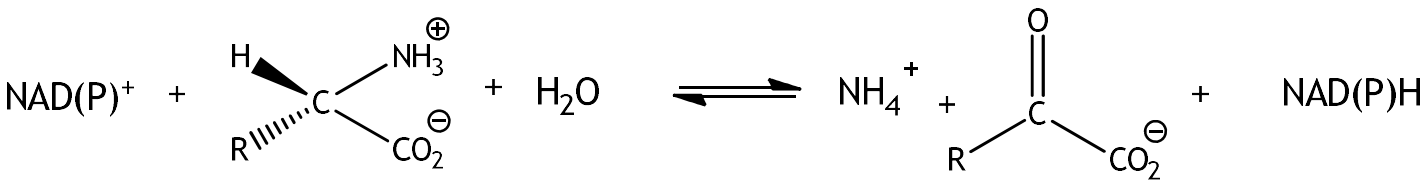
Amino Acid Dehydrogenase Enzyme Screening Kit

AAESK-2500

Applications

Catalyse the oxidative deamination of amino acids to their corresponding keto acids and ammonia with the concomitant reduction of NAD^+ or $NADP^+$ cofactor.



Kit description

The kit contains a selection of pre-formulated amino acid dehydrogenase (AADH) biocatalysts as lyophilised powders, as well as pre-prepared NH_4OH/NH_4Cl buffer and components for the cofactor recycle system.

AADHs in kit

001	006	011	016	021
002	007	012	017	022
003	008	013	018	023
004	009	014	019	024
005	010	015	020	025

Contents

A- AADHs	25 enzymes (50 mg each)
B- NADP	1 vial (200 mg)
C- NAD	1 vial (200 mg)
D- GDH	1 vial (600 mg)
E- Glucose	1 vial (6 g)
F- LDH	1 vial (600 mg)
G- Pyruvate	1 vial (200 mg)
DMSO	1 vial (5 mL)
0.1M Tris buffer (pH 7.5)	1 bottle (250 mL)
2M NH_4OH/NH_4Cl buffer	1 bottle (250 mL)

Stock solutions

20 mg/mL in buffer (Reagent A)
10 mg/mL in buffer (Reagent B)
10 mg/mL in buffer (Reagent C)
20 mg/mL in buffer (Reagent D)
30 mg/mL in buffer (Reagent E)
20 mg/mL in buffer (Reagent F)
10 mg/mL in buffer (Reagent G)

Make up the stock solutions before screening in sufficient quantities for a single screen*. For keto acid production use Tris buffer and for amino acid production use NH4OH/NH4Cl buffer .

Screening Procedure for keto acid production

1. In a vial, add 500 µL reagent A, 100 µL each of reagent B,C ,F and G.
2. Add a solution of ~10 mg substrate in organic solvent (50-100 µL, depending on solubility), e.g. DMSO or MTBE.
3. Shake/stir at room temperature (or ideally 30 °C). Agitate overnight.
4. Extract product with an organic solvent (MTBE, EtOAc, etc.).
5. Analyse the sample by chiral GC/HPLC to determine conversion and product optical purity.

Screening Procedure for amino acid production

1. In a vial, add 500 µL reagent A, 100 µL each of reagent B,-E.
2. Add a solution of ~10 mg substrate in organic solvent (50-100 µL, depending on solubility), e.g. DMSO or MTBE.
3. Shake/stir at room temperature (or ideally 30 °C). Agitate overnight.
4. Extract product with an organic solvent (MTBE, EtOAc, etc.).
5. Analyse the sample by chiral GC/HPLC to determine conversion and product optical purity.

*It is recommended to make the reaction solutions fresh and use immediately. Avoid storage of the reaction mix as a solution, as this will degrade over time. An adequate supply of components and buffer is provided for screening. Additional components or buffers can be purchased from Almac if required.

Storage: Recommend refrigeration at 4°C to preserve enzyme activity.

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selectAZyme Offerings

- An ever-expanding biocatalysis team including molecular and microbiologists, enzymologists, bioinformaticians, organic chemists and analysts, all equipped with state-of-the art facilities.
- Expertise in gene identification, expression, fermentation and enzyme production, followed by the efficient use of enzymes to produce complex chiral APIs.
- Enzyme evolution based on computational re-design, semi-rational and random mutagenesis approaches, allowing access to bespoke biocatalysts with enhanced activity, selectivity and process robustness.
- Fully integrated biocatalyst development through screening, (chemo-) enzymatic route definition, process development and scale up (pilot plant facilities available).
- Rapid implementation of enzymatic steps in complex, multi-stage syntheses, leading to significant improvements in production yields and timelines.
- A simple business model that avoids IP issues.

The selectAZyme Range of Enzyme Screening Kits

Our selectAZmye kits include a detailed user guide and come with all buffers, cofactors, recycling systems and reagents necessary to perform screens using standard laboratory equipment.

Carbonyl Reductase (CRED) biocatalysts

96 CRED biocatalysts for the production of chiral alcohols and/or use in cofactor recycling schemes

Aldehyde Reductase (ARED) biocatalysts

16 ARED biocatalysts

Hydrolase biocatalysts

48 commercially available hydrolases for selective acylation of alcohols and amines.

Nitrilase and Nitrile Hydratase (NHase) biocatalysts

9 NHases and 15 nitrilases

Transaminase (TAm) biocatalysts

96 TAms for the prodcution of chiral amines from pro-chiral ketones.

Ene Reductase (ERED) biocatalysts

143 ERED biocatalysts for asymmetric reduction of activated alkenes

P450 Monooxygenase biocatalysts

96 P450 monooxygenase biocatalysts for a huge range of highly selective oxidations

Want Almac to do the screening for you?

- Our experienced biocatalysis team can screen all of our enzymes against your target substrate(s) and simply provide the results.
- Flexible options for subsequent enzyme supply, evolution services, process development and scale up as required.

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