

ENEWS ~ At A Glance October 2011

Happy October!

I love this time of year! It is perfect camping weather! As I sit here & write this edition of ENEWS, I am already picturing myself by the perfect campfire, in perfect camping attire - a sweatshirt & blue jeans, eating my perfect food - a burnt hot dog cooked over the perfect campfire. Life is good!

~ amber



THE AMAZING IMMUNE SYSTEM



The Immune System is truly amazing. Understanding it, is like opening a container of Ciao Bella Raspberry Sorbet. You start at the surface, but you just want to keep “digging” deeper so you can satisfy your appetite for something delicious... I mean knowledge. This system is complex & it would be foolish for me to think that I could sum it all up in a little over two pages of ENEWS. But what I can do is present some interesting facts about this amazing system, leaving us all with a deeper appreciation for all its work!

20 Things You Should Know About The Immune System

1. **Peyer's Patches** are thickened patches of lymphatic tissue located in the small intestine & contain a heavy concentration of white blood cells. On top of the Peyer's Patches are microfold cells, aka: M Cells. M Cells randomly grabs anything suspicious looking, & works it over, before it is able to go deeper into the rest of the GI tract.
2. **Macrophages** are a type of white blood cell that destroy the “bad guys” & play a key role in wound healing. I picture the free-roaming macrophages like little “Pac Men,” running around engulfing anything suspicious looking. Macrophages are also found in the spleen, bone marrow, lungs, & lymph nodes.
Macrophages are great team players. If a macrophage comes up against a foreign invader that is just way too big for one guy, it releases *interleukin-1* & “tumor necrosis factor,” aka: *TNF*. These two proteins have many capabilities, but first & foremost, they notify other macrophages to come & help the initial macrophage, who has bit off more than he can chew!
3. **Neutrophils** are mini-macrophages & are the most common type of white blood cells. These little guys give up their lives for the sake of our Immune System. This process is known as *chemotaxis*. Neutrophils go to the infection site, ingest the pathogen, & then they immediately die. They are like the Immune System's First Responders, arriving at the infection site before anyone else. Interestingly, neutrophils are also the main component of “pus” & they are what give it the whitish color.

4. **B Cells** are *lymphocytes* (type of white blood cell) that are produced in the bone marrow. Long story - short, the Immune System keeps millions of different B cells “on duty.” Each B Cell is programmed to make antibodies- aka: *immunoglobulins*, specific to a corresponding pathogen. B Cells also have the power to release the biggest antibody, “immunoglobulin M” - aka: **IgM**.

IgM is the largest antibody in the human circulatory system & the first to appear in response to an exposure to an antigen.

5. **T Cells** are also a type of lymphocyte (*there are 5 kinds*). The precursors of T Cells are produced in the bone marrow, but leave & actually mature in the thymus. T Cells are the “Type A” cells of the Immune System. They boss the other cells around, telling them what to do & what to attack. (*B Cells tend to be a little disorganized & lack in the motivation department.*) Furthermore, T Cells also attack damaged/infected cells, themselves.

Most T Cells are classified as “Helper T Cells.” Helper T Cells help B Cells produce **IgE** antibodies & antibody-secreting plasma cells. You will most often find IgE making a home in the respiratory system, intestines, & under the skin. Helper T Cells also help “Cytotoxic T Lymphocytes” - aka: **CTLs**. CTLs attack cancerous cells or cells that have become infected by a virus.

6. **Suppressor T Cells** are like the “Cooler” in a crazy, out-of-control, old-west bar. Remember the Cooler was the head bouncer, that kept the situation under control, until it was time to act. These cells go around & keep the Helper T Cells “cool down” state. The Helper T Cells, can’t help themselves & tend to get over-excited. If the Suppressor T Cells didn’t keep them in line, the Helper T Cells could create more havoc than help.

7. **Zinc**, is an essential trace element, & kick-starts the Helper T Cells into action!

8. **IgA** antibody accounts for 70% of your total antibody production on any given day. It is found in the nose, breathing passages, digestive tract, ears, eyes, & vagina. IgA is also found in tears, saliva, & blood. This mighty antibody, unlike the other antibodies, can survive digestive enzymes in your gut! It is in these trenches that key battles to maintaining your life are fought!

9. **Memory Cells** are created by both T Cells & B Cells, & commits the pathogen to “memory.” After a pathogen has been destroyed, Memory Cells, still cruise through the body, making sure the enemy doesn’t try to enter again!

However, Memory Cells are not perfect & sometimes attack similar-looking antigens. This is known as “cross-reactivity.” An example is people allergic to ragweed, may sometimes find themselves allergic to melons & bananas! Or, if you are allergic to latex, you may also be allergic to avocados.



10. **Kupffer Cells** are found in your liver sinusoids. Kupffer Cells destroy bacteria, foreign proteins, & worn-out blood cells.

11. **Dendritic Cells** are star-shaped cells & are often called “Langerhans Cells.” They are found in the lymph nodes & skin. Dendritic Cells are antigen-presenting cells - aka: **APCs**. APCs engulf the antigen, breaks it down, & then displays the antigen fragments, which will activate both Memory Cells & T Cells, initiating a **Primary Immune Response**.

12. **Natural Killer Cells** - aka: **NK Cells**, like CTLs, kill virus infected cells & cancerous cells. NK Cells “contain” the infection, whereas CTLs, “clear the infection.”

13. **Primary Immune Response** is triggered when an antigen is encountered in the body. This is the body's first line of defense.

14. The **Spleen** filters & cleans the blood. Blood enters the spleen, where it is exposed to T Cells, B Cells, macrophages, dendritic cells, & natural killer cells. These guys get to work by identifying & destroying any antigens found in the blood. An antibacterial protein is also secreted from the spleen, known as "**tuftsin**."

Tuftsins induce bactericidal & tumoricidal activities.

Helicobacter Bacteria loves it when the Spleen isn't working right, & takes this opportunity to start "building up" in your body. Helicobacter bacteria may cause digestive disturbances, such as: pain & discomfort, bloating, lack of appetite, nausea & vomiting, &/or ulcers.

15. **Lymph Nodes** filter lymph (excess fluid from the cells) & are composed mostly of T Cells, B Cells, dendritic cells, & macrophages. Antigens are recognized, destroyed, & the now "clean" lymph goes back into circulation. The majority of your lymph comes from your liver, a whopping 50%. 25% comes from your intestines & the remaining 25% comes from the rest of your body.

If you are experiencing congestion in your lymph system, the first area you will probably notice it is in your neck. When throat lymph glands become blocked, this will interfere with the drainage of your sinuses. The nose will start to run, to release the congestion feeling that you are experiencing in your head! Furthermore, when lymph glands start to swell in your throat, this is a sign that your liver is experiencing difficulty!

16. **IgG2 & IgG3** are two more types of immunoglobulins, that the Immune System uses to fight Streptococci Bacteria.

Two other types of immunoglobulins, **IgG1 & IgG3**, are used to fight viruses.

17. **Eosinophils** are white blood cells that "blow up" the tough, outer exterior of parasitic worms! Ewwww!

18. **Vaccinations** try to "speed up" the Immune System's actions. Vaccines introduce a potential invader, so that in the future, it will be quickly recognized & destroyed. The issue with doing this to the body is, that it by-passes the body's first line of defense. It's like not giving your body the "warm-up phase" before the race begins. The immediate strain can cause an excess production of **interferons** - proteins formed when cells are exposed to a virus. An overproduction of interferons can end up harming the body, rather than helping it.

19. **Innate Immunity** is immunity that you already possess when you are born.

20. **Adaptive Immunity** is immunity that develops & matures over time.

This, of course, is just the surface of the piles of information on the Immune System. A brief description of a few terms, that maybe when you hear them now, won't seem so "scary." The bottom line is that when the Immune System is properly functioning & maintaining - you feel healthy! However, this powerful system also has the ability to damage other parts of your body, when it is left to spin out-of-control.



Take care of the Immune System & it will take care of you!



Bill's Back Page
"My Page ~ My Domain"

New Formula!

NC655

GABA Calm

90 Capsules

Added To The Formula...

Vitamin B6 (As Pyridoxal -5-Phosphate 63%)

Vitamin B6 supports more vital bodily functions than any other vitamin. It supports the production of GABA & dopamine, as well as other neurotransmitters.*

4-Amino-3-PhenylButyric Acid (aka: Phenibut)

Phenibut is a derivative of GABA & can easily cross the blood-brain barrier. Once across the blood-brain barrier, Phenibut supports healthy levels of GABA.*

GABA

Gama-aminobutyric acid (aka: GABA) is the most abundant neurotransmitter in the brain that helps inhibit over-excitement. Over-excitement can cause irritability, crankiness, anxiousness, or the feelings of nervousness. Proper levels of GABA promotes clarity, calmness, & an overall sense of well-being.

Other "Good Stuff" In The Formula...

L-Glutamine

*L-Glutamine is an amino acid & is a precursor to GABA. It can readily pass through the blood-brain barrier & promotes normal nervous system function.**

L-Glycine

*L-Glycine is a sweet-tasting amino acid that supports calmness in the brain.**

L-Taurine

*L-Taurine supports a healthy nervous system.**

L-Theanine

*L-Theanine directly stimulates alpha brain waves, which are responsible for relaxation while maintaining alertness.**

**These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, cure, or prevent any disease.*