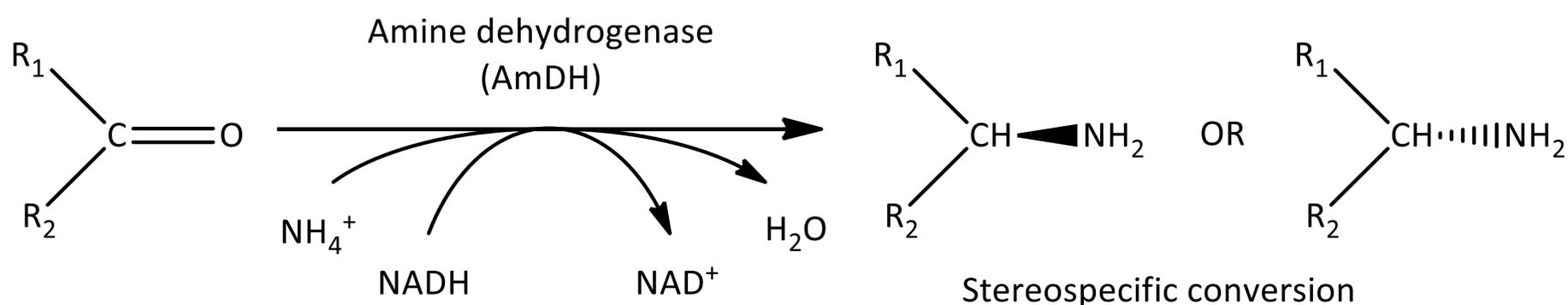


## Applications

Stereospecific reductive amination of carbonyl compounds



## Kit description

The kit contains a selection of pre-formulated Amine dehydrogenase (AmDH) biocatalysts as lyophilised powders, as well as pre-prepared  $\text{NH}_4\text{OH}/\text{NH}_4\text{Cl}$  buffer and components for the cofactor recycle system.

## AmDH enzymes in kit

AmDH-51
AmDH-52
AmDH-53
AmDH-54
AmDH-55

## Contents

AMDH	5 enzymes (50 mg each)
NAD	1 vial (50 mg)
GDH	1 vial (150 mg)
Glucose	1 vial (1.5 g)
DMSO	1 vial (5 mL)
2 M $\text{NH}_4\text{OH}/\text{NH}_4\text{Cl}$ buffer (pH 8.6)	1 bottle (50 mL)

## Screening Procedure

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

A: 20 mg/mL solution of AmDH in  $\text{NH}_4\text{OH}/\text{NH}_4\text{Cl}$  buffer.

B: 100 mg/mL solution of glucose in  $\text{NH}_4\text{OH}/\text{NH}_4\text{Cl}$  buffer.

C: 10 mg/mL solution of NAD in  $\text{NH}_4\text{OH}/\text{NH}_4\text{Cl}$  buffer.

D: 20 mg/mL solution of GDH in  $\text{NH}_4\text{OH}/\text{NH}_4\text{Cl}$  buffer.

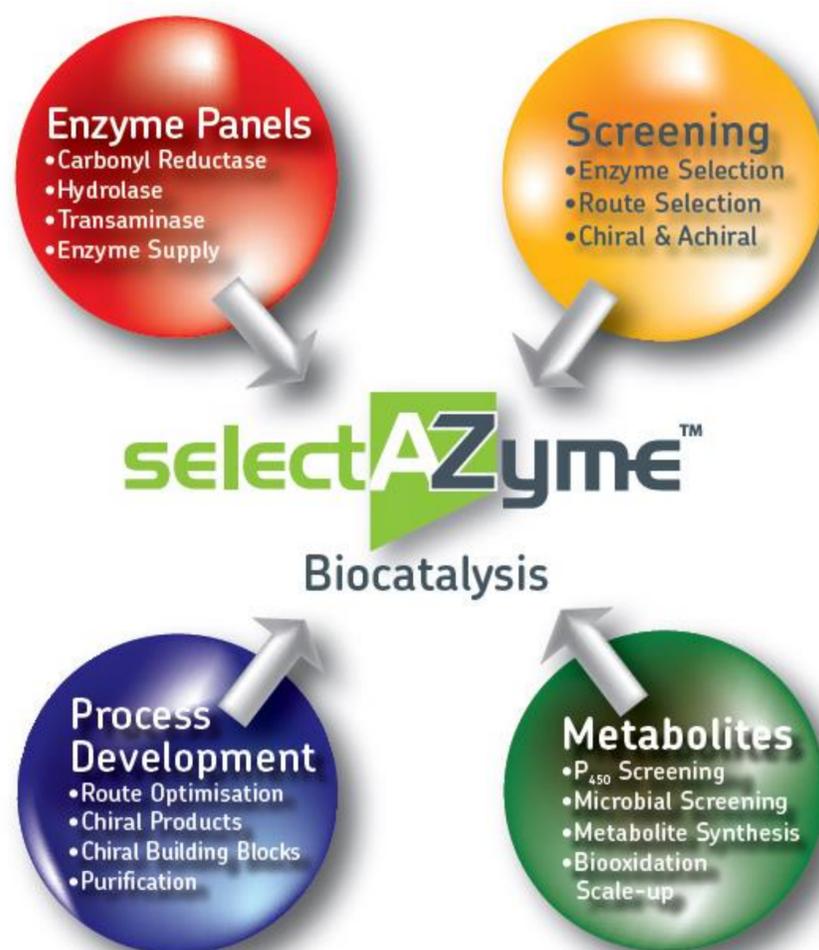
1. Into a vial, add 500  $\mu\text{L}$  Reagent A, 300  $\mu\text{L}$  Reagent B, 100  $\mu\text{L}$  Reagent C and 100  $\mu\text{L}$  Reagent D
2. Add a solution of  $\sim 10$  mg substrate in organic solvent (50-100  $\mu\text{L}$ , depending on solubility), e.g. DMSO or MTBE.
3. Shake/stir at room temperature (or ideally 30  $^\circ\text{C}$ ). 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 $^\circ\text{C}$  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.

## Technical Contacts:

Prof. Tom Moody, Tel: +44 (0)28 3833 2200 Ext. 5517, E-mail: [tom.moody@almacgroup.com](mailto:tom.moody@almacgroup.com).

Dr. Derek Quinn, Tel: +44 (0)28 3833 2200 Ext. 5833, E-mail: [derek.quinn@almacgroup.com](mailto:derek.quinn@almacgroup.com).

Address: Almac Biocatalysis & Isotope Chemistry Group,

20 Seagoe Industrial Estate, Craigavon BT63 5QD

Web: [www.almacgroup.com](http://www.almacgroup.com),

Email: [biocatalysis@almacgroup.com](mailto:biocatalysis@almacgroup.com)