

Principles of Antimicrobial Action and Resistance

Clinical Bacteriology · Practice Test · 15 Questions

1. Which agents inhibit bacterial growth without directly killing the organism?

- A) Bactericidal agents
- B) Bacteriostatic agents
- C) Broad-spectrum antibiotics
- D) Synthetic agents

2. What are penicillin-binding proteins (PBPs) essential for?

- A) Protein synthesis
- B) DNA replication
- C) Cell wall synthesis
- D) Cell membrane transport

3. Which antibiotic class features a four-member nitrogen-containing ring?

- A) Glycopeptides
- B) Beta-lactams
- C) Aminoglycosides
- D) Tetracyclines

4. What is the primary target of Daptomycin?

- A) Ribosomes
- B) Cytoplasmic membrane
- C) DNA gyrase
- D) Cell wall

5. Which ribosomal subunit is the primary target for Aminoglycosides?

- A) 30S
- B) 50S
- C) 70S
- D) 40S

6. What is the main clinical limitation of Chloramphenicol?

- A) Low efficacy
- B) Severe toxicity like aplastic anemia
- C) Rapid resistance
- D) Poor bioavailability

7. Fluoroquinolones primarily interfere with which bacterial enzymes?

- A) RNA polymerase
- B) DNA gyrase and topoisomerase IV
- C) Peptidoglycan transferase
- D) Nitroreductase

8. Metronidazole is most potent against which type of organisms?

- A) Aerobic bacteria
- B) Anaerobic and microaerophilic organisms
- C) Gram-positive cocci
- D) Fungi

9. What is the most important mechanism for the spread of resistance between bacteria?

- A) Mutation
- B) Lateral Gene Transfer
- C) Vertical transmission
- D) Binary fission

10. Which mechanism describes the active transport of drugs out of a bacterial cell?

- A) Enzymatic destruction
- B) Altered target site
- C) Efflux pumps
- D) Decreased uptake

11. What is the function of beta-lactamase inhibitors?

- A) Kill bacteria directly
- B) Prevent the degradation of beta-lactam antibiotics
- C) Inhibit protein synthesis
- D) Decrease membrane permeability

12. Which gene is associated with MRSA resistance through altered PBP2a?

- A) vanA
- B) mecA
- C) gyrA
- D) blaTEM

13. Fosfomycin is primarily used for the treatment of which condition?

- A) Pneumonia
- B) Meningitis
- C) Uncomplicated UTIs
- D) Endocarditis

14. What describes the extent to which a drug reaches its intended biological destination?

- A) Pharmacokinetics
- B) Bioavailability
- C) Metabolism
- D) Excretion

15. Which enzyme is the target of Sulfonamides in the folic acid pathway?

- A) Dihydrofolate reductase
- B) Dihydropteroate synthase
- C) DNA gyrase
- D) Nitroreductase