

Name _____

The Battle of Antibiotics: How Bacteria Develop Resistance

Short Answer Key

1. Bacteria develop resistance to antibiotics through genetic mutation by acquiring mutations that alter the structure or function of bacterial proteins targeted by antibiotics.
2. Horizontal gene transfer is the sharing of genetic material between bacteria, allowing them to acquire resistance genes from other bacteria, which contributes to antibiotic resistance.
3. Overuse and misuse of antibiotics accelerate the development of antibiotic resistance by providing more opportunities for bacteria to develop resistance through genetic mutation or acquire resistance genes through horizontal gene transfer.
4. Biofilm formation protects bacteria from antibiotics by creating a slimy layer that shields them from the full effects of antibiotics and the immune system.
5. Efflux pumps contribute to antibiotic resistance in bacteria by pumping antibiotics out of bacterial cells before they can exert their effects, allowing bacteria to survive and proliferate.

