

What is Immunocal?

Immunocal is an all-natural non-prescription health product available worldwide. This special protein holds many national and international patents (> 65) and is medically recognized in the Physicians' Desk Reference ("PDR" U.S.A.) and Compendium of Pharmaceutical Specialties ("CPS" Canada). It has undergone over 30 years of research (> 35 clinical studies) and has been taken safely and effectively by millions of individuals.

What does Immunocal do?

Immunocal acts in two ways – it is a very high quality protein that provides all the amino acids your body needs, and, more critically, it raises a substance in your body called "glutathione". Glutathione plays many roles in your body, the four most important of which can be summarized by the acronym:

AID = E²

A – Antioxidant: Glutathione is the body's "Master Antioxidant"

I – Immune System: Glutathione is critical for immune function

D – Detoxification: Glutathione is your cell's key detoxification enzyme

E² – Glutathione contributes to your overall **energy** at many levels

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How does Immunocal work?

The Natural Health Products Directorate of Health Canada has issued an NPN (Natural Product Number) for the specific health claim "Immunocal is a **natural source of the glutathione precursor cysteine for the maintenance of a strong immune system.**" (NPN-80004370)

Immunocal contains specific fragile proteins that supply your body with the building blocks needed for the production of *glutathione* in your cells. These building blocks are called "precursors" and glutathione precursors are relatively rare in our normal diets. Unfortunately, eating glutathione itself does not effectively raise glutathione in the cells; this is why we need the precursors.

Why is glutathione important?

Glutathione is an essential component of your cells, with low glutathione levels, cells cannot perform many of their functions properly. Although glutathione functions in dozens of roles in our metabolism, the major functions can be summarized in four areas:

1. It is the major **antioxidant** produced by the body. Antioxidants such as vitamins C or E cannot be made by your body and in fact could not work properly if glutathione were not present.
2. Our **immune systems** depend on a steady supply of glutathione. Without it, our immune defenses become weakened.
3. It is important in **detoxifying** many substances including heavy metals, breakdown products of cigarettes and automobile exhaust, many cancer-causing agents, and a multitude of pollutants and toxins we encounter on a daily basis.
4. The major source of **energy** produced in our cells is derived from tiny structures called mitochondria. These mitochondria would literally burn up without the presence of glutathione.

Do healthy people need glutathione?

Optimal glutathione levels are important for everyone. Although you are hopefully in good health right now, glutathione levels fall as we age, and are lowered by a great number of very common illnesses. There is a constant demand for glutathione in our daily life; stress, pollution and infectious disease are all causes of glutathione depletion. For those that exercise regularly, glutathione is especially important to replenish to avoid injury, improve recovery time and keep your immune system strong.

Which illnesses may be affected by raising glutathione?

Many disease states are characterized by low glutathione levels. Immunocal has been developed as a strategy to help sustain glutathione levels. Glutathione deficiency states include, but are not limited to: AIDS and cancer muscle wasting, chemical and infectious hepatitis, radiation poisoning, malnutrition states, strong physical stress, and acetaminophen toxicity. Many other problems including cardiovascular, lung, digestive and kidney disorders are associated with glutathione deficiency and are cited in numerous medical references.

Who should avoid Immunocal?

People who have a specific allergy to milk proteins (this is different from lactose intolerance) need to avoid this product. People who are taking immunosuppressive medication in the case of organ transplants should not take this product.

Who should be cautious with Immunocal?

People who are on a protein-restricted diet need to calculate into their daily equation 9 grams of protein per pouch and should not exceed their daily protein limit. Keep in mind that Immunocal has a very high “biological value” as a protein and will supply an excellent source of amino acids for those individuals who may be challenged nutritionally.

Are there side effects and what do I do about them?

Abdominal cramps and bloating can occasionally occur. This is usually corrected by increasing your fluid intake. Rarely, some individuals may experience a rash with this product. Although this may indicate an allergy, it may represent a “detoxification reaction”. In both cases, discontinuing the product should resolve the symptom. If any symptoms are severe or persistent, contact your health care practitioner.

How much should I take and when should I take it?

As a natural source of the glutathione cysteine precursor for the maintenance of the good health, 10 grams per day (one pouch) is recommended. As a natural source of the glutathione cysteine precursor for the maintenance of a strong immune system, 20 grams per day is recommended (two pouches). Clinical trials in patients with AIDS, chronic obstructive pulmonary disease (COPD), cancer and chronic fatigue syndrome have used 30 - 40 grams per day without ill effect.

Immunocal is best administered on an empty stomach or with a light meal. Concomitant intake of another high protein load may adversely affect absorption.

Recognition

Immunocal is patent-protected worldwide and has several important high-level acknowledgments:

- Awarded an NPN (Natural Product Number) issued by Health Canada
- Listed in the U.S. Physicians’ Desk Reference (PDR) and the Pharmacist’s Red Book

Part of a select group of nutritional products eligible for reimbursement coverage under Medicare/Medicaid in the United States

Immunocal – Whey Above the Rest

So often we are asked how Immunocal fits into the world of dairy science and whey proteins. Let's examine this rapidly expanding field and see how these products are truly unique.

Many milk derivatives and whey products exist on the marketplace for health-conscious individuals. These products are extremely variable in their protein content, their concentration, the amount of denaturation (damage to the original protein structure), the actual types of proteins present, and other factors which play important roles in the effectiveness of the product (see Table 1).

Immunocal is a protein isolate. Whey protein "isolates" is of the purest form, being between 90-98% protein with negligible fat and lactose per serving. Whereas whey protein "concentrates" usually contains between 70-85% protein with significant levels of fats, lactose and often many toxins that accompany these. It contains sub-families of proteins with the highest levels of glutathione precursors (building blocks) available. The unique way that Immunotec extracts these proteins intact (undenatured) in their natural form accounts for our ability to deliver high levels of cystine and cysteine to the cell. It was Dr. Bounous who first described the importance of keeping these fragile proteins. These techniques are not employed by other manufacturers whose products have been seriously degraded by the time they reach your mouth. Notice that you will generally not find warnings against heating other proteins, because they are most often already seriously broken down.

During the manufacturing process both the fat and lactose content are removed. This allows even the most lactose-intolerant individual to consume our product safely. For those rare people who have a true allergy to milk proteins, it must be noted that up to 80% of these people are allergic to the protein called "caseine". Caseine is not a protein that we desire as a glutathione precursor and the amounts found in Immunocal is in the range of 1-2%.

Of critical importance is the biological activity associated with the proteins involved. The vast majority of whey proteins are not tested for this factor. The research most of these companies use as "scientific references" for their product was in fact done by Dr. Bounous and his team toward the development of Immunocal. Whether any of these products actually work or not has been anybody's guess because they have not withstood the test of real research. Dr. Wulf Dröge has picked up the torch and has taken Immunocal research to previously unforeseen heights, demonstrating the effectiveness of Immunotec's whey protein technology in most highly regarded scientific journals.

The field of natural health care products will only truly advance if it is based in real research and quality control. Use the products that are legitimately proven and patented to be effective. Be comfortable that you are taking advantage of the highest quality supplements available to ensure health and longevity. The old adage “you get what you pay for” holds true in this realm as well. Skimping on your health and physical and mental performance is not recommended.

My approach to evaluating a natural product is akin to how a real estate agent evaluates a property. The only difference is that the agent uses the motto “Location, location, location” - I stand by “Research, research and research!”. Immunocal is the only whey products that fulfill all of these criteria.

Table 1

Whey Protein Variables	
Concentration of Protein	Isolate = 90%+, concentrate = 70-90%
Types of Protein	Glutathione precursors vs. caseine
Degree of Denaturization	Immunocal proteins not broken up
Fat Content	Immunocal “fat-free”
Lactose Content	Immunocal “lactose-free”
Bioavailability	Very high in Immunocal
Biological Activity	Very high in Immunocal
Toxin Load	Immunocal far below industry standards
Antibiotic load	Immunocal will reject if antibiotics present

How do I prepare or mix Immunocal?

The proteins in Immunocal are very fragile. **Do not heat this product or add it to hot liquids. Do not use a high-powered blender to mix.** Heat and severe mechanical action will break down the protein and diminish the usefulness of the product.

Immunocal is a dehydrated powder. It must be rehydrated with liquids before use. If left standing too long after mixing, the usefulness of the product may be reduced. It is generally recommended to consume the product within 30 minutes

of mixing. Special low-speed blenders or mixing cups can be made available through Immunotec Inc.'s distribution networks.

Using the Immunotec hand mixer:

- Fill a glass or container with 180-240 ml (6-8 oz) of your favorite juice or liquid*. Add Immunocal - you'll find it easiest to first squeeze the pouch to fit the container - and mix until blended.

Using the Immunotec shaker:

- Pour 60 ml (2 oz) of liquid to the fill line. Add 1-2 pouches of Immunocal. Seal and shake for 10-15 seconds. Add more liquid and drink immediately.

Or choose an alternative method that suits your personal preferences and lifestyle:

- Empty one pouch of product into a small container, add 2 tablespoons of your favorite juice or liquid and make a gravy-like paste. Add 180-240 ml (6-8 oz) of juice or liquid, stir and drink.
- Add the product to applesauce or yogurt.

**Certain liquids create more foam than others: orange juice is recommended.*

How do I store Immunocal?

Try to keep Immunocal in a cool dry place. Avoid prolonged exposure to hot environments. Refrigeration will prolong the life of the product but is optional.

What is Immunocal Platinum?

More Valuable than GOLD!

Immunocal has been Immunotec's flagship product for years. Immunocal's action is based on the benefits of raising glutathione. The wealth of research on glutathione and the aging process speaks for itself. What is it about the "Platinum" formulation that takes this a step further? Let's examine this closer.

The major impact on your health that Immunocal bestows is by providing the building blocks or "precursors" for your cells to be able to make glutathione. This is a technology that we continue to refine. Both Immunocal and Immunocal Platinum represent the only patented protein proven to do this. In the development of Immunocal Platinum, we have looked very carefully both at protein metabolism and at potential components of whey proteins that relate to aging. Two separate formulations have been added to Immunocal – CMP™* and RMF.

CMP (Cytokine Modulating Peptides)

Cytokines are little molecules that the immune system uses to regulate inflammation. Inflammation plays a role not only in issues like aches and pains, but also in cardiovascular and neurological health. Inflammation has been pointed to as one of the key factors driving the aging process. What CMP does, is "turn down the volume" on these cytokines.

*CMP is a trademark of Glanbia LLC.

RMF (Redox Modulating Formula)

RMF is an exclusive development from Immunotec's research and development team mastered by Dr. Wulf Dröge. The major objective here was to decrease the amount of acid formed in the body (important to the kidneys), and as a second benefit, reduces the amount of calcium lost (important in bone health).

Who should take Platinum?

We all should take Platinum. Although it was initially developed with the "Baby-Boomers" and geriatric populations in mind, it became clear that there were benefits for overweight individuals, athletic individuals, people with circulation challenges and others. Certainly, good old Immunocal has proven benefits for all these groups, but Platinum represents the next generation in immune enhancement and will become the new standard in the immune health market.

The recommended serving size is unchanged from Immunocal and it can be combined with Immunocal as desired.

Turn a triple into a HOME RUN!

Immunocal Platinum provides a triple action on your immune health – Raising glutathione represents Preventative immunity, the cytokine modulating proteins representing Reparative Immunity. Attention to the proper acid-base balance helps lead to Sustained Immunity. Turn this triple into a homer by topping it off with the other supplements your health professional may recommend to you!