

SCIENTIFIC BACKGROUND OF THE ACTIVE COMPONENTS OF ASG C+5

Food supplement filmcoated tablets, jar, 100x

INTRODUCING ASG C+5: ELEVATE YOUR WELLNESS WITH THE POWER OF SCIENCE AND NATURE! TWO NOBEL PRIZE-WINNING SCIENTIFIC ACHIEVEMENTS INSPIRED THE COMPOSITION OF ASG C+5. BASED ON THE PIONEERING WORK OF ALBERT SZENT-GYÖRGYI, THIS PRODUCT CAN BE YOUR GATEWAY TO HEALTH AND VITALITY. SCIENTIFICALLY SUPPORTED AND MADE FROM NATURAL INGREDIENTS, ASG C+5 IS DESIGNED TO OPTIMIZE YOUR WELL-BEING. ASG C+5 SUPPORTS THE IMMUNE SYSTEM, CAPILLARY PROTECTION, AND WEIGHT CONTROL.



VITAMIN C IS A KEY PLAYER IN CELLULAR METABOLISM

At the heart of ASG C+5 is vitamin C, a cornerstone of cellular health. With 1000 mg per tablet, Vitamin C serves as your ultimate shield against oxidative stress, supporting normal collagen formation, blood vessel function, and immune system response.

Ascorbic acid, also known as vitamin C, is an organic acid with antioxidant properties that participates in the metabolic processes of cells and is indispensable for the body. **Albert Szent-Györgyi was awarded the Nobel Prize** in Physiology or Medicine in 1937, in part for its discovery. Ascorbic acid has strong antioxidant properties against free radicals because of its reducing power due to its enediol structure, which is conjugated with the carbonyl group in a lactone ring¹². Vitamin C contributes to the normal functioning of the immune and nervous systems, normal energy-producing metabolism, and the reduction of tiredness and fatigue. With its antioxidant effect, it contributes to the proper functioning of the immune system³. Thanks to its antihistamine effect, it relieves the symptoms of upper respiratory tract diseases⁴.

In addition to protecting cells from oxidative stress, vitamin C contributes to the normal functioning of blood

vessels and the normal formation of collagen. Vitamin C is essential for the hydroxylation of proline and lysine, amino acids necessary for collagen (type IV) formation^{5,6}. Vitamin C is therefore essential for maintaining healthy skin, bones, and blood vessels. Moreover, vitamin C helps **prevent endothelial dysfunction**, and enhances cell proliferation⁷. Physiological concentrations of vitamin C promote the proliferation of subconfluent endothelial cells by activating the ERK1/2 regulated pathway. In addition to antioxidant mechanisms, targeting MAPK with vitamin C may improve endothelial dysfunction by promoting rapid endothelial regeneration after tissue injury⁸. In **vascular smooth muscle** cells, ascorbate inhibits dedifferentiation and at the same time stimulates recruitment and proliferation in areas of vascular damage. In the case of macrophages, ascorbate reduces the oxidative stress associated with their activation, reduces the uptake and degradation of oxidized LDL in some studies, and improves several aspects of their function⁷.

With an extended-release formulation, the body's supply of vitamin C can be prolonged and optimized⁹. According to the research report, the dissolution profile of ascorbic acid from the ASG C+5 extended-release tablet is 61% at hour 6, providing the body with a continuous, adequate dose

of vitamin C. Say goodbye to fatigue and hello to boundless energy, as vitamin C also supports normal energy metabolism and reduces tiredness.

RUTIN AS A POWERFUL ANTIOXIDANT MOLECULE AND BLOOD VESSEL SUPPORTER

Additionally, ASG C+5 harnesses the power of **rutin** (also known as rutoside, quercetin-3-O-rutinoside or sophorin), a natural bioflavonoid compound found primarily present in fruits. Szent-Györgyi himself was the first scientist to isolate high purity rutin to study its effects in relation to vitamin C. The rutin content of ASG C+5 comes from an extract of **Sophora japonica**. Laboratory tests have confirmed that the rutin content of the preparation exceeds 87%. Rutin has **antioxidant** (scavenges free radicals and inhibits lipid peroxidation), antihypertensive, antihyperglycaemic, anti-inflammatory and **vascular protective** effects¹⁰⁻¹².

Szent-Györgyi also discovered that rutin and vitamin C enhance each other's effects. Rutin plays an important role in the stabilization and absorption of vitamin C.

The **synergistic effect of rutin and vitamin C** has been evaluated in several studies. Their combined use results in stronger cell protection: increased direct and indirect antioxidant defense, increased activation of the Nrf2 signaling pathway, reduced TNF- α , increased HDL-C levels and reduced DNA damage¹³⁻¹⁵.

On the other hand, rutin protects the **vascular endothelium** and has a strong affinity for the venous wall¹⁶. A large number of pharmacological and clinical studies on rutin and its various derivatives have shown its effect on **capillary permeability** disorders, the red blood cell membrane and the deformation and aggregation of red blood cells. Thus, rutin helps maintain the health of blood vessels and has a beneficial effect on capillaries¹⁶.

With 25 mg of rutin per tablet, ASG C+5 provides antioxidant protection that combats tissue aging and defends against the onset of chronic diseases, keeping you feeling youthful and vibrant.

CAPSAICIN FOR THERMOREGULATION AND WEIGHT CONTROL

We did not forget the spice of life – **capsaicin**. Capsaicin contributes to your dietary support program. With 450 μ g of capsaicin per tablet, ASG C+5 targets capsaicin receptors in nerve endings, offering relief from discomfort and promoting overall well-being. The **2021 Nobel Prize** in Physiology or Medicine was jointly awarded to **David Julius and Ardem Patapoutian** for the discovery of capsaicin receptors responsible for pain, touch, and temperature.

Capsaicin is a bioactive compound found in the fruits of the Capsicum genus of plants (i.e. peppers) and is widely used in many cultures. Bioactive compounds such as capsaicin and vitamin C present in chili

pepper are of great therapeutic importance as they have anti-inflammatory activities on preadipocyte differentiation and cellular oxidation¹.

Several lines of evidence suggest pleiotropic benefits of capsaicin, including anti-inflammatory, antioxidant, anti-proliferative, metabolic or cardioprotective effects¹⁷. The compound has many beneficial health effects, including pain, various types of cancer, ulcers, diabetes, obesity, inflammation, cardiovascular disease and neurodegenerative diseases¹⁸⁻²¹. Capsaicin has been shown to affect the function of sensory nerve endings by selectively and persistently inhibiting chemical-induced pain and warmth sensations and neurogenic inflammatory responses. This phenomenon has become known in scientific literature as **capsaicin desensitisation**. By binding to capsaicin's specific pharmacological receptor, the **transient receptor potential vanilloid 1 (TRPV1)**, it initially triggers local inflammation, which turns into an opposite, lasting **anti-inflammatory** effect with continued use of the compound¹⁹.

Capsaicin is effective in **weight control** through several mechanisms, including regulating lipolysis in fat cells, increasing satiety, stimulating energy expenditure, and reducing energy intake. Capsaicin activates the **GPL-1 receptor**, which will result in reduced **ghrelin** synthesis²²⁻²⁴. This reduces the feeling of hunger and the tendency to store energy. Capsaicin can increase energy expenditure via **brown adipose tissue** and enhance lipolysis in **white adipose tissue**²³⁻²⁵. By activating TRPV1 receptors, dietary capsaicin induces **browning of white adipose tissue**, activates **mitochondrial** biogenesis and UCP1 expression (also known as thermogenin), stimulating thermogenesis and **energy expenditure**^{20,26,27}. Furthermore, from a different perspective, capsaicin exerts a modulating effect on the intestinal **microbiota**, thus positively influencing the development and course of metabolic and inflammatory diseases¹⁷.

VITAMIN D, ZINC AND SELENIUM FOR STRONG IMMUNE SYSTEM

And let's not overlook the essential trio of vitamin D, zinc, and selenium which ensures your immune system functions optimally while protecting your cells from oxidative stress.

Vitamin D plays a role in immune defense and in reducing inflammation. In the case of viral infections, the optimal vitamin D status alleviates the course of the disease²⁸. It stimulates the body's pathogen recognition processes, thus reducing the chance of infection²⁹. It strengthens the connection between the cells of the mucous membrane, increasing resistance and reducing the likelihood of infections²⁹.

Zinc is an essential trace element that protects the cells of the immune system from oxidative stress through its antioxidant action³⁰. It plays a prominent role in the regulation of immune functions, in the recognition and elimination of pathogens, and in inflammatory processes³¹. Its replacement contributes to the development of immunity, protection against viruses, and is effective in defense³².

Incorporated into proteins, **selenium** becomes part of the antioxidant enzyme systems, that neutralize the reactive free radicals produced in large quantities during the immune defense³³. It moderates the excessive immune response caused by inflammatory processes³⁴. It stimulates the white blood cell function and antibody production²⁸.

The combined use of **vitamins C, D, and zinc and selenium** has a synergistic effect on immune function and protection against infection^{34,35}.

Each film-coated tablet is designed for convenience, so it fits seamlessly into your daily routine. 1 or 2 tablets a day.

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