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Tocotrienol

National Cancer Institute

Source

National Cancer Institute. *Tocotrienol*. NCI Thesaurus. Code C68318.

Any of the four forms, alpha, beta, gamma and delta, of a member of the vitamin E family, with potential hypocholesterolemic, antithrombotic, antioxidant, immunomodulating and antineoplastic activities. Tocotrienol inhibits the activity of 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase, thereby lowering cholesterol levels. In addition, tocotrienol acts through multiple signal transduction pathways to induce cell cycle arrest and caspase-mediated apoptosis, and to decrease tumor cell proliferation. In addition, this agent may inhibit angiogenesis through the blockage of vascular endothelial growth factor receptor (VEGFR) and the subsequent inhibition of tumor cell-induced vessel formation. Also, this agent prevents free radical formation and inhibits lipid peroxidation, thereby preventing DNA cell damage. Tocotrienol farnesyl isoprenoid side chains contain 3 double bonds, which are absent in tocopherols, likely contribute to its anti-cancer activities.