

Viruses & The Advantages of Proline-Rich Polypeptides

Proline-Rich Polypeptides (PRPs) are one of the key components that virologists all over the world are researching in the battle against the ever growing virus threat.

Proline-Rich Polypeptides (PRPs) also stimulate the body's immune cells to produce cytokines: Immune-regulating proteins that regulate the duration and intensity of the body's immune response.

Proline-Rich Polypeptides (PRPs) also serve to regulate the immune system and maintain balance between under and over-activity; extremely important for those with autoimmune disease.



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The Physiological Functions of PRPs

Clinically Researched and Scientifically Validated Benefits of PRPs

Viruses are extremely tiny—much smaller than bacteria. They invade individual cells and turn them into tiny factories to make more viruses. The pharmaceutical community has developed antibiotic after antibiotic to target an ever-growing group of bacterial pathogens, yet few medicines today work on viral infections. Viral diseases include colds and flu, chicken pox, hepatitis, measles, herpes, viral pneumonia, shingles, Epstein Barr virus, respiratory syncytial virus (RSV), AIDS, and numerous others. There are also a host of intestinal viruses that cause diarrhea and other life-threatening symptoms. Now, more than ever, our bodies need powerful anti-viral and immune enhancing support.

In the last few years, colostrum and a number of its individual components have been studied for their powerful anti-viral and immune-enhancing properties.

Among the components of Colostrum studied are PRPs because they are able to help against bacterial and viral pathogens, not because of any specific antibody reaction, but because of the overall immune support they provide.

Proline-Rich Polypeptides also stimulate the body's immune cells to produce cytokines: Immune-regulating proteins that regulate the duration and intensity of the body's immune response.

In a 1998 study conducted at the laboratory of Virology, Institute of Immunology and Experimental Therapy, Polish Academy of Sciences, Warsaw, Poland, it was shown that when Proline Rich Polypeptide isolated from bovine colostrum were added to the immune cells found in the membrane lining the abdominal cavity and viscera immediately after virus absorption or one day before or after viral infection, infected cells were better able to inhibit virus replication.³¹

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

- Modulate the immune system, promote T-lymphocyte function¹ and can stimulate the lymphocytes to become either helper T-cells or suppressor T-cells.^{2,3} Helper T-cells activate B-lymphocytes by presenting an antigen, such as a viral protein, to the B-cell. The B-cell then produces antibodies to that protein.⁴ Helper T-cells also help produce memory T-cells, which retain the “memory” of the antigen to shorten the response time in cases of new infection.⁵ Suppressor T-cells deactivate other lymphocytes, effectively turning off the immune response to avoid damage to healthy tissue.⁶ PRPs also stimulate the production of a whole range of cytokines, particularly the pro-inflammatory cytokines TNF- α and INF- γ ,⁷ and the anti-inflammatory cytokines IL-6 and IL-10.⁸
- Act as molecular signaling devices, working through specific receptors on cell surfaces.²
- Stimulate undifferentiated lymphocytes in thymus to become either helper T-cells or suppressor T-cells. PRPs act as a hormone in the thymus gland by stimulating thymocytes (immature lymphocytes) to differentiate and become either helper T-cells or suppressor T-cells.⁹ Helper T-cells are a vital part of the immune response that stimulates the production and differentiation of cytotoxic T-cells and B-cells, attract white blood cells, and stimulate macrophages to engulf and destroy pathogens. Suppressor T-cells inhibit the production of cytotoxic T-cells to prevent tissue damage and suppress the immune response, when no longer needed.
- Promote growth and differentiation of B-cells. PRPs promote the growth and differentiation of B-cells, a type of lymphocyte which produces antibodies to antigens, including viral antigens.¹⁰
- Stimulate Natural Killer cell (NK cell) activity. PRPs stimulate the activity of NK cells up to 10 times, far greater than any other known substance. NK cells, along with cytotoxic T-cells, are the cells that actually attack and kill pathogens. NK cells also attack and kill cancerous cells.¹¹
- Stimulate the production of tumor necrosis factor-alpha (TNF- α) and interferon-gamma (INF- γ). PRPs stimulate production of the two major pro-inflammatory cytokines, TNF- α and INF- γ , in white blood cells,¹² peritoneal cells,¹³ and placental and amniotic membranes.¹⁴
- Promote the proliferation of leukocytes (white blood cells).¹⁵

- Stimulate production of cytokines by peripheral blood cells. The types of cytokines stimulated by PRPs depend on the antigenic stimulation present or the activity state of the immune system (underproductive or overproductive).
- Induce differentiation and maturation of monocytes and macrophages.¹⁶
- Increase the permeability of blood vessels in the skin. Part of the inflammatory response to infection is an increase in the permeability of blood vessels in the skin, to allow the passage of blood cells and cytokines into the connective tissue to combat the infection. PRPs are known to initiate this inflammatory response.¹⁷
- Produce immunity to certain viruses. PRPs have been experimentally shown to provide immunity to several viruses, including herpes viruses,^{18,19,20} Epstein-Barr virus,²¹ HIV,²² measles,²³ vesicular stomatitis virus²⁴ and others.^{25,26}
- Inhibit viruses known to be associated with autoimmune diseases. Epstein-Barr virus and human herpes virus-6 (HHV-6) have been associated with chronic fatigue syndrome, an autoimmune disorder. PRPs inhibit the replication of both viruses.^{27,28}
- Increase T-cell count in AIDS to normal or near-normal levels. In clinical studies conducted in Nigeria, Kenya and Zambia, PRP oral-spray products were shown to boost T-cell (CD4+) levels to normal or near-normal levels in AIDS patients whose T-cell levels were well below normal. Along with the increase in T-cells came a remission of AIDS symptoms (including nausea, vomiting and diarrhea) within two days of start of treatment. In the Nigerian study, weight gains of 5 percent were recorded. Patients taking the PRP spray fared much better in terms of quality of life than did patients on anti-retroviral drugs.²⁹ Thus, the ability of PRPs to stimulate insufficient immune response by inducing the production of new helper T-cells may enable the immune systems of AIDS patients to recover sufficiently to fight the HIV on their own.

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