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Determination of rofecoxib, a cyclooxygenase-2 specific inhibitor, in human plasma using high-performance liquid chromatography with post-column photochemical derivatization and fluorescence detection.

Author(s)

Woolf, E.

Fu, I.

Matuszewski, B.

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Determination of rofecoxib, a cyclooxygenase-2 specific inhibitor, in human plasma using high-performance liquid chromatography with post-column photochemical derivatization and fluorescence detection.

Woolf E, Fu I, Matuszewski B

Department of Drug Metabolism, Merck Research Laboratories, West Point, PA 19486, USA.

A method for the determination of rofecoxib in human plasma is described. After the addition of an internal standard, buffered (pH 5) plasma samples are extracted with hexane-methylene chloride (50:50, v/v). The extracts are evaporated to dryness and reconstituted in mobile phase. Upon exposure to UV light, the analyte was found to undergo a stilbene-phenanthrene-like photocyclization reaction with the resulting formation of a highly fluorescent species. Thus, the plasma extracts were analyzed via HPLC with post-column photochemical derivatization and fluorescence detection. The assay has been validated in the concentration range of 0.5-100 ng/ml using 1-ml samples. The method has been successfully utilized to support human clinical pharmacokinetic studies.