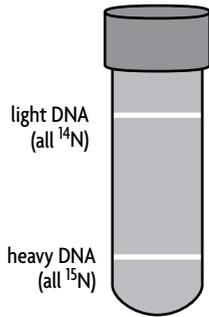


Investigating DNA Replication



The positions of the bands of DNA in the figure at left depend on how much ¹⁵N is present in the DNA. If the DNA is isolated from bacteria grown in ¹⁵N for many generations it will appear in the position shown by the lower band (heavy DNA). If DNA is isolated from bacteria grown only in ¹⁴N it will appear in the position shown by the upper band (light DNA). The thickness of the band indicates how much of that weight DNA is present. For example, if the band of light DNA is twice as thick as the band of heavy DNA it indicates that there is twice as much light DNA present in the sample.

Procedure

- In the chart below, fill in the “Predicted result” columns for the first and second generations for each hypothesis. In the blank test tube, sketch where you think the DNA band(s) will appear after the DNA is spun in the centrifuge. Make the band thicker or thinner to indicate quantity of DNA.

	<i>First generation</i>		<i>Second generation</i>	
	<i>Predicted result</i>	<i>Actual result</i>	<i>Predicted result</i>	<i>Actual result</i>
Conservative replication hypothesis				
Semiconservative replication hypothesis				
Dispersive replication hypothesis				

(continued on next page)

Investigating DNA Replication (continued)

2. As you view the animation of each hypothesis and the results that would be seen if the hypothesis were correct, complete the "Actual result" columns.
3. Once you have watched the animations for all three hypotheses, record here which hypothesis you think is most likely correct and why.

4. Watch the rest of the animation. Were you correct?

5. How does the actual method of replication ensure that the copied DNA is identical to the original DNA?
