

Curiosity Labs™ by Merck:
Wind YOUR WAY AROUND YOUR OWN DNA

In this experiment, you will learn...

- What **DNA** is
- How to extract cells containing DNA
- How to break apart the **cell membrane** and remove the DNA

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Wind your way around your own DNA

SUPPLIES

- Clear sports drink, such as Gatorade, or a saltwater solution: 2 cups (500mL) water and 1 tbs (15 mg) salt
- 2 small cups
- 30-50 mL conical tube or another small clear container with a cover
- Liquid dish soap
- Water
- Cold rubbing alcohol (use 91% isopropanol or 95% ethyl alcohol)
- Toothpick

Instructions

STEP 1

Measure 2 tsp (10 mL) of the sports drink/saltwater solution into one small cup. Take the small cup and swish the sports drink/saltwater in your mouth vigorously for at least 30 seconds. The goal is to slough off as many cheek cells as possible.

STEP 2

Spit the drink with cheek cells back into the small cup.

STEP 3

In a second cup, mix 1 tsp (5 mL) of liquid dish soap with 3 tsp (15 mL) water. Mix this solution carefully until the soap is completely dissolved in the water. It is important to stir the solution slowly and not create bubbles.

STEP 4

Add 1 tsp (5 mL) of the soap solution to the conical tube or small clear container.

STEP 5

Carefully pour the swished sports drink/saltwater solution containing cheek cells into the tube/container with the soap solution.

STEP 6

Gently mix this solution for 2-3 minutes with a toothpick or other small object. Try to avoid creating bubbles.

STEP 7

Tilt the tube/container of soap solution/cells while adding in 2-3 tsp (10-15 mL) of cold rubbing alcohol. Have the alcohol run down the inside of the tube/container so that it forms a layer on top of your soap solution. **DO NOT MIX THIS!**

STEP 8

Put the cap on the tube/container. Hold it still for 1 or 2 minutes. The white clump that you see is YOUR DNA!

FUN FACTS

DNA contains the instructions for making an organism, including individual people! DNA determines how individual people look, what their blood type is, and much more. Almost every cell in a person's body contains the same DNA and same genes.



WHAT HAPPENED?

First, you extracted cells containing DNA from cheeks by swishing the sports drink/saltwater solution in your mouth. Second, you removed the DNA from cheek cells by using the soap solution to break apart the cell membrane. The soap solution breaks the cell membranes that are made up of fats – just like soap breaks down grease on your dishes.

Finally, by adding the rubbing alcohol, the DNA that was extracted from your cells became visible.

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