

JPC miniboard
General Pathology 2015

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JPC Miniboard
General Pathology

1. Potocytosis refers to:
 - A. movement of molecules through channel proteins
 - B. passive movement of oxygen across lipid bilayers
 - C. internalization of caveolae, bound proteins and extracellular fluid
 - D. intake of molecules into cells using carrier proteins

2. Which of the following most consistently characterize irreversible cell damage?
 - A. cell swelling and cytoplasmic blebs
 - B. mitochondrial dysfunction and disturbances in membrane function
 - C. lipid accumulation and ER swelling
 - D. cell swelling and mitochondrial dysfunction

3. P-selectin is expressed predominately on which of the following:
 - A. neutrophils
 - B. endothelial cells
 - C. lymphocytes
 - D. monocytes

4. Transmigration of leukocytes occurs predominately in which blood vessel type?
 - A. postcapillary venules
 - B. capillaries
 - C. arteries
 - D. arterioles

5. The platelet fibrinogen receptor is?
 - A. GpIb
 - B. Gp IIb-IIIa
 - C. Gp IIa-IIIb
 - D. GpIa

6. Glanzmann thrombasthenia is a lack of?

- A. Fibrinogen
- B. Gplb
- C. GpIIb-IIIa
- D. GpIIa-IIIb

7. The LDL receptor recognizes?

- A. VLDL
- B. apoprotein B-100 and apoprotein E
- C. cholesterol
- D. apoprotein C

8. A deficiency in the enzyme α -L-iduronidase is associated with which lysosomal storage disease?

- A. MPS I
- B. GM1 gangliosidosis
- C. Fucosidosis
- D. Mannosidosis

9. Caspase-1 cleaves and activates?

- A. IL-1
- B. IL-10
- C. TNF
- D. Pro-IL1 β

10. A TH1 lymphocyte response tends to favor which type of response?

- A. stimulation of IgE production
- B. host defense against extracellular bacteria
- C. secretion of IL-4
- D. host defense against intracellular microbes

11. All of the following molecules EXCEPT WHICH is derived from arachidonic acid?

- A. prostaglandin D₂
- B. leukotriene D₄
- C. platelet-activating factor (PAF)
- D. leukotriene B₄

12. The complement derived molecules that can act as anaphylatoxin include:

- A. C5b and MAC
- B. C3a and C5a
- C. C3b and C3a
- D. C3bBbBb and MAC

13. Myasthenia gravis is a type ____ hypersensitivity reaction:

- A. Type I
- B. Type II
- C. Type III
- D. Type IV

14. The Warburg effect refers to _____ in tumor cells.

- A. anaerobic glycolysis
- B. aerobic glycolysis
- C. DNA hypermethylation
- D. accumulation of driver mutations

15. The E2F transcription factor is most directly inhibited by:

- A. EGF
- B. cyclin D
- C. cyclin E/CDK2 complex
- D. hypophosphorylated RB

16. Which of the following proteins is considered a key initiator of p53 activity?

- A. ATM
- B. MDM2
- C. BAX
- D. GADD45

17. A major function attributed to the APC protein is to?

- A. activate β -catenin
- B. bind the transcription factor, TCF
- C. target β -catenin for destruction
- D. activate the WNT receptor

18. Which of the following caspases is most directly associated with the extrinsic pathway of apoptosis?

- A. caspase 1
- B. caspase 9
- C. caspase 8
- D. caspase 3

19. Which of the following caspases is common to both the intrinsic and extrinsic pathways of apoptosis?

- A. caspase 1
- B. caspase 9
- C. caspase 8
- D. caspase 3

20. Which of the following molecules is considered pro-apoptotic?

- A. BCL2
- B. BAX
- C. MCL1
- D. BCL-XL

21. Which of the following type of collagen is most common in basement membranes?

- A. Type I
- B. Type II
- C. Type III
- D. Type IV

22. Which of the following CDK/cyclin complexes is considered essential for the G2-to-M transition?

- A. CDK4/cyclin D
- B. CDK2/cyclin E
- C. CDK1/cyclin B
- D. CDK4/cyclin B

23. Which toll-like receptor preferentially binds flagellin?

- A. TLR2
- B. TLR1
- C. TLR5
- D. TLR3

24. Which of the following molecules is found in platelet dense granules?

- A. factor V
- B. fibronectin
- C. serotonin
- D. TGF- β

25. Langerhans cell differentiation is most dependent on?

- A. IL-4
- B. GM-CSF
- C. TNF- α
- D. TGF- β

26. Which of the following epigenetic changes is most likely to occur in cancer?

- A. global genomic DNA hypermethylation
- B. hypomethylation of CpG rich promoter regions
- C. hypermethylation of tumor suppressor gene CpG regions
- D. p16 promoter hypomethylation

27. Which of the following is an important mediator of necroptosis?

- A. RIPK3
- B. caspase 8
- C. cytochrome c
- D. cyclophilin D

28. Catalase is primarily found in which cellular compartment or organelle?

- A. mitochondria
- B. peroxisomes
- C. endoplasmic reticulum
- D. plasma membrane

29. Which of the following family of proteins are associated with longevity?

- A. sirtuins
- B. caspases
- C. peroxidases
- D. cyclins

30. Sialyl-Lewis X-modified glycoproteins can bind which of the following?

- A. LFA-1
- B. CD31
- C. P-selectin
- D. MAC-1

31. Which of the following steps in leukocyte migration through blood vessels involves homotypic protein interactions?

- A. rolling
- B. integrin activation
- C. stable adhesion
- D. migration through endothelium

32. Fractalkine is classified as which type of chemokine?

- A. C-X-C
- B. C-C
- C. C
- D. CX₃C

33. The alternative complement pathway can be activated by which of the following?

- A. cobra venom
- B. IgG
- C. mannose-binding lectin
- D. IgM

34. Alternatively activated macrophages (M2 macrophages) are generally activated by which molecules?

- A. IL-13 and IL-4
- B. IL-10 and TGF- β
- C. IL-1 and IL-12
- D. IL-23 and IL-1

35. CD3 proteins are a component which receptor or protein complex?

- A. B cell antigen receptor complex
- B. T-cell receptor complex
- C. MHC II
- D. MHC I

36. Antibody-dependent cell-mediated cytotoxicity involves which molecule?

- A. CD16
- B. CD56
- C. CD4
- D. CD8

37. NK inhibitory receptors recognize which proteins?

- A. MHC I
- B. NKG2D
- C. CD16
- D. CD 56

38. The primary mechanism whereby hepcidin regulates iron levels is?

- A. degradation of transferrin
- B. degradation of ferroportin
- C. degradation of ferritin
- D. degradation of hemopexin

39. Which ligand:receptor interaction is most important in stimulating the initial stages of endothelial cell proliferation?

- A. VEGF-A: VEGFR2
- B. VEGF-B: VEGFR1
- C. VEGF-C: VEGFR3
- D. VEGF-D:VEGFR2

40. VHL (von Hippel Lindau protein) binds to HIF-1 α and causes?

- A. hydroxylation of HIF-1
- B. movement of HIF-1 into the nucleus
- C. degradataion of HIF-1
- D. transcription of VEGF

41. Active TGF- β can be released from latent TGF- β by which?

- A. antithrombin
- B. thrombomodulin
- C. thrombin
- D. thrombospondin-1

42. Protein C inactivates which of the following coagulation factors?

- A. XII and IX
- B. II and VII
- C. V and VIII
- D. II and V

43. The β -toxin produced by *Staphylococcus aureus* is a?

- A. sphingomyelinase
- B. calcium channel
- C. detergent-like peptide
- D. peptidase

44. The Dicer enzyme does what?

- A. converts pre-miRNA to miRNA
- B. converts pri-miRNA to pre-miRNA
- C. incorporates miRNA into the RISC complex
- D. causes cleavage of messenger RNA

45. Which of the following phospholipids help target cells undergoing apoptosis for phagocytosis?

- A. phosphatidylinositol
- B. phosphatidylserine
- C. sphingomyelin
- D. glycolipids

46. Segregation of the apical domain from the basolateral domain of cells is in part created which structure?

- A. anchoring junctions
- B. hemidesmosomes
- C. occluding junctions
- D. belt desmosomes

47. The most abundant glycoprotein in most basement membranes is?

- A. laminin
- B. integrin
- C. elastin
- D. fibronectin

48. Which of the following is a potent chemotactic agent for neutrophils?

- A. leukotriene B₄
- B. Luekotriene C₄
- C. Leukotriene D₄
- D. Leukotriene E₄

49. Which of the following molecules causes vasodilation?

- A. PGI₂
- B. TXA₂
- C. Lipoxin A₄
- D. HETE

50. Formation of the membrane attack complex can be inhibited by?

- A. DAF
- B. CD59
- C. C1
- D. C9