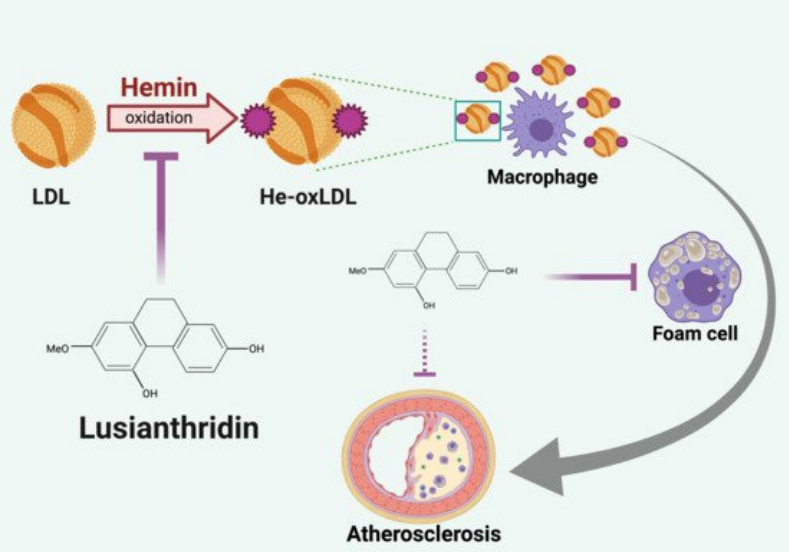
Drug discovery: Inhibitors of hemin-induced lipoprotein oxidation

Lusianthridin

Hemin is a degradation product of hemoglobin oxidation. It is detectable in the blood circulation of thalassemia patients due to intravascular hemolysis. Hemin is a potent oxidizing agent that causes lipid peroxidation in cell membrane and lipoproteins. We hypothesized that hemin involves in atherosclerosis-like event in thalassemia. Moreover, oxidized lipid products in hemin-induced lipoprotein oxidation may cause several complications in thalassemia.

Lusianthridin is a phenanthrene compound extracted from *Dendrobium venustum*. Because of its promising antioxidant activity, the protective effect of lusianthridin toward hemin-induced low density lipoprotein (LDL) oxidation was investigated. Lusianthridin inhibited lipid peroxidation, decreased oxidized lipid products and protein oxidation in LDL. Moreover, it inhibits form cell formation in RAW 264.7 macrophage cells, suggesting its benefit in prevention of atherosclerosis. Therefore, lusianthridin could be a candidate antioxidant in thalassemia.



Graphic abstract “Protective effect of lusianthridin on hemin-induced low-density lipoprotein oxidation”

Reference:

Thant SW, Morales NP, Buranasudja V, Sritularak B, Luechapudiporn R. Protective effect of lusianthridin on hemin-induced low-density lipoprotein oxidation. Pharmaceuticals, 2021;14:567. https://doi.org./10.3390/ph14060567