

Question: What does DNA look like to the unaided eye?

Materials

- mortar and pestle
- 250 mL beaker
- 50 mL beakers (2)
- glass stirring rod
- cheesecloth
- solution
- graduated cylinder
- small piece of animal tissue
- 0.9% NaCl solution
- 10% detergent solution
- 95% ice-cold ethanol

Procedure

1. Place the sample of animal tissue in the mortar. Add 10 mL of the 0.9% NaCl solution, and grind thoroughly with the pestle for 2 to 5 min.
2. Strain the solution through three layers of cheesecloth. Collect the liquid in the 250 mL beaker.
3. Pour the liquid into a 50 mL beaker. Add 1.5 mL of the 10% detergent solution.
4. Estimate the volume of the fluid in the beaker. Then measure approximately twice as much of the ice-cold 95% ethanol into the other 50 mL beaker.
5. Slightly tilt the beaker holding the tissue extract. Gently add the ethanol by pouring ethanol down the inside of the beaker.
6. Gently stir the mixture with the stirring rod. When you see a precipitate form at the boundary of the two liquids, twirl the rod to wind the DNA sample onto the glass rod.

Analysis

1. Describe the DNA you extracted.
2. What kinds of studies and observations do you think researchers would have made as they worked from a description like yours to create a molecular model of DNA? List your ideas. Review and modify your ideas as you work through this chapter.