to a series of reagents. In this lesson, you'll practice applying these reagents to a plate culture of bacteria, and then identify the results of your test.

Doing the Science

- 1. Start the Gram Staining Simulation by clicking on the "Sim" tab.
- 2. Click the "Practice" button.
- 3. Click on the marker and select the "Plate 18 hours" option.
- 4. Click on the flask of isotonic saline solution to add a drop to the slide.
- 5. Click on the inoculation loop and click "sterilize."
- 6. Again, click on the inoculation loop and select the "Plate 18 hours" option.
- 7. After the inoculation loop has retrieved some culture from the plate, click the inoculation loop again and select a dime-sized smear.
- 8. Sterilize the inoculation loop again.
- 9. Click on the slide and select air-dry for 5 minutes.
- 10. Click on the slide and select a heat fix with 5 passes through the flame.
- 11. Click the "Done" button to store the smear.
- 12. Click on the "Gram Staining" button.
- 13. Click the "Select Slide" button and select the slide you prepared.
- 14. Flood the smear with Crystal Violet at point A with a flat orientation for 60 seconds by clicking the "Add" button, then selecting Crystal Violet, Point A, Flat, and 60 seconds.
- 15. Rinse with water at point B with a tilted orientation for 10 seconds.
- 16. Add Gram's Iodine to point A with a flat orientation for 120 seconds.
- 17. Rinse with water at point B with a tilted orientation for 10 seconds.
- 18. Add Decolorizer at point B with a tilted orientation for 10 seconds.
- 19. Rinse with water at point B with a tilted orientation for 10 seconds.
- 20. Add Safranin at point A with a flat orientation for 60 seconds.
- 21. Rinse with water at point B with a tilted orientation for 10 seconds.
- 22. Click the "Blot Dry" button to blot dry the smear.
- 23. Click the "Done" button to correctly store the smear.
- 24. Click the "Smear Examination" button.
- 25. Click the "Select Slide" button and select your slide.
- 26. You can use the forward and backward arrows next to the "Field" indicator to move between fields.
- 27. Once you have identified the shape of the bacteria and whether it is Gram-positive or Gram-negative, click the "Identification" button and select your answers.
- 28. Click the "Evaluation" button to see a rating of your performance.

Do You Understand?

1. What is the color of gram-negative bacteria?