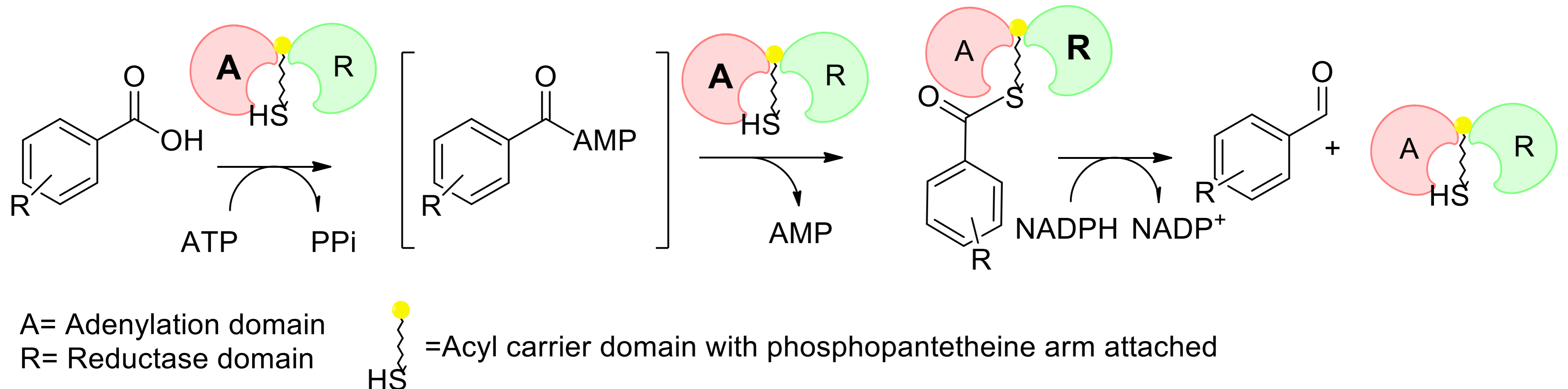


Applications

- Regiospecific reduction of carboxylic acids to aldehydes (see figure below).
- Production of optically pure aldehydes and alcohols from non-oil based pre-cursors.



Kit description

The kit contains a diverse selection of pre-formulated Carboxylic Acid Reductase (CAR) biocatalysts as lyophilised powders, as well as pre-prepared Tris based reaction and sample buffer.

CARs contained in the screening kit:

1	9	17	25	33
2	10	18	26	34
3	11	19	27	35
4	12	20	28	
5	13	21	29	
6	14	22	30	
7	15	23	31	
8	16	24	32	

Contents

CARs	35 enzymes (50 mg each)
Reaction Base buffer (Tris-Cl pH 7.5)	1 bottle(150 mL)
Sample Buffer Mix*	5 vials (85 mg each)

*Once dissolved in 20 mL Tris buffer, reaction mix contains 50 mM glucose monohydrate, 0.25 mM NADPH, 10 mM MgCl₂ and 4 mg/mL GDH.

Screening Procedure

1. Label 35 x 1.5 mL tubes for each CAR provided and add 10 mg of the corresponding enzyme.
2. Dissolve the sample buffer mix in 20 mL Tris buffer, pH 7.5*.
3. Add substrate (~5 mg) to sample buffer mix.
4. Dispense 500 μ L sample buffer mix to each vial.
5. Shake at room temperature (or ideally 30 °C). Agitate overnight.
6. Extract product with an organic solvent (MtBE, EtOAc etc.).
7. Analyse sample by GC/HPLC to determine conversion.

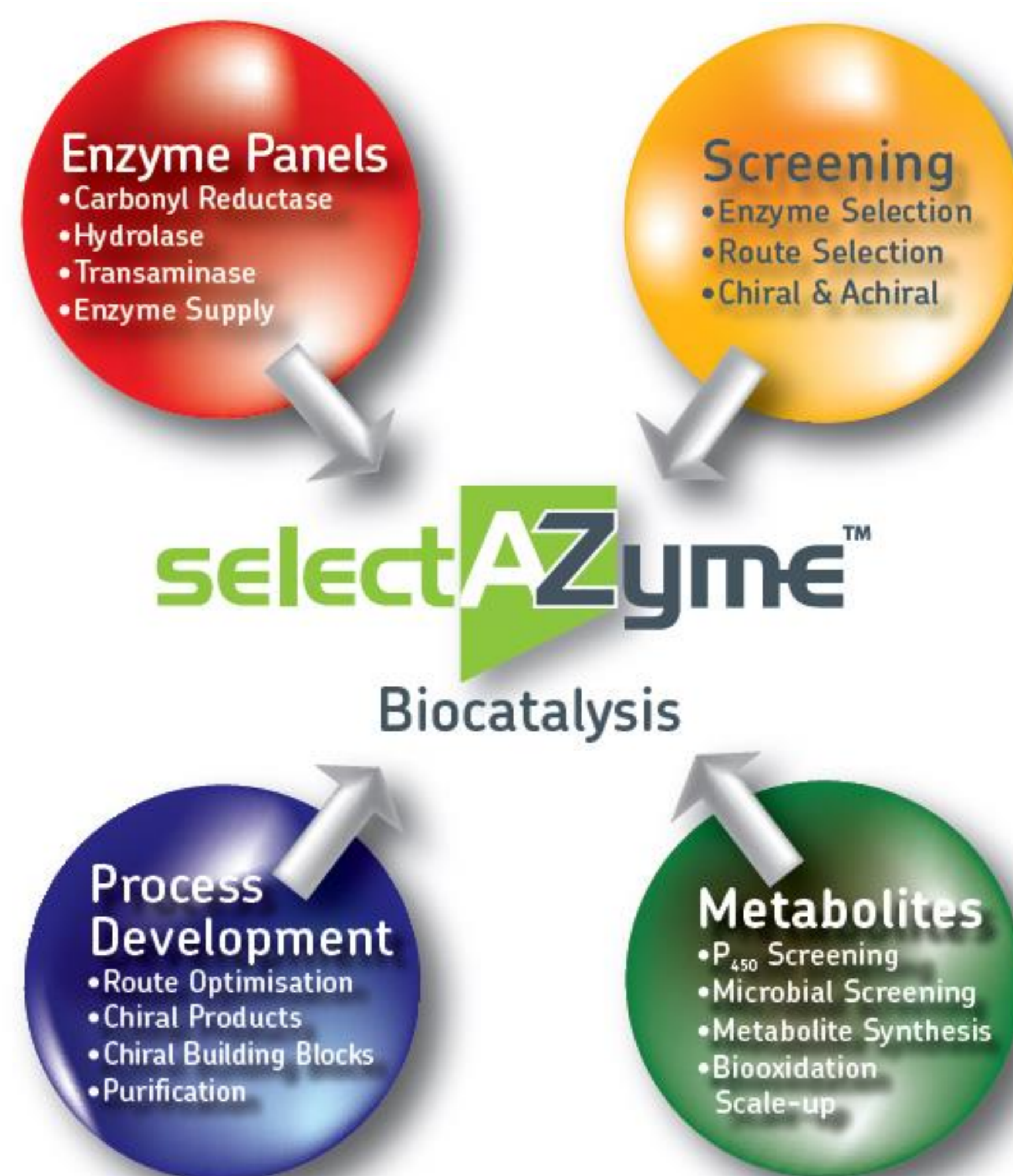
Please be advised that *E. coli* endogenous enzyme activity can in some circumstances further convert some aldehydes to the alcohol form. If requested Almac can also provide the CARs in purified form.

*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 NADPH, MgCl₂, ATP and buffer is provided for 5 screens. Additional NADPH, MgCl₂, ATP and buffer can be purchased from Almac if required.

Storage: The screening kit should be stored in a refrigerator 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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