Ethanol Dehydrogenase (ADH) Extraction Reagent

Cat. No.: E1518221 | Pack size: 500 mL | Storage: Store at 2-8℃; store at -20℃

Overview

Alcohol Dehydrogenase (ADH), systematically named alcohol: NAD^+ oxidoreductase, is abundant in the liver of humans and animals, plants, and microbial cells. It is a zinc-containing metalloenzyme with broad substrate specificity. Using nicotinamide adenine dinucleotide (NAD^+) as a coenzyme, ADH catalyzes the reversible reaction between primary alcohols and aldehydes: $CH_3CH_2OH + NAD^+ \rightarrow CH_3CHO + NADH + H^+$. In humans and mammals, ADH and Aldehyde Dehydrogenase (ALDH) constitute the alcohol dehydrogenase system, which participates in ethanol metabolism and serves as an important metabolic enzyme in humans and animals. As a key enzyme in the metabolism of short-chain alcohols in organisms, ADH plays an important role in many physiological processes. Pyruvate Decarboxylase (PDC) and Alcohol Dehydrogenase (ADH) are key enzymes in the ethanol fermentation pathway. The accumulation of metabolites from the anaerobic respiration pathway is toxic to cells, affecting mitochondrial structure and the activities of enzymes related to the tricarboxylic acid cycle.

Alcohol Dehydrogenase (ADH) Extraction Reagent is mainly used for lysing plant tissues and extracting alcohol dehydrogenase from samples. This product is for research use only and not suitable for clinical diagnosis or other applications.

Components

Cat. No.	Component	Size	Storage
E1518221A	ADH Extraction Reagent	500 mL	2-8℃.
E1518221B	PMSF	1 mL	-20℃.

Materials Provided by User

1. Distilled water
2. Centrifuge tubes or test tubes, homogenizer or mortar, refrigerated centrifuge

Protocol (For Reference Only)

1. Collect plant tissues, wash clean, and cut into small pieces.
2. Prepare ADH Extraction Working Solution: Take ADH Extraction Reagent and PMSF to room temperature. Mix at a ratio of ADH Extraction Reagent: PMSF = 499:1. Prepare fresh before use; do not store for a long time, otherwise the inhibitory efficiency of PMSF will decrease.

3. Add pre-cooled ADH Extraction Working Solution at a ratio of plant tissue: working solution = 1 g:4 mL, then homogenize or grind thoroughly in an ice bath.
4. Centrifuge at 12000 × g, 4℃ for 20 min. The supernatant is the crude ADH extract. Store at 4℃ for ADH assay or other experiments.

Calculation

Crude Enzyme Extract Yield (mL/g) = Supernatant Volume (mL) / Sample Weight (g) × 100%.

Precautions

1. Experimental materials should be as fresh as possible. If not used immediately, store at -20 to -80℃.
2. Test samples should not contain phosphatase inhibitors, and repeated freeze-thaw cycles should be avoided.
3. If the measured value exceeds the upper limit of the standard curve, dilute the sample with ADH Extraction Working Solution and re-assay.
4. Please use the reagent as soon as possible after opening to avoid affecting experimental results.
5. For your safety and health, please wear lab coat and disposable gloves during operation.

Specifications

Attribute	Value
Synonyms	Ethanol Dehydrogenase Extraction Reagent | ADH Extraction Reagent
Specifications & Purity	BioReagent, Suitable for plant cell and tissue extracts
Stability And Storage	Each component has a shelf life of 1 year under corresponding storage conditions.
Storage Conditions	Store at 2-8℃, Store at -20℃
Shipped In	Ice chest + Ice pads. This product requires cold chain shipping. Ground and other economy services are not available.
Grade	BioReagent, Suitable for plant cell and tissue extracts

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Limitations & Disclaimer

For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.

This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals.

Where any kit component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, transportation, disposal, and emergency procedures.

Performance depends on sample type, sample condition, handling, and operator technique. Users are responsible for validating the product for their specific application.

Aladdin product labels, SDS, COA, and approved specifications take precedence over this document. If product formulation, label, SDS, storage conditions, pack size, or quality specifications change, this document must be revalidated before use.