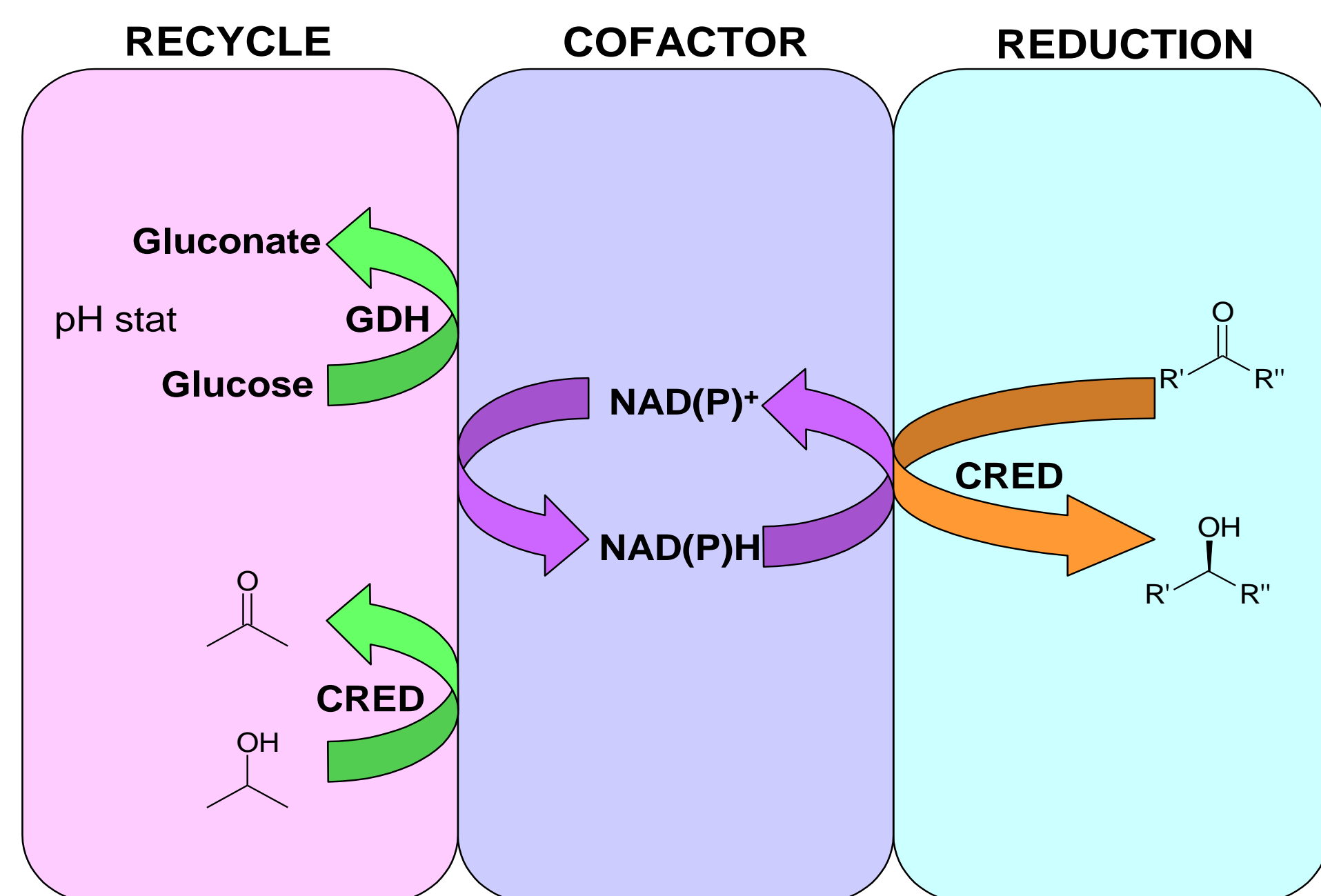
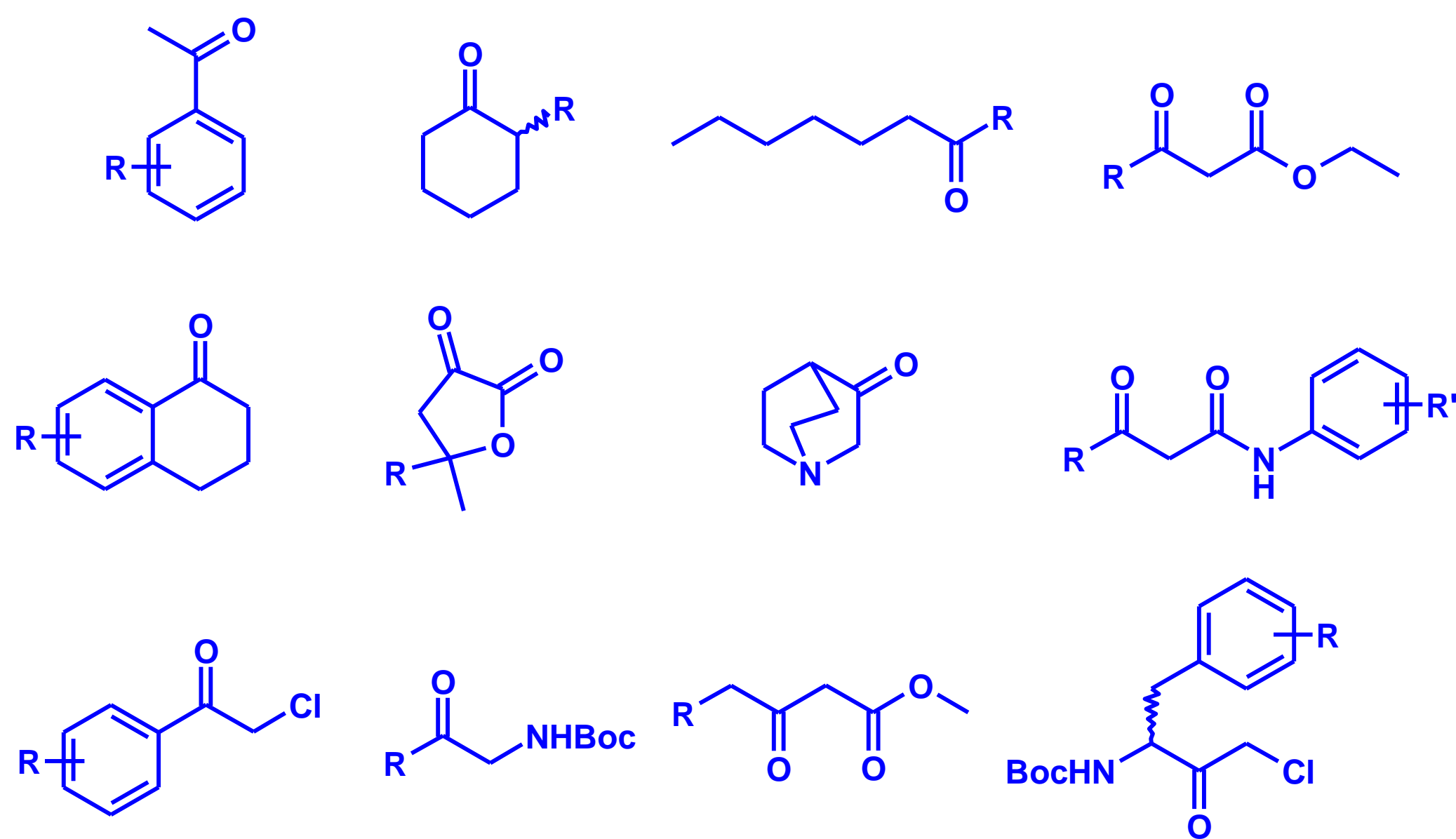


## Applications

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 below.



## Kit description

The kit contains 96 diverse pre-formulated carbonyl reductase (CRED) biocatalysts as lyophilised powders in 96 well format, 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).

*CREDs contained in the screening kit:*

	1	2	3	4	5	6	7	8	9	10	11	12
A	193	201	209	217	JJ-05	JJ-13	JJ-21	JJ-29	JJ-37	JJ-45	JJ-53	JJ-61
B	194	202	210	218	JJ-06	JJ-14	JJ-22	JJ-30	JJ-38	JJ-46	JJ-54	JJ-62
C	195	203	211	219	JJ-07	JJ-15	JJ-23	JJ-31	JJ-39	JJ-47	JJ-55	JJ-63
D	196	204	212	220	JJ-08	JJ-16	JJ-24	JJ-32	JJ-40	JJ-48	JJ-56	JJ-64
E	197	205	213	JJ-01	JJ-09	JJ-17	JJ-25	JJ-33	JJ-41	JJ-49	JJ-57	JJ-65
F	198	206	214	JJ-02	JJ-10	JJ-18	JJ-26	JJ-34	JJ-42	JJ-50	JJ-58	JJ-67
G	199	207	215	JJ-03	JJ-11	JJ-19	JJ-27	JJ-35	JJ-43	JJ-51	JJ-59	JJ-69
H	200	208	216	JJ-04	JJ-12	JJ-20	JJ-28	JJ-36	JJ-44	JJ-52	JJ-60	JJ-70

## Contents

CREDs	96 enzymes (10 mg each) in 96 well format
Reaction mix*	1 vial (3.4 g)
DMSO	1 vial (10 mL)
0.1 M Phosphate buffer (pH 7)	1 bottle (60 mL)

\*Once dissolved in 50 mL phosphate buffer, reaction mix contains 60 mg/mL glucose monohydrate, 2 mg/mL NAD, 2 mg/mL NADP and 4 mg/mL GDH.

## Screening Procedure

1. Dissolve the reaction mix (1 vial) in 50 mL of phosphate buffer.\*\*
2. Once dissolved, add 500  $\mu$ L of the reaction mix solution to each well containing 10 mg CRED.
3. Add a solution of 5-10 mg substrate in DMSO (25-50  $\mu$ L, depending on solubility).
4. Shake at room temperature (or ideally 30 °C). Agitate overnight.
5. Extract product with an organic solvent (MTBE, EtOAc etc.).
6. Analyse sample by GC/HPLC to determine conversion and product ee.

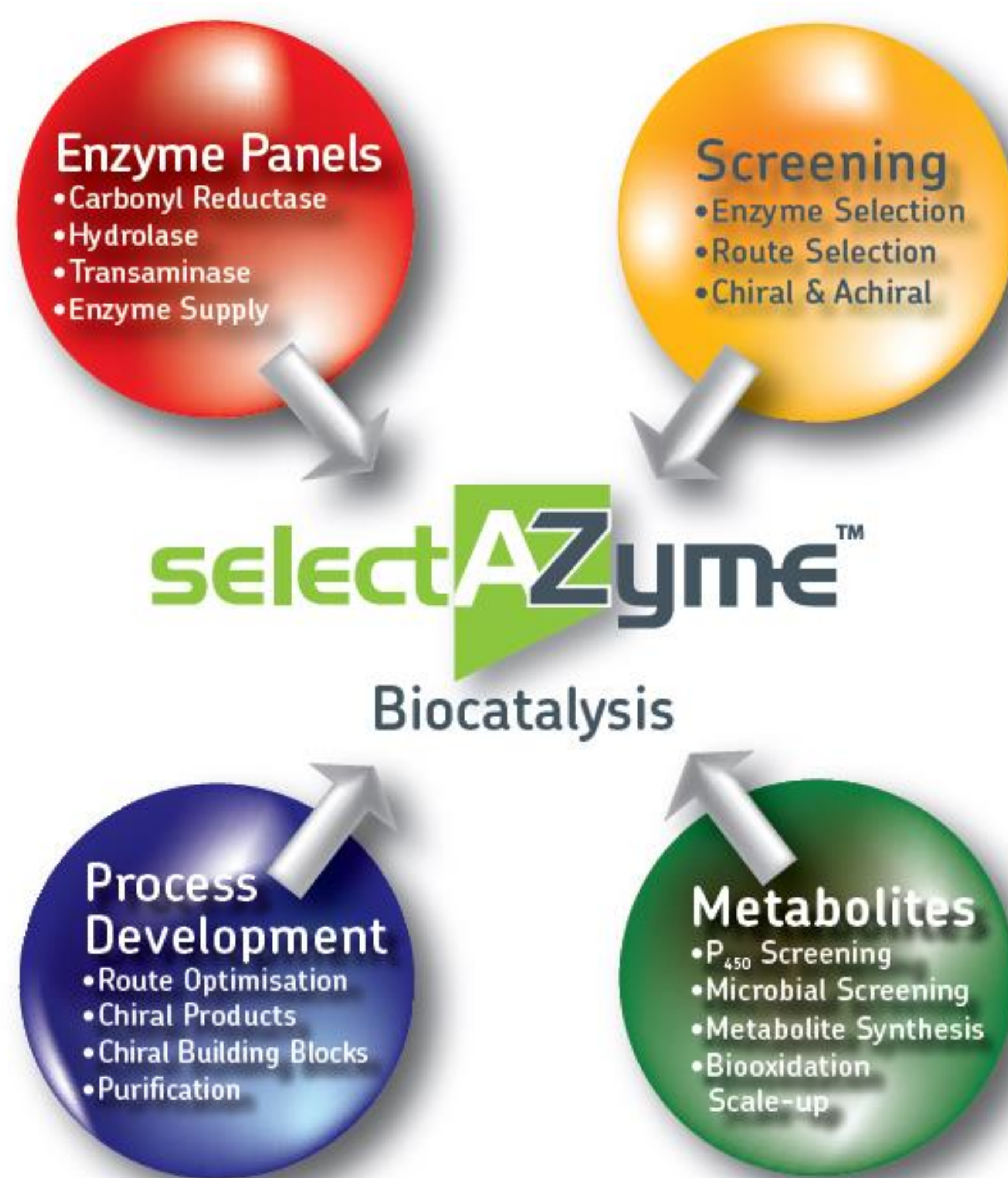
\*\*It is recommended to make the reaction mix solution fresh and use immediately. Avoid storage of the reaction mix as a solution, as this will degrade over time. Additional GDH, buffer, glucose monohydrate or NAD/NADP can be purchased from Almac if required.

**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 unique selectAZyme platform offers a range of enzymes suitable for carrying out a wide variety of chemical reactions. Our biocatalysts are prepared in easy to use kits for rapid customer evaluation without any IP issues. These include the following:

#### Carbonyl Reductase (CRED) biocatalysts

>300 CREDs for the production of chiral alcohols from pro-chiral ketones

#### Hydrolase biocatalysts

>100 hydrolases for selective hydrolysis in aqueous media, selective acylation in non-aqueous media, resolution of secondary alcohols, amines and thiols, formation of peptides

#### Nitrilase biocatalysts

>200 nitrilases for the synthesis of carboxylic acids by enzymatic hydrolysis of nitriles

#### Transaminase (TAm) biocatalysts

>200 TAmS for the production of chiral amines by asymmetric synthesis from pro-chiral ketones or resolution of racemic amines

#### Ene Reductase (ERED) biocatalysts

>200 EREDs for asymmetric reduction of activated alkenes

For the full range of enzyme screening kits on offer, please check the Almac website

### 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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