Advanced Pharmacology Mastery

Pharmacology · Answer Key · 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

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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

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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 (If) channel?

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

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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 alpha4beta2 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-HT1A
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-alpha
B) IL-1
C) IL-6
D) CD20

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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

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