Ezetimibe/Simvastatin

National Cancer Institute

Source

National Cancer Institute. Ezetimibe/Simvastatin. NCI Thesaurus. Code C123926.

An orally bioavailable combination agent containing the cholesterol absorption inhibitor ezetimibe and the hepatic hydroxymethyl-glutaryl coenzyme A (HMG-CoA) reductase inhibitor simvastatin, with lipid-lowering activity. Upon oral administration, ezetimibe binds to the sterol transporter Niemann-Pick C1-Like 1 (NPC1L1) at the brush border of the small intestine and inhibits the intestinal absorption of biliary and dietary cholesterol and related phytosterols. This decreases blood cholesterol levels, decreases the delivery of intestinal cholesterol to the liver, reduces hepatic cholesterol stores and enhances the clearance of cholesterol from the bloodstream. Upon administration of simvastatin and subsequent hydrolyzation to its active beta-hydroxyacid form, this statin competitively inhibits HMG-CoA reductase, the enzyme which catalyzes the conversion of HMG-CoA to mevalonate, which is an essential step in cholesterol synthesis. Ezetimibe and simvastatin together reduce blood levels of total cholesterol, low-density lipoprotein cholesterol (LDL-C), triglycerides (TGs), very-low-density lipoproteins (VLDL), and apolipoprotein B (Apo B), and increase the plasma concentration of high-density lipoprotein cholesterol (HDL-C). Higher cholesterol blood levels appear to be associated with an increased risk in the proliferation of certain cancer cells, such as prostate cancer cells.