

Success! In Clinical Laboratory Science - Immunology Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. Which cell type is not typically part of the adaptive immune response?**
 - A. B cells**
 - B. Dendritic cells**
 - C. Polymorphonuclear cells**
 - D. Cytotoxic T lymphocytes**

- 2. In the complement system, which statement is correct?**
 - A. A C3 deficiency would likely be asymptomatic**
 - B. Antibody is required for the activation of the lectin pathway**
 - C. C3b is an important opsonin**
 - D. C9 initiates the membrane attack complex**

- 3. Autoantibodies commonly detected in systemic lupus erythematosus are directed against what type of antigen?**
 - A. Surface antigens of bone marrow stem cells**
 - B. Nuclear antigens**
 - C. Mitochondrial antigens**
 - D. Myelin antigens**

- 4. After adding sensitized sheep red blood cells in the complement fixation test, all tubes show hemolysis. What does this indicate?**
 - A. The patient serum was not heat inactivated.**
 - B. The sensitized red blood cells were unstable.**
 - C. The incubation temperature was too low.**
 - D. The patient serum lacked antibodies to the antigen in question.**

- 5. During an antibody titration, which pattern indicates a prozone reaction?**
 - A. Prezone reaction**
 - B. Prozone reaction**
 - C. Postzone reaction**
 - D. Incomplete complement inactivation**

- 6. The first serologic marker to appear in acute hepatitis B virus infection is which of the following?**
- A. Anti-HB**
 - B. Anti-HBc**
 - C. Anti-HBe**
 - D. HBsAg**
- 7. What is the primary mechanism responsible for pathology in systemic lupus erythematosus?**
- A. Allergic reaction to foreign molecules**
 - B. Antibodies directed against self antigens**
 - C. Polyclonal activation of cytotoxic T cells**
 - D. Lack of intracellular killing after neutrophil phagocytosis of bacteria**
- 8. Loss of self-tolerance results in**
- A. Autoimmune disease**
 - B. Graft-versus-host disease**
 - C. Immunodeficiency**
 - D. Tumors**
- 9. Which assay uses a labeled antibody to detect an antigen within a tissue sample?**
- A. Indirect immunofluorescence**
 - B. Direct immunofluorescence**
 - C. Western blot**
 - D. ELISA**
- 10. Which statement is true about HLA expression?**
- A. Found on all nucleated cells**
 - B. Found on red blood cells only**
 - C. Found on platelets only**
 - D. Found on extracellular matrix only**

Answers

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

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Explanations

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1. Which cell type is not typically part of the adaptive immune response?

- A. B cells**
- B. Dendritic cells**
- C. Polymorphonuclear cells**
- D. Cytotoxic T lymphocytes**

Distinguishing innate from adaptive immunity helps answer this. Polymorphonuclear cells, especially neutrophils, are frontline players of the innate immune system. They respond quickly to general infection signals, perform phagocytosis, and release antimicrobial substances, but they do not have antigen-specific receptors or long-term memory. The adaptive immune response, on the other hand, relies on lymphocytes with specific antigen receptors—B cells producing antibodies and cytotoxic T cells targeting infected cells—often with help from dendritic cells that present antigens to T cells to initiate the response. So the cell type not typically part of adaptive immunity is polymorphonuclear cells.

2. In the complement system, which statement is correct?

- A. A C3 deficiency would likely be asymptomatic**
- B. Antibody is required for the activation of the lectin pathway**
- C. C3b is an important opsonin**
- D. C9 initiates the membrane attack complex**

The main concept being tested is how opsonization by C3b tags microbes for phagocytosis and how this fits into complement function. C3b binds to the surface of pathogens and is recognized by receptors on phagocytes, such as CR1, which marks the invader for engulfment and destruction. This tagging is a central, efficient way the immune system smooths immediate clearance and links innate and adaptive responses. If C3 is deficient, the entire cascade that leads to opsonization, inflammation, and MAC formation is impaired, so infections are frequent and serious rather than asymptomatic. The lectin pathway, in contrast, is activated by mannose-binding lectin binding to microbial sugars and activating MASPs without needing antibodies, so antibodies are not required for its initiation. The membrane attack complex is formed when C5b initiates the assembly with C6-C9 to create a pore in the pathogen membrane; C9 is a pore-forming component but does not start the complex on its own. Therefore, C3b as an opsonin is the best-supported statement.

3. Autoantibodies commonly detected in systemic lupus erythematosus are directed against what type of antigen?

- A. Surface antigens of bone marrow stem cells
- B. Nuclear antigens**
- C. Mitochondrial antigens
- D. Myelin antigens

Autoantibodies in systemic lupus erythematosus primarily target components inside the cell nucleus. This is why ANA testing is a hallmark of SLE, as many antibodies react with nuclear antigens such as DNA, histones, and various nuclear proteins (like Sm and RNP). The binding of these anti-nuclear antibodies forms immune complexes that circulate and can deposit in tissues, driving inflammation and organ damage, notably the kidneys in lupus nephritis. Antibodies against surface antigens of bone marrow stem cells aren't typical for SLE and would point to other conditions. Antibodies to mitochondrial antigens are characteristic of primary biliary cholangitis, not lupus. Antibodies to myelin antigens are associated with demyelinating diseases such as multiple sclerosis. Therefore, the type of antigen most commonly targeted in SLE is nuclear.

4. After adding sensitized sheep red blood cells in the complement fixation test, all tubes show hemolysis. What does this indicate?

- A. The patient serum was not heat inactivated.
- B. The sensitized red blood cells were unstable.
- C. The incubation temperature was too low.
- D. The patient serum lacked antibodies to the antigen in question.**

In a complement fixation test, the outcome depends on whether the patient's serum contains antibodies to the tested antigen. If such antibodies are present, they bind the antigen and fix complement, so when the indicator sensitized red blood cells are added, there is no free complement to lyse them, resulting in no hemolysis. If those antibodies are absent, the complement remains free and can cause hemolysis of the sensitized sheep red blood cells after the indicator step. Seeing hemolysis in all tubes means the patient serum did not have antibodies to the antigen, so the complement was not fixed.

5. During an antibody titration, which pattern indicates a prozone reaction?

A. Prezone reaction

B. Prozone reaction

C. Postzone reaction

D. Incomplete complement inactivation

In this titration, the prozone pattern shows up when there is antibody excess relative to the antigen. The undiluted or low-dilution tubes exhibit little to no agglutination because the abundant antibodies saturate the available epitopes and prevent cross-linking required to form visible lattice structures. As you dilute the serum, antibody concentration falls into the optimal range for lattice formation, and agglutination appears in the later tubes. This shift from negative (or very weak) to positive with dilution is the hallmark of a prozone reaction, indicating that an initially high antibody titer was masking the true reactivity.

6. The first serologic marker to appear in acute hepatitis B virus infection is which of the following?

A. Anti-HB

B. Anti-HBc

C. Anti-HBe

D. HBsAg

The first serologic signal in acute hepatitis B is the viral surface antigen appearing in the blood. This antigen is produced by the virus and shows up early during replication, before the immune system has made antibodies. Its presence confirms active infection and indicates that the person is infectious. As the immune response progresses, antibodies develop—anti-HBc IgM around symptom onset, followed by others like anti-HBe and eventually anti-HBs after recovery or vaccination. In the brief window period when HBsAg has disappeared but anti-HBs is not yet present, anti-HBc IgM can be the marker observed. But overall, the initial marker you see in acute HBV infection is the surface antigen.

7. What is the primary mechanism responsible for pathology in systemic lupus erythematosus?

A. Allergic reaction to foreign molecules

B. Antibodies directed against self antigens

C. Polyclonal activation of cytotoxic T cells

D. Lack of intracellular killing after neutrophil phagocytosis of bacteria

Autoantibody production against self-antigens drives the pathology of systemic lupus erythematosus. These antibodies target nuclear components and other self-mates, form circulating immune complexes, and deposit in tissues such as the kidneys, skin, and joints. The immune complexes activate complement and recruit inflammatory cells, leading to inflammation and organ damage characteristic of lupus—a type III hypersensitivity process. While T-cell involvement occurs, the central feature is autoantibody-mediated immune complex injury. The other options describe mechanisms not responsible for lupus pathology.

8. Loss of self-tolerance results in

- A. Autoimmune disease**
- B. Graft-versus-host disease**
- C. Immunodeficiency**
- D. Tumors**

Self-tolerance is the immune system's ability to recognize its own tissues and not attack them. When this tolerance is lost, autoreactive immune cells or autoantibodies target the body's own components, leading to autoimmune disease with inflammation and tissue damage. Graft-versus-host disease happens when donor immune cells attack the recipient after a transplant, not due to the body's own tolerance failing. Immunodeficiency is a reduced ability to mount immune responses, not an autoimmune attack. Tumors involve complex interactions with the immune system, including evasion, but they're not the direct result of losing self-tolerance. Thus, loss of self-tolerance most directly results in autoimmune disease.

9. Which assay uses a labeled antibody to detect an antigen within a tissue sample?

- A. Indirect immunofluorescence**
- B. Direct immunofluorescence**
- C. Western blot**
- D. ELISA**

Direct immunofluorescence uses a fluorophore-labeled antibody that binds directly to the antigen within a tissue section, allowing visualization of exactly where the antigen is located in the tissue under a fluorescence microscope. This single-step labeling provides in situ localization with a straightforward workflow and typically less background from secondary antibodies. In contrast, indirect immunofluorescence uses a primary antibody to bind the antigen and a separate labeled secondary antibody to generate the signal, which increases sensitivity but adds extra steps. Western blot detects proteins on a membrane after separation, losing tissue context, and ELISA measures antigens in solution or on a plate rather than within tissue sections.

10. Which statement is true about HLA expression?

- A. Found on all nucleated cells**
- B. Found on red blood cells only**
- C. Found on platelets only**
- D. Found on extracellular matrix only**

HLA molecules are major components of the MHC system that appear on the surface of cells to present peptide antigens to T cells. The most widely expressed form, MHC class I, is found on essentially all nucleated cells, which is why HLA expression is described as being present on all nucleated cells. Red blood cells lack a nucleus, so they do not display HLA in the same way, and the extracellular matrix is not a cell and does not express HLA. This pattern explains why the statement about HLA being on all nucleated cells is true.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://sucessinclinicallabimmunology.examzify.com>

We wish you the very best on your exam journey. You've got this!

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