

Extracting DNA

Name: _____ Period: _____

Purpose: To learn to extract DNA from different cells and see what it looks like.

Materials: food sources (peas, onions, liver), strainer, shell vials, wooden splints, toothpicks, liquid detergent, meat tenderizer, alcohol, 100 ml beakers, goggles, small graduated cylinders

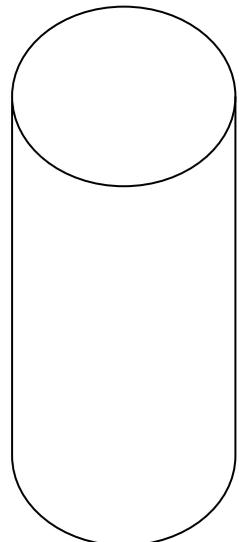
Procedure:

1. Pour your thin *pea-cell soup through a strainer into the 100 ml beaker.
2. Add 1/6 the amount of detergent to the beaker as you have pea-soup. Example if you have 60 ml of pea-soup you would add 10 ml of detergent.
3. Stir very gently with your wooden splint and allow to sit for 10 minutes.
4. Pour from the beaker into your shell vial. Fill it about 1/3 full
5. Add three small scoops of meat tenderizer with the flat end of the splint. and stir gently. Be careful! If you stir too hard, you'll break up the DNA, making it harder to see.
6. Tilt your test tube and slowly pour rubbing alcohol into the tube down the side so that it forms a layer on top of the pea mixture. Pour until you have about the same amount of alcohol in the tube as pea mixture. DNA will rise into the alcohol layer from the pea layer.
7. Use a toothpick to draw the DNA into the alcohol, try to spool it out.
8. You may want to feel the texture of the DNA between your fingers, just make sure you wash your hands!

*or onion-cell soup or liver-cell soup

Prediction: What will DNA look like?

Data: Draw the vial and label the parts (protein, DNA, lipids, alcohol)



Analysis:

1. What does DNA look like when it is extracted?
2. Look at the DNA from other lab groups. Did DNA from the different substances look different? Why?
3. What does the detergent break down and why is that important to extracting DNA?
4. Meat tenderizer is made from enzymes. Enzymes can breakdown protein. Why do we put meat tenderizer on meat?
5. What does the meat tenderizer break down and why is that important to extracting DNA?
6. What parts of the cell does DNA contain the blue-print for?
7. The alcohol dissolves everything in the cell but DNA. Alcohol is non-polar, what must DNA be? What would the proteins and lipids be?
8. IN 1991 scientists discovered a man frozen in the ice. By radio-carbon dating they found him to be 5000 years old. Originally scientist thought the man died of exposure to the cold. However, recently scientists discovered 4 different spots of blood each containing different DNA sequences. This led them to believe maybe the man died in a violent battle. Do you think DNA is alive? Defend your answer.
9. What is the smallest unit that can be alive?
10. What cells is DNA in?

Conclusion: Please explain 2 concepts you learned from this lab. Be thorough and use complete sentences.

