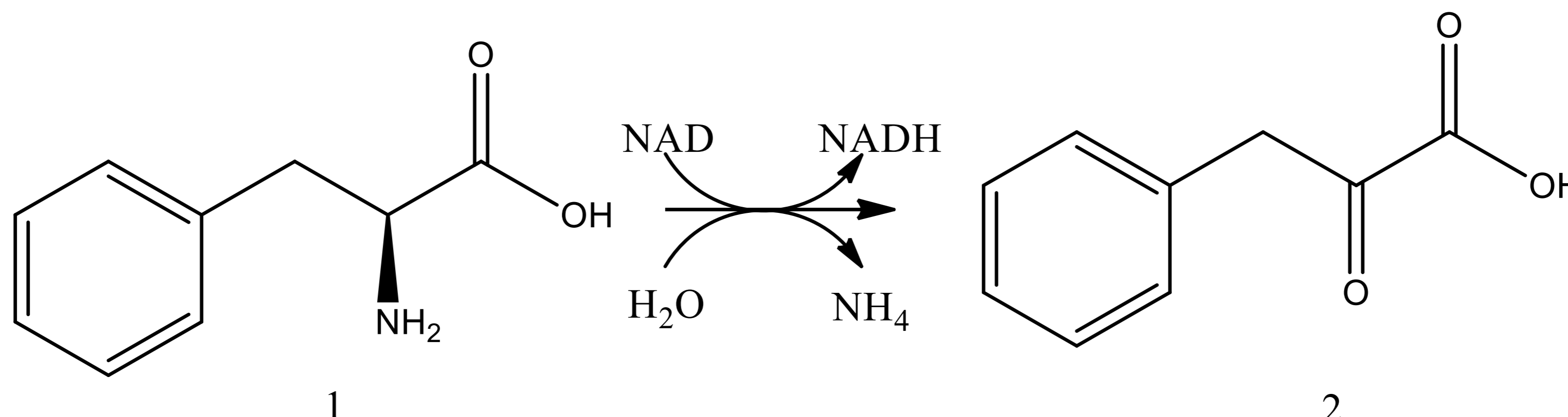


Applications

Phenylalanine dehydrogenase (EC 1.4.1.20, PheDH) enzymes catalyse reversible oxidative deamination of L-phenylalanine (1) and some of its analogues to the corresponding keto acids (2) in the presence of NAD⁺ and water.



Kit description

The kit contains a panel of five PheDH enzymes as lyophilised powder.

Contents

PheDH	5 lyophilised enzymes (50 mg each)
NAD	1 vial (50 mg)
GDH	1 vial (100 mg)
Glucose	1 vial (1 g)
Glycine buffer (pH 10.5, 0.25mM)	1 bottle (100 mL)

Screening Procedure

Reagents: Make up following stock solutions before screening in sufficient quantities for a single screen*

A: 15 mg/mL solution of enzymes in buffer

B: 1300mg/mL solution of glucose in buffer

C: 10 mg/mL solution of NAD in buffer.

D: 20 mg/mL solution of GDH in buffer.

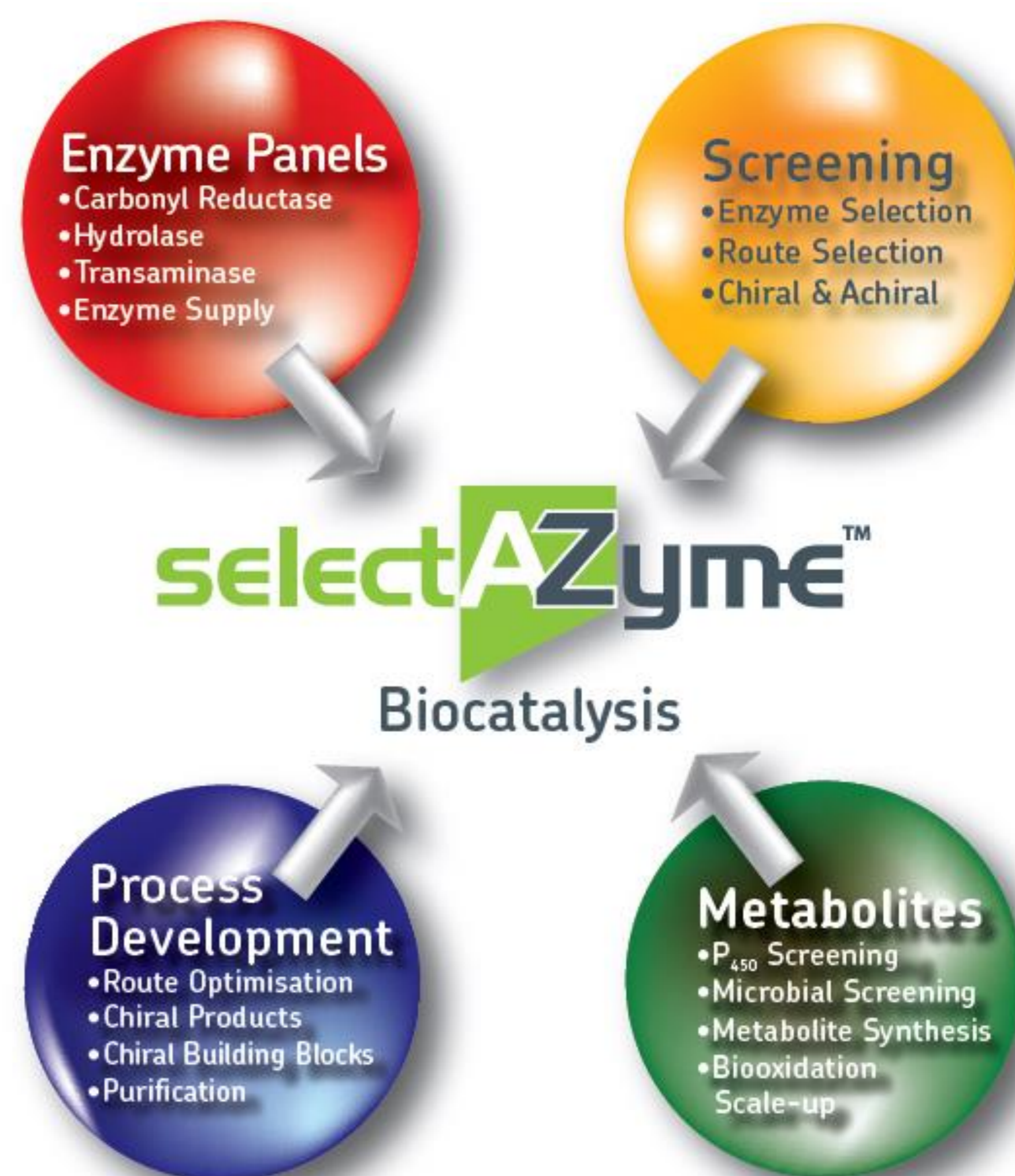
1. Into a vial, add 1mL Reagent A, 100 μ L Reagent B, 100 μ L Reagent C and 100 μ L Reagent D
2. Add a solution of ~10 mg substrate in organic solvent (50-100 μ L, depending on solubility), e.g. DMSO or MTBE.
3. Shake/stir at room temperature (or ideally 30 °C). Agitate overnight.
4. Extract product 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 mix solution fresh and use immediately. Avoid storage of the reaction mix as a solution, as this will degrade over time. An adequate supply of NAD/NADP, GDH, glucose and buffer is provided for screening. Additional GDH, buffer, glucose or NAD/NADP can be purchased from Almac if required.

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

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 selectAZyme 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 TAm for the production 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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