# Imine Reductase (IRED) Enzyme Screening Kit

IRESK-5000

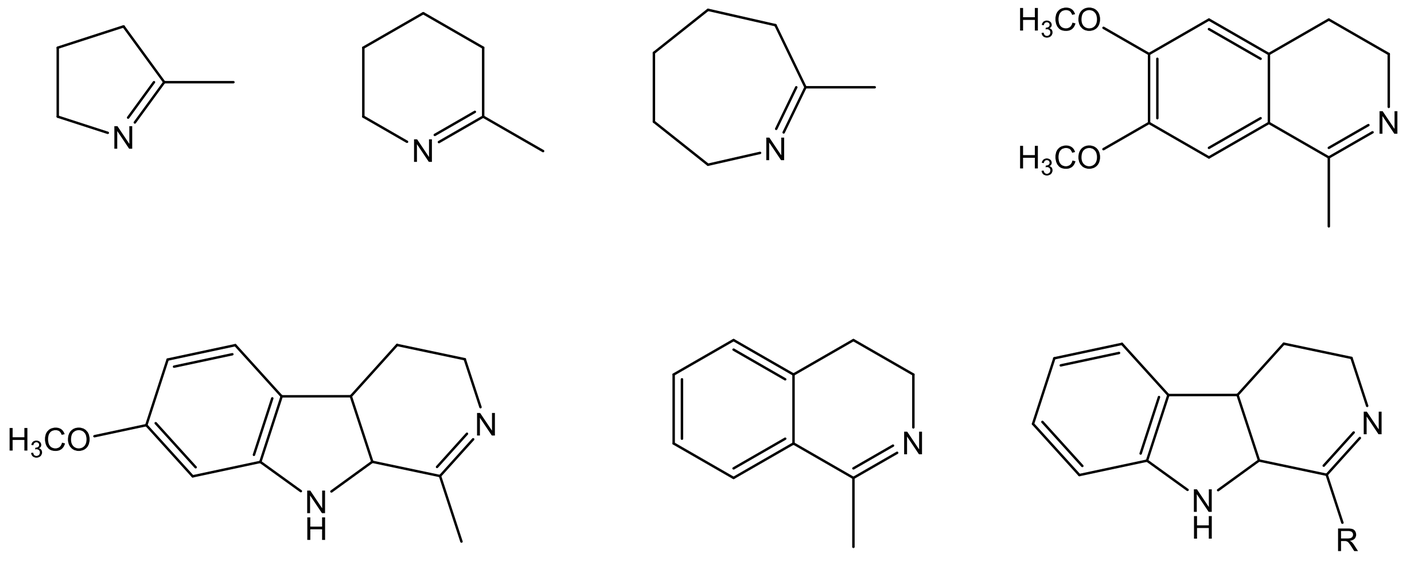
Partnering to Advance Human Health

## Applications

Selective reduction of imines to produce chiral amines.

## Substrate Range

Activities with a wide variety of structurally diverse olefins. A selection is shown here.



## Kit description

The kit contains 50 diverse pre-formulated imine reductase biocatalysts as lyophilised powders in a 96-well format as well as pre-prepared phosphate buffer and a reaction mix for the cofactor recycle system.

*IRED's contained in the screening kit*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| A | 101 | 109 | 117 | 125 | 133 | 141 | 149 |
| B | 102 | 110 | 118 | 126 | 134 | 142 | 150 |
| C | 103 | 111 | 119 | 127 | 135 | 143 | |
| D | 104 | 112 | 120 | 128 | 136 | 144 | |
| E | 105 | 113 | 121 | 129 | 137 | 145 | |
| F | 106 | 114 | 122 | 130 | 138 | 146 | |
| G | 107 | 115 | 123 | 131 | 139 | 147 | |
| H | 108 | 116 | 124 | 132 | 140 | 148 | |

Contents:

| | |
|---|---|
| IRED's: | 50 enzymes (~10 mg each in 96-well format) |
| Reaction mix* | 1 vial (1.65 g) |
| DMSO | 1 vial (5 ml) |
| 0.1M Phosphate buffer (pH 7..4) | 1 bottle (30 ml) |

*Once dissolved in 25 ml phosphate buffer, reaction mix contains 60 mg/ml glucose, 2 mg/ml NADP and 4 mg/ml GDH.

## Screening Procedure

1. Into a vial, add 25 ml of phosphate buffer to the reaction mix.*
2. Once dissolved, add 500 µL of the reaction mix solution to each well containing 10 mg IRED.
3. Add a solution of ~5-10 mg substrate in organic solvent (50-100 µl, depending on solubility), e.g. DMSO or MTBE.
4. Shake/stir at room temperature (or ideally 30 ºC). Agitate overnight. Extract product with an organic solvent (MTBE, EtOAc etc.).
5. Analyse sample by GC/HPLC to determine conversion and product ee.

*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 NADP, GDH, glucose and buffer is provided for one screen. Additional GDH, buffer, glucose or NADP can be purchased from Almac if required.

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

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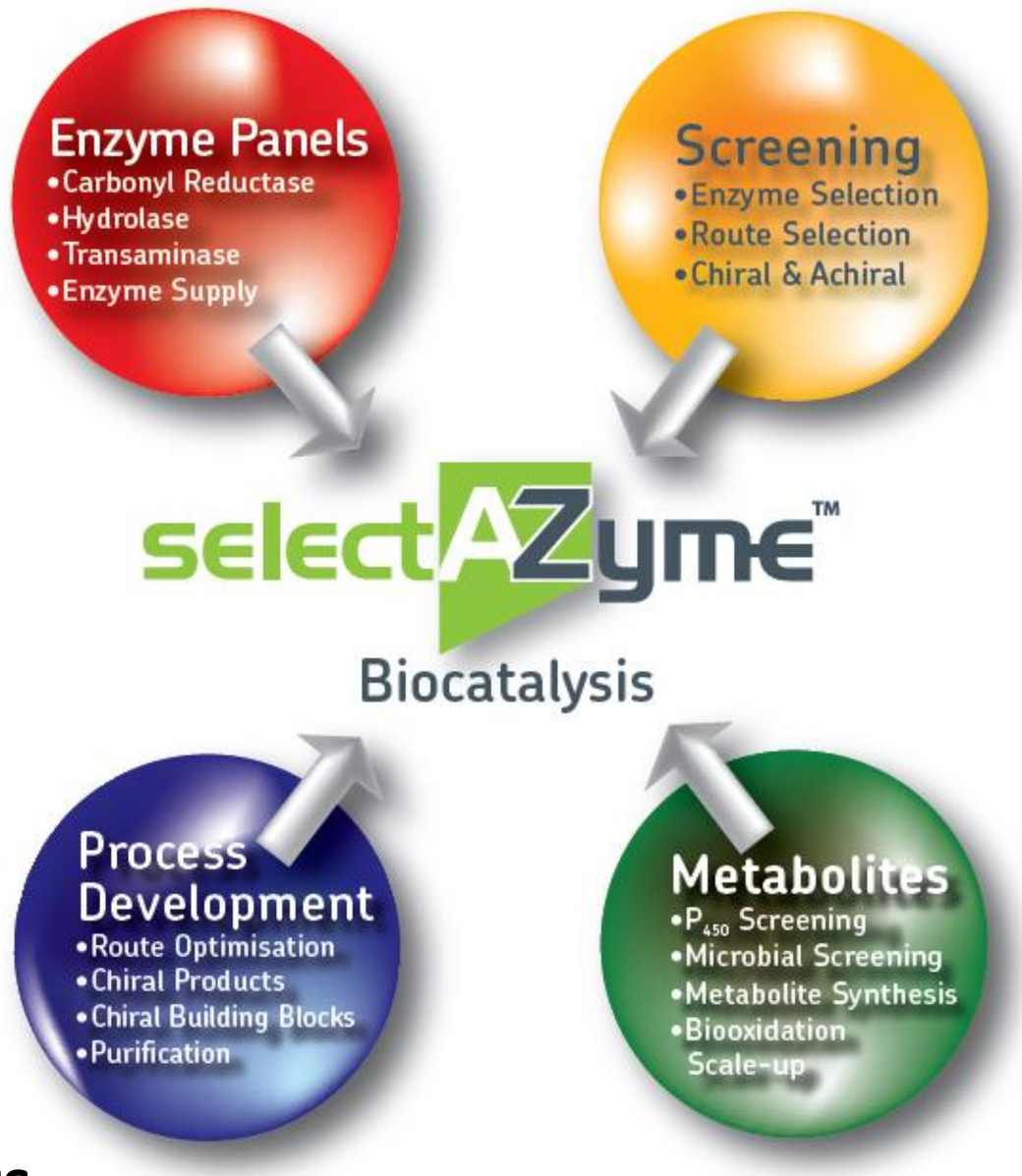
## selectAZyme Offerings

- 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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