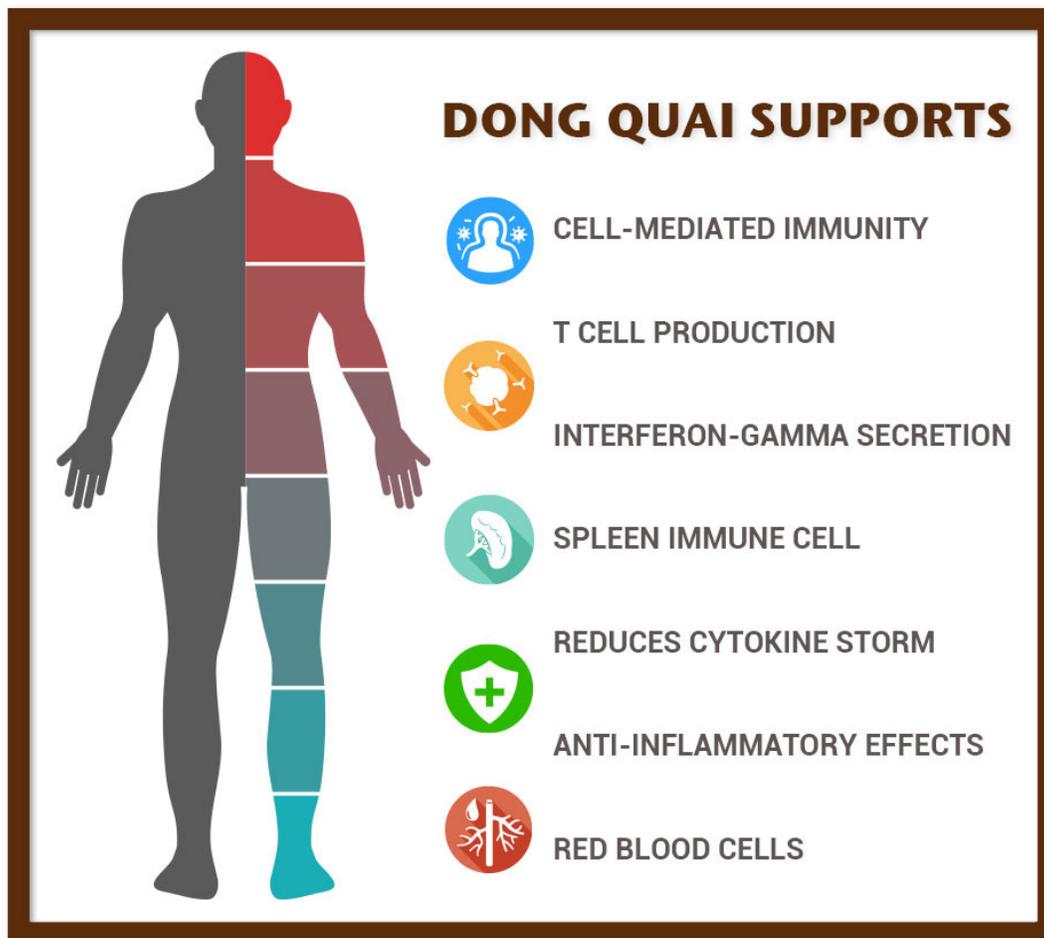


DONG QUAI

MODULATE IMMUNE SYSTEM AND ENRICH BLOOD



Dong Quai is the dried root of *Angelica sinensis*, a uniquely fragrant herb belonging to the same family as carrots, parsley, and celery. Used for more than 2,000 years in China, Korea, and Japan, Dang Quai helps with heart conditions, high blood pressure, inflammation, headache, infections, and nerve pain (Mayoclinic.com). In addition to its colon cleansing laxative properties as well as energizing and relaxing effects, Dong Quai provides potent immune-stimulating effects to protect you from the virus season.

Based on current scientific evidence, Dong Quai water soluble polysaccharides can support cell mediated immunity through increasing T-lymphocytes. Draco extracts contain water soluble polysaccharides due to our unique water extraction process, unlike other extract companies who use alcohol which do not extract polysaccharides very well. The immune system is composed of two main defenses, cell mediated immunity (based on T lymphocytes) and humoral immunity based on B lymphocyte producing antibodies for fighting an infection. Both are needed, but in immune suppressed individuals often the first line of defense with cell mediated immunity is weak. T lymphocytes are critical for an effective immune response early on and Dong Quai polysaccharides significantly enhance the proliferation of T lymphocytes.

Dong Quai polysaccharides also increase the production interferon-gamma that is critical in the first stages of a viral infection to suppress viral reproduction, giving the immune system the time to produce an effective antibody response (Yang, 2005). In addition, the polysaccharides could activate Th1 cell lines and keep Th1 and Th2 in balance by regulating the expression of the related cytokines (Yang, 2006). The Th1/Th2 balance is important for controlling chronic infection and auto-immunity or

allergies. As the cytokines response improves, natural killer cells and helper T cells involved in nonspecific immunity were activated as well.

The immunomodulatory activity of Dong Quai might be effective in treating sepsis - a systemic inflammatory response syndrome resulting from a microbial infection, which kills over 225,000 people annually in the U.S. alone (Zhu, 2008). It is believed that early proinflammatory cytokines (such as TNF) may be protective against infection, but excessive accumulation of late-acting proinflammatory mediators (such as HMGB1) may sustain a potentially injurious inflammatory response called cytokine storm. Actives in Dong Quai capable of inhibiting HMGB1 activities were shown from lethal sepsis even when given 24 hours after onset of the infection (Zhu, 2008).

Another very useful benefit of Dong Quai is its ability to function like Epogen (more generically known as erythropoietin). This is a hormone that stimulates the bone marrow to produce more red blood cells. It is used medically to help those who are anemic from blood loss or when the cause is not from iron deficiency anemia. Dong Quai water-soluble polysaccharides have a similar effect. In an animal experiment using an acute blood loss model, administration of a low-dose of the Dong Quai polysaccharides at only 2.3 mg per kg body weight per day could significantly accelerate the restoration of hemoglobin levels to its original value. The colony-forming ability of bone marrow cells was markedly increased ($p < 0.05$) during ex vivo tests (Liu, 2010).

Draco's unique water extracts of Dong Quai are rich in polysaccharides. During this unprecedented virus season, please consider using Dong Quai in your product development for modulating the immune system and enriching the blood.

[More Technical Information](#)

DONG QUAI EXTRACT APPLICATIONS

- **IMMUNITY IMPROVEMENT SUPPLEMENTS**
- **CUSTOM TEA AND BEVERAGE**
- **COSMECEUTICAL PRODUCTS**



Cosmetic Corner

Dong Quai Extract Stimulates Wound Healing and Has Potent Tanning Effects

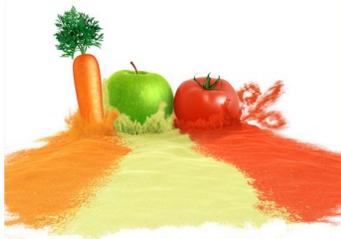
Dong Quai stimulates the growth of new capillaries for improved microcirculation, making it beneficial for vibrant facial color and rejuvenation. This aspect was proven by its particularly strong wound healing activity. In a wound-healing experiment, it was shown to support the proliferation of human dermal fibroblasts and type I collagen secretion (Zhao, 2006).

Another benefit of Dong Quai is that it increases melanin skin pigment formation. This amazing tanning effect might help restore loss of skin color (depigmentation of vitiligo). It can be used topically at low dosages in the cosmetic industry.

Draco's Dong Quai extracts provide healing properties for wounds and energize your skin with oxygenated blood!

Note: Draco can provide low concentration liquid versions of Dong Quai PCG extract in a carrier format for your personal care formulating needs.

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Questions?

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