

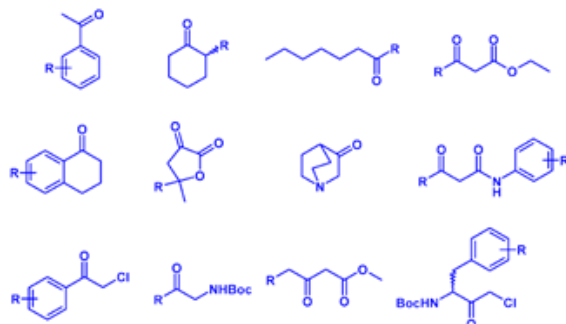
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Applications

Synthesis of enantiomerically pure (R) or (S) alcohols by enzymatic reduction of carbonyl compounds.

Substrate range

A wide variety of structurally diverse carbonyl compounds, including aliphatic & aromatic ketones, diketones, ketoesters, ketoamides, ketoacids, cyclic ketones and aldehydes. A selection is shown to the right.



Kit Description

Kit **96-8150** contains 40 diverse pre-formulated carbonyl reductase (CRED) biocatalysts as lyophilised powders, as well as pre-prepared phosphate buffer and a reaction mix for the cofactor recycle system. Note that for some enzymes, it is possible to recycle cofactor using a low-cost alcohol donor such as isopropyl alcohol (IPA).

Contents

| CREDs | Reaction mix* | DMSO | Phosphate buffer salts** |
|--|---|---------------------|--|
| 40 vials lyophilised powder (50 mg each) | 5 vials (5 x 2.38 g) *Once dissolved in 35 mL phosphate buffer, reaction mix contains 60 mg/mL glucose monohydrate, 2 mg/mL NAD, 2 mg/mL NADP and 4 mg/mL GDH. | 2 vials (2 x 10 mL) | 3.2 g **Once dissolved in 200 mL distilled water buffer is 0.1 M, pH 7.0. |

Screening Procedure

- Label 40 x 1.5 mL tubes corresponding to the different CREDs provided in the kit (listed in the table to the right) and add 10 mg of the corresponding enzyme.
- Dissolve phosphate buffer salts in 200 mL of distilled water.
- Dissolve the reaction mix (1 vial) in 35 mL of phosphate buffer.***
- Once dissolved, add 500 µL of the reaction mix solution to each tube containing 10 mg CRED.
- Add a solution of 5-10 mg substrate in DMSO (25-50 µL, depending on solubility).
- Shake at room temperature (or ideally 30 °C). Agitate overnight.
- Extract product with an organic solvent (MTBE, EtOAc etc.).
- Analyse sample by GC/HPLC to determine conversion and product ee.

CREDs contained in the screening kit:

| | | | | |
|-----|------|------|------|------|
| 25 | 156 | A121 | A281 | A531 |
| 33 | 164 | A131 | A301 | A551 |
| 37 | 167 | A141 | A401 | A601 |
| 41 | 182 | A161 | A411 | A631 |
| 44 | 186 | A171 | A451 | A641 |
| 52 | 190 | A181 | A471 | A701 |
| 61 | 202 | A201 | A501 | A731 |
| 153 | A101 | A231 | A521 | N151 |

***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 all components is provided for five screens.

Storage: The screening kit should be stored in a refrigerator at 4 °C to preserve enzyme activity.

*This is a screening kit and is not guaranteed to work in your application.