

Derivatives of 5-Pyrimidinols and 3-Pyrimidinols: Novel Chain-Breaking Antioxidants

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Technology description

Summary

Free radicals are believed to play a significant role in aging, carcinogenesis and the pathogenesis of many conditions, including atherosclerosis, emphysema, Alzheimer's disease, Parkinson's disease, and others. Antioxidants such as Vitamin E (alpha-tocopherol), a lipid-soluble, radical-trapping antioxidant, protect against free radical damage (lipid peroxidation) by trapping chain-carrying lipid peroxy radicals. Vitamin E, probucol, and other antioxidants have been shown to reduce the risk of heart disease and other degenerative diseases. Many cosmetic products now contain antioxidants to help protect the skin from oxidative damage. Additionally, antioxidants are used as preservatives in many food products. Considering the wide range of important uses for antioxidants, it is not surprising that they have been the subject of intense study. However, few new antioxidants have been demonstrated to be more effective than Vitamin E, the major lipid-soluble radical-trapping antioxidant in plasma and low-density lipoproteins.

Advantages

Far more reactive towards lipid peroxidation chain-carrying peroxy and alkyl radicals than the most potent form of Vitamin E
Relatively cheaply and easily prepared as either lipid- or water-soluble compounds, analogous to Vitamins E and C
More stable to air oxidation than Vitamin E.

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