

Advanced Pharmacology Mastery

Pharmacology · Practice Test · 25 Questions

1. Which enzyme is primarily responsible for the phase I metabolism of approximately 25% of all clinically used drugs?

- A) CYP2D6
- B) CYP3A4
- C) CYP2C9
- D) CYP1A2

2. Which class of antibiotics acts by inhibiting bacterial DNA gyrase and topoisomerase IV?

- A) Macrolides
- B) Aminoglycosides
- C) Fluoroquinolones
- D) Tetracyclines

3. What is the primary mechanism of action of the drug Vigabatrin in the treatment of epilepsy?

- A) GABA transaminase inhibition
- B) Sodium channel blockade
- C) NMDA receptor antagonism
- D) Calcium channel modulation

4. Which medication is a selective antagonist at the endothelin-1 receptor used to treat pulmonary arterial hypertension?

- A) Bosentan
- B) Sildenafil
- C) Epoprostenol
- D) Iloprost

5. What is the specific target of the antifungal agent Terbinafine?

- A) Ergosterol synthesis
- B) Squalene epoxidase
- C) Chitin synthase
- D) Beta-glucan synthesis

6. Which neurotransmitter is primarily synthesized from the amino acid L-tyrosine?

- A) Serotonin
- B) Histamine
- C) Dopamine
- D) Acetylcholine

7. Which agent is a selective peripheral kappa-opioid receptor agonist used to treat pruritus in chronic kidney disease?

- A) Naloxegol
- B) Methylnaltrexone
- C) Difelikefalin
- D) Alvimopan

8. Which class of diuretics acts primarily by inhibiting the Na⁺-K⁺-2Cl⁻ symporter in the thick ascending limb of the loop of Henle?

- A) Thiazides
- B) Potassium-sparing diuretics
- C) Loop diuretics
- D) Carbonic anhydrase inhibitors

9. What is the primary mechanism of action of Omalizumab?

- A) IgE monoclonal antibody
- B) TNF-alpha inhibitor
- C) IL-5 receptor antagonist
- D) Leukotriene receptor antagonist

10. Which substance is a potent agonist at the GABAB receptor used in the treatment of spasticity?

- A) Baclofen
- B) Tizanidine
- C) Dantrolene
- D) Cyclobenzaprine

11. Which drug belongs to the class of BCR-ABL tyrosine kinase inhibitors used in chronic myeloid leukemia?

- A) Imatinib
- B) Rituximab
- C) Trastuzumab
- D) Bevacizumab

12. What is the primary site of action for the class of drugs known as glitazones (thiazolidinediones)?

- A) PPAR-gamma
- B) GLP-1 receptor
- C) SGLT2 protein
- D) DPP-4 enzyme

13. Which medication is classified as a selective serotonin and norepinephrine reuptake inhibitor (SSNRI)?

- A) Fluoxetine
- B) Duloxetine
- C) Amitriptyline
- D) Escitalopram

14. What is the active metabolite of the prodrug Clopidogrel?

- A) Thiol derivative
- B) Carboxylic acid
- C) Glucuronide conjugate
- D) Sulfoxide derivative

15. Which drug is an irreversible inhibitor of the H⁺/K⁺-ATPase pump in gastric parietal cells?

- A) Famotidine
- B) Omeprazole
- C) Misoprostol
- D) Sucralfate

16. Which factor is the primary substrate for the vitamin K-dependent gamma-carboxylation reaction?

- A) Factor VII
- B) Factor VIII
- C) Factor V
- D) Factor XI

17. What is the primary mechanism of action of the anticoagulant Rivaroxaban?

- A) Direct thrombin inhibition
- B) Factor Xa inhibition
- C) Antithrombin III potentiation
- D) Vitamin K epoxide reductase inhibition

18. Which medication is a selective inhibitor of the cardiac funny current (I_f) channel?

- A) Ivabradine
- B) Verapamil
- C) Amiodarone
- D) Dofetilide

19. Which agent is a specific antidote for organophosphate poisoning, used to regenerate acetylcholinesterase?

- A) Atropine
- B) Pralidoxime
- C) Physostigmine
- D) Edrophonium

20. Which drug is a partial agonist at the $\alpha_4\beta_2$ nicotinic acetylcholine receptor used for smoking cessation?

- A) Varenicline
- B) Bupropion
- C) Nortriptyline
- D) Nicotine

21. Which receptor type does the drug Ondansetron selectively antagonize?

- A) 5-HT₃
- B) 5-HT_{1A}
- C) D₂
- D) H₁

22. What is the primary mechanism of action of the anti-obesity drug Orlistat?

- A) Lipase inhibition
- B) Appetite suppression
- C) Thermogenesis activation
- D) Glycogenolysis inhibition

23. Which antibiotic is known to cause grey baby syndrome due to immature glucuronidation pathways?

- A) Chloramphenicol
- B) Tetracycline
- C) Sulfonamides
- D) Gentamicin

24. What is the target of the monoclonal antibody Infliximab?

- A) TNF- α
- B) IL-1
- C) IL-6
- D) CD20

25. Which drug acts as an agonist at the peroxisome proliferator-activated receptor alpha (PPAR-alpha) to lower triglycerides?

- A) Gemfibrozil
- B) Atorvastatin
- C) Ezetimibe
- D) Cholestyramine