Tegafur-Uracil

National Cancer Institute

Source

National Cancer Institute. Tegafur-Uracil. NCI Thesaurus. Code C9506.

A formulated therapeutic oral agent consisting of a combination of the 5-fluorouracil (5-FU) congener prodrug tegafur (tetrahydrofuranyl-5-fluorouracil) and uracil (1:4). The high concentration of uracil reversibly inhibits the uracil-reducing enzyme dihydropyrimidine dehydrogenase (DPD), thereby inhibiting first-pass DPD-mediated hepatic metabolism of the uracil analogue 5-FU and permitting administration of 5-FU as the orally bioavailable prodrug tegafur. Tegafur is bioactivated to 5-FU by liver microsomal cytochrome P450 enzymes. 5-FU is subsequently converted into its active metabolites 5-fluoro-deoxyuridine-monophosphate (FdUMP) and 5-fluorouridine-triphosphate (FUTP) intracellularly; these metabolites inhibit the enzyme thymidylate synthase and intercalate into RNA, resulting in decreased thymidine synthesis, reduced DNA synthesis, disrupted RNA function, and tumor cell cytotoxicity.