Scientists are concerned that genetically engineered bio-stressors are globally emerging within our bio-network and can burden the body and trigger atypical responses by our immune system. These bio-stressors potentially contain a genetic code designed with so-called “gain of function” properties that allow it to spread beyond usual means. Some bioinformatic experts have presented clinical evidence demonstrating the protein structure of these bio-stressors have different ways to directly and indirectly burden the immune system by means of potentially disrupting the gut ecology.

With increasing environmental stress and uncertain food quality, supporting the body to ensure a healthy immune system response is now more important than ever for everyone. The wisest approach is to support the body by adopting an aggressive nutritional program using highly effective, carefully chosen nutraceutical agents targeted to support the entire body’s physiology.

Now you can nourish your immune system with an elegant daily regimen of the most advanced immune-potentiating botanicals ever discovered. Exciting research demonstrates that a comprehensive strategy administering certain **general immune essentials** coupled with **immune targeting agents** are highly recommended in clinically promoting the body’s natural defense mechanisms during these time periods when immune specific concerns are present.
1. VITAMIN D
For decades, we have known that vitamin D was very important in helping to maintain healthy bones, bone growth, bone mineralization and absorption of calcium. But now, eye-opening research shows that our immune cells have vitamin D receptors. Recent studies confirm that vitamin D modulates the inflammatory response of an already healthy immune system during times of respiratory stress. In addition, ensuring that vitamin D levels are adequate may be critically important to help activate immune cells in order to promote a healthy immune response.

2. VITAMIN C
Natural-source Vitamin C, and its accompanying phytonutrient symphony (such as tannins, flavonoids and various polyphenolic compounds), collectively create the quintessential antioxidant support that is critical to vitamin C’s key functions: supporting the biosynthesis of collagen, neurotransmitter formation and energizing the body’s immune system. Vitamin C helps modulate the immune cells’ healthy inflammatory response by actively transporting vitamin C into cells during times of stress. As we age, lower levels of vitamin C circulate within our immune cells. The wise choice is to supplement daily with vitamin C to ensure that the body’s immune system has it available when it needs it most!

3. SPOREBIOTICS – BACILLUS SUBTILIS
Stunning clinical research has now shown that 70% of the body’s immune cells are located in the digestive tract. This discovery underlines the critical importance of probiotics that are needed to help the microbiome create and maintain optimal balance.

One superstar probiotic, Bacillus subtilis, is a probiotic spore former (sporebiotic) that concentrates its actions on bolstering immune function and digestive stability by, in part, controlling microbial populations (acting as a competitive exclusionary agent). It also has a unique ability to form spores that protect the microbes from harsh conditions through to the destination where they can germinate robustly - the GI tract.

The spores of Bacillus subtilis also help promote the colonization of many other beneficial microbes that effectively contribute to a healthy immune response during times of stress.

Certain clinically studied strains of Bacillus subtilis, such as DE111, offer the following benefits: • Modulates the body’s own natural inflammatory response • Crowds out bacterial pathogens and maintains healthy gut flora • Support the healthy immune reaction of intestinal cells • Communicates with intestinal cells to maintain the gut barrier’s function • Can persist in the GI tract, increase its numbers and then re-sporulate.

4. ZINC SULFATE HEPTAHYDRATE
The immune system is tasked with protecting the body against pathogens and potentially damaging foreign bodies. When immune dysfunction occurs due to a zinc deficiency, restoring healthy levels of zinc can help support and improve healthy cell function. This important micronutrient supports both innate and adaptive immunity.

To distinguish between cells that are part of the body’s own healthy tissue and from those that are threats against the immune system, immune cells interactively communicate with one another. For this communication to be successful, the immune cells must have healthy receptors. Ligands, which bind to the outside of the receptor surface and allow it to be activated, are critical to this process. Zinc interacts with many ligands to support this complex cell signaling process, an important component to healthy immune system function.

Although zinc is a critical micronutrient, the type of zinc in supplements is important in order to elicit the most favorable immune response. Some zinc supplements on the market are formulated with zinc oxide or zinc carbonate, which are poorly absorbed in part, due to their minimal ionic charge. In contrast, zinc sulfate heptahydrate, a hydrated form of zinc sulfate, provides zinc in an ionic form - the most effective form. This highly absorbable form of zinc offers superior zinc supplementation support for a healthy immune system.

5. BETAINe HCL
Healthy stomach acid levels are the first line of defense in your body’s natural immune response. The body’s ability to produce adequate stomach acid, called hydrochloric acid, can slowly decline with age. Lowered levels of hydrochloric acid, or HCL for short, may stress the body’s immune health as well as the body’s overall health. Supplementing with betaine HCL after meals assists the digestive process by supporting gastric acid secretion. HCL is a frontline defense in supporting the body’s overall immune health.
6. GREEN TEA EXTRACT
Science dating back over 100 years references the elegant im-
mune-supporting properties of green tea, specifically its ability
to promote the activity of gamma delta T cells, a type of immune
cell that acts as “a first-line defense”. Impressively, scientific
articles have revealed that polyphenolic compounds in green tea
called catechins such as epigallocatechin gallate (EGCG) and epi-
catechin gallate (ECG), can directly support the immune system
response and can also act to interfere with the physical proper-
ties of a bio-stressor.

7. PROTEOLYTIC ENZYMES
Proteolytic enzymes, called proteases, break the long, chain-like
structures of protein into shorter fragments. Proteases are meta-
bolically active in all living organisms, and also assist in the proper
dismantling of aged or damaged cell structures during apoptosis
(cell death). High proteolytic activity targets the outer protein shell
of certain offending invaders by specifically catalyzing the hydrolysis
of peptide bonds between amino acid residues in polypeptide chains.
Proteolytic enzymes play a pivotal role in the adaptive function of
the immune system and act as an essential modulator in suppor-
ting healthy inflammatory response during times of stress.

8. N-ACETYL CYSTEINE (NAC)
Various bio-stressors can produce an oxidative stress reaction in
the body that can initiate a mass inflammatory response which tar-
gets vital organs and glands in the body.
NAC is an upper-respiratory powerhouse with solid scientific re-
search behind it indicating that it is one of the best nutritional sup-
port agents to help maintain healthy lung function during times of
stress. Many studies have demonstrated NAC’s immune-promoting
properties that can be specific to modulating a healthy inflamma-
tory response to oxidative stress that can potentially affect the
lungs. Though most individuals gain benefits from NAC at 600-1,800
mg/day, clinical studies have found that doses of up to 2,000 mg/
day are safe and effective.

9. NUCLEOTIDES
Nucleotides are tiny building blocks of nucleic acids (RNA and
DNA) which are the blueprints for every cell in your body. Nucleo-
tides function as cellular signaling agents and enzymatic cofac-
tors that help keep your immune defenses robust. Each of your
trillion plus cells contains over 6 billion nucleotides. These build-
ing blocks are stored in a very limited quantity. During times of
stress, nucleotide stores can be rapidly depleted. Supporting the
body with supplemental nucleotides can help promote cellular
energy and vitality as well as protein synthesis. During times
of immune stress, when a supplemental source of nucleotides is
available, billions of sturdy, fresh nucleotides can be absorbed by
the cell to help promote a healthy immune response.

10. ALLICIDIN
Human studies confirm the superior immune support properties
of garlic that contains high amounts of allicin, an immune sup-
porting compound. Allicin can promote critical components of
the innate immune system and also play an essential role in the
adaptive immune response during times of stress. When
raw garlic cloves are crushed, chopped, or chewed, an enzyme
known as alliinase is released. Alliinase catalyzes the formation
of sulfenic acids from cysteine sulfoxides. Sulfenic acids sponta-
neously react with each other to form unstable compounds
called thiosulfonates.
In the case of alliin, the resulting sulfenic acids react with each other
to form a thiosulfinate known as allicin. This compound is what gives garlic extract its broad spectrum immune support
and immunomodulating properties. Thus, garlic with a high al-
licin content is known to be a highly significant immune sup-
port agent. Unfortunately, many garlic supplements contain no
or very little allicin content. A reliable garlic formula will verify
its minimum allicin concentration on its label.
OTHER IMMUNE SUPPORTING COMPOUNDS

IMMUNE MUSHROOMS – CORDYCEPS, REISHI, HIMEMATUTAKE, SHIITAKE, MAITAKE, TURKEY TAILS

The immune-promoting properties of mushrooms have been revered by ancient Eastern health systems for thousands of years. Current research demonstrates that the human immune system can benefit from the excellent support provided by the elegant polysaccharides naturally present in several proven immunomodulating mushrooms.

Studies have shown that consuming specific mushrooms supports immune function by offering the unique immune compound, beta glucans, and by generally promoting the maturation and activation of both the innate and adaptive immune systems of the body.

The innate immune system can be thought of as the body’s first line of defense, responding rapidly to potentially harmful insults and foreign bio-stressors. The mushroom’s immune-supporting beta glucans are located within the cell walls of the mushroom protected by an indigestible fiber called chitin. Since chitin is difficult for the body to digest, the mushroom should be either cooked, hot water extracted or fermented in order to release its nutritional payload. Fermentation is the top choice for mushroom processing due to its ability to break down chitin as well as provide beneficial postbiotic metabolites.

OLIVE LEAF - OLEUROPEIN

Use of the olive leaf extract has been widely cited and has been operative in herbalist’s health systems since ancient times. Present-day herbalists often recommend olive leaf extract as a superb support for the immune system. The active nutrient in olive leaf is a highly active phenolic glucoside compound called oleuropein. It is the pharmacologically active constituent responsible for most of the leaf’s immune effects.

ACEMANNAN

Stabilized acemannan, an extracted polysaccharide from the Aloe vera plant, has been extensively researched and is considered to be one of the most biologically active and beneficial components in Aloe vera. Acemannan is composed of the saccharide compounds, mannose, glucose and galactose, in a 31:1:1 ratio, and is counted among the eight important, essential monosaccharides critical to human health.

Acemannan’s biological activities directly supports the cell-to-cell communication of the immune system to promote healthy immune responses during times of stress. The body’s innate immune responses are regulated by glycoproteins (which have a carbohydrate attached by a covalent bond) or glycolipids (which contain oligosaccharides) chains that are present of the surface of the cells. These molecules interact with remote cells to cause them to migrate to a damaged site or initiate a secondary biological response.

The reported biological effects of acemannan include the beneficial stimulation of the following: The production of IL-1a (interleukin 1 alpha) TNF-a (Tumor Necrosis Factor alpha), IL-6 (Interluekin-6), nitric oxide and prostaglandin E2 by production by macrophages.

COLOSTRUM

Colostrum is a special immune-active fluid secreted by the mammary glands of female cows for about three days after giving birth. Bovine colostrum contains a wide range of naturally occurring immune factors, amino acids, nucleotides and growth factors to support the newborn’s immune health.

Dairy cows can produce up to five gallons of colostrum just within in their first milking. Since baby calf only consumes about one gallon in the first couple days, excess colostrum is ideal for use as a nutritional supplement.

Colostrum from pasture-fed cows is known to contain highly concentrated immunoglobulins specific to many human antibodies, such as Immunoglobulin G (IgG) – an important type of antibody of the body’s immune system. IgG is the most common type of antibody found in circulation representing 75% of serum antibodies in humans. Research has shown that supplementation with bovine colostrum is able to positively modulate immune function.

OIL OF OREGANO

The most active phytocompound in wild oregano is carvacrol, a potent, naturally occurring agent which has remarkable effects that support and promote immune system health. Biological studies have shown that twelve distinct phenolic compounds from oregano exhibit immune supporting activity, most notably labiatic and p-hydroxy-hydrocaffeic acid. Research has demonstrated that oregano oil was effective against all Gram-positive and Gram-negative bacteria that were tested in the study.

THE TAKE HOME MESSAGE

To support the most robust immune health for clients, the prudent choice may be to adopt a comprehensive nutritional program that includes both “General Immune Essentials” coupled with “Immune Targeting Agents.”