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Product Information

Cytochrome P450 Reductase, human recombinant, expressed in baculovirus infected insect cells

Catalog Number **C8113**
Storage Temperature –70 °C

EC 1.6.2.4
Synonym: NADPH:Ferrihemoprotein oxidoreductase

Product Description
This human, recombinant protein is isolated from insect cells infected with a baculovirus containing the cDNA for human cytochrome P450 reductase. The molecular mass is ~78.2 kDa. The enzyme is purified by affinity chromatography.[1]

The main role of the cytochrome P450 enzyme system is participation in the detoxification of xenobiotics in the liver.[2] It also participates in the activation of procarcinogens and the metabolism of other endogeneous substrates such as steroids. Cytochrome P450 reductase catalyzes the reduction of hemethiolate-dependent monooxygenases such as EC 1.14.14.1 (unspecified xenobiotic monooxygenases)[3] and is part of the microsomal hydroxylating system. This reductase is a flavoprotein containing FMN and FAD.[4,5] It also reduces cytochrome b_5 and cytochrome c.

The use of purified cytochrome P450 reductase allows the flexibility to optimize component ratios of cytochrome P450, cytochrome P450 reductase, and cytochrome b_5 for specific applications. It is typically used at a variety of ratios ranging from 0.5–5:1 (cytochrome P450 reductase:cytochrome P450) for *in vitro* reconstitution assays.

The enzyme catalyzes the following reactions:

$$NADPH + H^+ + 2 \text{ cytochrome } c^{3+} \rightarrow NADP^+ + 2\,H^+ + 2 \text{ cytochrome } c^{2+}$$

$$NADPH + H^+ + \text{dye} \rightarrow \text{reduced dye} + NADP^+$$

$$NADPH + H^+ + O_2 \rightarrow H_2O_2 + NADP^+$$

The product is supplied in a solution containing 100 mM potassium phosphate, pH 7.7, 0.1 mM EDTA, 0.2 mM DTT, and 20% (v/v) glycerol.

Purity: ≥90% (SDS-PAGE)

Activity: ≥30 units/mg protein

Unit Definition**:** One unit will cause the reduction of 1.0 μmole of cytochrome c by NADPH per minute at pH 7.4 at 37 °C.

Precautions and Disclaimer
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
Store the product at –70 °C.

References
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2. Backes, W.L., In Cytochrome P450, Handbook of Experimental Pharmacology, Vol. 105, Schenkman, J.B., and Greim, H., eds., Springer-Verlag (Berlin Heidelberg: 1993), pp 15-34.
3. Enzyme Nomenclature, IUBMB, Academic Press, (1992).
4. Shepard, E.A. et al. Analytical Biochem., **129,** 430 (1983).
5. Masters, B.S.S. et al., Methods in Enzymology, **10,** 565 (1967).

RBG,MAM 06/11-1