Transaminase (TAm) Enzyme Screening Kit

TESK-9600

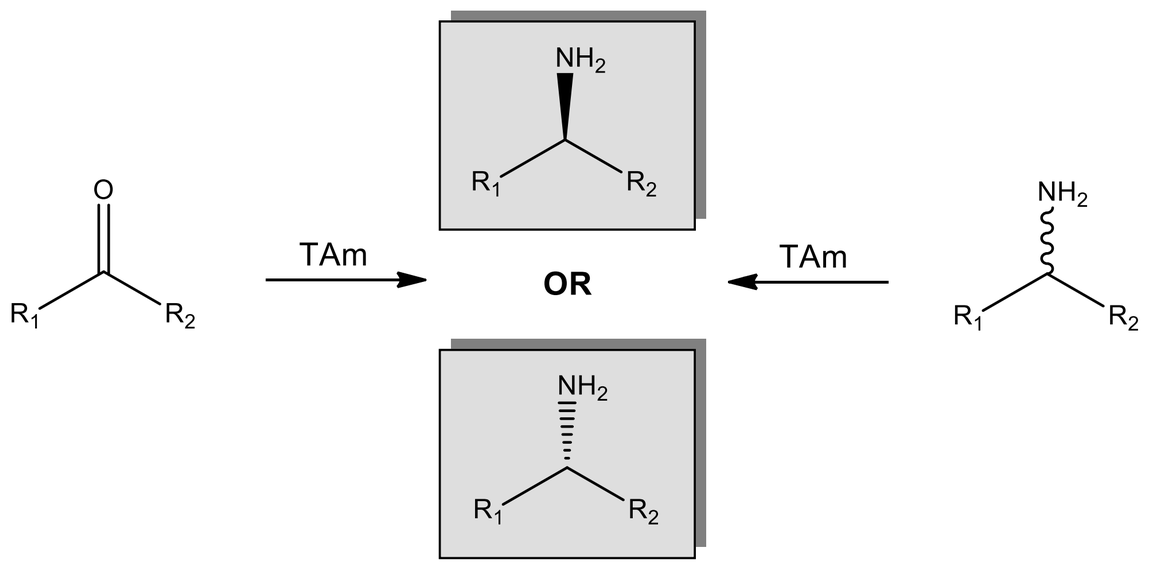
ALMAC

Partnering to Advance Human Health

selectAZyme™

Applications

Synthesis of enantiomerically pure (*R*) or (*S*) chiral amines by either resolution or asymmetric synthesis.



Kit description

The kit contains 96 diverse pre-formulated transaminase biocatalysts as lyophilised powders, as well as pre-prepared phosphate buffer, pyridoxal-5'-phosphate (PLP), sodium pyruvate as amine acceptor for resolution and isopropylamine*HCl (IPA*HCl) as amine donor for asymmetric synthesis.

TAms contained in the screening kit

	1	2	3	4	5	6	7	8	9	10	11	12
A	101	110	146	564	109	151	503	512	521	531	539	579
B	102	119	148	565	117	152	504	513	523	532	540	584
C	103	120	420	908	125	155	505	514	524	533	541	703
D	104	121	445	913	129	157	506	515	525	534	542	712
E	105	122	557	914	136	158	507	516	526	535	543	716
F	106	123	561	936	141	160	508	517	527	536	546	718
G	107	124	562	1106	144	501	509	518	529	537	549	722
H	108	126	563	1107	150	502	510	519	530	538	578	725

Contents:

TAms:	95 enzymes (10 mg each in 96-well format)
PLP:	1 vial (20 mg)
IPA*HCl	1 vial (10 g)
Na-pyruvate	1 vial (1 g)
Buffer:	1 bottle (60mL) 0.2 M potassium phosphate pH 8

Asymmetric Synthesis Screening Procedure

1. Add 500 µL PLP (14 mg in 50 mL 0.2 M KH_2PO_4, pH 8.0) to each well.
2. Add 400 µL amine donor isopropylamine*HCl (5 g in 40 mL water, pH 8) to each well.
3. Add 100 µL the ketone substrate(~50 mg/mL in DMSO) under investigation to each well.
4. Agitate at room temperature (or ideally 40 ºC) overnight.

Racemic Resolution Screening Procedure

1. Add 500 µL PLP (14 mg in 50 mL 0.2 M KH_2PO_4, pH 8.0) to each well.
2. Add 400 µL sodium pyruvate (300 mg in 40 mL water) to each well.
3. Add 100 µL the racemic amine substrate(~50 mg/mL in DMSO) under investigation to each well.
4. Agitate at room temperature (or ideally 40 ºC) overnight.

Sample work-up

1. Samples can be prepared by addition of 1 mL acetonitrile followed by centrifugation for analysis by reverse phase HPLC.
2. Alternatively samples can be prepared by addition of a few drops of 4 M NaOH to each reaction followed by extraction of the product in 0.5 mL of an organic solvent such as MTBE, EtOAc etc. After evaporation of the solvent samples can be redissolved in HPLC/GC solvent.
3. Analyse sample by chiral HPLC/GC to determine conversion and product *ee*.

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

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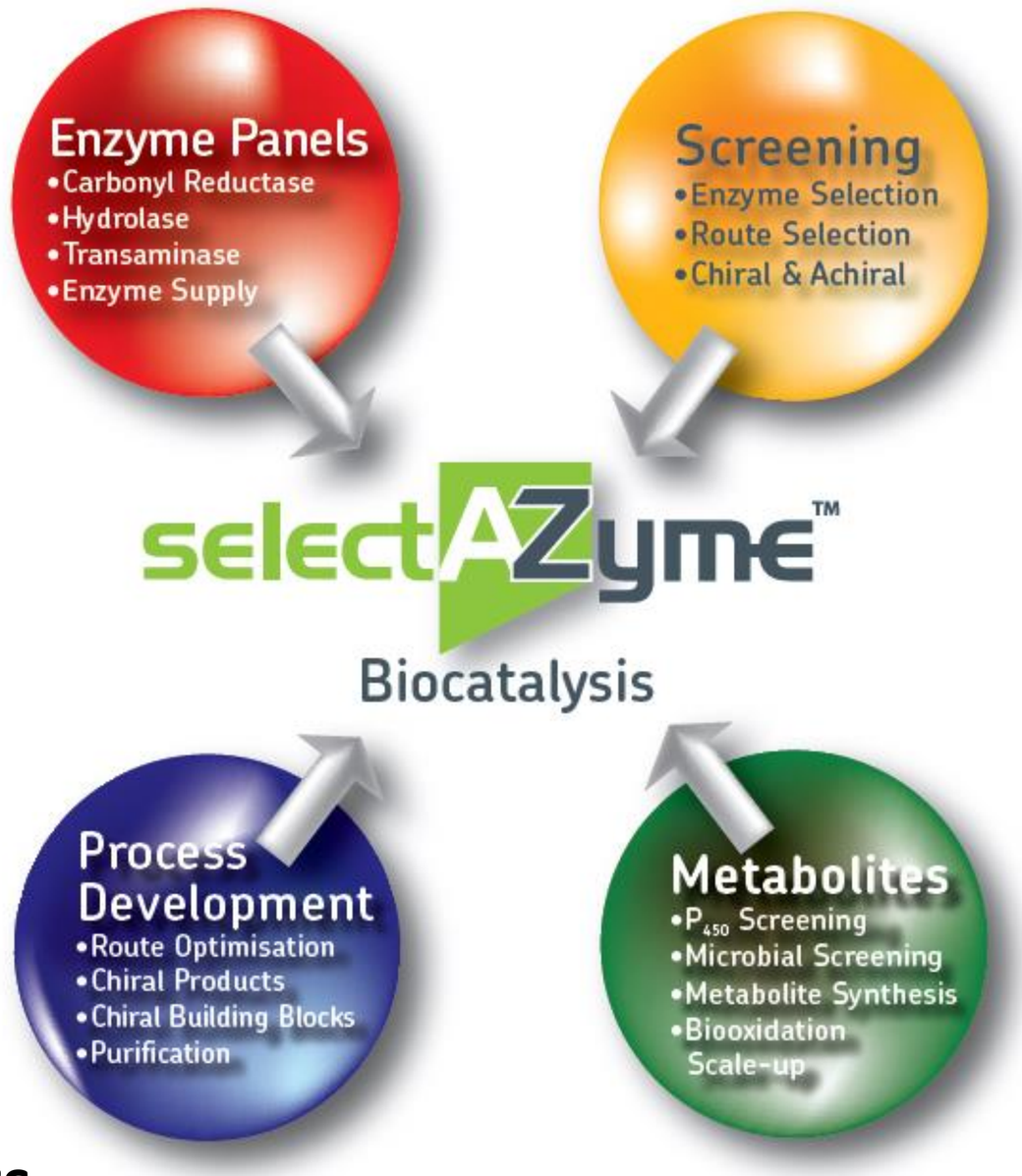
selectAZyme Offerings

- 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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