

**2013 Miniboard Exam
General Pathology Blank**

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1. Which of the following is directly involved in the activation of procaspase 9?
 - a. SMAC/DIABLO
 - b. Cytochrome c
 - c. Caspase 8
 - d. Caspase 3
 - e. BCL-XL

2. Which of the following is a sensitive and specific biomarker of endothelial cell activation?
 - a. MadCAM-1
 - b. E-selectin
 - c. ADMA
 - d. vWFpp
 - e. vWF

3. Which of the following inhibits platelet aggregation?
 - a. Plasminogen Activator Inhibitor-1
 - b. Thrombospondin
 - c. Calcium
 - d. ADP
 - e. ATP

4. Activated MASP-2 catalyzes the formation of _____.
 - a. C4b2b
 - b. C3bBb
 - c. C3bBb3b
 - d. C4b2b3b
 - e. Activated C1

5. Macrophage deactivation is elicited by all of the following except _____.
 - a. IL-10
 - b. CD47
 - c. IFN- α
 - d. TREM
 - e. GM-CSF

6. All are functions of TGF β 1 except _____.
 - a. Increase expression of Cip/Kip and INK4/ARF in epithelia
 - b. Stimulate IgA production in gut mucosa
 - c. Inhibit endothelial cell proliferation

- d. Upregulate MMP expression
 - e. Promote apoptosis
7. Which of the following buds through the nuclear membrane?
- a. Herpesvirus
 - b. Coronavirus
 - c. Bunyavirus
 - d. Arterivirus
 - e. Flavivirus
8. All of the following types of dendritic cells are antigen-presenting cells EXCEPT ____.
- a. Follicular
 - b. Interstitial
 - c. Langerhan's
 - d. Interdigitating
 - e. Circulating/veiled
9. Von Hippel-Lindau is a tumor suppressor necessary for the ubiquitin degradation of ____.
- a. P300BP
 - b. HREs
 - c. PHDs
 - d. HIF
 - e. FIH
10. A chromosomal rearrangement that results from two strand breaks within one arm of a chromosome, with reincorporation of the excised segment is ____.
- a. Balanced reciprocal translocation
 - b. Robertsonian translocation
 - c. Paracentric inversion
 - d. Pericentric inversion
 - e. Interstitial deletion
11. Phase II biotransformation is ____.
- a. Synthetic
 - b. Oxidative
 - c. Reductive
 - d. Hydrolytic
 - e. Degradative
12. Which of the following tissues requires insulin for glucose uptake?
- a. Neurons
 - b. Enterocytes
 - c. Erythrocytes
 - d. Hepatocytes
 - e. Pancreatic beta cells
13. Copper-zinc superoxide dismutase is found in ____.
- a. Cytosol

- b. Lysosomes
 - c. Peroxisomes
 - d. Mitochondria
 - e. Endoplasmic reticulum
14. Which of the following crosses the normal endothelial cell layer via paracellular passage?
- a. Low-density lipoproteins
 - b. Metalloproteinases
 - c. Potassium ions
 - d. Albumin
 - e. Insulin
15. Under the influence of thrombomodulin, thrombin ____.
- a. Inactivates factors IIa, IXa, Xa, XIa, and XIIa
 - b. Inactivates factors Va and VIIIa
 - c. Activates antithrombin III
 - d. Activates protein S
 - e. Activates protein C
16. Which of the following events in the leukocyte emigration cascade involves mostly homophilic interaction between adhesion molecules?
- a. Rolling
 - b. Capture
 - c. Diapedesis
 - d. Locomotion
 - e. Tight adhesion
17. Which of the following cell types in the pancreatic islet produces islet associated polypeptide?
- a. α cells
 - b. β cells
 - c. δ cells
 - d. F-cells
 - e. Enterochromaffin cells
18. Which of the following is inhibitory for epithelial cell differentiation?
- a. TTF-1
 - b. NF κ B
 - c. HFH-4
 - d. HNF- β
 - e. GATA-6
19. Which of the following cell types found in healthy intestinal mucosa is responsible for uptake and transport of antigens across the mucosa for presentation to the gut associated lymphoid tissue?
- a. Neuroendocrine cell
 - b. Enterocyte
 - c. Paneth cell
 - d. Goblet cell

- e. M cell
20. Preformed anti-donor antibodies present in the recipient circulation contribute to which form of graft rejection?
- a. Direct pathway
 - b. Indirect pathway
 - c. Hyperacute rejection
 - d. Acute rejection vasculitis
 - e. Graft versus host disease
21. Which of the following cell types is responsible for the majority of regeneration of the functional hepatic mass following liver injury?
- a. Preexisting hepatocytes
 - b. Kupffer cells
 - c. Stellate cells
 - d. Oval cells
 - e. Ito cells
22. In which of the following cell types is telomerase activity highest?
- a. Corneal limbus epithelium
 - b. Hair follicle bulge cells
 - c. Testicular germ cells
 - d. Intestinal crypt cells
 - e. Hepatic oval cells
23. Alkylating carcinogens:
- a. Form covalent adducts
 - b. Form addition products
 - c. Include ethylnitrosurea
 - d. Substitute for exocyclic amino groups
 - e. Have an electrophile as the reactive form
24. Activation of _____ is required for sealing zone formation and complete maturation of osteoclasts.
- a. Osteoprotegerin
 - b. $\alpha_v\beta_3$ integrin
 - c. RANK-L
 - d. M-CSF
 - e. RANK
25. Which of the following promotes apoptosis following DNA damage?
- a. SMAC/DIABLO
 - b. PUMA
 - c. NOXA
 - d. BMF
 - e. BIM

26. Capillaries in which of the following organs have discontinuous basal laminae?
- Pulmonary alveoli
 - Choroid plexus
 - Intestinal villi
 - Ciliary body
 - Spleen
27. Coagulation factor IV is also commonly referred to as:
- Antihemophilic factor B
 - Proconvertin
 - Stuart factor
 - Proaccelerin
 - Calcium
28. Which of the following events in the leukocyte emigration cascade is *irreversible*?
- Rolling
 - Activation
 - Diapedesis
 - Locomotion
 - Tight adhesion
29. Exposure of naïve CD4+ T lymphocytes to IL-12 and IFN- γ results in the expression of which transcription factor?
- GATA-3
 - Ror- γ t
 - FoxP3
 - c-Maf
 - T-bet
30. Which of the following is the primary ligand for the tyrosine kinase receptor c-kit?
- Insulin
 - Stem cell factor (SCF)
 - Fibroblast growth factor (FGF)
 - Platelet derived growth factor (PDGF)
 - Transforming growth factor α (TGF- α)
31. Which of the following is the mechanism of action of the lethal factor of *Bacillus anthracis*?
- Activation of phospholipase C
 - Binding of Ca and calmodulin
 - Destruction of MAPK kinases
 - Binding to host E-cadherin
 - Inhibition of EF-2 function

32. Which of the following T cell subtypes is most numerous in the subcapsular cortex region of the thymus?
- CD4+/CD8+/TCR+
 - CD4-/CD8+/TCR+
 - CD4+/CD8-/TCR-
 - CD4-/CD8-/TCR+
 - CD4-/CD8-/TCR-
33. Which of the following is the only matrix metalloproteinase produced by adipose tissue which directly affects cancer progression?
- MMP-2
 - MMP-9
 - MMP-11
 - MMP-12
 - MMP-13
34. In dogs, ___ is an autosomal recessively-inherited disorder of the innate immune response linked to deficient NADPH concentrations.
- Leukocyte adhesion deficiency
 - Granulocytopeny syndrome
 - Chediak Higashi syndrome
 - Agammaglobulinemia
 - Cyclic hematopoiesis
35. Autophagy can be pharmacologically inhibited by inhibiting ____.
- Bcl-2
 - Bcl-XL
 - mTOR
 - Lithium
 - Beclin-1
36. Which of the following causes edema through increased vascular permeability?
- Canine gastric dilation and volvulus
 - Feline aortic thromboembolism
 - Equine epizootic lymphangitis
 - Equine purpura hemorrhagica
 - Ovine trichostrongylosis
37. Which of the following complement regulatory proteins prevents formation of the membrane attack complex?
- CR1
 - CRiG
 - DAF
 - CD59
 - Factor H

38. Upon maturation, dendritic cells express ____, which allows them to home to lymphocytes expressing ____ in HEVs in the paracortical areas of lymph nodes.
- CCR1; CCL3
 - CCR2; CCL7
 - CCR5; CCL4
 - CCR6; CCL20
 - CCR7; CCL19
39. All of the following growth factors signal through receptors with intrinsic tyrosine kinase activity *except* ____.
- VEGF-A
 - IGF-1
 - FGF7
 - TGF α
 - BMP
40. Double-stranded RNA is the PAMP for which Toll-like receptor?
- TLR2
 - TLR3
 - TLR4
 - TLR7
 - TLR9
41. Lysophosphatidylcholine is a substrate for the synthesis of ____.
- PAF
 - LTA4
 - TXA2
 - LXA4
 - 5-HETE
42. All of the following induce VEGF expression *except* ____.
- Hypoxia
 - PDGF
 - TGF β
 - TGF α
 - Dll4
43. The tumor suppressor PTEN functions to degrade PIP3, thus negatively regulating signaling through the ____ pathway.
- IP3
 - cAMP
 - JAK/STAT
 - PI3 kinase
 - MAP kinase

44. Which is FALSE concerning maternal genomic imprinting?
- Is a type of epigenetic modification
 - Results in silencing of paternal allele
 - Occurs in ovum or sperm before fertilization
 - Is transmitted to all somatic cells via mitosis
 - Is the genetic basis of Angelman Syndrome
45. Which step in collagen synthesis occurs in the Golgi apparatus?
- Helix formation
 - Hydroxylation
 - Glycosylation
 - Cross-linking
 - Translation
46. All of the following glycosaminoglycans are proteoglycans *except* ____.
- Chondroitin sulfate
 - Dermatan sulfate
 - Heparan sulfate
 - Hyaluronate
 - Heparin
47. p53 mediates the transcription of which of the following DNA repair enzymes?
- DNA ligase IV
 - GADD45
 - XRCC4
 - RAD18
 - RAD6
48. Loss of miRNA whose target is ____ is likely to be cancer promoting.
- Neurofibromin-1
 - Ras GTPase
 - TSC1/TSC2
 - Merlin
 - RAF
49. All of the following are procarcinogens that require metabolic activation *except* ____.
- 2-Acetylaminofluorene
 - 3-Methylcholantrene
 - 1-Acetyl-imidazole
 - 2-Naphthylamine
 - Aflatoxin B1
50. Hyperphosphorylation of RB results in ____.
- Translocation of β -catenin to the nucleus
 - Recruitment of histone deacetylase
 - Activation of cyclin D
 - Stimulation of p16
 - Release of E2F