27-Hydroxycholesterol

National Cancer Institute

Source

National Cancer Institute. 27-Hydroxycholesterol. NCI Thesaurus. Code C123794.

An endogenous metabolite of cholesterol produced by the hydroxylation of the carbon at position 27 by the enzyme sterol 26-hydroxylase, mitochondrial (CYP27A1). Some neoplasms produce excess of 27-hydroxycholesterol (27HC) or inhibit its catabolism, and high cholesterol levels are correlated with elevated levels of 27HC; under these conditions, 27HC may have deleterious selective estrogen receptor modulator (SERM) and liver X receptor (LXR) agonistic activities. As a SERM, 27HC binds to and prevents the activation of estrogen receptors (ERs) in the vasculature. This prevents ER-mediated vasodilation and abrogates the cardiovascular protective effects of estrogen. However, 27HC binds to and activates ERs and LXRs in breast tissue, which stimulates ER-dependent breast cancer cell growth and metastasis.