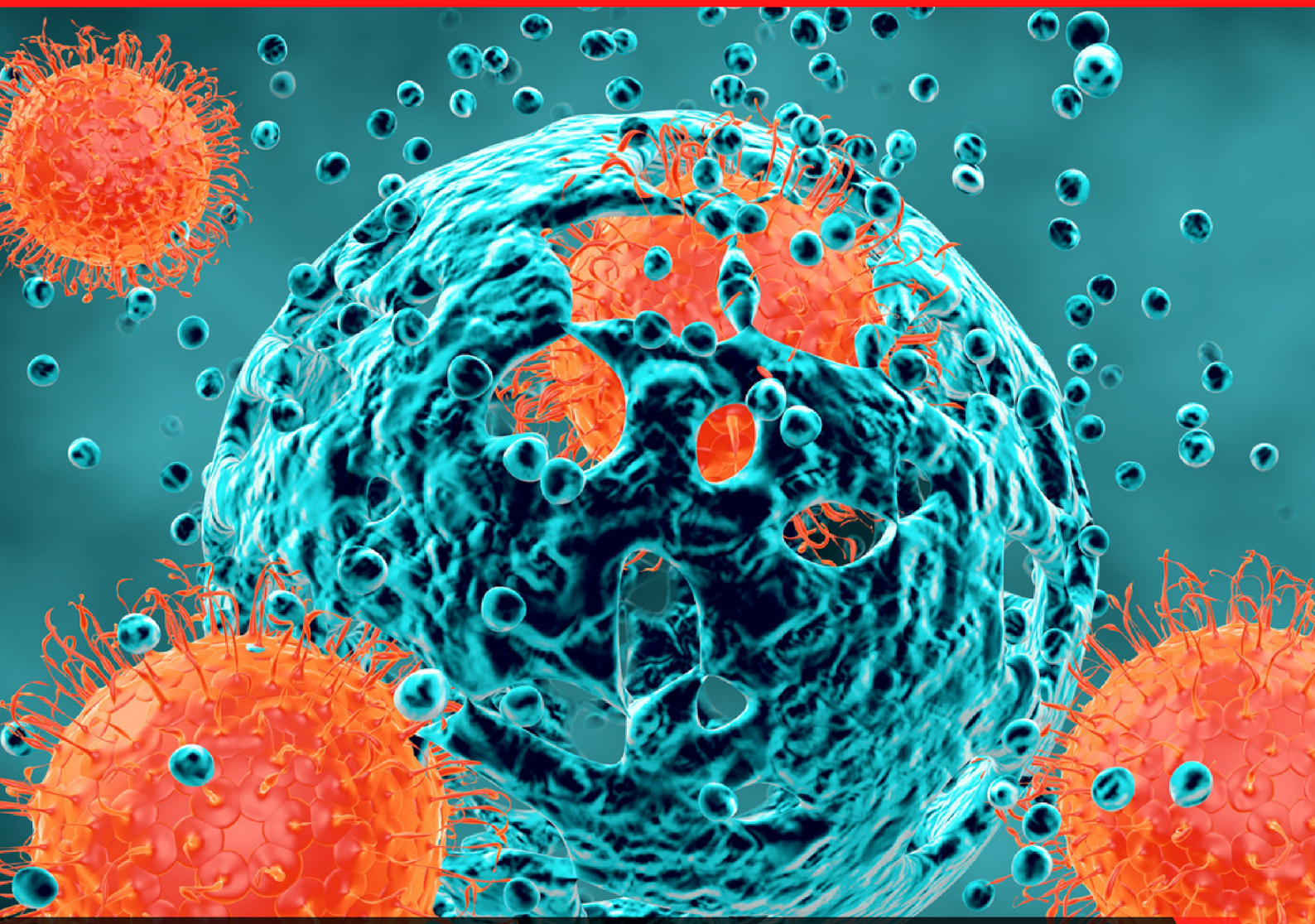
PRACTICE EXAMS

ON CLINLCAL

IMMUNOLOGY

MODEL ANSWERS INCLUDED



MED STUDENT NOTES .COM

MCQ & SAQ QUESTIONS

PDF

MEDSTUDENTNOTES.COM

A Message From Our Team

Revising for medical exams is stressful; believe us, we know from experience! Trying to balance depth of knowledge with breadth of knowledge is always the challenge. And as a student, it's often hard to know where the right balance is, and it's easy to go down unnecessary and time-consuming rabbit holes that won't help you in the exams. That's where the experienced team at MedStudentNotes comes in!

In this series of **PRACTICE EXAMS** we have used our medical experience to create a comprehensive set of quizzes that are tailored just right to help you to ACE your exams and maximize retention. We have created numerous mini-quizzes (both multi-choice and short-answer) on all the subtopics relating to this subject. That way you can do them at your own pace and correct the questions you get wrong there and then!

If you are new to us, here are a few things to help get the most out of these Practice Exams:

1. **Once saved, the notes are yours for life!** However, we strongly advise that you download and save the files immediately upon purchasing for permanent offline access.

2. **Sharing notes is prohibited.** All files are share-protected and our system will automatically revoke access to and lock files if it detects a customer attempting to share or distribute our notes.

3. **Your license permits you to do the following:**
    a. You may download/save/view files on up to 2 simultaneous devices.
    b. You may save the files to an external hard drive for backup purposes only.
    c. You may print your notes to hard copy on any home printer/photocopier.

4. **Once saved, you do not need to download the notes again**. You can simply transfer your file/s to your second personal device (eg: your iPad/tablet) without the need to re-download your files. If you wish to retire an old device, simply transfer your files to your new device, then delete the files from your old device.

5. **Each order has an allocated download allowance**. Exceeding your download quota will require you to request an extension by emailing us at admin@medstudentnotes.com and quoting your order number.

6. **If you have any further queries,** feel free to check out our FAQ page: https://www.medstudentnotes.com/pages/faqs or email us at admin@medstudentnotes.com

7. **Please ensure you use the SAME Email address for any future purchases**. That way, all of your files will be visible in the one place on your account page.

8. **Feel free to use the discount code "TAKE20OFF"** for 20% off any future purchases. (Valid for a limited time)

9. **If you find these PRACTICE EXAMS valuable and you haven't yet got our Study Notes Bundle Deal, (which includes ALL of our study guides at an 80% discount), then NOW is the time! To purchase, simply visit this link: https://www.medstudentnotes.com/products/all-of-our-notes-in-one-bundle**

MEDSTUDENTNOTES.COM

Table Of Contents:

What's included: A comprehensive set of university-level multiple-choice (MCQ) and short-answer (SAQ) exam questions covering everything to do with **the Immune System**. All answer keys are provided directly after each quiz so that you can revise and reassess as you go, helping you learn better and improve retention.

Quizzes in this booklet:

MCQ Quiz: Overview of the Immune System - Innate Immunity

1. Which of the following is NOT considered a physical barrier of the innate immune system?
    A. Skin
    B. Mucous membranes
    C. Macrophages
    D. Saliva

2. What is the primary function of macrophages in the innate immune system?
    A. Producing antibodies
    B. Phagocytosis of pathogens
    C. Producing histamine
    D. Activating T cells

3. Which of the following cells is primarily responsible for killing virus-infected cells?
    A. B cells
    B. Neutrophils
    C. Natural killer (NK) cells
    D. Eosinophils

4. Antigen-presenting cells (APCs) include which of the following?
    A. Neutrophils
    B. Dendritic cells
    C. B cells
    D. Both B and C

5. Which of the following is an essential feature of inflammation?
    A. Vasodilation
    B. Vasoconstriction
    C. Decreased vascular permeability
    D. Inhibition of leukocyte migration

6. The complement system is a group of proteins that primarily function to:
    A. Produce antibodies
    B. Engulf and digest pathogens
    C. Enhance the ability of antibodies and phagocytic cells to clear pathogens
    D. Stimulate the production of cytokines

7. Which of the following is a granulocyte involved in fighting parasitic infections?
    A. Eosinophils
    B. Basophils
    C. Neutrophils
    D. Lymphocytes

8. Fever is induced by the release of which substance?
    A. Histamine
    B. Interleukin-1
    C. Prostaglandins
    D. Cytotoxic T cells

9. What is the primary function of mast cells in the immune system?
    A. Phagocytosis
    B. Release of histamine
    C. Killing virus-infected cells
    D. Presenting antigens

10. Which of the following cells is a phagocyte?
    A. Eosinophil
    B. B cell
    C. Macrophage
    D. Natural killer cell

11. What is the primary role of neutrophils in the innate immune system?
    A. Producing antibodies
    B. Phagocytosis and release of antimicrobial substances
    C. Inducing fever
    D. Killing virus-infected cells

12. Which of the following is NOT a function of the complement system?
    A. Opsonization
    B. Membrane attack complex (MAC) formation
    C. Antibody production
    D. Recruitment of inflammatory cells

Answer Key:

1. C
2. B
3. C
4. D
5. A
6. C
7. A
8. B
9. B
10. C
11. B
12. C

SAQ Quiz: Overview of the Immune System - Innate Immunity

1. Briefly explain the process of phagocytosis in the innate immune system.

2. Describe the role of natural killer (NK) cells in the immune response.

3. How do dendritic cells function in the immune system, and why are they considered antigen-presenting cells (APCs)?

4. Explain the steps involved in the process of inflammation.

5. How does the complement system contribute to the immune response against pathogens?

6. Briefly describe the role of mast cells in allergic reactions.

7. What is opsonization and how does it contribute to the immune response?

Model Answers:

1. Phagocytosis is a process by which cells, such as macrophages and neutrophils, engulf and destroy pathogens. The process begins with pathogen recognition, followed by attachment to the phagocyte's cell membrane. The membrane then surrounds the pathogen, forming a phagosome. The phagosome fuses with a lysosome, creating a phagolysosome, where the pathogen is digested by enzymes and destroyed.

2. Natural killer (NK) cells are lymphocytes that play a crucial role in the immune response against virus-infected cells and tumor cells. They recognize and bind to abnormal cells, then release cytotoxic granules containing perforin and granzymes, which cause the target cell to undergo apoptosis (cell death).

3. Dendritic cells function as antigen-presenting cells (APCs) in the immune system. They capture and process antigens, then migrate to lymphoid tissues where they present the processed antigen fragments on their cell surface using MHC II molecules. This presentation activates T cells, initiating the adaptive immune response.

4. Inflammation is a process that involves several steps: (1) tissue injury or infection triggers the release of chemical mediators, such as histamine and prostaglandins; (2) vasodilation occurs, increasing blood flow to the affected area; (3) increased vascular permeability allows plasma proteins and leukocytes to enter the site of injury or infection; (4) chemotaxis attracts immune cells, such as neutrophils and macrophages, to the site; (5) phagocytes engulf and destroy pathogens and cellular debris.

5. The complement system contributes to the immune response by enhancing the ability of antibodies and phagocytic cells to clear pathogens. This occurs through processes such as opsonization, which enhances phagocytosis; the formation of the membrane attack complex (MAC), which leads to cell lysis; and the recruitment of inflammatory cells, which helps to eliminate pathogens.

6. Mast cells play a key role in allergic reactions by releasing histamine and other inflammatory mediators upon activation. This occurs when allergens bind to IgE antibodies on the surface of mast cells, leading to degranulation and the release of histamine, which causes vasodilation, increased vascular permeability, and smooth muscle contraction, resulting in the symptoms of an allergic reaction.

7. Opsonization is the process by which pathogens are coated with molecules, such as antibodies or complement proteins, that enhance their recognition and uptake by phagocytes. This process increases the efficiency of phagocytosis, allowing for more effective clearance of pathogens from the body.

MCQ Quiz: Adaptive Immunity - Humoral and Cell-Mediated Immunity

1. Which of the following cells are responsible for humoral immunity?
    A. B cells
    B. T cells
    C. Macrophages
    D. Neutrophils

2. What is the primary function of cytotoxic T cells (CD8+ T cells) in cell-mediated immunity?
    A. Producing antibodies
    B. Killing virus-infected cells
    C. Helping B cells produce antibodies
    D. Suppressing the immune response

3. Which of the following cells play a crucial role in both humoral and cell-mediated immunity?
    A. B cells
    B. Neutrophils
    C. Helper T cells (CD4+ T cells)
    D. Natural killer cells

4. What is the primary function of antibodies in the immune response?
    A. Phagocytosis
    B. Killing virus-infected cells
    C. Binding to antigens to neutralize or target pathogens for destruction
    D. Suppressing the immune response

5. Which of the following types of T cells is responsible for suppressing the immune response?
    A. Helper T cells (CD4+ T cells)
    B. Cytotoxic T cells (CD8+ T cells)
    C. Regulatory T cells
    D. Natural killer T cells

6. The three phases of adaptive immune responses are:
    A. Activation, effector, and memory
    B. Recognition, proliferation, and differentiation
    C. Priming, effector, and resolution
    D. Induction, elimination, and memory

7. What is the primary function of memory cells in the immune response?
    A. Producing antibodies
    B. Killing virus-infected cells
    C. Providing a rapid and enhanced response to subsequent exposures to the same antigen
    D. Suppressing the immune response

8. Which of the following cells presents antigens to helper T cells (CD4+ T cells)?
    A. Neutrophils
    B. B cells
    C. Macrophages
    D. All of the above

9. During the activation phase of the adaptive immune response, which of the following events occurs?
    A. Naïve T and B cells are stimulated to proliferate and differentiate
    B. Effector cells eliminate the pathogen
    C. Memory cells are formed
    D. The immune response is suppressed

10. The primary function of the effector phase in the adaptive immune response is to:
    A. Activate naïve T and B cells
    B. Eliminate the pathogen
    C. Form memory cells
    D. Suppress the immune response

11. In which phase of the adaptive immune response are memory cells formed?
    A. Activation
    B. Effector
    C. Memory
    D. Resolution

12. The process by which B cells produce antibodies with increased affinity for the antigen during an immune response is called:
    A. Clonal expansion
    B. Somatic hypermutation
    C. Class switching
    D. Affinity maturation

Answer Key:

1. A
2. B
3. C
4. C
5. C
6. A
7. C
8. D
9. A
10. B
11. C
12. D

SAQ Quiz: Adaptive Immunity - Humoral and Cell-Mediated Immunity

1. Explain the primary difference between humoral immunity and cell-mediated immunity.

2. Describe the role of helper T cells (CD4+ T cells) in the adaptive immune response.

3. How do cytotoxic T cells (CD8+ T cells) recognize and kill infected cells?

4. Explain the process of clonal expansion in the adaptive immune response.

5. Describe the role of regulatory T cells in the immune system.

6. What is the importance of class switching in B cell activation and antibody production?

7. How do memory cells contribute to a more rapid and effective immune response upon subsequent exposure to the same antigen?

Model Answers:

1. The primary difference between humoral immunity and cell-mediated immunity lies in their mechanisms of action. Humoral immunity is mediated by B cells that produce antibodies, which neutralize or target pathogens for destruction. Cell-mediated immunity, on the other hand, involves T cells, specifically cytotoxic T cells (CD8+ T cells), which directly kill infected cells or activate other immune cells.

2. Helper T cells (CD4+ T cells) play a crucial role in the adaptive immune response by activating other immune cells. They help B cells produce antibodies and differentiate into memory B cells, and they also stimulate cytotoxic T cells (CD8+ T cells) to become more efficient at killing infected cells.

3. Cytotoxic T cells (CD8+ T cells) recognize infected cells through the interaction of their T cell receptor (TCR) with the major histocompatibility complex class I (MHC I) molecule, which presents antigens on the surface of infected cells. Once the cytotoxic T cell binds to the infected cell, it releases cytotoxic granules containing perforin and granzymes, leading to apoptosis (cell death) of the infected cell.

4. Clonal expansion is the process by which activated T and B cells rapidly proliferate and differentiate into effector and memory cells upon encountering a specific antigen. This allows the immune system to generate a large number of immune cells specific to the pathogen, ensuring a more effective response.

5. Regulatory T cells play a role in maintaining immune tolerance and preventing autoimmune reactions by suppressing the immune response. They do this by inhibiting the activation and function of other immune cells, such as helper T cells and cytotoxic T cells, and by promoting the production of anti-inflammatory cytokines.

6. Class switching is the process by which B cells change the class of the antibody they produce while retaining antigen specificity. This allows the immune system to produce antibodies with different functions and effector mechanisms, ensuring a more effective and targeted response against the pathogen.

7. Memory cells contribute to a more rapid and effective immune response upon subsequent exposure to the same antigen by providing a faster and more robust response. When memory cells encounter the antigen again, they rapidly proliferate and differentiate into effector cells, producing a larger number of antibodies and effector T cells. This results in quicker pathogen elimination and a reduced likelihood of illness.

MCQ Quiz: Antigens and Antibodies

1. Which of the following best describes an antigen?
    A. A molecule that binds to a B cell receptor or T cell receptor
    B. A protein that recognizes and binds to a specific antigen
    C. A molecule that triggers an immune response
    D. Both A and C

2. What is an epitope?
    A. The portion of an antigen that is recognized and bound by an antibody
    B. The region of an antibody that binds to an antigen
    C. A protein that is produced by B cells in response to an antigen
    D. A protein that is produced by T cells in response to an antigen

3. Thymus-dependent antigens (TD antigens) are characterized by their ability to:
    A. Activate B cells without the help of T cells
    B. Activate B cells only with the help of T cells
    C. Trigger an immune response independently of B cells
    D. Bind directly to T cell receptors

4. Thymus-independent antigens (TI antigens) are characterized by their ability to:
    A. Activate B cells without the help of T cells
    B. Activate B cells only with the help of T cells
    C. Trigger an immune response independently of B cells
    D. Bind directly to T cell receptors

5. Which of the following is NOT a function of antibodies?
    A. Neutralization
    B. Opsonization
    C. Activation of complement
    D. Phagocytosis

6. Which region of an antibody molecule is responsible for binding to an antigen?
    A. Constant region
    B. Variable region
    C. Hinge region
    D. Fab region

7. What is the process by which B cells change the class of the antibody they produce?
    A. Somatic hypermutation
    B. Clonal expansion
    C. Isotype switching
    D. Affinity maturation

8. Which of the following is NOT one of the five main classes of immunoglobulins?
    A. IgA
    B. IgD
    C. IgE
    D. IgY

9. Which immunoglobulin class is the most abundant in the blood?
    A. IgA
    B. IgD
    C. IgG
    D. IgM

10. Which immunoglobulin class is primarily found in mucosal secretions?
    A. IgA
    B. IgD
    C. IgG
    D. IgM

11. What is the primary function of IgE antibodies?
    A. Neutralizing bacterial toxins
    B. Mediating allergic reactions
    C. Crossing the placenta to provide passive immunity to the fetus
    D. Participating in agglutination

12. Which immunoglobulin class is the first to be produced in response to an infection?
    A. IgA
    B. IgD
    C. IgG
    D. IgM

Answer Key:

1. D
2. A
3. B
4. A
5. D
6. B
7. C
8. D
9. C
10. A
11. B
12. D

SAQ Quiz: Antigens and Antibodies

1. Explain the difference between thymus-dependent (TD) and thymus-independent (TI) antigens.

2. Describe the general structure of an antibody.

3. Explain the concept of antigenic determinants and their importance in the immune response.

4. What are the primary functions of antibodies in the immune system?

5. How does somatic hypermutation contribute to the specificity of the adaptive immune response?

6. Briefly describe the roles of the five main immunoglobulin classes (IgA, IgD, IgE, IgG, and IgM) in the immune response.

7. Explain the importance of antibody-dependent cellular cytotoxicity (ADCC) in the immune response.

Model Answers:

1. Thymus-dependent (TD) antigens are antigens that require the help of T cells to activate B cells, leading to the production of antibodies. In contrast, thymus-independent (TI) antigens can activate B cells without the assistance of T cells, often through the direct cross-linking of B cell receptors, leading to an immune response.

2. The general structure of an antibody consists of four polypeptide chains: two identical heavy chains and two identical light chains. These chains are connected by disulfide bonds, forming a Y-shaped molecule. Each chain has a variable region (V) at the amino-terminal end, which is responsible for antigen recognition and binding, and a constant region (C) at the carboxy-terminal end, which determines the antibody's class and effector functions.

3. Antigenic determinants, also known as epitopes, are specific regions on an antigen that are recognized and bound by antibodies. These determinants play an important role in the immune response as they determine the specificity of the antibody-antigen interaction and are crucial for the activation of B cells and the production of specific antibodies.

4. The primary functions of antibodies in the immune system include neutralization (binding to and inactivating pathogens or toxins), opsonization (coating pathogens to enhance phagocytosis), activation of the complement system (triggering a cascade of events that lead to pathogen elimination), and agglutination (clumping together of pathogens to facilitate their clearance).

5. Somatic hypermutation is a process by which the variable regions of B cell receptor genes undergo rapid and random mutations during an immune response. This process generates a diverse pool of B cells with different antigen-binding specificities, allowing the immune system to select B cells that produce antibodies with higher affinity for the antigen, ultimately improving the effectiveness of the immune response.

6. The five main immunoglobulin classes have distinct roles in the immune response: IgA is primarily found in mucosal secretions and provides local defense against pathogens; IgD is involved in the activation and maturation of B cells; IgE is involved in allergic reactions and defense against parasites; IgG is the most abundant immunoglobulin in the blood and provides systemic immunity, crossing the placenta to provide passive immunity to the fetus; and IgM is the first immunoglobulin to be produced in response to an infection and is involved in early immune responses.

7. Antibody-dependent cellular cytotoxicity (ADCC) is a mechanism by which immune cells, such as natural killer (NK) cells, recognize and eliminate target cells coated with antibodies. The Fc receptor on the effector cell binds to the constant region (Fc) of the antibody, which is attached to the target cell. The effector cell then releases cytotoxic molecules, such as perforin and granzymes, which induce apoptosis in the target cell, contributing to the elimination of infected or abnormal cells.

MEDSTUDENTNOTES.COM

End of Sample

Thankyou for previewing this FREE sample.
For the rest of the quizzes in this subject, or to explore our full range of practice exams, visit the link below:

>>> https://www.medstudentnotes.com/collections/practice-exams <<<

Or Click Here To Get ALL 15 Practice Exams For 80% OFF:
(Offer Ends Soon)