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Product Information

Cytochrome P450 CYP3A4 Isozyme Human, Recombinant Microsomes with Cytochrome P450 reductase and Cytochrome b₅

Product Code **C 4982**
Storage Temperature -70°C

Product Description

This microsomal product is prepared from insect cells (BTI-TN-5B1-4) infected with recombinant baculovirus containing cDNA inserts for the human cytochrome P450 isozyme, human cytochrome P450 reductase, and human cytochrome b₅. The recombinant CYP3A4 has the same mobility (Western immunoblotting) as CYP3A4 in human liver microsomes.

The microsomal cytochrome P450 enzymes, found primarily in the endoplasmic reticulum of liver tissue, catalyze the oxidative metabolism of a variety of compounds including certain classes of drugs and xenobiotics. This metabolism is the initial step in the biotransformation and elimination of a wide variety of drugs and environmental pollutants from the body. These reactions are achieved through a mixed monooxygenase system with the general EC number of 1.14.14.1.¹

The CYP3A4 is the predominant P450 isoform for liver and intestine. It is the enzyme responsible for the 6 β -hydroxylation of testosterone, the oxidation of nifedipine, and the N-demethylation of erythromycin and dextromethorphan. CYP3A4 is selectively inhibited by ketoconazole, midazolam, and troleandomycin.

The cytochrome P450 enzymes range in molecular weight between 45 to 60 kDa.

The product contains 0.5 nmole of cytochrome P450 isozyme in 100 mM potassium phosphate, pH 7.4. A substantial amount of apoprotein is detected. Protein content, cytochrome b₅ content, cytochrome c reductase activity, and testosterone 6 β -hydroxylase activity of the microsomes are reported on a lot-to-lot basis.

Precautions

In general, $\leq 1\%$ of the total reaction volume may be organic solvent. Any solvent at a concentration between 1 and 5% will have a serious effect on P450 activity. If it is necessary to use concentrations $>1\%$, acetonitrile should be used since it has less of an effect on substrate metabolism. DMSO should never be used, since a concentration as low as 0.2% may inhibit certain types of cytochrome P450 activity.

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product is shipped on dry ice and should be stored at -70°C . The product, as supplied, is stable for at least 18 months.

Procedure

Approximately 1-2 μg should be loaded per lane for immunoblotting.

References

1. Enzyme Nomenclature, IUBMB, Academic Press (1992).
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4. Ingelman-Sundberg, M. et al., *Biochem. Biophys. Res. Comm.*, **221**, 318-322 (1996).
5. Guengerich, F.P. et al., *J. Biol. Chem.*, **261**, 5051-5060 (1986).
6. Gorski, J.C. et al., *Biochem. Pharmacol.*, **47**, 1643-1653 (1994).

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