

## Quiz # 2 - Immunity

- Due Mar 12 at 11:10am
- Points 20
- Questions 20
- Available after Mar 12 at 10:34am
- Time Limit 30 Minutes

Take the Quiz Again

### Attempt History

	Attempt	Time	Score
<b>LATEST</b>	<u><a href="#">Attempt 1</a></u>	20 minutes	15.67 out of 20

Score for this quiz: 15.67 out of 20

Submitted Mar 12 at 10:56am

This attempt took 20 minutes.



Question 1

1 / 1 pts

What can happen if scarring occurs around a pacemaker implant?

- ☐ The electrical transmission crucial for its functioning can be interrupted.
- ☐ It can cause immune cells to inflame around the fragments of the pacemaker.
- ☐ It can lead to life-threatening complications.

Correct!

- ☒ All of the above.



Question 2

0.5 / 1 pts

Select the best misdiagnosis for the following autoimmune diseases:

Correct!

Migraines

Multiple Sclerosis



You Answered

Fibromyalgia

Hashimoto's Thyroiditis



Lupus

You Answered

Depression

Lupus



Hashimoto's Thyroiditis

Correct!

Osteoarthritis

Rheumatoid Arthritis



Question 3

1 / 1 pts

**Match the following cell types with their functions:**

Correct!

Macrophages

Engulf and digest pathogens



Correct!

Neutrophils

Act as intense suicide warrio



Correct!

Dendritic Cells

Act as the immune system's



Correct!

## Helper T Cells

Activate and coordinate other

Correct!

B Cells

Produce antibodies to neutralize



### Question 4

1 / 1 pts

Which of the following is not correct about mucins?

- ☐ Long chains of sugars are attached to specific amino acids in the protein backbone
- ☐ Some mucins interact with other mucin to create a barrier for pathogens and invaders

Correct!

- ☒ They are primarily made up of salts and fat
- ☐ They make mucus slippery



### Question 5

0 / 1 pts

How does the immune system ensure it has a defense against every possible disease?

You Answered

- ☒ It adapts after the disease has been encountered.

Correct Answer

- ☐ It has a cell with a perfect weapon against every possible disease.
- ☐ It borrows weapons from other organisms.
- ☐ It uses only physical barriers like the skin.



### Question 6

1 / 1 pts

What is the primary function of macrophages and neutrophils in the immune response, and how do they differ in their approach to dealing with invaders?

- ☐ Both macrophages and neutrophils produce antibodies; neutrophils live longer than macrophages.

Correct!



Macrophages digest bacteria directly, while neutrophils release deadly chemicals and sometimes explode to trap and kill bacteria, showing a more self-destructive approach.

☐ Both are involved in suppressing the immune response to prevent overreaction.

☐ None of these



Question 7

1 / 1 pts

Describe the activation and function of helper T cells and B cells in the immune system's response to infection.

☐ Helper T cells suppress the immune response, while B cells increase infection rates.



Helper T cells activate by self-replication without a specific trigger, and B cells act as physical barriers against pathogens.

Correct!



Upon activation by dendritic cells, helper T cells clone themselves and assist in activating B cells, which then produce specific antibodies against invaders.

☐ Both helper T cells and B cells are involved in the direct digestion of bacteria and viruses.



Question 8

1 / 1 pts

Which genes must be mutated for a cell to become cancerous, and what are the functions of these genes?



Tumor suppressor genes (TSGs) prevent uncontrolled cell division, oncogenes control cell death, and apoptosis genes repair DNA.



Oncogenes enhance immune response, TSGs facilitate cell mutation, and apoptosis genes support rapid cell growth.

☐ All genes in a cell mutate simultaneously to trigger cancer development.

Correct!



Tumor suppressor genes (TSGs) repair DNA and control cell multiplication, oncogenes stimulate rapid division, and apoptosis genes trigger cell suicide.



## Question 9

1 / 1 pts

Why, despite the immune system's efficiency, do people still develop cancer, and what future therapies are being explored?

☐ Cancer cells are too fast for the immune system; future therapies include only surgical removal.

Correct!



Some cancer cells mutate and improve their defense against the immune system; emerging therapies involve cancer-fighting vaccines, engineered T cells, and NK cells.

☐ The immune system ignores cancer cells; no future therapies are possible.



Cancer is caused by external factors only, and thus the immune system has no role in its prevention; future therapies will only involve changes in diet and lifestyle.



## Question 10

1 / 1 pts

How do tumor cells manage to survive and grow?

☐ By mutating to unlock the ability to order the growth of new blood vessels.

☐ By competing for resources and space, damaging neighboring healthy cells.

☐ By adapting and becoming more resilient against the immune system's attacks.

Correct!

☒ All of the above.



## Question 11

1 / 1 pts

What strategies do tumor cells use to evade the immune system during the Escape Phase?

☐ Mutating to switch the immune system off by targeting inhibitor receptors on anti-cancer cells.

☐ Creating a cancer microenvironment that is difficult for immune cells to penetrate.

☐ Exploiting the immune system's off switch to prevent attacks.

Correct!

☒ All of the above.



## Question 12

1 / 1 pts

How does CAR T-cell therapy work to combat cancer?

- ☐ By reprogramming a patient's immune system to ignore cancer cells entirely.
- ☐ Through the replacement of all T-cells in the body with synthetic alternatives.
- ☐ Using a universal T-cell that targets all types of antigens without customization.

Correct!



By modifying the patient's T-cells to specifically recognize and destroy cancer cells, making copies of themselves, and surviving in the patient's body.



Question 13

0 / 1 pts

All of the following are steps involved in programming bacteria for cancer therapy, except:

You Answered



Inserting specific genetic sequences into bacteria to instruct them to synthesize molecules that disrupt cancer growth.

- ☐ Using biological circuits to program bacteria to behave in specific ways under certain conditions.
- ☐ Bacteria can be programmed to sense specific tumor conditions like low oxygen and over-produced molecules.

Correct Answer

- ☐ Programmed bacteria are instructed to grow uncontrollably, mirroring the behavior of cancer cells within tumors.



Question 14

0.5 / 1 pts

How do antibiotics work?

Correct!

- ☒ They can damage bacterial cell walls

Correct!

- ☒ They block the production of critical bacterial proteins

You Answered

- ☒ They mark the bacteria so they can get eaten by macrophages
- ☐ They color the bacteria red, so they become invisible in the blood



Question 15

1 / 1 pts

How does mRNA work in the vaccine?

- ☐ It alters our DNA
- ☐ It introduces our body to a virus
- ☐ It triggers an immune response

Correct!

- ☒ It encodes instructions for producing proteins



Question 16

0.67 / 1 pts

Which of the following contribute to the current antibiotic crisis?

Correct!

- ☒ Overprescribing and incorrect prescription

Correct!

- ☒ Not finishing the full course of treatment

Correct!

- ☒ Overuse in livestock and fish farming

Correct Answer

- ☐ Poor infection control in hospital

Correct Answer

- ☐ Lack of hygiene and poor sanitation

Correct!

- ☒ Lack of antibiotics being developed



Question 17

0 / 1 pts

How do neutrophils respond to the presence of an implant like an insulin pump?

You Answered

- ☒ By secreting enzymes that create a chemical reaction to degrade the object over time

Correct Answer

- ☐ By releasing little granules filled with enzymes that try to break down the surface of the implant
- ☐ By traveling to the site and beginning to deposit layers of dense connective tissue around the implant
- ☐ By fusing together and forming a mass of cells called a "giant cell"



Question 18

1 / 1 pts

Which of the following are incorrect?

☐ Insulin pumps test blood sugar levels, deliver insulin, and monitor glucose levels

Correct!



Glucose sensors have to be replaced within a few days because they malfunction quickly, run out of battery and are expensive to maintain

☐ Most implants need replacement because the body's immune system attacks them

Correct!



Scar tissue forms around the implant to protect it, help it communicate with the body, and prevents the immune system from attacking it



Question 19

1 / 1 pts

All of the following statements about fecal microbiota transplants (FMTs) are correct, except:

Correct!

- ☒ The primary purpose of FMTs is to enhance the cosmetic appearance of the skin.
- ☐ FMTs are used to alter the gut's microbial community to fight diseases.
- ☐ Potential donors undergo rigorous health screenings including poop, blood, and nasal swabs tests.
- ☐ FMTs can be administered through enemas, nasoenteric tubes, or ingestible capsules.



Question 20

1 / 1 pts

What are complement proteins?

Correct!

- ☒ Weapons that stun and kill bacteria by ripping holes into them
- ☐ The cells that survive the impact of an invasion
- ☐ The chemicals that self-destruct the immune system
- ☐ The soldiers of that attack the immune system

Quiz Score: 15.67 out of 20