

DNA and RNA

Chapter 12

Name _____

Date _____

This section tells about the experiments that helped scientists discover the relationship between genes and DNA. It also describes the chemical structure of the DNA molecule.

Griffith and Transformation (pages 287–289)

1. What did Frederick Griffith want to learn about bacteria? He wanted to learn how certain types of bacteria produce pneumonia.
2. The strain of bacteria that caused pneumonia grew into smooth colonies on culture plates; harmless bacteria produced colonies with rough edges.
3. Circle the letter of each sentence that is true about Griffith's experiment.
 - a. Mice injected with bacteria from smooth colonies died.
 - b. Mice injected with bacteria from rough colonies died.
 - c. Mice injected with heat-killed bacteria from smooth colonies died.
 - d. Mice injected with a mixture of bacteria from heat-killed smooth colonies and live rough colonies died.
4. What result from Griffith's experiment suggested that the cause of pneumonia was not a chemical poison released by the disease-causing bacteria? The mice survived after being injected with heat-killed disease-causing bacteria.
5. What is transformation? It is the process by which one strain of bacteria changes into another.
6. What hypothesis did Griffith form from the results of his experiments? Some factor, which might contain a gene, was transferred from the heat-killed bacteria cells into the live cells.

Avery and DNA (page 289)

7. Is the following sentence true or false? Avery and his colleagues thought that the molecule required in transformation might also be the molecule of the gene. true
8. Briefly describe how Avery and his group determined which molecule was most important for transformation? They treated the extract of heat-killed bacteria with enzymes that destroyed proteins, lipids, carbohydrates, and other molecules, including RNA and DNA.
9. Transformation did not occur when DNA was destroyed.
10. What was the conclusion from Avery's experiments? DNA was the transforming factor.