



Bringing enzymes to chemistry™

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Enzyme Product Catalog (August 2009)

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I. General Information on Enzyme Products

Syncore offers a wide range of novel or proprietary enzymes including ene reductases, ketone reductases (alcohol dehydrogenases), nitrile hydratases, nitrilases, oxynitrilases (hydroxynitrile lyases), transaminases, nitro reductases, amidases, alcohol oxidases, amino acid dehydrogenases, epoxide hydrolases, P450 monooxygenases, most classic hydrolytic enzymes (lipases, proteases, amidases, esterases) and their immobilized forms. The typical timeline for enzyme production is

- ❖ Kg scale: 1-2 months
- ❖ 10kg scale: 2-3 months
- ❖ 100kg scale: 3-4 months

For additional information on individual enzymes, their *activity, purity and other specifications*, bulk pricing, and delivery time, please contact services@syncorelabs.com.



II. Contract R&D Services for Enzyme Development & Chemical Synthesis

Syncore provides a wide range of cost-effective and high quality customer services.. **Our business model is fee-for-service** and we aspire to be your reliable partner in lowering the cost of enzyme development and their synthetic applications. As a research-driven and customer-focused company, our experienced team has streamlined the gene-to-protein-to-chemistry process to provide a wide range of services for industrial applications:

- ❖ Design and development of biocatalytic chemical processes
- ❖ Enzyme cloning, expression, and fermentation
- ❖ Enzyme production and purification (liter to >1,000L)
- ❖ Genome mining and enzyme library development
- ❖ High throughput screening of biotransformations
- ❖ Protein engineering and directed evolution
- ❖ Synthesis of chiral building blocks and intermediates

We have the **state-of-the-art equipment in both biology and chemistry** including:

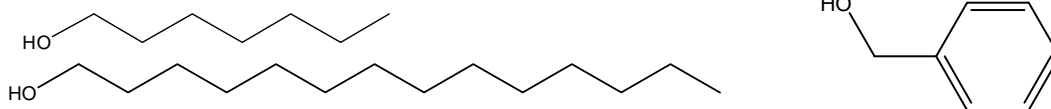
- ❖ 30L-500L Fermentors
- ❖ 400MHz NMR
- ❖ Homogenizer
- ❖ HPLC (chiral)
- ❖ HT Screening and Protein Engineering Hardware and Software
- ❖ Kilo Chemistry and Biology Labs
- ❖ LC-MS
- ❖ Lyophilizer
- ❖ Microwave Synthesizer
- ❖ Polymerase Chain Reactors (PCRs)

For additional information on contract R&D services, FTE rate and delivery time, please contact services@syncorelabs.com.

III. Enzyme Catalog

Alcohol Oxidase

The library of alcohol oxidases (EC-AOX) is able to catalyze oxidation of fatty alcohols or aryl-alcohols to form aldehydes or aldehydes. For example,

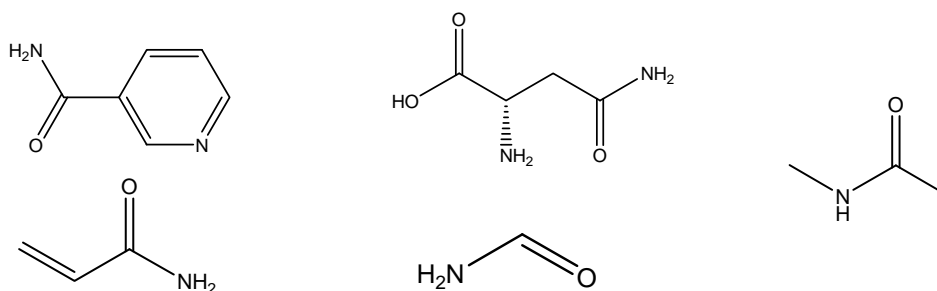


For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-AOX-101	alcohol oxidase	fatty alcohol and aryl-alcohol	50 mg \$315; 1 g \$1,050
ES-AOX -102	alcohol oxidase	fatty alcohol and aryl-alcohol	50 mg \$315; 1 g \$1,050
ES-AOX -103	alcohol oxidase	fatty alcohol and aryl-alcohol	50 mg \$315; 1 g \$1,050
ES-AOX -104	alcohol oxidase	fatty alcohol and aryl-alcohol	50 mg \$315; 1 g \$1,050
ES-AOX-105	alcohol oxidase	fatty alcohol and aryl-alcohol	50 mg \$315; 1 g \$1,050
ES-AOX-500	alcohol oxidase	a set of five alcohol oxidases, 50 mg each	\$800

Amidases

The library of amidases (ES-AMD) is able to catalyze regio- and stereoselective **synthesis of chiral carboxylic acids and their derivatives from a variety of aliphatic and aromatic amides**. For example,



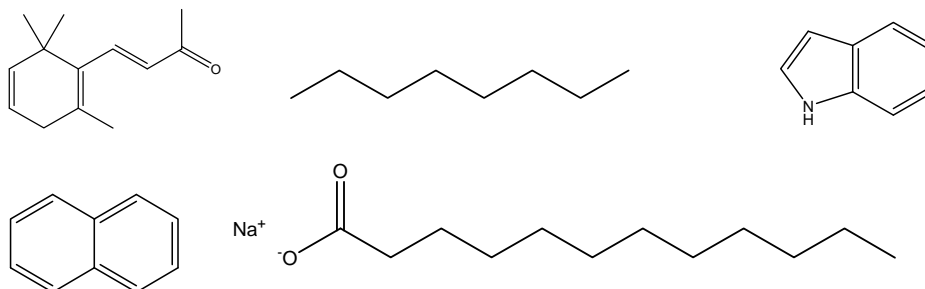
For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-AMD-101	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050

ES-AMD-102	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-103	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-104	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-105	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-106	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-107	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-108	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-109	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-110	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-111	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-112	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-113	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-114	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-115	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-116	amidase	aliphatic and aromatic amides	50 mg \$315; 1 g \$1,050
ES-AMD-1600	amidase	a set of sixteen amidases, 50 mg each	\$2,500

Cytochrome P450 Monooxygenase

The library of cytochrome P450 monooxygenases (ES-CYP) is able to hydroxylate unreactive carbons (C-H activation) or oxidize heteroatoms (N, S, etc.) in the presence of oxygen, such as

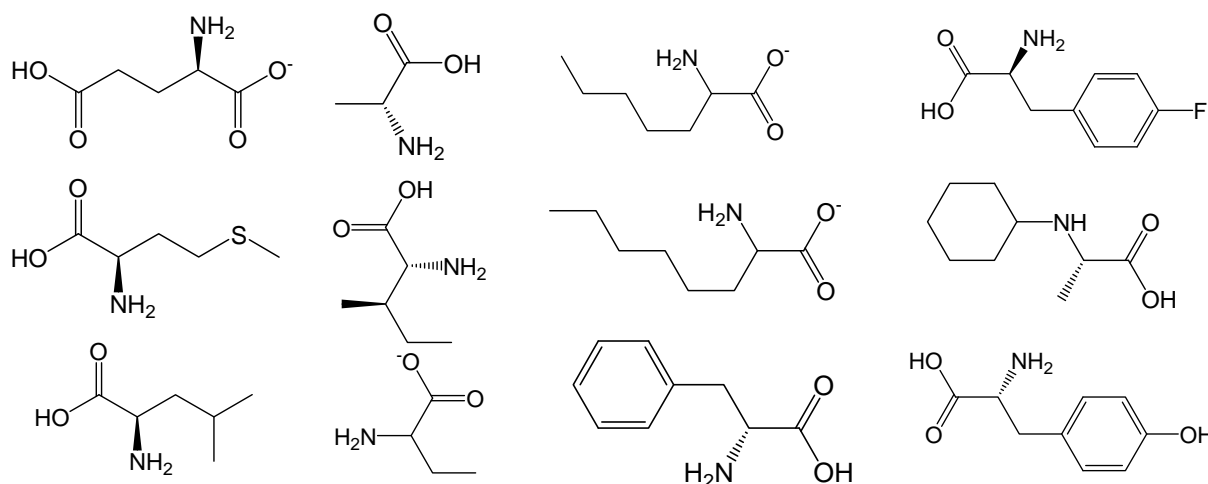


For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-CYP-101	cytochrome P450 monooxygenase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-CYP-102	cytochrome P450 monooxygenase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-CYP-103	cytochrome P450 monooxygenase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-CYP-104	cytochrome P450 monooxygenase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-CYP-105	cytochrome P450 monooxygenase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-CYP-500	cytochrome P450 monooxygenase	a set of five cytochrome P450 monooxygenases, 50 mg each	\$800

D-Amino Acid Dehydrogenase

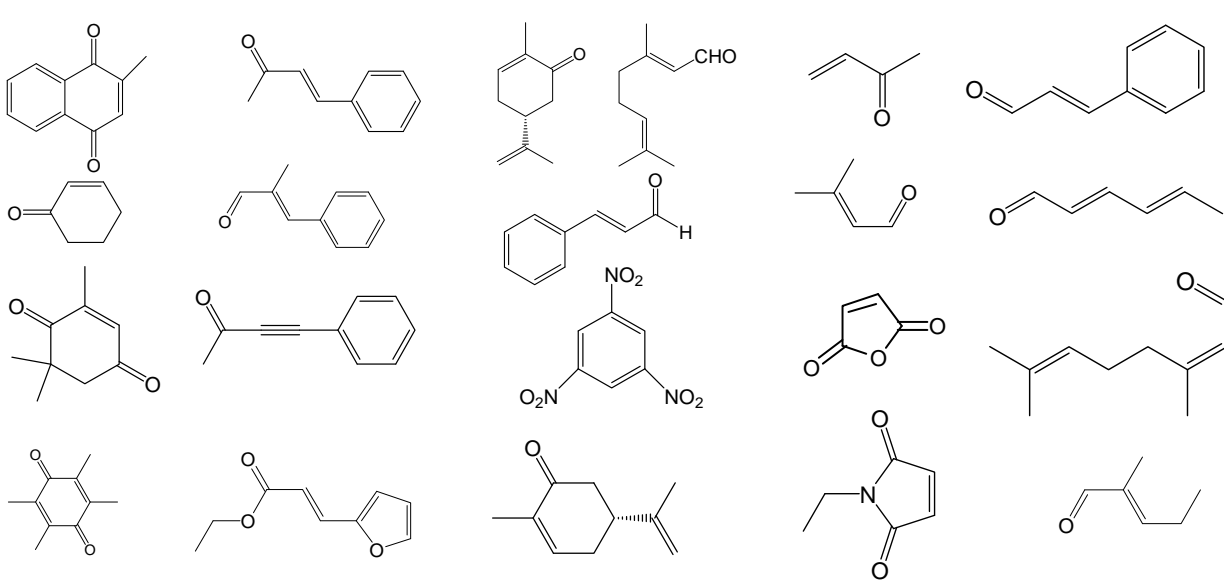
The library of D-amino acid dehydrogenases (D-AADH) is able to catalyze regio- and stereoselective synthesis of D-amino acids from corresponding 2-keto acids with ammonia, such as



For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES- D-AADH - 101	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050
ES- D-AADH - 102	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050
ES- D-AADH - 103	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050
ES- D-AADH - 104	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050

ES- D-AADH - 105	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050
ES- D-AADH - 106	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050
ES- D-AADH - 107	D-amino acid dehydrogenase	2-keto acids	50 mg \$315; 1 g \$1,050
ES- D-AADH - 700	D-amino acid dehydrogenase	a set of seven D-amino acid dehydrogenase, 50 mg each	\$1,100

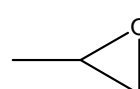
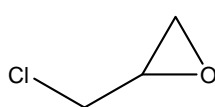
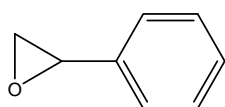
Ene Reductases			
<p>This library of ene reductases (ES-ERED) is able to catalyze regio- and stereoselective double bond reduction of α, β-unsaturated aldehydes, ketones, nitriles, nitros, and amides, such as</p> 			
<p>For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.</p>			

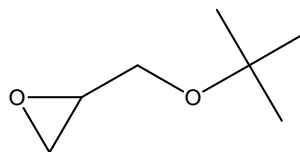
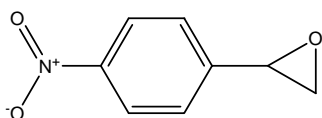
Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-ERED-101	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-102	ene reductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-ERED-103	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-104	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-105	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050

ES-ERED-106	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-107	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-108	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-109	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-110	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-111	ene reductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-ERED-112	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-113	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-114	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-115	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-116	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-117	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-118	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-119	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-120	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-121	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-122	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-123	ene reductase	α , β -unsaturated aldehydes, ketones, nitriles, nitros, amides	50 mg \$315; 1 g \$1,050
ES-ERED-2300	ene reductase	a set of twenty-three ene reductases, 50 mg each	\$3,360

Epoxide Hydrolases

The library of epoxide hydrolases (ES-EH) is able to catalyze the synthesis of chiral alcohols through stereoselective hydrolysis of aliphatic and aromatic epoxides, such as





For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-EH-101	epoxide hydrolase	aliphatic and aromatic epoxide	50 mg \$315; 1 g \$1,050
ES-EH-102	epoxide hydrolase	aliphatic and aromatic epoxide	50 mg \$315; 1 g \$1,050
ES-EH-200	epoxide hydrolase	a set of two epoxide hydrolases, 50 mg each	\$420

Formate Dehydrogenases

The library of formate dehydrogenases is used for recycling NADPH and NADH with ammonium formate or formic acid as the reducing agent. For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-FDH-101	formate dehydrogenase	ammonium formate (formic acid)	50 mg \$315; 1 g \$1,050
ES-FDH-102	formate dehydrogenase	ammonium formate (formic acid)	50 mg \$315; 1 g \$1,050
ES-FDH-200	formate dehydrogenase	a set of two formate dehydrogenases, 50 mg each	\$420

Glucose Dehydrogenases

The library of glucose dehydrogenases is used for recycling NADPH and NADH with glucose as the reducing agent. For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-GDH-101	glucose dehydrogenase	glucose	50 mg \$315; 1 g \$1,050
ES-GDH-102	glucose dehydrogenase	glucose	50 mg \$315; 1 g \$1,050
ES-GDH-103	glucose dehydrogenase	glucose	50 mg \$315; 1 g \$1,050
ES-GDH-104	glucose dehydrogenase	glucose	50 mg \$315; 1 g \$1,050
ES-GDH-400	glucose	a set of four glucose	\$630

	dehydrogenase	dehydrogenases, 50 mg each	
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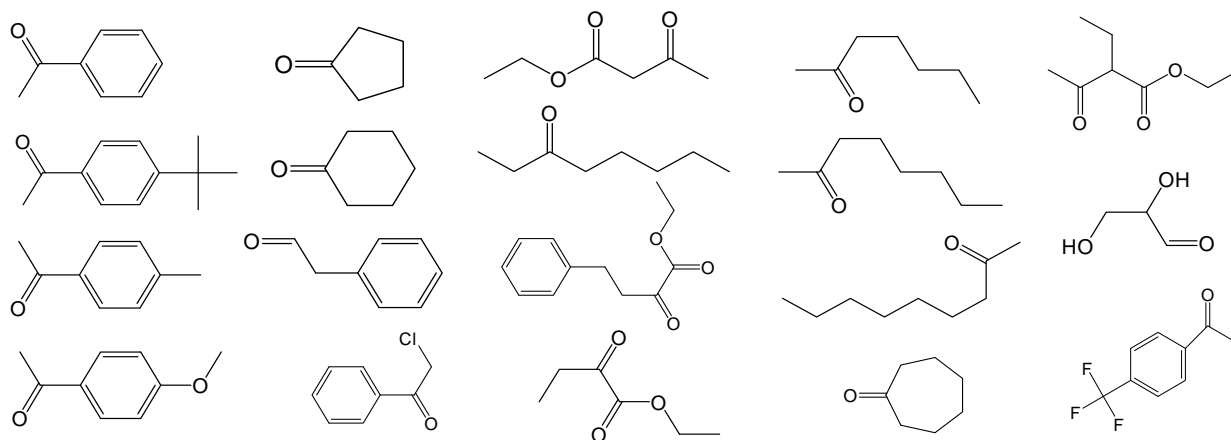
Glycosidases			
Catalog No.	Product Name	Sources/Substrates	Prices (US Dollars)
ES-CARH-301	α -amylase	starch, 4000 U/g	250 g \$30
ES-CARH-302	β -amylase	starch, 500 U/mg	25 g \$20
ES-CARH-303	cellulase	cellulose, 400 U/mg	10 g \$20
ES-CARH-304	xylanase	xylan, 60 KU/mg	5 g \$30
ES-CARH-305	β -glucosidase	such as p-nitrophenyl β -D-glucopyranoside, 600 U/g	50 mg \$105; 1 g \$525

Hydrolases			
Catalog No.	Product Name	Sources	Prices (US Dollars)
ES-HLE-301	lipase	Porcine pancreatic	5 g \$42
ES-HLE-302	protease	Bovine pancreatic	25 g \$84
ES-HLE-303	protease	Porcine gastric	5 g \$52
ES-HLE-304	protease	Papain	25 g \$84
ES-HLE-305	protease	<i>Ananas comosus</i>	5 g \$73
ES-HLE-307	protease	Acidic	250 g \$105
ES-HLE-308	protease	Neutral	250 g \$105
ES-HLE-309	amidase	Penicillin acylase I, immobilized	1 KU \$52
ES-HLE-310	amidase	Penicillin acylase II, immobilized	1 KU \$105
ES-HLE-201	lipase	Microbial	50 mg \$105; 1 g \$525
ES-HLE-202	lipase	Microbial	50 mg \$105; 1 g \$525
ES-HLE-203	lipase	Microbial	50 mg \$105; 1 g \$525
ES-HLE-204	lactonase	Microbial	50 mg \$105; 1 g \$525
ES-PLE-205	esterase		1KU \$30
CV-CALBY	lipase	<i>Candida antarctica</i>	10 g \$120; 100 g \$400
CV-CALAY	lipase	<i>Candida antarctica</i>	1g \$160; 5 g \$400
CV-CRL1	lipase	<i>Candida rugosa</i>	1 g \$320
CV-P6L	protease	<i>Bacillus licheniformis</i>	50 ml \$120; 250 ml \$200
CV-P8L	protease	<i>Bacillus licheniformis</i>	
CV-P7L	protease	<i>Bacillus amyloliquefaciens</i>	50 ml \$120; 250 ml \$200
CV-P13FL	protease	<i>Aspergillus niger</i>	50 ml \$120; 250 ml \$200

CV-P14L	protease	Thermolysin (<i>Geobacillus sp.</i>)	50 ml \$120; 250 ml \$200
CV-P15L	protease	<i>Trichoderma reesei</i>	50 ml \$120; 250 ml \$200
CV-P30L	protease	<i>Bacillus subtilis</i>	50 ml \$120; 250 ml \$200
CV-P40L	protease	<i>Bacillus subtilis</i>	50 ml \$120; 250 ml \$200
CV-P40XL	protease	<i>Bacillus subtilis</i>	50 ml \$120; 250 ml \$200
CV-P50FP	protease	<i>Aspergillus oryzae var.</i>	50 ml \$120; 250 ml \$200
CV-P51FP	protease	<i>Aspergillus oryzae var.</i>	50 ml \$120; 250 ml \$200
CV-P89L	protease	<i>Bacillus subtilis</i>	50 ml \$120; 250 ml \$200

Ketoreductases

The library of ketone reductases (ES-KRED) is able to catalyze regio- and stereoselective reduction of a wide range of aldehydes, β -ketoesters, α -ketoesters and ketones, such as



For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-KRED-101	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-102	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-103	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050

ES-KRED-104	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-105	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-106	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-107	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-108	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-109	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-110	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-111	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-112	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-113	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-114	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-115	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-116	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-117	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-118	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-119	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-120	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-121	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-122	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-123	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-124	ketoreductase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-KRED-125	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-126	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050

ES-KRED-173	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-174	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-175	ketoreductase	aldehydes, β -ketoesters, α -ketoesters and ketones	50 mg \$315; 1 g \$1,050
ES-KRED-7500	ketoreductase	a set of seventy-five ketoreductases, 50 mg each	\$11,000

Nitrilases			
<p>The nitrilase (ES-NIT) library is able to catalyze the synthesis of chiral carboxylic acids through regio- and stereoselective hydrolysis of a wide range of aliphatic and aromatic nitriles, such as</p>			
<p>For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.</p>			

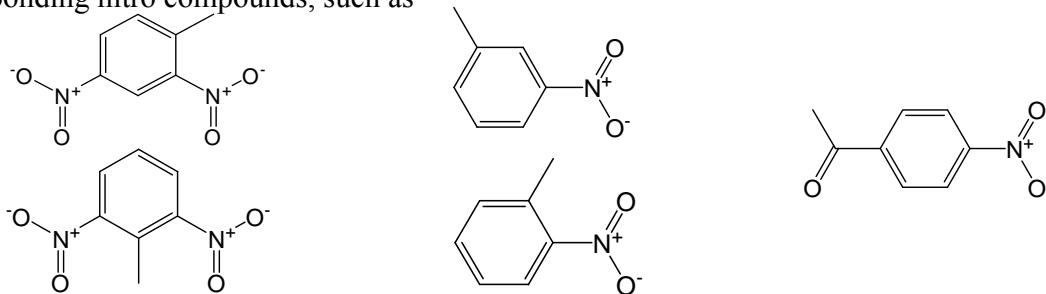
Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-NIT-101	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-102	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050

ES-NIT-103	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-104	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-105	nitrilase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-106	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-107	nitrilase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-108	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-109	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-110	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-111	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-112	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-113	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-114	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-115	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-116	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-117	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-118	nitrilase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NIT-119	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-120	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-121	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-122	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-123	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-124	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-125	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050

ES-NIT-126	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-127	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-128	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-129	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-130	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-131	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-132	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-133	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-134	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-135	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-136	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-137	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-138	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-139	nitrilase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NIT-140	nitrilase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NIT-4000	nitrilase	a set of forty nitrilases, 50 mg each	\$5,900

Nitro Reductases

The library of nitro reductases (ES-NTR) is able to catalyze the synthesis of amines from corresponding nitro compounds, such as

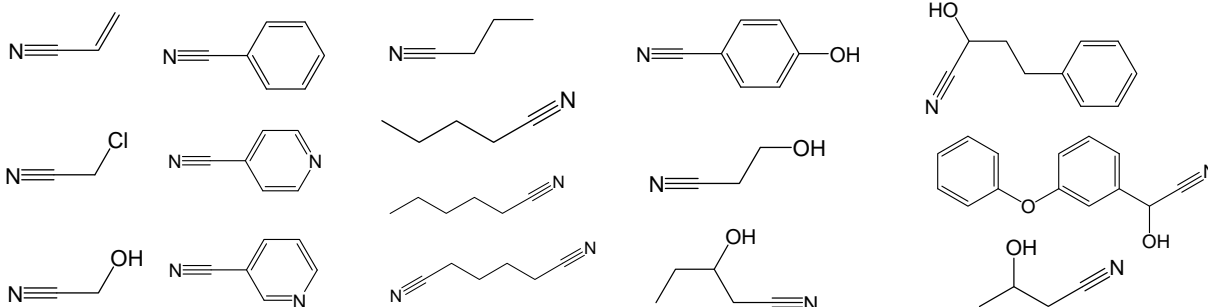


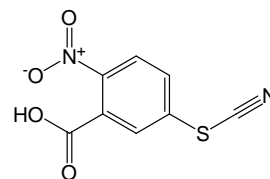
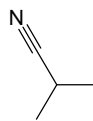
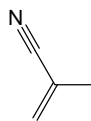
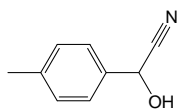
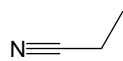
For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-NTR-101	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-102	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-103	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-104	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-105	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-106	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-107	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-108	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-109	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-110	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-111	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-112	nitro reductase	aromatic nitro compounds	50 mg \$315; 1 g \$1,050
ES-NTR-1200	nitro reductase	a set of twelve nitro reductases, 50 mg each	\$1,900

Nitrile Hydratases

The library of nitrile hydratases (ES-NHT) is able to catalyze the synthesis of chiral amides through regio- and stereoselective hydrolysis of a variety of aliphatic and aromatic nitriles, such as





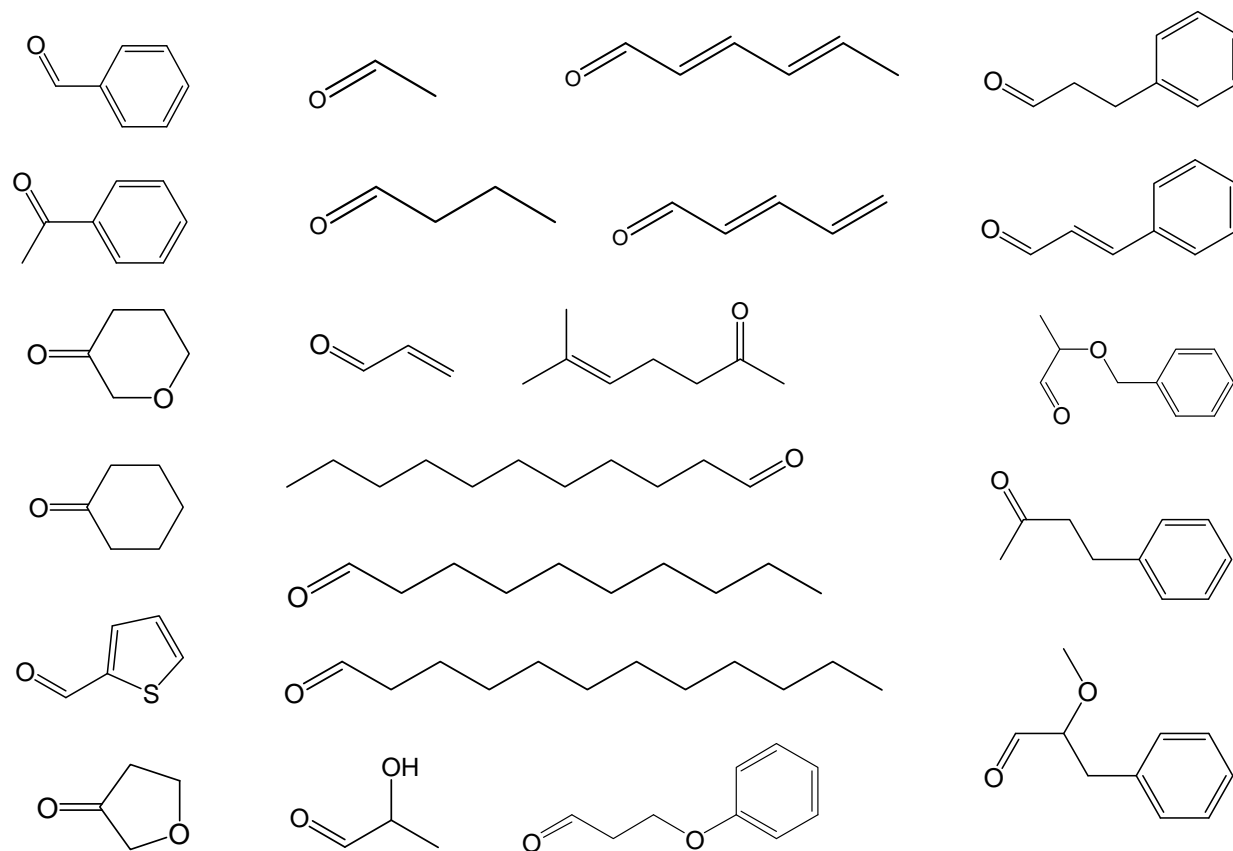
For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.

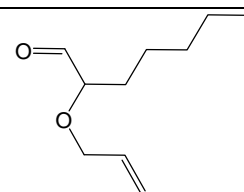
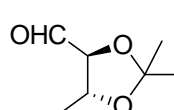
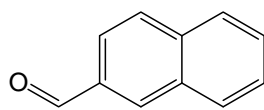
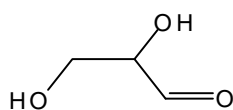
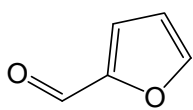
Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-NHT-101	nitrile hydratase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NHT-102	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-103	nitrile hydratase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-NHT-104	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-105	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-106	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-107	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-108	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-109	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-110	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-111	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-112	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-113	nitrile hydratase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-114	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-115	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-116	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-117	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-118	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050

ES-NHT-119	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-120	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-121	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-122	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-123	nitrile hydratase	aliphatic and aromatic nitriles	50 mg \$315; 1 g \$1,050
ES-NHT-124	nitrile hydratase	aliphatic and aromatic nitriles, thermostable	50 mg \$315; 1 g \$1,050
ES-NHT-2400	nitrile hydratase	a set of twenty-four nitrile hydratases, 50 mg each	\$3,500

Oxynitrilases

The library of oxynitrilases or hydroxynitrile lyases (ES-HNL) is able to catalyze regio- and stereoselective synthesis of (*R*)-cyanohydrins or (*S*)-cyanohydrins from a variety of aromatic, aliphatic and heterocyclic aldehydes or even ketones, such as





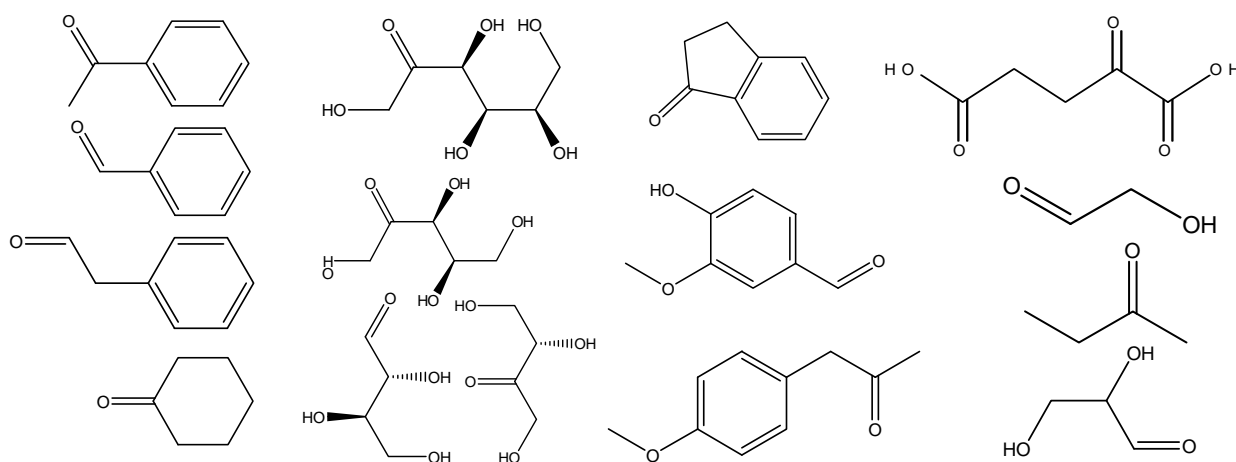
For information on individual enzyme's activity, purity and other specifications, as well as bulk

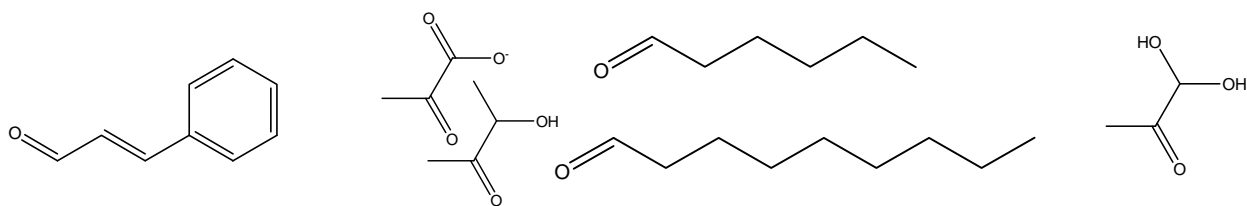
Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-HNL-101	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones, thermostable	50 mg \$315; 1 g \$1,050
ES-HNL-102	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones, thermostable	50 mg \$315; 1 g \$1,050
ES-HNL-103	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones, thermostable	50 mg \$315; 1 g \$1,050
ES-HNL-104	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones, thermostable	50 mg \$315; 1 g \$1,050
ES-HNL-105	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones, thermostable	50 mg \$315; 1 g \$1,050
ES-HNL-106	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones, thermostable	50 mg \$315; 1 g \$1,050
ES-HNL-107	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-108	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-109	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-110	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-111	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-112	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-113	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-114	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-115	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-116	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-117	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-118	(S)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	50 mg \$315; 1 g \$1,050
ES-HNL-1800	(S)-oxynitrilase	a set of eighteen (S)-oxynitrilases,	\$2,800

		50 mg each	
ES-HNL-119	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes, ketones	5 KU \$315; 50 KU \$1,050
ES-HNL-120	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	5 KU \$315; 50 KU \$1,050
ES-HNL-121	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	5 KU \$315; 50 KU \$1,050
ES-HNL-122	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-123	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-124	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-125	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-126	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-127	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-128	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-129	(R)-oxynitrilase	aromatic, aliphatic and heterocyclic aldehydes	50 mg \$315; 1 g \$1,050
ES-HNL-1100	(R)-oxynitrilase	a set of eleven (R)-oxynitrilases, 5 KU or 50 mg each	\$1,750

ω - Transaminases

The library of ω -transaminases (ES-ATA) is able to catalyze regio- and stereoselective synthesis of chiral amines, amino acids and their derivatives from a variety of aliphatic and aromatic ketoacids, aldehydes, ketones and ketoses, such as





Potential amine donors include α -amino acids, γ -aminobutyrate, β -alanine, *sec*-butylamine, methylbenzylamine, and *iso*-propylamine. **For information on individual enzyme's activity, purity and other specifications, as well as bulk pricing, please contact services@syncorelabs.com.**

Catalog No.	Product Name	Substrate Spectrum	Prices (US Dollars)
ES-ATA-101	ω -transaminase	broad substrate spectrum	50 mg \$315; 1 g \$1,050
ES-ATA-102	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-103	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-104	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-105	ω -transaminase	broad substrate spectrum, thermostable	50 mg \$315; 1 g \$1,050
ES-ATA-106	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-107	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-108	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-109	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-110	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-111	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-112	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-113	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-114	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-115	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-116	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-117	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050

			\$1,050
ES-ATA-118	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-119	ω -transaminase	ketones, ketoacids and aldehydes	50 mg \$315; 1 g \$1,050
ES-ATA-1900	ω -transaminase	a set of nineteen ω-transaminases, 50 mg each	\$3,000

Immobilized Lipases

(Particle size = 150-300 μ m, T1 = absorbed & dry, T2 = covalent & dry, T3 = covalent & wet)

Catalog No.	Product Name	Sources/Substrates	Prices (US Dollars)
IMMCALA-T2-150	lipase	<i>Candida antarctica A</i>	5g \$160; 100 g \$400
IMMCALB-T1-1500	lipase	<i>Candida antarctica B</i>	5g \$160; 100 g \$400
IMMCALB-T2-150	lipase	<i>Candida antarctica B</i>	5g \$160; 100 g \$400
IMMCALBY-T1-1500	lipase	<i>Candida antarctica B</i>	5g \$160; 100 g \$400
IMMCALBY-T2-150	lipase	<i>Candida antarctica B</i>	5g \$160; 100 g \$400
IMMRML-T2-150	lipase	<i>Rhizomucor miehei</i>	5g \$160; 100 g \$400
IMMCRL-T2-150	lipase	<i>Candida rugosa</i>	5g \$160; 100 g \$400
IMMTLL-T1-1500	lipase	<i>Thermomyces lanuginosa</i>	5g \$160; 100 g \$400
IMMTLL-T2-150	lipase	<i>Thermomyces lanuginosa</i>	5g \$160; 100 g \$400
IMMCCL-T2-150	lipase	<i>Candida cylindracea</i>	5g \$160; 100 g \$400
IMMABC-T2-150	lipase	<i>Pseudomonas cepacia</i>	5g \$160; 100 g \$400
IMMAPF-T2-150	lipase	<i>Pseudomonas fluorescens</i>	5g \$160; 100 g \$400
IMMARO-T2-150	lipase	<i>Rhizopus oryzae</i>	5g \$160; 100 g \$400
IMMCALAY-T2-150	lipase	<i>Candida antarctica A</i>	1g \$160
IMMCRL1-T2-150	lipase	<i>Candida rugosa</i>	1g \$160
IMMAMJ-T2-150	lipase	<i>Mucor javanicus</i>	5g \$160; 100 g \$400
IMMANF-T2-150	lipase	<i>Aspergillus niger</i>	1g \$160
IMMANA-T2-150	lipase	<i>Aspergillus niger</i>	1g \$160
IMMRNA-T2-150	lipase	<i>Rhizopus niveus</i>	1g \$160
IMMASMQ-T2-150	lipase	<i>Alcaligenes sp.</i>	1g \$160
IMMASMP-T2-	lipase	<i>Alcaligenes sp.</i>	1g \$160

150			
IMMRES-T2-150	lipase	Resinase HT	1g \$160
IMMLIPX-T2-150	lipase	Lipex 100L	1g \$160
IMML51-T2-150	lipase		1g \$160
IMMCCMO-T2-150	lipase	<i>Candida cylindracea sp.</i>	1g \$160
IMMCCMM-T2-150	lipase	<i>Candida cylindracea sp.</i>	1g \$160
IMMAULI-T2-150	lipase	<i>Bacillus subtilis</i>	5g \$160; 100 g \$400
IMMCALA-T3-150	lipase	<i>Candida antarctica A</i>	10g \$160; 200 g \$320
IMMCALB-T3-150	lipase	<i>Candida antarctica B</i>	10g \$160; 200 g \$320
IMMCALBY-T3-150	lipase	<i>Candida antarctica B</i>	10g \$160; 200 g \$320
IMMRML-T3-150	lipase	<i>Rhizomucor miehei</i>	10g \$160; 200 g \$320
IMMCRL-T3-150	lipase	<i>Candida rugosa</i>	10g \$160; 200 g \$320
IMMTLL-T3-150	lipase	<i>Thermomyces lanuginosa</i>	10g \$160; 200 g \$320
IMMCCL-T3-150	lipase	<i>Candida cylindracea</i>	10g \$160; 200 g \$320
IMMABC-T3-150	lipase	<i>Pseudomonas cepacia</i>	10g \$160; 200 g \$320
IMMAPF-T3-150	lipase	<i>Pseudomonas fluorescens</i>	10g \$160; 200 g \$320
IMMARO-T3-150	lipase	<i>Rhizopus oryzae</i>	10g \$160; 200 g \$320

Immobilized Phospholipases

(Particle size = 150-300 µm, T1 = absorbed & dry, T2 = covalent & dry, T3 = covalent & wet)

Catalog No.	Product Name	Sources/Substrates	Prices (US Dollars)
IMMLMPL-T2-150	phospholipase	LysoMax	5g \$160; 100 g \$400
IMMGZPL-T2-150	phospholipase	G-Zyme G999	5g \$160; 100 g \$400
IMMLEPL-T2-150	phospholipase	Lecitase ultra	5g \$160; 100 g \$400

Immobilized Proteases

(Particle size = 150-300 µm, T1 = absorbed & dry, T2 = covalent & dry, T3 = covalent & wet)

Catalog No.	Product Name	Sources/Substrates	Prices (US Dollars)
IMMALC-T2-	protease	Subtilisin (<i>Bacillus sp.</i>)	5g \$160; 100 g \$400

150			
IMMSAV-T2-150	protease	Subtilisin (<i>Bacillus sp.</i>)	5g \$160; 100 g \$400
IMMEVE-T2-150	protease	Subtilisin (<i>Bacillus sp.</i>)	5g \$160; 100 g \$400
IMMESP-T2-150	protease	Subtilisin (<i>Bacillus sp.</i>)	5g \$160; 100 g \$400
IMMP6-T2-150	protease	<i>Bacillus licheniformis</i>	5g \$160; 100 g \$400
IMMP30-T2-150	protease	<i>Bacillus subtilis</i>	5g \$160; 100 g \$400
IMMP40L-T2-150	protease	<i>Bacillus subtilis</i>	5g \$160; 100 g \$400
IMMP51-T2-150	protease	<i>Aspergillus oryzae</i>	5g \$160; 100 g \$400
IMMP89-T2-150	protease	<i>Bacillus subtilis</i>	5g \$160; 100 g \$400
IMMCAR-T2-150	protease	<i>Mucor miehei</i>	5g \$160; 100 g \$400
IMMP7-T2-150	protease	<i>Bacillus amyloliquefaciens</i>	5g \$160; 100 g \$400
IMMP14-T2-150	protease	Thermolysin (<i>Geobacillus sp.</i>)	5g \$160; 100 g \$400
IMMP15-T2-150	protease	<i>Trichoderma reesei</i>	5g \$160; 100 g \$400
IMMP50-T2-150	protease	<i>Aspergillus oryzae var.</i>	5g \$160; 100 g \$400
IMMAUAC-T2-150	protease	<i>Aspergillus niger</i>	5g \$160; 100 g \$400
IMMAUNE-T2-150	protease	<i>Bacillus subtilis</i>	5g \$160; 100 g \$400
IMMAUAL-T2-150	protease	<i>Bacillus subtilis</i>	5g \$160; 100 g \$400
IMMPAP-T2-150	protease	<i>Carica papaya</i>	5g \$160; 25 g \$320
IMMBRO-T2-150	protease	Pineapple stem	5g \$160; 25 g \$320
IMMFIC-T2-150	protease	Fig tree latex	5g \$160; 25 g \$320

Other Immobilized Enzymes

(Particle size = 150-300 μ m, T1 = absorbed & dry, T2 = covalent & dry, T3 = covalent & wet)

Catalog No.	Product Name	Sources/Substrates	Prices (US Dollars)
IMMROXY-T3-150	(R)-oxynitrilase	Almonds	Inquire
IMMNeuAc-T3-150	N-acetylneuraminic acid aldolase		Inquire
IMMPenGA-	Penicillin G	<i>E. coli</i>	Inquire

T3-150	amidase		
IMMADH-T3-150	Alcohol dehydrogenase	Various	Inquire
IMMKRED-T3-150	Ketoreductase	Various	Inquire

Notes:

1. Syncore provides a wide range of cost-effective and high quality contract services for enzyme R&D, fermentation, biotransformations and chemical process development.
2. The catalog products are used solely for their intended purpose as biocatalysts, and shall not be manipulated either biologically or chemically without priori notice or agreement with Syncore.