



C-Ester (Ascorbyl Palmitate)

Vitamin C is an essential nutrient responsible for manufacturing compounds and aiding in basic chemical functions. Humans must ingest vitamin C, or ascorbic acid, because we cannot make it ourselves. Our bodies use vitamin C to complete a variety of chemical reactions, such as providing energy to cells and sending information through neurons. Vitamin C helps synthesize norepinephrine, a neurotransmitter that carries messages along the nervous system. Collagen, the substance that builds bone, blood vessels, ligaments, tendons, and cartilage, needs vitamin C to manufacture all of these tissues. This important vitamin even metabolizes cholesterol, which means it may help lower cholesterol levels. Additionally, the absorption of iron is aided by vitamin C.

Ascorbyl palmitate is vitamin **C-Ester** (vitamin C that has been esterified into a fatty acid). **Esters** are organic compounds that are formed by esterification - the reaction of carboxylic acid and alcohols. Why is this important? Well, since regular Vitamin C supplements are water soluble, it's important to know the difference between the two forms. Ascorbyl palmitate (**C-Ester**) is an amphipathic molecule, meaning one end is water-soluble and the other end is fat-soluble. This dual solubility allows it to be incorporated into cell membranes. When incorporated into the cell membranes of human red blood cells, ascorbyl palmitate has been found to protect them from oxidative damage and to protect alpha-tocopherol (a fat-soluble antioxidant) from oxidation by free radicals

Ascorbyl palmitate may be more effective as an anti-oxidant in preventing lipid peroxidation than water-soluble vitamin C. **Ascorbyl palmitate** is absorbed quickly by the aqueous environment of our bodies. It also reaches into the deep layers of human cells much more readily. **Ascorbyl palmitate** can reside in the cell membrane, acting synergistically since it's fat-soluble along with vitamin E, helping to reactivate the Vitamin E radical on a continuous basis.

Vitamin C is critical to immune function and is a powerful anti-oxidant. Vitamin C has been shown to lower the risk for cancers of the oral cavity, esophagus, stomach, colon and lungs.

Vitamin C also plays a role in the manufacture of neurotransmitters. It is necessary for the conversion of tryptophan to serotonin, and of tyrosine to dopamine and adrenaline.

Vitamin C is important in the synthesis of adrenal hormones and is depleted from the adrenal glands in times of stress.

Vitamin C is involved in the manufacture of carnitine, a substance necessary for the production of energy from fatty acid in cells. It is necessary for the activity of the enzyme system, which metabolizes drugs in the body. It is also necessary for iron absorption and plays a role in the conversion of cholesterol to bile acids for excretion.

Sources:

Perricone N, Nagy K, Horvath F, et al. The hydroxyl free radical reactions of ascorbyl palmitate as measured in various in vitro models. *Biochem Biophys Res Commun.* 1999;262:661-665

Kaneko T, Kaji K, Matsuo M. Protective effects of lipophilic derivatives of ascorbic acid on lipid peroxide induced endothelial injury. *Arch Biochem Biophys.* 1193;304:176-180

Ross, D. et al. Ascorbate 6-palmitate protects human erythrocytes from oxidative damage. *Free Radical Biology and Medicine.* 1999; volume 26: pages 81-89.

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