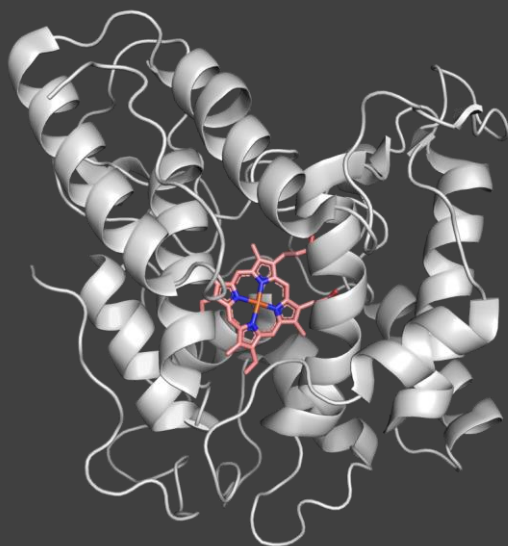


UPO

Enzyme Panel

Unspecific peroxygenases/peroxidases

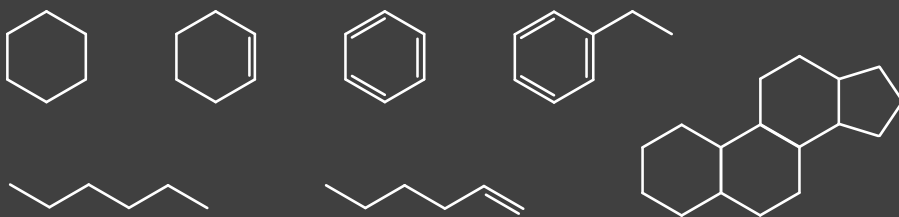


Bring biocatalysis to your syn-route:

Enzyme panel of fungal UPOs for the
Oxyfunctionalization or **Dealkylation**
of APIs and intermediates.

Enzyme info

Unspecific peroxygenases (UPOs) – EC 1.11.2.1 – are a new enzyme class capable of oxyfunctionalizing and peroxidizing a broad range of substrates (=unspecific).

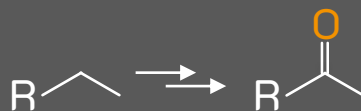


UPOs are ideal biocatalysts for chemically challenging reactions.

Hydroxylation



Ketone formation



Epoxidation



Dealkylation

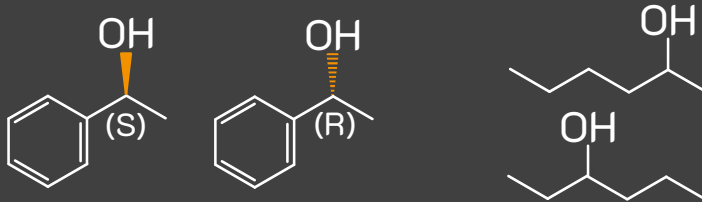


UPO advantages

1

Stereo- and Regioselectivity

UPOs by nature display stereo- and regioselectivity. For defined reactions.



2

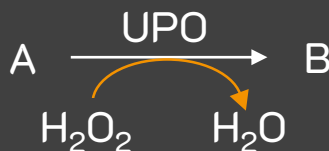
Energy efficiency

UPOs catalyze challenging chemical modifications under physiological conditions. No expensive catalysts, no toxic solutions or side products

3

Economic scalability

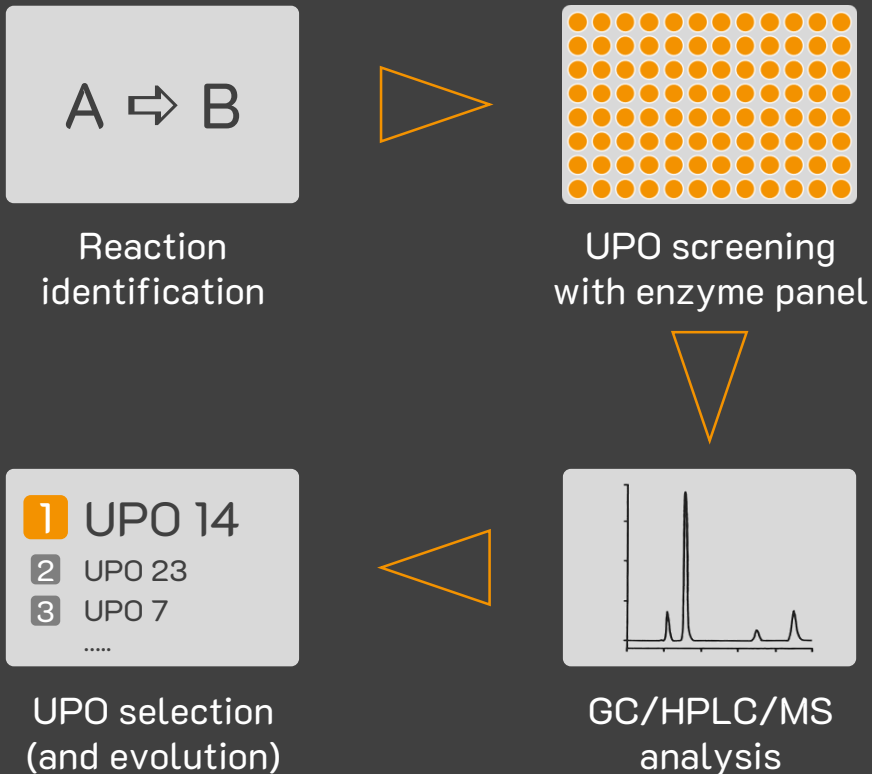
Affordable H_2O_2 as sole oxygen source, no expensive NAD(P)H or O_2 required



Use in biocatalysis

Any biocatalytic process requires the identification of the right enzyme (biocatalyst) to carry out the desired reaction.

The UPO Enzyme Panel provides access to fungal UPOs suited for biochemical conversions in a ready-to-use format.



UPOs versus P450s

UPOs display significant advantages over P450 enzymes.

Feature	P450	UPO
Size	> 100 kDa	30-42 kDa
Subunits	Yes, 1-3	No
Co-Factor	NAD(P)H, O ₂	H ₂ O ₂
Reaction Stability	-	++
Producibility	-	++
Handling	-	++
Oxygen Dilemma	Yes, up to 90% product loss	No
Reaction cost	\$\$\$	\$

UPO challenge

In some cases UPOs may produce unwanted side products, e.g. due to overoxidation. This challenge can be overcome by fine tuning of process conditions and enzyme engineering, both offered as a service by Aminoverse.

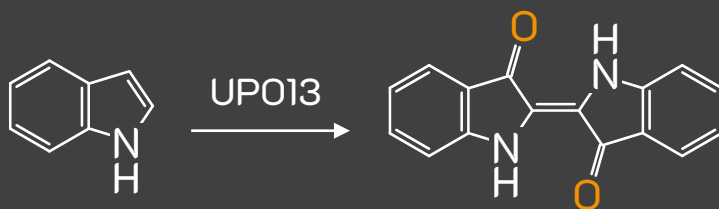
UPO reaction examples

Ethylbenzene oxidation¹



210 mg
88 % yield
10.5 g/L sub
1 mL scale
TON = 13143

Indigo synthesis¹



51 mg
98 % yield
2.6 g/L sub
1 mL scale
TON = 2813

¹Rotilio et al., ACS Catal. (2021) 11, 11511

Intellectual Property

All UPO enzyme preparations contained in the UPO Enzyme Panel are patent protected and freedom-to-operate (FTO) for research use only.

Want to use UPOs commercially or take UPO production in your own hands?
Reach out to discuss commercial license options.

About UPO Enzyme Panel

The UPO Enzyme Panel was created to satisfy increased demand for efficient biocatalysts for oxyfunctionalization reactions.

Made possible thanks to our partner



Bisy GmbH
Wuenschendorf 292
8200 Hofstaetten a. d. Raab
AUSTRIA
bisy.at



Aminoverse solves enzyme challenges.
Founded in 2020, Aminoverse offers innovative enzyme products and services:

- Enzyme products and kits
Ready-to-use enzymes for proof-of-concept studies up to commercial scale, e.g. the UPO Enzyme Panel, and analyte detection kits, e.g. the Phosfinity series.
- CRO services
Discovery of enzymes, enzyme feasibility studies, engineering of enzymes by Directed Evolution and machine learning, enzyme mutant library generation.
- You need to find an enzyme for your process?
- You want to improve your current enzyme?
- Need a hand with the application of the UPO Enzyme Panel or other enzymes?

We are looking forward to hearing from you.

Aminoverse B.V.
Daelderweg 9
6361HK Nuth
The Netherlands

info@aminoverse.com
www.aminoverse.com
+31 4502 848 15