

# Immune Expressions



**BODYTALK STUDY GROUP – WEEK 2**

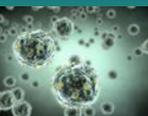
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# The Immune System:

## The Innate Immune System – “Danger = Inflammation”

- Immune cells stroll around the “inner village” looking for danger (similar to amygdala scans for danger)
- Teachers – presents antigens to adaptive immune system for training and memorization
- Phagocytes – the security guards that roam the inner village looking for threats and then eating them (bone marrow)
- Macrophages – roam outside the circulatory system, covers the outer boundaries of inner village (bone marrow)
- Neutrophils – cell eaters that help with bacteria and fungus (formed in bone marrow)
- Eosinophils – first responders, help with bacteria and parasites (formed in bone marrow)
- Mast Cells – wound healing, pathogen defense, activates histamines to increase blood flow (found in connective tissue)
- Basophils – type of white blood cell, helps with allergies, histamine response (found in the blood)
- Natural Killer Cells - destroy infected cells in order to stop the spread of an infection, (formed in bone marrow)
- Dendritic Cells – presents the antigen to immune system, found in the mucus lining of nose/stomach/intestines, bridges innate and adaptive immune systems

Possible links: Amygdala - Innate immune system with Definition of Emotion of reactive personality type) (“over expressive Metal”), (living in surviving mode vs. thriving mode), (Body Chemistry Allergy – Basophils with physiology of histamine balance), (Cell Repair of “leaky gut” - circulation blood/nerve/lymph of mucus lining of intestines), (Macrophages – lymphatic system (consciousness of cleansing)



## The Adaptive Immune System - “Lifetime Achievement Award”

- Learns throughout a person’s life which pathogens to attack
- Trained to recognize specific antigen, forms a strategy, recalls strategy for future protection and balance

### B cells:

- **Birth place:** in bone marrow where they mature, “graduate school” and move to the lymphatic system
- **Failed Test:** if a B cell binds to any protein (insulin) in the bone marrow, the B cell dies instantly. Prevents a graduating B cell leaving the bone marrow and attack insulin. If the B cell takes the bait in the bone marrow it dies. Regardless if the protein is healthy tissue or a pathogen. The same training and graduation process is true for the T cells
- **“Match.com”:** B cells have millions of “antigen specific receptors on their surface,” B cells encounter an antigen, and look for a receptor match (does the antigen/pathogen match the B cell receptor profile)
- **A Perfect Fit**– the B cell divides and becomes a Memory B Cell (creates a copy of the original B cell with antigen information) or becomes a Plasma Cell (secretes specific antibodies related to the antigen)

T cells – detects what is going on inside the cell, trained in the thymus gland

- Limitless ability to “rearrange” themselves to match a perceived threat
- Some rearrangement configurations can accidentally mimic a person’s self molecules and proteins.

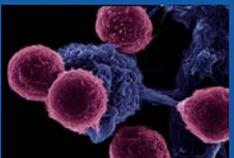
**The Great Escape:** some B cells and T cells that have attacked a protein while inside the bone marrow escape and are now in the system looking for healthy tissue/proteins. The graduation process is not perfect and some students graduate that should have “been held back”

**Important:** Autoimmune requires a B cell which has escaped the bone marrow to bind to healthy tissue and then a T cell that has escaped the thymus gland to bind to the B cell and health tissue. This is a synchronicity that can be triggered or fueled by genetics, stress, food, toxins, EMF.... We will talk about these next week.

**Possible Links:** (temporal lobe object recognition – adaptive immune system with Definition Physiology of antigen recognition), (Self esteem/self worth of thymus - Active memory Heart/Past Relationship/Events/Time Periods/Fetal Life boundaries), (heart chakra – T cell with Orientation of “unable to recognize dysfunctional relationships), (General Environment “Fear of \_\_\_\_\_” – Entering bone marrow – Effecting B cell and T cell production), (habit pathways of T cells inability to rearrange pattern of immune system)

## Inflammasomes – Pulls the Cellular Fire Alarm

- Located in the cytoplasm of the cell (cytoplasm is the gel-like fluid inside the cell, page 306)
- Function: regulates the release of alarm molecules within the cells = regulates inflammation
- Risk factor: activates pro-inflammatory cytokines and contributes to the emergence of autoimmune, chronic inflammatory, and metabolic diseases.
- Involved in the communication between intestinal immune system and the gut flora (Gut Brain/Vagus Nerve)
- Regulates glucose metabolism under stress conditions and triggers liver inflammation
- Obesity – triggers inflammasomes which activate systemic low-level chronic inflammation
- Insulin resistant Type II Diabetes – due partly to imbalance inflammasome levels
- Vaccine Theory - aluminum hydroxide is a substance used in vaccines that boosts specific immune responses against antigens (hepatitis A, hepatitis B, diphtheria-tetanus-pertussis (DTaP, Tdap)
- Theory: inflammasomes and other immune tissue/chemicals over react to aluminum hydroxide in the vaccine due to its boosting effects.
- There are many factors to consider, besides Alum, in regards to adverse vaccine reactions: Emotions of parents, child, doctor, nurse? What stressors were present: relationship, money, work, time? Active Memory of parents with vaccinations? Compromised immune system at the time of the vaccination? Did the mother have metal/Mercury fillings and breast fed? Seasonal? Chinese Clock? Environmental toxins? Food type ingested the day of vaccine?



Cytokines – sends signals to the cells

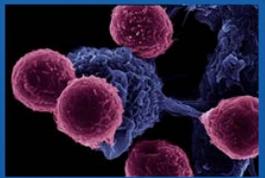
- Cell to cell communication to activate or suppress inflammation = inflammation homeostasis
- Pro-inflammatory and Anti-inflammatory cytokines involved in complex network of communication
- Influences the body's response to cellular damage, aging process, tissue repair. (Cellular Repair techniques)
- Cytokine Storm – cytokines signal immune cells such as T-cells and macrophages to travel to the site of infection. In addition, cytokines activate those cells, stimulating them to produce more cytokines, damaging epithelial cells and organs. It's like a Face Book Event gone bad...too many people showing up and the invitation goes viral (no pun intended)
- Depression – higher levels of cytokines found in people with depression, cytokine affects serotonin levels

Chemokines released by infected cells, initiate an immune response, and warn neighboring cells of the threat. The cell calls/texts the neighboring cells saying, “There is trouble at my house and it is headed your way. Prepare yourself for\_\_\_\_\_.

Innate Immune System also includes physical barriers: skin, the GI tract, the respiratory tract, the nasopharynx, cilia, eyelashes and other body hair.

Innate Immune defense mechanisms - mucous, bile, gastric acid, saliva, tears, and sweat.

Innate or Adaptive Immune Systems can come up under Body Parts in Box 2. Also known as the System Box



## Resource Articles:

“What Are Cytokines?”

<http://www.sinobiological.com/What-Is-Cytokine-Cytokine-Definition-a-5796.html>

“Innate and Adaptive Immune System”

<https://www.khanacademy.org/test-prep/mcat/organ-systems/the-immune-system/a/innate-immunity>

Self vs Non-Self (This is a great video explaining immune function and autoimmune)

<https://www.khanacademy.org/test-prep/mcat/organ-systems/the-immune-system/v/self-versus-non-self>

# Thank You!

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