

Griffith's experiments: Injected bacteria into mice and noted that the S type killed mice, but the R type did not.

He killed the S bacteria with heat and injected them into the mice. The heat-killed bacteria did not kill the mice. He mixed heat killed S bacteria with R bacteria and it killed the mice. He found live S type bacteria in the dead mice

Conclusion: A "transforming principle" was transferred from the heat killed S bacteria to the R bacterial

Avery's experiments: Purified the "transforming principle" found in Griffith's experiments and concluded 3 tests.

- Qualitative tests that showed DNA was present, not protein
- Chemical analysis showed that the proportion of elements matched the proportion of elements present in DNA, not protein
- Enzyme tests showed that enzymes that destroyed proteins and RNA did not affect the transforming principle. Enzymes that destroyed DNA destroyed the ability of the transforming principle to function

Conclusion: DNA was the transforming principle

Hershey and Chase's experiments: Used bacteriophages grown in either radioactive sulfur (component of proteins) or radioactive phosphorous (component of DNA); Bacteriophages are viruses that infect bacteria and take over the cell's machinery to make more viruses

- **Experiment 1:** Infected bacteria with bacteriophages grown in sulfur; Separated bacteria from bacteriophages; found no significant radioactivity in the bacteria
- **Experiment 2:** Infected bacteria with bacteriophages grown in radioactive phosphorous; Separated bacteria from bacteriophages; Found significant radioactivity inside the bacteria, which showed that DNA from the bacteriophages had entered the bacteria

Conclusion: DNA, not protein, is the genetic material