

## Strawberry DNA Extractions

### Genetics & Genomics Teaching Team

#### Introduction

In this lab, we will isolate DNA using common household items! To keep the strands of DNA intact throughout the isolation, you need to handle everything gently. If you do this, you will be rewarded at the end with long, gooey, *snot-like* strings of DNA.

#### Materials

*Quantities per student/demonstration. Multiply by expected number of students.*

2 strawberries (thawed)	Non-iodized salt
Plastic gloves	Shampoo
Cheesecloth or cotton gauze	Rubbing alcohol (cold)
2 plastic cups	Wooden stick
Water	

#### Safety Concerns

Plastic gloves required, rubbing alcohol can be a mild irritant.

#### Methods/Protocol

1. Put on one glove and squish the strawberries into one of the plastic cups. Squeeze the pieces until the strawberries are the consistency of a smoothie (small chunks are okay).
2. In the 2nd plastic cup, add an equal volume of water, 2 teaspoons of shampoo, and 1 teaspoon of salt (just guess, it doesn't have to be exact). Stir until salt & shampoo dissolve.
3. Pour the mixture into the first cup of mashed strawberries. Gently squish the strawberries for another minute. Try to avoid making soap bubbles!
4. Strain the mixture through 2 layers of cheesecloth/cotton gauze into the second plastic cup. Have one lab partner hold the cheesecloth while another carefully pours the mixture in the center of the cheesecloth. Allow the liquid to drip through. After most of the liquid has dripped through, you may gently squeeze the cheesecloth to get more liquid out.
5. Add an equal volume of cold rubbing alcohol to the clear, pink liquid. Gently swirl the cup. Watch as strings of a white *boogery* material forms and floats to the top - that is the DNA!
6. Use the wooden stick to twirl the gooey DNA around and pick it up out of the liquid.

#### Discussion Questions

1. There are about 2 meters (6 feet) of DNA in each cell in your body. How does it all fit?
2. What did the common household items (shampoo, salt, rubbing alcohol) do in this experiment? Did we use them differently in this lab than you use them at home?
3. What else could you isolate DNA from? Do you think you would get more DNA from a strawberry or from an apple? Why? (Hint: think about what factors might affect the amount of DNA you could isolate)