Creative Enzymes®

7-Ethoxycoumarin-3-carbonitrile

Cat. No. CSUB-0194

Lot. No. (See product label)

Introduction

Applications This reagent is a fluorogenic substrate suitable for the continuous determination of cytochrome P450 mixed-function monooxygenases. The product of the reaction is the fluorescent compound 3-cyano-7-hydroxycoumarin (Product No. C 2737). This property has been utilized to determine the activity of CYP1A by measuring the rate of dealkylation of 3-Cyano-7-ethoxycoumarin to this fluorescent product . Fluorescence of 3-cyano-7-hydroxycoumarin occurs at neutral pH with excitation and emission at 408 and 450 nm, respectively . Fluorescent reaction product detection is at least 50-fold more sensitive than that of the product of alkyl resorufin oxidation because of greater rate of turnover of 3-Cyano-7-ethoxycoumarin . The ability to continuously monitor the enzyme reaction at pH 7 is derived from the lower pKa of the 3-cyano-7- hydroxycoumarin product compared to that for 7-ethoxycoumarin . 3-Cyano-7-ethoxycoumarin is a suitable substrate for three of the five principal cytochrome P450 drug metabolizing enzymes, CYP1A1, CYP1A2, CYP2C9, and CYP2C19 . It has been used to measure cytochrome P450 mixed-function monooxygenases in rat hepatic microsomal preparations as well as in isolated rat hepatocytes . It was part of a study to examine the expression of CYP2B6 in human liver microsomes, and has been used to characterize Clara and type II cells from rat lung.

Synonyms 3-Cyano-7-ethoxycoumarin

Product Information

CAS No. 117620-77-6

Molecular Formula C12H9NO3

Molecular Weight 215.20

Impurities λex 324 nm; λem 414 nm in DMSO

Solubility DMSO: soluble

Substrates Cytochrome P450