

LAB 7: DNA ISOLATION PROTOCOL

Take out the graphic organizer you have created to document the scientific method you will use when conducting the protocol listed below for this experiment. You will use your organizer to document your entire experiment and thought process. Remember, you must include all of the key points a lab experiment must have in order to make it valid.

In order to isolate DNA, you must have a source of DNA. That's easy since every living thing contains DNA. Use one of the following DNA sources for this experiment:

- Onions
- Broccoli
- Spinach
- Green split peas

1. Put 100 ml of your DNA source (onions, broccoli, spinach or split peas) cut into small pieces, a little less than an 1/8 tsp. table salt and 200 ml water in a blender.
2. Blend on high for 20 seconds.
3. Pour your DNA mixture through a funnel with cheesecloth or a strainer into a beaker to get rid of the large pieces of debris.
4. Determine the volume of the DNA mixture.
5. Add 30 gms or 2 Tbsp. (~ 1/6 the volume) liquid Detergent (like Ajax, Dawn, Palmolive, Woolite) and swirl to mix.
6. Let the mixture sit for 5-10 minutes.
7. Pour 5 ml of the DNA mixture into 15 ml test tubes or other small glass containers (each about 1/3 full).
8. Add 1/8 tsp. Meat Tenderizer (an enzyme source) to each test tube and stir gently. **Be very careful—if you stir too vigorously you will break your DNA into small pieces that are difficult to see.**
9. Tilt your test tube 30 degrees and then slowly add 5 ml of 95% isopropyl or ethyl alcohol (rubbing alcohol) down the side of the test tube so it forms a layer on top of the DNA mixture.
10. Use a glass rod or wooden stick to hook the DNA as it rises into the alcohol layer.
11. You can save your DNA by storing it in 50% ethanol.