1. What is the substrate of the secondary immune response:

a) Immunological memory (■)

b) Proliferation of B lymphocytes in the lymphoid tissue (■)

c) Complement activation

d) Degranulation of mast cells

e) Clonal selection of lymphocytes

2. What is the characteristic of IgD:

a) Found in plasma and cerebrospinal fluid (■)

b) It is resistant to proteolytic degradation

c) It is a component of the BCR (B lymphocyte receptor) (■)

d) It is a pentamer

e) Does not participate in the secondary immune response

3. Indicate the cells on the surface of which MHC class II molecules may be present:

a) Macrophages (■)

b) B lymphocytes (■)

c) Endotheliocytes

d) Neutrophils

e) Plasmocytes

4. Characterize a hapten:

a) It is a large non-protein molecule

b) It is a small non-protein molecule (■)

c) It is a conformational epitope

d) It is processed only by MHC I

e) It is processed only by MHC II

5. Characterize superantigens:

a) It binds to the antigen-specific site of MHC I

b) It binds to the antigen-specific site of MHC II

c) Binds to antigen-nonspecific sites of MHC and TCR (T lymphocyte receptor) (■)

d) It causes clonal anergy

e) Activates Th1 lymphocytes

6. What are the effects of the C3b component of the complement:

a) It alters vascular permeability

b) Stimulates phagocytosis of neutrophils (■)

c) Inhibits C3-convertase

d) Initiates the formation of the MAC complex (■)

e) It stimulates the transendothelial passage of the Ag+Ac immune complex

7. What are the effects of the C3a and C5a components of the complement:

a) Lysis of bacteria

b) Increased vascular permeability (■)

c) Activation of oxidative stress in macrophages (■)

d) Mast cell degranulation (■)

e) Opsonization of bacteria

8. Characterize IL-1 (interleukin 1):

a) It is secreted by activated Th lymphocytes

b) It is an endogenous pyrogen (■)

c) It is a stimulator of hematopoiesis (■)

d) Triggers apoptosis by intrinsic pathway (■)

e) Increases vascular permeability

9. Exotoxins can be neutralized with the help of:

a) Antibodies (■)

b) Complement

c) Anatoxins

d) Interferon

e) Proteolytic enzymes

10. Indicate the activator of macrophages in the phagocytosis of facultatively-intracellular bacteria:

a) Properdin

b) Anaphylatoxin C3a

c) Interferon gamma (■)

d) Anaphylatoxin C3a

e) IgM

11. Which cells are activated by MHC I:

a) CD4 T lymphocytes

b) CD8 T lymphocytes (■)

c) CD3 lymphocytes

d) Th2 lymphocytes

e) Th17 lymphocytes

12. Characterize IgG:

a) Neutralizes bacterial toxins (■)

b) Opsonizes phagocytes (■)

c) It is a receptor of myeloid-derived densitrocytes

d) Appears during a primary immune response

e) It is a receptor of dendrites derived from the lymphoid lineage

13. Which Ig prevails quantitatively in blood serum:

a) IgA

b) IgG1 (■)

c) IgG2 (■)

d) IgD

e) IgM

14. What are the characteristics of acquired immunity:

a. The ability to intervene immediately after encountering an antigen

b. Tolerance to own antigens (■)

c. Specific recognition of antigens (■)

d. Immunity to reinfection (■)

e. Immunological memory (■)

15. What are the characteristics of humoral immunity:

a. It is carried out by means of antibodies (Ig) (■)

b. It is directed against extracellular microorganisms (■)

c. Neutralizes bacterial toxins and enzymes (■)

d. Acts on intracellular parasites and modified cells

e. The main effectors are CD8 T lymphocytes

16. What are the characteristics of cellular immunity:

a. It is carried out by means of T lymphocytes (■)

b. It is directed against extracellular microorganisms

c. It is directed against bacterial endotoxins

d. It is activated by complement C3a

e. Participates in the activation of macrophages (■)

17. What are the characteristics of an incomplete antigen:

a. It has a low molecular weight (■)

b. It has high molecular mass

c. It is not immunogenic (■)

d. Possesses antigenicity (■)

e. It does not cross the blood-brain barrier

18. What are the peripheral organs of the immune system:

a. Spleen (■)

b. The thymus

c. Payer plates (■)

d. Tonsils (■)

e. Bone marrow

19. Characterize the antigen receptor present on mature B lymphocytes (BCR):

a. It is represented by the IgM monomer

b. It is represented by the IgG pentamer

c. It is represented by the IgA dimer

d. Recognizes and interacts with soluble antigens (■)

e. Recognizes and interacts with membrane antigens (■)

20. Characterize the processing of endogenous antigens:

a. Association with MHC class II

b. Disintegration in the phagolysosome

c. Disintegration in the proteasome (■)

d. Dissociation of the invariable chain

e. Association with MHC class I (■)

21. Characterize CD4 T lymphocytes:

a. Recognize antigenic peptides combined with MHC class II molecules (■)

b. They recognize antigenic peptides combined with CMH class I molecules

c. Upon an antigenic stimulus, they differentiate into Th effector cells (■)

d. Upon an antigenic stimulus they differentiate into Tc effector cells

e. Participates in the establishment of the humoral and cellular immune response (■)

22. Characterize CD8 T lymphocytes:

a. They recognize antigenic peptides combined with MHC class II molecules

b. Recognize antigenic peptides combined with MHC class I molecules (■)

c. Upon an antigenic stimulus, as a result of activation, they differentiate into Th effector cells

d. Represents 60% of the total number of lymphocytes

e. Represents 40% of the total number of lymphocytes (■)

23. Characterize Th1 lymphocytes:

a. Differentiation into Th1 is favored by IL-12, secreted by macrophages (■)

b. Th1 differentiation is favored by IL-12, secreted by dendritic cells (■)

c. They do not recognize antigens presented by B lymphocytes

d. Triggers anaphylactic reactions

e. Th1 cytokines stimulate the proliferation and differentiation of Tc lymphocytes (■)

24. Characterize Th2 lymphocytes:

a. They do not recognize antigens presented by B lymphocytes

b. Secretes the cytokines IFN-gamma, IL-2, TNF-a

c. Th2 cytokines stimulate the proliferation and differentiation of Tc lymphocytes

d. Th2 cytokines cause anaphylactic reactions (■)

e. Recognize antigens presented by B lymphocytes (■)

25. Characterize MHC I molecules:

a. They are expressed by dendrites (■)

b. They are expressed by B lymphocytes (■)

c. Participates in the presentation of processed exogenous antigens in the phagolysosome

d. Participates in the presentation of endogenous antigens processed in the proteosome (■)

e. They recognize and interact with the CD4 receptor on T lymphocytes

26. Characterize MHC II molecules:

a. They are expressed by B lymphocytes (■)

b. They are expressed by monocytes

c. Participates in the presentation of exogenous antigens processed in the phagolysosome (■)

d. Participates in the presentation of endogenous antigens processed in the proteosome

e. They recognize and interact with the CD8 receptor on T lymphocytes

27. What are the consequences of B lymphocyte activation by a T-independent antigen:

a. Death by apoptosis

b. Direct proliferation (clonal expansion) (■)

c. Differentiation into plasma cells (■)

d. IgG synthesis

e. Induction of immunological memory

28. What are the consequences of B lymphocyte activation by a T-dependent antigen:

A. Proliferation under the action of the Th lymphocyte activated by any complete antigen

B. Death by apoptosis

C. Synthesis of Ig G (■)

D. Differentiation into plasma cells (■)

E. Induction of immunological memory (■)

29. Characterize the primary humoral immune response:

A. The latency phase lasts 4-7 days (■)

B. The latency phase lasts several hours

C. Initially, antibodies represented by IgM are synthesized (■)

D. Initially, antibodies represented by IgG are synthesized

E. It is provided by B-memory lymphocytes

30. Characterize secondary humoral immune response:

A. The latency phase lasts 4-7 days

B. The latency phase lasts several hours (■)

C. Initially, antibodies represented by IgM are synthesized

D. Initially, antibodies represented by IgG (■) are synthesized

E. It is provided by B-memory lymphocytes (■)

31. What are the cytokines produced by Th2 lymphocytes:

a) IFN-gamma

b) TNF-α

c) IL-5 (■)

d) IL-4 (■)

e) IL-1

32. What are the cytokines produced by Th1 lymphocytes:

a) IFN-gamma (■)

b) TNF (■)

c) IL-5

d) IL-4

e) IL-1

33. What are the humoral factors of innate immunity:

a) Natural antibodies (■)

b) Complement (■)

c) Interferon (■)

d) Ig M immunoglobulins

e) Ig G immunoglobulins

34. Which cells are involved in the humoral immune response:

a) Tc lymphocytes

b) Th lymphocytes (■)

c) B lymphocytes (■)

d) Plasmocytes (■)

e) NK cells

35. Which cells are involved in the humoral immune response:

a) TCD8+ lymphocytes

b) TCD4+ lymphocytes (■)

c) Dendrites (■)

d) Macrophages

e) NK cells

36. What are the effects of IgG:

a) Neutralization of bacterial toxins (■)

b) Opsonization of helminths

c) Opsonization of bacteria (■)

d) Neutralization of viruses (■)

e) Degranulation of mast cells

37. What are the effects of IgE:

a) Neutralization of bacterial toxins

b) Opsonization of helminths (■)

c) Opsonization of bacteria

d) Neutralization of viruses

e) Degranulation of mast cells (■)

38. What are the effects of IgM:

a) Degranulation of mast cells

b) Opsonization of helminths

c) Opsonization of bacteria (■)

d) Complement activation (■)

e) Agglutination of bacteria (■)

39. Characterize the properties of B lymphocytes:

a) Express MHC I (■)

b) Expresses MHC II (■)

c) Expresses receptor composed of IgG

d) Expresses receptor consisting of IgM (■)

e) It does not react with T-independent antigen

40. Characterize the properties of T lymphocytes:

a) Proliferate and differentiate into cytotoxic cells (■)

b) They respond to activation by a T-independent antigen

c) They respond to activation by a T-dependent antigen

d) Can recognize antigens presented by CMH I (■)

e) Can recognize antigens presented by CMH II (■)

41. What are the mechanisms of immune suppression carried out by CD3 regulatory lymphocytes:

a. CD28 ligand expression

b. CD25 ligand expression to TNF-a

c. Expression of CD25 ligand to IL-2 (■)

d. FoxP3 transcription factor expression (■)

e. CD86 receptor expression

42. What are the mechanisms of immune suppression carried out by CD3 regulatory lymphocytes:

a. CTLA4 ligand expression (■)

b. CD25 ligand expression to TNF-a

c. Expression of CD25 ligand to IL-2 (■)

d. B7-1 receptor expression

e. B7-2 receptor expression

43. What are the physiopathological features of Di-George syndrome:

a. X chromosome mutation (■)

b. Chromosome 22 mutation

c. Deficiency of T lymphocytes (■)

d. Deficiency of B lymphocytes

e. Hypothyroidism

44. What are the physiopathological features of Di-George syndrome:

a. Thymus aplasia (■)

b. Fungal infections (■)

c. Tetany (■)

d. IgG deficiency

e. IgM deficiency

45. What are the physiopathological landmarks of chronic granulomatous disease:

a. Excess superoxide anion

b. Superoxide anion deficiency (■)

c. NADPH-oxidase deficiency (■)

d. Reduction of regulatory T lymphocytes

e. Reduction of NK cells

46. For which immunodeficiency is thrombocytopenia characteristic:

a. Di-George syndrome

b. Wiskott-Aldrich syndrome (■)

c. Ataxia-telangiectasia

d. Bruton's agammaglobulinemia

e. Hyper-IgM syndrome

1. **What binds the antigen epitope?**

a. The Fb fragment of the antibody ⁕

b. The Fc fragment of the antibody

c. Complement component C4b

d. Complement component C3b ⁕

e. Interferon gamma

2. **Which cells recognize MHC class I and II molecules?**

a. T-helper lymphocytes (CD4) ⁕

b. Macrophages activated by INF-γ (CD68)

c. Cytotoxic T lymphocytes (CD8) ⁕

d. Neutrophils

e. T-regulatory lymphocytes (CD3)

3. **Where does the MHC class I molecule associate with the epitope peptide?**

a. Cytosol

b. Ribosomes

c. Endoplasmic reticulum ⁕

d. Golgi apparatus

e. Proteasome

4. **What do HLA class III genes express?**

a. Complement C2 ⁕

b. Complement C4 ⁕

c. Convertase 3

d. Convertase 5

e. Heat shock proteins (HSP)

5. **What is the antigenic composition of MHC molecules?**

a. They contain self antigens (■)

b. They contain non-self antigens (■)

c. They do not contain self antigens to avoid autoimmune response

d. MHC II endoantigens

e. MHC I exoantigens

**6. What is characteristic of endoantigen processing?**

a. Passive transport of the polypeptide containing the antigenic epitope into the endoplasmic reticulum

b. Transport of MHC I molecules into the endoplasmic reticulum (■)

c. Transport of MHC II molecules into the endoplasmic reticulum

d. Carrier-mediated transport of the polypeptide containing the antigenic epitope into the endoplasmic reticulum (■)

e. Assembly of the MHC I - epitope complex in ribosomes

7. **What is characteristic of endoantigen processing?**

a. Assembly of the MHC I - epitope complex in ribosomes

b. Assembly of the MHC I - epitope complex in the Golgi apparatus

c. Assembly of the MHC I - epitope complex in the endoplasmic reticulum (■)

d. Assembly of the MHC I - epitope complex in proteasomes

e. Assembly of the MHC II - epitope complex in ribosomes

8. **What can be exoantigens?**

a. Gram-positive bacteria ⁕

b. Gram-negative bacteria ⁕

c. Viruses ⁕

d. Donor's red blood cells

e. Haptens

9. **Characterize the invariant chain (LI):**

a. Protein chain in MHC I

b. Protein chain in MHC II ⁕

c. Main protein in the antigenic epitope of an endoallergen

d. Main protein in the antigenic epitope of an exoallergen

e. It is a component of the endoplasmic reticulum (ER) membrane.

10. **Characterize the process of translocating the MHC-antigen complex to the membrane surface**

a. MHC I-antigen by exocytosis ⁕

b. MHC I-antigen through specific channels activated by the invariant chain

c. MHC II-antigen through specific channels activated by the invariant chain

d. MHC II-antigen by ribosome fusion with the outer membrane

e. MHC I-antigen and MHC II-antigen through energy-consuming carriers (ATP).

11. **Characterize the process of identifying the antigen expressed by MHC-II**

a. By Th lymphocytes (CD-4) through glycoprotein receptors ⁕

b. By Tc lymphocytes (CD-8) through glycoprotein receptors ⁕

c. By neutrophils through glycoprotein receptors

d. By immunoglobulin E

e. By immunoglobulin M

**12. Characterize the process of identifying the antigen expressed by MHC-II**

a. Carried out by Tc lymphocytes (CD-8) through glycoprotein receptors ⁕

b. Inhibited by the CD40L-CD40R system

c. Activated by the CD40L-CD40R system

d. Activated by INF-γ

e. Carried out by immunoglobulin M

13. **Which antigen-presenting cells can activate naive T lymphocytes?**

a. Macrophages stimulated by INF-γ

b. Macrophages stimulated by TNF-α

c. Tissue dendritic cells ⁕

d. Memory B cells

e. Follicular dendritic cells ⁕

14. **Which cells can present antigens to B lymphocytes?**

a. Macrophages stimulated by INF-γ

b. Macrophages stimulated by TNF-α

c. Macrophages stimulated by TGF-β growth factor

d. Tissue dendritic cells

e. Follicular dendritic cells ⁕

15. **Which factors directly contribute to graft rejection?**

a. Tc lymphocytes (CD8) ⁕

b. Antibodies ⁕

c. Th lymphocytes (CD4)

d. Tr lymphocytes (CD3)

e. NK cells ⁕

**16. Characterize the HLA-I-B27 gene:**

a. Belongs to MHC class I ⁕

b. Belongs to MHC class II

c. Associates with rheumatic diseases ⁕

d. Associates with systemic lupus erythematosus

e. Associates with IL-23-mediated inflammatory-immune response ⁕

**17. Characterize the properties of the HLA-B27 molecule:**

a. Can have common sequences with different bacteria ⁕

b. Can become an antigen for antibodies ⁕

c. Can be a cell entry point for microorganisms ⁕

d. Associates with the expression of NK cell receptors

e. Associates with the inhibition of the inflammatory-immune response

**18. Characterize natural killer (NK) cells:**

a. Express receptors for HLA-I-A proteins

b. Express receptors for HLA-I-B proteins

c. Express receptors for HLA-I-E proteins ⁕

d. Do not mediate graft rejection

e. Can affect infected or tumor cells even under low MHC-I expression ⁕

19. **Which cytokines facilitate the activation of naive T cells by macrophages?**

a. IL-1β

b. TNF-α

c. IL-12 ⁕

d. IL-18 ⁕

e. MCP-1 (Monocyte chemoattractant protein)

**20. Which cytokines facilitate the activation of naive T lymphocytes by dendritic cells?**

a. IL-6

b. IL-10

c. INF-β ⁕

d. INF-α ⁕

e. MCP-1 (Monocyte chemoattractant protein)

21. **Which factors expressed by naive T lymphocytes facilitate their activation by antigen-presenting cells?**

a. CD-28 ⁕

b. CD-2 ⁕

c. B7

d. CD-8

e. LFA-3 (Lymphocyte function-associated antigen 3)

22. **What factors are expressed by naïve T-lymphocytes that facilitate their activation by APC?**

a. LFA-1 (Lymphocyte function associated antigen 1) (■)

b. CD-2 (■)

c. B7

d. B27

e. LFA-3 (Lymphocyte function associated antigen 3)

**23. What factors expressed by APC that facilitate activation of naïve T-lymphocytes?**

a. LFA-1 (Lymphocyte function associated antigen 1)

b. CD40L

c. B7 (■)

d. CD40R (■)

e. LFA-3 (Lymphocyte function associated antigen 3) (■)

24. **Which cytokine stimulates Th1 proliferation?**

a. INF-γ

b. IL-2 (■)

c. TNF-β

d. INF- β

e. TGF-β (transformation growth factor beta)

25. **Which cytokine stimulates Th-naïve differentiation into Th2?**

a. IL-4 (■)

b. IL-5

c. IL-9

d. IL-10

e. IL-13

**26. What is the role of IL-4 in the immune response?**

a. It has chemo-attractant effect

b. Stimulates Th1 proliferation

c. Stimulates macrophage phagocytosis

d. Stimulates mast cell degranulation

e. Stimulates IgE production by B lymphocytes (■)

27. **What is the role of negative selection of T-lymphocytes in the thymus?**

a. To test CD4 marker to MHC I molecules expressed by APC

b. To test CD8 marker to MHC II molecules expressed by APC

c. To test LT receptor to MHC I antigens (■)

d. To test LT receptor to MHC II antigens (■)

e. To test CD28 Costimulation Molecule

**28. What is the role of autoimmune regulatory protein in LT training in the thymus?**

a. Presentation of maximum number of antigen variations to LT self-receptor (■)

b. Presentation of minimum number of antigen variations to LT self-receptor

c. Control of CD28 costimulation molecule expression

d. Control of CTLA-4 inhibition molecule expression

e. Control of CD-40 ligand expression

**29. What are the factors involved in promoting the effect of Th2 lymphocytes?**

a. CD-40 receptor

b. CD-40 ligand (■)

c. IL-2 (■)

d. IL-4 (■)

e. INF-γ

**30. What is the CD pattern of the T-lymphocyte precursor that entering into the thymus?**

a. CD3- (■)

b. CD4- (■)

c. CD8- (■)

d. CD4+/CD8+

e. CD3+

32. **Which cytokine stimulates Th1 proliferation in an autocrine manner?**

a. TNF-α

b. INF-γ

c. IL-2 (■)

d. TGF-β (transforming growth factor beta)

e. IL-4

33. **Which cytokines stimulate the expression of defensins in the skin?**

a. TNF-α

b. INF-γ

c. IL-22 (■)

d. IL-17 (■)

e. TGF-β (transforming growth factor beta)

**34. By what mechanisms does lymphocyte CD8 fight HIV infection?**

a. Stimulation of antibody (IgG) production by plasmocytes

b. Inhibition of HIV replication in Th4 lymphocyte (■)

c. Release of INF-γ (■)

d. Release of IL-4

e. TGF-β release (transforming growth factor beta)

**35. What is the consequence of mutation of the AIRE gene (the gene that controls the expression** of the autoimmune regulatory protein)?

a. Impaired positive selection of T-lymphocytes in the thymus

b. Impaired negative selection of T-lymphocytes in the thymus (+)

c. Impaired positive selection of B lymphocytes

d. Impaired negative selection of B lymphocytes

e. Impaired the differentiation of B lymphocytes into memory cells

**Complement**

**1. How many Ag-Ab complexes can the complement component C1 bind in classical activation?**

a. 2

b. 4

c. 6 (+)

d. 8

e. 10

2. **Which of the C1 ingredients are serine proteases?**

a. C1s (+)

b. C1q

c. C1r (+)

d. C1t

e. C1p

3. **What is the structure of classically activated C3 convertase?**

a. C4bC2b

b. C4bC2a (+)

c. C4aC2a

d. C4aC2b

e. C1qC4aC2b

**4. How many C3 convertase molecules can maximally derive from C1 component in the classical complement activation pathway?**

a. 2

b. 4

c. 6

d. 8

e. 10 (+)

**5. What is the structure of classically activated C5 convertase?**

a. C4bC2b3b

b. C4bC2a3a

c. C4bC2aC3b (+)

d. C4aC2bC3b

e. C4aC2bCa

**6. What is the structure of alternately activated C3 convertase?**

a. C3bBb (+)

b. C3aBb

c. C2aBb

d. C3bBa

e. C3aBa

7. **What is the role of C 1 inhibitor in the process of complement activation?**

a. inhibition of C 3 convertase through the classical pathway

b. inhibition of C 5 convertase through the classical pathway

c. inhibition of C 3 convertase through the alternative pathway \*

d. inhibition of C 5 convertase through the alternative pathway

e. inhibition of the C5b-C9 complex

**8. What is the role of C3a and C5a in the immune response?**

a. degranulation of eosinophils

b. degranulation of basophils \*

c. chemotaxis of eosinophils \*

d. opsonization of gram-negative bacteria

e. degradation of non-self antigen

9. **Which cells express receptors for C3b (CD21, CD35)?**

a. macrophages\*

b. dendritic cells\*

c. erythrocytes\*

d. NK (natural killer)

e. mast cells

10. **Which immunoglobulins are able to activate complement through the classical pathway?**

a. Ig G 1 \*

b. IgG 4

c. Ig M\*

d. IgA

e. IgD

11. **What is the role of CD 59 expressed on different cells in complement activation?**

a. inhibits convertase 3

b. inhibits convertase 5

c. inhibits the insertion of C9 into the MAC complex (C5b, C6, C7, C8) \*

d. inhibits factor B

e. inhibits factor D

12**. What is the role of MCP (membrane cofactor protein) in complement activation?**

a. inhibits C3b\*

b. inhibits C3a

c. inhibits C4b\*

d. inhibits C5a

e. inhibits C5b

**13. What is the role of properdin in complement activation?**

a. it is an activator of the classical pathway

b. it is an inhibitor of the classical pathway

c. it is an activator of the alternative pathway \*

d. it is an inhibitor of the alternative pathway

e. inhibits lectin

**14. Which one segment of the HLA gene controls the expression of complement components?**

a. MHC-I-A

b. MHC-I-B

c. MHC-I-C

d. MHC-II

e. MHC-III \*

15. **Characterize the D factor involved in the alternative pathway of complement activation?**

a. it is inactive

b. it is always active \*

c. it cleaves factor B \*

d. it cleaves factor H

e. ensures the formation of convertase 5

**16. Characterize the D factor involved in the alternative pathway of complement activation?**

a. it is inactive

b. it is always active \*

c. it is activated by properdin

d. it is activated by factor H

e. ensures the formation of convertase 3 \*

17. **Characterize the D factor involved in the alternative pathway of complement activation?**

a. stimulates complement activation through the classical pathway through the connection with

Ag \*

b. inhibits classical complement activation by blocking C1q

c. activates the metabolism of convertase 3

d. activates the metabolism of convertase 5

e. increases lectin affinity for mannose

18. **Characterize the D factor involved in the alternative pathway of complement activation?**

a. activates the alternative pathway of complement activation by facilitating B-D protein binding\*

b. inhibits the alternative pathway of complement activation by B-D facilitating protein binding

c. activates the alternative complement pathway of complement activation by inhibiting

convertase 3 metabolism \*

d. inhibits the alternative pathway of complement activation by inactivating convertase 5

e. inhibits the alternative pathway of complement by activating the B-D protein binding

19. **Which one convertase 3 is formed in the result of the alternative pathway of complement**

**activation?**

a. C4b2a

b. C4b2b

c. C3bBb \*

d. C3bBa

e. C3aBb

20. **What are the protective systems of own cells in case of uncontrolled complement**

**activation through alternative pathway?**

a. plasmatic factor H\*

b. factor H expressed on the cell membrane

c. CD55 factor expressed on the cell membrane\*

d. Factor I expressed on the cell membrane

e. Plasmatic DAF of convertase 3 (degradation acceleration factor of convertase 3)

21. **Characterize anaphylatoxin C5a?**

a. It has a weaker activity than C3a

b. It is more active than C3a \*

c. Stimulates the expression of the R1 receptor on the macrophage to C3b\*

d. Stimulates the expression of the R1 receptor on the pathogen to C3b\*

e. Plasmatic DAF of convertase 3 (degradation acceleration factor of convertase 3)

22. **Indicate the extrahepatic sources of C1q?**

a. endotheliocytes

b. mast cells\*

c. monocytes\*

d. plasma cells derived from the action of T-independent antigen

e. plasma cells derived from the action of T-dependent antigen

**23. Which one convertase 5 is formed in the classical pathway of complement activation?**

a. C4b2aC3a

b. C4b2bC3b

c. C4aC2aC3b

d. C4bC2aC5a

e. C4bC2aC3b\*

**24. What are characteristic functions of C1q?**

a. stimulation of dendritic cell migration in lymphoid tissue \*

b. activation of macrophage phagocytosis

c. increased expression of CMH-II molecules on the dendritic cells surface\*

d. inhibition of CMH-II expression

e. activation of memory B lymphocyte clone formation

25. **Indicate the cause of angioneurotic edema in the complement system deficiency?**

a. disorder of MAC complex formation

b. disorder of opsonization by C3b

c. impaired formation of convertase 3 through alternative pathway\*

d. impaired formation of convertase 3 through classical pathway

e. metabolism disorder of bradykinin by inhibitory factor C 1 \*

**26. What is low expression of the C1 receptor (CD35) to C3b?**

a. disorder of the convertase 3 formation through alternative pathway of complement activation

b. disorder of convertase 5 formation through classical pathway of complement activation

c. disorder of phagocytosis and removal of the Ag-Ab complex\*

d. autoimmune inflammation\*

e. decreases the action of properdin from the alternative pathway of complement activation