CREATIVE BIOMART®
Assay Kit

Cytochrome P450 Reductase (CPR) Colorimetric Activity Kit

Product Information

Cat

Kit-0258

Common Name

CPR

Cat.No. Kit-0258

Product Overview

Only 96-well plate format CPR assay kit on the market
Only kit to use a synthetic colorimetric probe and a NADPH generating system
Rapid, convenient and sensitive
Kit contains all necessary reagents for accurate measurement of CPR activity down to 0.2 mU per well in a wide variety of sample types

Description

NADPH-cytochrome P450 reductase (CPR, EC 1.6.2.4) is a ~78 kDa membrane-bound flavoenzyme that catalyzes the transfer of electrons from NADPH to members of the cytochrome P450 monooxidase (CYP) enzyme family in the endoplasmic reticulum. CPR contains two tightly bound flavin cofactors, FAD and FMN, which participate in the sequential transfer of electrons from NADPH→FAD→FMN→CYP, oxidizing NADPH to NADP+ and reducing the CYP heme moiety to the substrate-and oxygen-binding ferrous state. As CPR is required for the function of all CYP isozymes, it plays a critical role in the metabolism of drugs, organic pollutants and other xenobiotic compounds, in addition to its role in biosynthesis of certain vitamins and steroid hormones. cytochrome P450 reductase activity assay kit couples oxidation of NADPH by CPR to reduction of a nearly colorless probe into a brightly colored product with an absorbance peak at 460 nm, with the rate of color generation being directly proportional to CPR activity. The NADPH utilized by CPR is generated in situ from β-NADP+ via oxidation of glucose-6-phosphate (G6P) to 6-phospho-D-glucono-1,5-lactone by glucose-6-phosphatase dehydrogenase (G6PDH). The kit can be used to determine CPR activity in a variety of samples, with a detection limit of ~0.2 mU of CPR activity per reaction. For assessment of CPR activity in crude biological samples that may have extraneous

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reductases capable of reducing the substrate, an inhibitor of NADPH-dependent flavoproteins is included. In this case, the specific CPR activity may be calculated by running parallel reactions in the presence and absence of inhibitor and subtracting any residual activity detected with the inhibitor present. The kit contains sufficient reagents for performing 100 reactions in a 96-well plate format.

Applications

The kit can detect CPR activity in a variety of sample types with a detection limit of ~0.2 mU per well

Usage

For Research Use Only! Not For Use in Humans.

Storage

-20°C

Size

100 assays

Kit Components

- CPR Assay Buffer
- G6P Standard
- Inhibitor (Diphenyleneiodonium Chloride, 10 mM)
- NADPH Substrate Mix
- G6P Standard Developer
- Human CPR Positive Control

Detection method Absorbance (460 nm)

Compatible Sample Types

Purified recombinant or native CPR protein
Human and animal liver microsomes Lysates of tissues and cultured eukaryotic cells

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