CREATIVE BIOMART®
Assay Kit

Cysteine Fluorometric Assay Kit

Product Information

Cat.No.

Kit-2140

Product Overview

Cysteine Assay Kit provides a simple, sensitive, and high-throughput adaptable assay that detects physiological concentration of cysteine in a variety of biological fluids. The principle of the assay is based on the cleavage of thiol group of reduced cysteine producing a fluorophore (Ex/Em = 365/450 nm) with a stable signal, which is directly proportional to the amount of total cysteine in the sample. The assay is specific and other thiol-based amino acids do not interfere with the assay. The assay can detect as little as 10 µM of Cysteine in a variety of samples.

Size

100 assays

Description

Cysteine (CYS) is a sulfhydryl-containing amino acid and an important structural and functional part of proteins. In animals, cysteine is synthesized from transsulfuration of homocysteine, which is itself derived from metabolism of the amino acid methionine. Cystathionine β- synthase catalyzes condensation of homocysteine with serine to form cystathionine, which is deaminated and hydrolyzed by Cystathionine β-lyase to form cysteine and a-ketobutyrate. Because of its nucleophilic nature, the thiol group of cysteine has numerous biological functions. The formation of disulfide linkages between the thiol groups of cysteine residues helps to stabilize the tertiary and quaternary structure of proteins. Cysteine, homocysteine (HCY), and other aminothiols exist in plasma in reduced, oxidized, and protein-bound forms, interacting with each other through redox pathways. Cysteine is the limiting precursor of the major intracellular antioxidant glutathione. The individuals with lower cysteine levels are more prone to damage from reactive oxygen species, which are generally removed either by thiols or by glutathione-linked enzymes. An elevated level of total cysteine also predicts adverse outcomes such as cardiovascular diseases and metabolic syndromes.

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Applications

Estimation of Cysteine in various biological samples

Target Species

Mammalian

Storage

Store kit at -20°C, protected from light. Briefly spin small vials prior to opening. Read entire protocol before performing the assay.CYS Assay Buffer: Store at -20°C or 4°C. Bring to room temperature (RT) before use.Enzyme Mix I: Aliquot and store at -20°C. Freeze/thaw should be limited to two times. Keep on ice during use.Enzyme Mix II: Reconstitute each vial with 1 ml of CYS Assay Buffer as needed. Store at 4°C. Keep on ice during use. Use the reconstituted Enzyme Mix II within a week.Reducing Agent: Reconstitute each vial with 220 µl of CYS Assay Buffer as needed. Store at 4°C. Keep on ice during use. Use the reconstituted Reducing Agent within a week.HCY Blocker: Bring to room temperature. Aliquot and store at -20 °C. Avoid repeated freeze/thaw.CYS Probe: Light sensitive. Store at -20°C. Bring to RT before use.CYS Standard: Reconstitute with 900 µl dH2O to generate 10 mM L-Cysteine Standard solution. Aliquot and Store at -20°C. Avoid repeated freeze/thaw. Use within two months.

Kit Components

CYS Assay Buffer: 25 mlEnzyme Mix I: 50 µlEnzyme Mix II: 3 vialsReducing Agent: 2 vialsHCY Blocker: 100 µlCYS Probe: 0.5 mlCYS Standard: 1 vial

Detection method Fluorescence (Ex/Em = 365/450 nm)

Compatible Sample Types

Serum, plasma etc.

Features & Benefits

• Simple, sensitive and HTP adaptable Protocol • Specific for Cysteine without interference from other thiol based amino acids • This kit can detect as little as 10 µM of Cysteine in a variety of biological samples

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