

Section 9.1 – The Structure of DNA

1. Summarize Griffith's transformation experiments.

Mice were injected with either:

S bacteria - mice died

R bacteria - mice lived

Heat-killed S bacteria - Mice lived

Mixture of heat-killed S bacteria and R bacteria - mice died!

The S bacteria was virulent - or able to cause disease and was deadly!

R bacteria and heat-killed S bacteria was not virulent - TRANSFORMATION!

2. Describe how Avery's experiment supplied evidence that DNA, and not protein, is the genetic material.

Avery showed that DNA-destroying enzymes but not protein-destroying enzymes, prevented transformation.

3. Describe the contributions of Hershey and Chase to the understanding that DNA is the genetic material.

Hershey and Chase showed that the DNA of viruses was injected into bacterial cells and that this DNA caused the bacterial cells to produce more viruses containing DNA.

4. Why did heat kill Griffith's bacteria?

The heat denatured bacterial enzymes and proteins that were necessary for survival

5. What might Hersey and Chase have concluded if they found ^{32}P and the ^{35}S in the bacterial cells?

They would have concluded that BOTH the DNA and the PROTEINS coats had entered the bacterial cells, and would have been unable to determine which was the genetic material.

6. The first experiments that correctly identified the molecule that carries genetic information were performed by

A) Oswald Avery