



# immunoglobulins Test Bank

**By Hind Shaker Suhwail - Modified by Dana hijjeh**

اللهم إنا نستودعك غزة وأهلها  

**Q1. Each individual has the potential to produce a vast number of different antibodies. This diversity is generated primarily by ..?**

- A. Multiple genes encoding antibodies.
- B. The recombination of a limited number of gene segments during B cell development.
- C. The presence of a large number of different antigens.
- D. The combination of heavy and light chain gene segments to form the variable region.

**Q2. The disulfide bonds that hold together the polypeptide chains of an antibody are formed between:**

- A. Serine residues
- B. Threonine residues
- C. Tyrosine residues
- D. Cysteine residues

**Q3. The Fc domain of an antibody is primarily important for:**

- A. Binding to antigens directly
- B. Binding to phagocytic cells
- C. Providing structural stability to antibody
- D. Generating diversity in antibody specificity

**Q4. Imagine a scenario where an antibody's variable region is mutated to include a new amino acid sequence. What could be the potential effect of this mutation on the antibody's function?**

- A. It could potentially increase the antibody's binding affinity for its original antigen.
- B. It might cause the antibody to bind to a different antigen or epitope.
- C. It would likely enhance the antibody's ability to recruit phagocytic cells.
- D. It would stabilize the antibody's overall structure.

**Q5. If an antibody with hypervariable regions were tested and found to have a very low KD value, what would this imply about its interaction with its target antigen?**

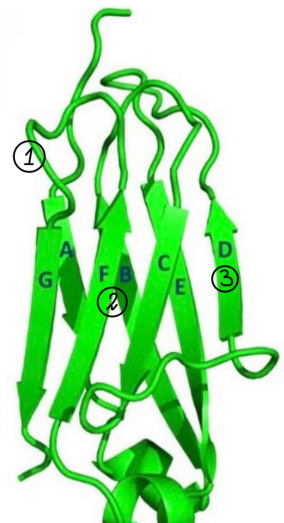
- A. The antibody has a low affinity for the antigen.
- B. The antibody dissociates from the antigen rapidly.
- C. The antibody has a high affinity for the antigen.
- D. The antibody is unable to bind to the antigen.

**Q6. If a mutation occurred that disrupted the disulfide bonds in the immunoglobulin fold, what would be the likely impact on the antibody structure?**

- A. The B-barrel shape would be maintained, but the antibody would be less stable.
- B. The immunoglobulin fold would lose its B-barrel shape, affecting the hypervariable regions.
- C. The antibody's ability to bind to antigens would be enhanced.
- D. The B-sheets would become parallel instead of anti-parallel.

**Q7. Interaction with antigens in immunoglobulin's CDR is indicated by ..?**

- A. 1
- B. 2
- C. 3
- D. Both 1 and 2



**Q8. In the context of antibody diversity, what does genetic recombination specifically affect?**

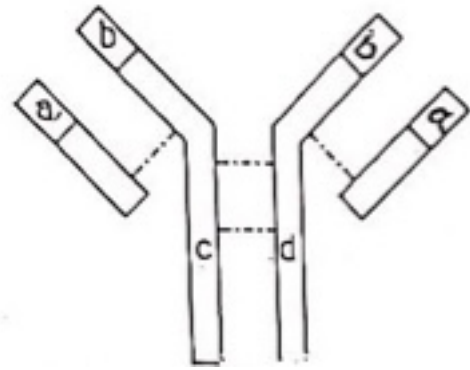
- A. The Ability to generate unique antibodies
- B. The length of the constant regions
- C. The antigen-binding affinity
- D. The interaction between antibodies and phagocytic cells

**Q9. Which light chain types are present in antibodies?**

- A. Lambda and mu
- B. Alpha and beta
- C. Kappa and lambda
- D. Gamma and delta

**Q10. Which areas are similar for all igG antibodies ?**

- A. a and b
- B. C and D
- C. a and C
- D. B and D



**Q11 . Which are areas are different in all igM Antibodies ?**

- A. a and b
- B. C and D
- C. a and C
- D. B and D

**Q12 . Which immunoglobulin isotype is the most abundant in blood serum and is the only one that can cross the placenta?**

- A. IgA
- B. IgD
- C. IgE
- D. IgG

**Q13. What is the primary advantage of using monoclonal antibodies in research or therapy?**

- A. They bind to a variety of different epitopes with varying affinities.
- B. They are produced from multiple B-cells, providing a range of antibodies.
- C. They bind to the same antigen with the same affinity all the time, providing reproducible and consistent results.
- D. They have the ability to recognize and bind to multiple antigens simultaneously.

**Q14. Why is the use of hybridomas advantageous for producing monoclonal antibodies?**

- A. Hybridomas are capable of producing a diverse array of antibodies.
- B. Hybridomas can generate antibodies with different affinities for the same antigen.
- C. Hybridomas combine the immortality of myeloma cells with the specificity of B-cells.
- D. Hybridomas allow for the production of antibodies that bind to multiple antigens simultaneously.

**Q15 . In what situation would polyclonal antibodies be preferred over monoclonal antibodies?**

- A. When a specific, consistent binding to a single epitope is required.
- B. When detecting a wide range of different antigens with variable affinities is necessary.
- C. When reproducible and consistent results for a single antigen are needed.
- D. When targeting a specific cancer cell type with high precision is desired.

Bonus :) !

A patient with a chronic bacterial infection shows elevated levels of immunoglobulin G (IgG) and immunoglobulin M (IgM) in their blood. Which of the following best explains the immunological mechanisms at play?

- 1** IgM is the first antibody produced during an initial infection, providing immediate defense, while IgG is produced later and offers long-term immunity and memory.
- 2** IgG and IgM work together to neutralize toxins, with IgG being more effective in mucosal areas and IgM in the bloodstream.
- 3** IgM is responsible for activating the complement system, leading to the destruction of pathogens, while IgG primarily facilitates phagocytosis by binding to pathogens and marking them for destruction.
- 4** Elevated levels of both IgG and IgM indicate a recent exposure to a new pathogen, with IgG providing passive immunity and IgM being involved in allergic reactions.

# Answers key

1. B

2. D

3. B

4. B

5. C

6. B

7. A

8. A

9. C

10. B

11. A

12. D

13. C

14. C

15. B

وكان الشهيد يوماً مثلي ومثلك،  
كان له بيت وزيتونة وقلب نابض  
وروح وأحلام لا تنتهي...

The martyr was  
once like me and you,  
He had a house an  
olive tree, and a beating  
heart, And a spirit And  
endless dreams...