

Cellular

Which characteristic is the most important determinant of **immunogenicity** when considering the antigen?

- * Foreignness: A self-antigen that fulfills all of these criteria except foreignness does not normally elicit an immune response. Most people tolerate their own antigens

Acute inflammatory response is characterized by fever that is produced by the hypothalamus being affected by what?

- * Endogenous pyrogens

Anatomy of the lymphatic capillary. What is the center called and what does it absorb?

*

Autocrine stimulation is the ability of cancer cells to do what?

- * Secrete growth factors that stimulate their own growth
- * Cancer cells must have mutations that enable them to proliferate in the absence of external growth signals. Some cancers acquire the ability to secrete growth factors that stimulate their own growth, a process known as autocrine stimulation

Changes in **lymphocytic function**?

- * Function of lymphocytes involved in humoral and cellular immunity
- * Characteristics smallest WBC, High N/C ratio, Clumped, dark nucleus, Blue Cytoplasm
- * Lymphocytosis infectious mono, viral infections, benign and malignant lymphoproliferative disorders
- * Reactive, atypical =, immunoblast, transformed, stimulated, and virocyte are all terms used for Abnormal Lymphocytes
- * The Pathophysiologic process of edema is r/t the which mechanism Lymphatic Obstruction
- * Phagocytosis involves the ingestion of bacteria

Define **phagocytosis**.

- * During phagocytosis, what is occurring during the step referred to as opsonization Phagocytes recognize and adhere to the bacteria
- * Fusion is the step of phagocytosis during which what happens Lysosomal granules enter the phagocyte
- * Microorganisms are ingested Engulfment
- * Destruction microorganisms are killed and digested
- * Phagosome Intracellular phagocytic vacuole is formed

Describe **exotoxins**.

- * A student asks the healthcare professional to describe exotoxins. Best answer Exotoxins are released during bacterial growth

*Which statement concerning exotoxins is true? Exotoxins are released during bacterial growth

Explain tissue damage in acute rejection after organ transplant.

* A pt asks the provider why tissue damage occurs in acute rejection Th 1 cells release cytokines that activate infiltrating macrophages and cytokines t cells directly attack the endothelial cells of the transplanted tissue

Free radicals cause cell damage; how?

* Giving up an electron, which causes the injury to the chemical bonds of the cell membrane

* Free radicals play a major role in the initiation and progression of which DZ?

Cardiovascular DZ such as HTN and Ischemic heart DZ

*Current research has determined that chemical-induced cellular injury Is often the result of the damage caused by reactive free radicals

Function of tumor cell marker?

* to screen individuals at high risk for cancer

* What are tumor cell markers? hormones, enzymes, antigens, and antibodies that are produced by cancer cells

People diagnosed with neurofibromatosis have varying degrees of the condition because of which genetic principle?

* Expressivity

Platelet-derived growth factor produces which cells?

* The action of platelet-derived growth factor is to stimulate the production of which cells Platelets

Process of natural killer (NK) cells, what do they actively attack?

* Tumor cells or virally infected cells

* Recognizing virus-infected cells

* Eliminating virus-infected cells

* Eliminating previously identified cancer cells

*What cell is capable of killing certain tumor cells and virus-infected cells without prior sensitization? NK cells

Purpose of vaccination? Why are some given injection vs orally?

* Each route stimulates a different lymphocyte-containing tissue, resulting in different types of cellular and humoral immunity

* Vaccinations are able to provide protection against certain microorganisms because of the? Level of protection provided by IgG (IgM appears first after infection)

Relationship of the **ras** gene involved in cancer proliferation?

- * A Student studying biology asks the professor to describe how the RAS gene is involved in cancer proliferation best explanation A mutation in this gene allows continuous cell growth

Risk factors of high **morbidity of cancer** of the colon, kidney, and uterus?

- * Women who have high body mass index

Role of reverse transcriptase **HIV** infection?

- * It converts RNA into double-stranded DNA

Under **anaerobic conditions**, what process provides energy for the cell?

- * Glycolysis

What are the different types of hypersensitivities? Know IgE and What actions to take for this type of **hypersensitivity**?

- * **IgE mediated hypersensitivity reaction give antihistamine**
- * What is the mechanism that results in type 2 hypersensitivity reactions? Antibodies bind to the antigens on the cell surface
- * Type I Hypersensitivity IgE mediated tissue and mast cell degranulation on re-exposure. Seasonal allergies, anaphylaxis
- * Type 2 Hypersensitivity Specific cell or tissue is the target of the immune response. The antibody binds tissue-specific antigen. ABOP reaction
- * Type 3 Hypersensitivity Immune complex mediated. Antigen/antibody complex formed in circulation (soluble antigen), deposited in tissue. Serum sickness, Reynolds
- * Type 4 Hypersensitivity Th and Tc cells attack and destroy cellular targets. Graft rejection. Poison ivy changes cell surface to look like non-self
- * What causes the edema to occur during the inflammatory process? **increased capillary permeability**

Cells that **metabolize nutrients**, detoxify chemicals, secrete bile, synthesize albumin and clotting factors are?

- * **Hepatocytes**

Cells **that remove bacteria** and foreign particles from blood in the hepatic sinusoids?

- * Kupffer Cells

Cells that **secrete hydrochloric** acid and intrinsic factor are called?

- * **Parietal cells / HCL** located in the gastric glands found in the lining of the fundus and in the body of the stomach

Genetic cause of **intellectual disability**?

- * Fragile X Syndrome

Child who is **inattentive**, **have poor grades**, **with bad behaviors**, ____ exposure.

- * Lead Poisoning

During **cell injury caused by hypoxia**, why does an increase in the osmotic pressure within the cell occur?

- * **Sodium chloride enters the cell**
- * **Wrong answer** adenosine triphosphatase (ATPase) driven pump is stronger during hypoxia
- * In hypoxic injury, sodium enters the cell and causes swelling because ATP is insufficient to maintain the pump that keeps sodium out of the cell
- * During cell injury caused by hypoxia, sodium and water move into the cell because The pump that transports sodium out of the cell cannot function because of a decrease in ATP levels

Inflammatory effect of **nitric oxide (NO)**?

- * **Decreases mast cell function and decreases platelet aggregation**

Most common cause of **cellular injury**? Hypoxic injury

Blood type of a **heterozygous person**, having A and B alleles as codominant AB

Apoptosis? normal mechanism for cells to self-destruct when growth is **excessive**

Which primary characteristic is unique for the **immune response**? immune response is specific to the antigen that initiates it

Two-thirds of the body's **water** is found? intracellular fluid compartments

What type of **immunity is produced** after natural exposure to the antigen or after immunization against the antigen? Active-acquired immunity

Amniocentesis indicates a **neural tube defect**, which protein is evident? alpha fetoprotein

multiple traumatic injuries and received **many blood transfusions**, which conditions need to be monitored for hemosiderosis

Which characteristic is most important determinant of **immunogenicity** when considering antigen? Foreignness

In regulating **vascular mediators** released from mast cells, **the role of eosinophils** is to release what?

The data reporting that sickle cell dz affects approx. 1 in 600 american black is an example of Prevalence