EUCODIS BIOSCIENCE

SMART ENZYME SOLUTIONS



ISO9001:2015 CERTIFIED

EUCODIS Products, Services & Technologies

EUCODIS is an established enzyme engineering and manufacturing company headquartered in Vienna, Austria.

EUCODIS also provides custom services, ranging from individual enzyme development and evolution, strain and process development to routine protein manufacturing up to the kg scale.

SMART ENZYME SOLUTIONS

PROTEIN & ENZYME ENGINEERING

HIGH PERFORMING BETA LACTAMASES

BIOFERMENTATION

ANTIBODY DRUG CONJUGATION - CTAT

50+ INDUSTRIAL ENZYME SPECIALITIES

About EUCODIS Bioscience

EUCODIS Bioscience is an application-driven enzyme engineering and manufacturing company with a proven track record of providing tailored solutions to our customers in the biopharmaceutical, fine chemicals, cosmetics and other industries. Our team works closely with our customers to better understand and meet their individual requirements. We provide our customers with well-characterized target proteins and a mutagenesis toolbox which enables effective modification of target enzyme properties.

Addressing Our Customers' Needs

EUCODIS Bioscience provides customized solutions under ISO 9001 in recombinant protein and enzyme production. Customers can rely on EUCODIS Bioscience in all aspects of bioprocess development.

Our team specializes in developing high-yield, high-purity manufacturing processes that are designed to be scalable according to customers' demand – from the milligram scale for research purposes up to the kilogram scale for routine industrial use.



04 Services

08 Products

10 *Lipases*

15 *Immobilized Lipases*

15 *Lipase Suicide Inhibitors*

16 *Phospholipase D*

18 *Beta-Lactamases*

22 *Peroxidases*

25 *Nitrile Hydratases*

25 *Amidases*

26 *Isoamylase*

26 *Proteinases*

27 *Catalase*

27 *T7 RNA Polymerase*

28 Technologies

30 *Catalase*

34 *Enzymatic Antibody Drug Conjugate*





SERVICES

Protein & Enzyme Engineering

Protein Engineering For Optimum Performance

Using our proprietary *in vivo* recombination and other mutagenesis technologies and a highly automated industrial development process, we engineer proteins and enzymes to perform to our customers' individual specifications in their specific industrial environment.

Our customized services span the whole value chain of enzyme development:

- Target gene identification
- Enzyme/protein engineering by e.g. *in vivo* recombination, gene shuffing or directed and random mutagenesis
- High throughput screening for desired properties (activity, substrate specificity, stability, expression levels)



Bioprocess Development

Customized Functional Protein Production

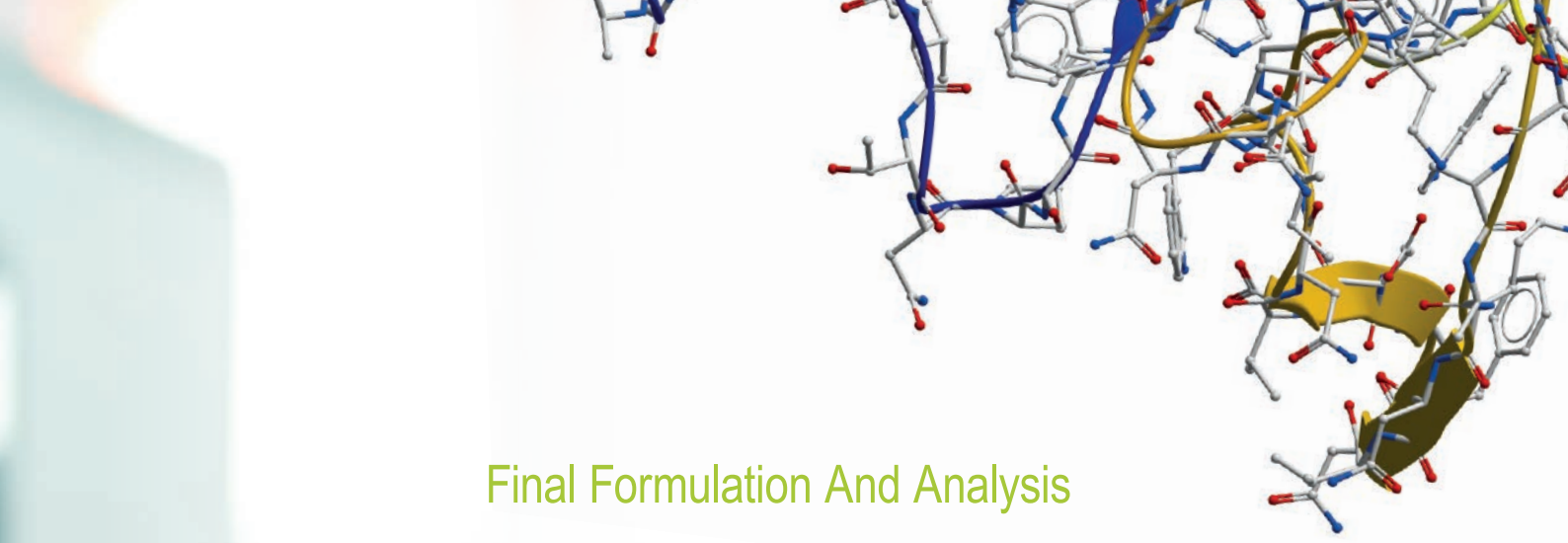
EUCODIS Bioscience provides individual support during every step of product development – from discovery stage to product candidate selection to final product formulation. EUCODIS Bioscience has extensive experience and capabilities to express and purify proteins in quantities ranging from milligrams up to kilogram scale.

We are specialists in setting up new bioprocesses for the scale-up and manufacture of the desired product according to our customers' requirements. Stringent process controls according to ISO 9001 standards are in place to ensure that recombinant proteins and enzymes are manufactured in reproducible manner and in highest quality.

We use a variety of expression systems: Bacteria (*E. coli, B. subtilis, C. glutamicum*), Yeasts (*P. pastoris, S. cerevisiae*), Fungi (*A. oryzae*) suited to our customer's requirements.

Our Services Include:

- Cloning and expression — Selection of optimal expression system and conditions
- Fermentation optimization to increase protein yields and stability — High content multiwell screening, multi-parallel 1 L fermentations
- Professional upscale in 1 L to 1000 L bioreactors — Depending on customer demand (1 L, 10 L, 20 L, 50 L, 200 L and 1000 L in-house, as well as up to 150 m^3 with partners in Europe)



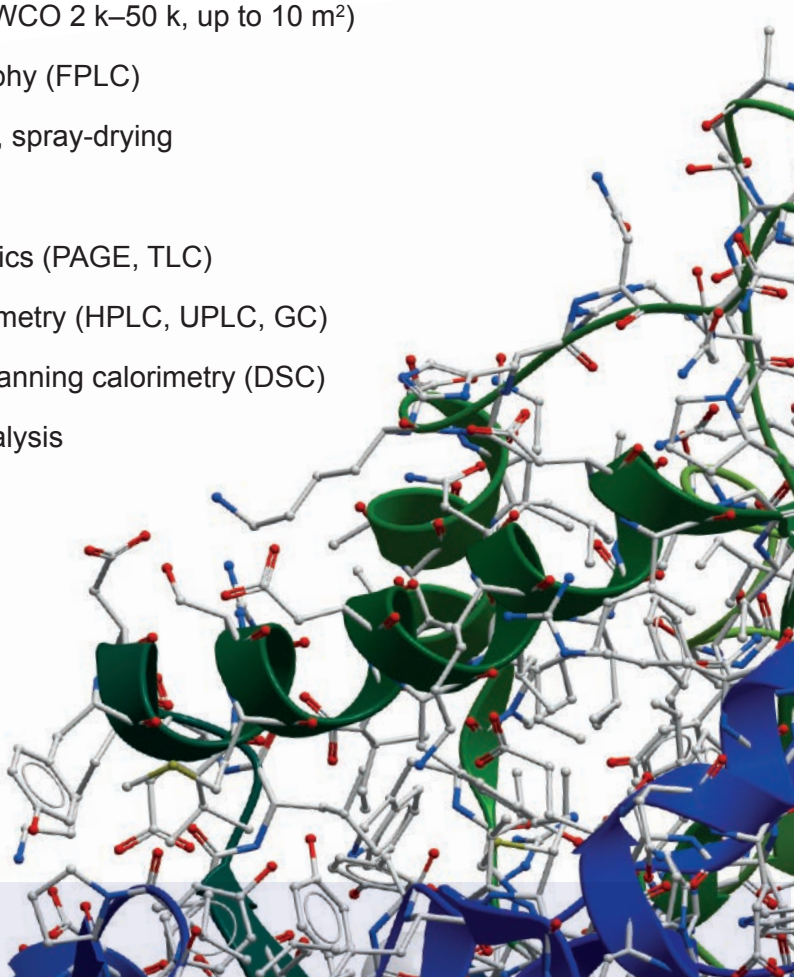
Final Formulation And Analysis

Best Final Product Quality Assured

EUCODIS Bioscience sets a high value on the purification, final formulation and quality analysis of our customers' products. Our biochemists strive to maximize protein purity by professional downstream processing development. Alternatively, we can also use or adapt our customers' protocols to purify their target proteins under ISO 9001.

EUCODIS will assist you in choosing the right final formulation for your recombinant product and provide customized protein analysis according to your specific requirements.

- Downstream processing & formulation
  - Centrifugation
  - Homogenization
  - Ultrafiltration
  - Crossflow (MWCO 2 k–50 k, up to 10 m^2)
  - Chromatography (FPLC)
  - Lyophilization, spray-drying
- Protein analysis
  - Protein analytics (PAGE, TLC)
  - Mass spectrometry (HPLC, UPLC, GC)
  - Differential scanning calorimetry (DSC)
  - Endotoxin analysis



Manufacturing Services

Custom Protein Manufacturing At Its Best

Our team is specialized in developing high-yield, high-purity manufacturing processes that are designed to be scalable according to customer demand by state-of-the art fermentation processes, downstream processing and customized formulation. We are experts in up-scaling our customers' challenging protein purification protocols for the large scale custom manufacturing of their target proteins.

Fermentation can be performed up to the 1000 L scale using the customer's strains and protocols. We also offer fermentation volumes above 1000 L with our partners in Europe.

We provide filling, labeling and packaging of the final product according to our customers' requests. The product is delivered under agreed timelines with full documentation (datasheet, Certificate of Analysis, and instructions).

Our production and bioprocess development services are performed under ISO 9001 and assure high and reliable quality to our customers. Our production facility is run under non-GMP conditions, with transfer to GMP feasible if desired by our customers.



PRODUCTS

The biotechnology and pharmaceutical industries are constantly seeking novel enzymes for active pharmaceutical ingredient (API) synthesis, or replacing complex chemical reactions with biocatalysts. Further applications of enzymes include the white biotechnology industry, where enzymes play a significant role in the development of new formulations for biotech, cosmetics, functional foods, and numerous other areas.



EUCODIS Bioscience has established itself as a leader in manufacturing novel enzymes for such applications. Our enzymes are carefully selected to meet our customers' needs, such as chiral- and regioselectivity, broader ranges of temperature and pH profiles, among other desired properties, making them suitable across various disciplines.



EUCODIS BIOSCIENCE

SMART ENZYME SOLUTION



EUCODIS | LIPASES

EUCODIS Bioscience offers a collection of more than 40 unique lipases of microbial origin, carefully selected and engineered for applications in the chemical, pharmaceutical and food & feed industry.

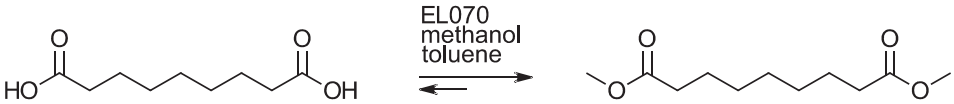
Superior Activity In Multiple Applications

- Production of nutritionally valuable fats and oils
- Hydrolysis/Esterification of C4-C22 fatty acids
- Emollient ester synthesis for cosmetics
- Biocatalytic stereospecific resolution of chiral alcohols
- Bioplastic precursor modification refinement

Our novel collection of lipases can be purchased as a screening kit or individually from mg to kg amounts. Upon requests, bulk quantities or higher purity lipase preparations can be supplied – tailored to match the application of our customers. All lipases are produced under ISO 9001 standards in media with animal-free components, please inquire for lipases expressed in GRAS organisms.

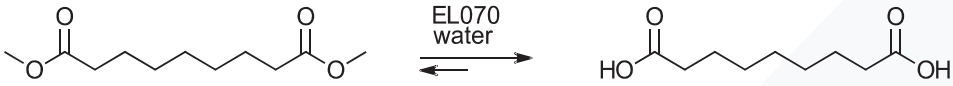
Bioplastic Modification Refinement

Esterification In Organic Solvents:



Esterification of azelaic acid in toluene using methanol and EUCODIS lipase EL070 with quantitative conversion. Several organic solvents, such as heptane, toluene, 1-propanol, etc. are well tolerated.

Hydrolysis Of Esters In Aqueous Environment:



Quantitative hydrolysis of dimehtylazelate using EUCODIS lipase EL070 in aqueous solution.

CATALOGUE #	SUBSTRATE	PRODUCT	CONVERSION (%)
EL070	Azelaic acid	Azelaic dicarboxylic acid	100 %

EUCODIS Lipases permit complete green conversion of dicarboxylic acids to the corresponding esters enabling the distillation of long chain dicarboxylic esters. Subsequent saponification reaction can be also catalyzed by EUCODIS Lipases.



Production Of Nutritionally Valuable Fats And Oils Rich In Poly-Unsaturated Fatty Acids

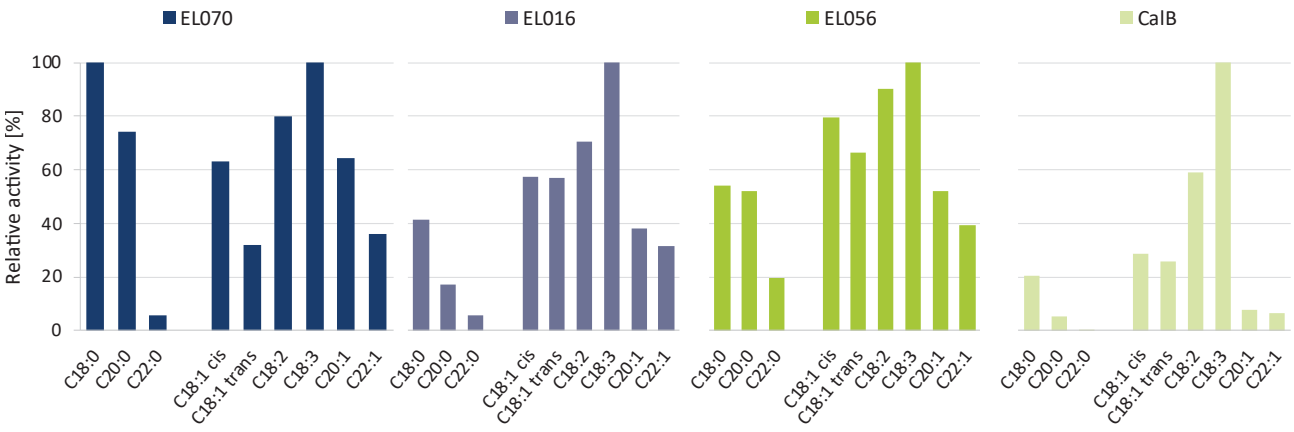
	MODIFICATION OF PUFA*-RICH PLANT OILS					
	HYDROLYSIS				TRANSESTERIFICATION	
ENZYMES	OIL A	OIL B	OIL C	OIL D	SN1,3 POSITION	SN2 POSITION
EL001	★★	★★	★★★	★★★	★★★	★
EL012	★★	★★	★★	★	★★★	0
EL013	★★★	★★★	★★★	★	★★★	★
EL016	★★	★★★	★★★	★	★★★	0
EL031	★★	★★	★★★	★	★★★	★
EL056	★★	★★	★★★	★	★★	0
EL070	★★★	★★★	★★★	★★★	★★★	★
CalB#	★★	★★	★	★	★★★	★

Hydrolysis: Efficacy given as fold-increase in activity compared to CalB Transesterification: ★★★/★★/★ transesterification detectable, (★) weak, 0 no transesterification.

*PUFA: poly-unsaturated fatty acids.
#Commercially available from a competitor.

EUCODIS Lipases show superior activity modifying high value PUFA-rich oils by hydrolysis and/or (trans)-esterification.

Application Potential Of EUCODIS Lipases On High-Value Oils And Fats

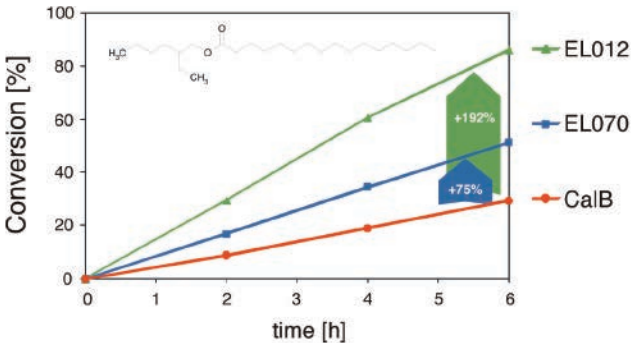


Relative substrate activity of three EUCODIS lipases on saturated and unsaturated para-nitrophenyl fatty acid esters. Activity on C 18:3 was set as 100% for each tested lipase.

EUCODIS Lipases show high activities on long chain fatty acid esters. Complex substrate mixtures can be processed selectively with respect to chain length and saturation degree.

Production Of Emollient Esters For Pharmaceuticals And Cosmetics

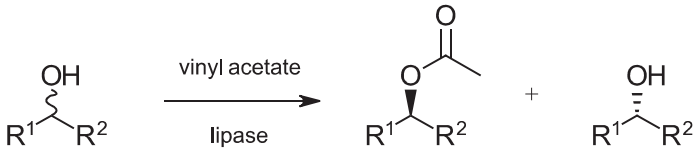
Synthesis Of 2-Ethyl-1-Hexanol Palmitate

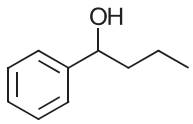
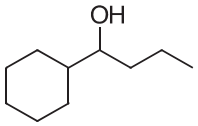
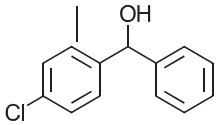


PALMITATE ESTERS OF	EL001	EL012	EL070
2-Propanol	★★★	★★	★★
Cetyl alcohol	★★	★★★	★★★
2-Ethyl-1-hexanol	★	★★★	★★
Retinol	0	★★	0

EUCODIS Lipases exhibit superior performance in the synthesis of high value pharmaceutical or cosmetic esters than benchmark enzyme CalB. EUCODIS Lipases will enable your process development to realize the benefits of green chemistry.

Acylation And Esterification Of Chiral Secondary Alcohols



			RESULTS			
SUBSTRATE	ENZYMES	TIME(H)	ALCOHOL (%EE)	ESTER (%EE)	CONVERSION	E
	EL003	101	11	98	10	110
	EL068	101	10	92	10	26
	CalB	101	3	>99	<1	>200
	EL001	16	23	>99	22	>200
	EL070	16	30	99	27	>200
	CalB	16	<1	94	1	32
	EL012	101	3	53	5	3.4
	EL014	101	3	1	75	1.0
	CalB	101	N/A	N/A	<1	N/A

Maeve O'Neil et al., Tetrahedron: Asymmetry 23 (2012) 583-586. Activity profiles of six EUCODIS lipases and CALB (benchmark) on three secondary alcohols are displayed.

Selected EUCODIS Lipases demonstrate higher stereo-specificity with higher conversion rates than CalB on difficult to resolve chiral secondary alcohols.

Lipases

EUCODIS lipases belong to the family of esterases and naturally act on triglycerides at lipid water interfaces. Lipases/esterases can be used as versatile tools in hydrolytic reactions, esterifications and transesterification reactions in industrial and food applications.

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
EUCODIS Lipase Kit	EL Kit	25 unique EUCODIS lipases, recombinant, contains EL001, EL003, EL004, EL006, EL008, EL009, EL012, EL013, EL014, EL015, EL016, EL017, EL020, EL030, EL031, EL032, EL037, EL038, EL044, EL056, EL064, EL065, EL067, EL068, EL070, also available separately, see below for examples	100 mg or 1 g each
EUCODIS Lipase reference enzymes kit	EL Kit ref	7 reference lipases, recombinant, contains ELCB10WT, ELCR01, ELCB01, ELCR02, ELCB02, ELCR03, ELY01	
EUCODIS Lipase 003 EUCODIS Lipase 014	EL003 EL014	resolution of chiral alcohols, see Tetrahedron: Asymmetry, 23 (2012), 583–586	100 mg – 1 g, bulk
EUCODIS Lipase 012 EUCODIS Lipase 070	EL012 EL070	high temp stability, oil processing, transesterification resolution of chiral alcohols, see Tetrahedron: Asymmetry, 23 (2012), 583–586	
EUCODIS Lipase 013	EL013	fatty acid transesterification, resolution of chiral alcohols,see Tetrahedron: Asymmetry, 23 (2012), 583–586	
EUCODIS *Y. lipolytica* Lipase	ELYL01	from *Yarrowia lipolytica*	
EUCODIS *C. rugosa* Lipases	ELCR01 ELCR02 ELCR03	CRL 1, CRL 2, CRL 3 from *Candida rugosa*	
EUCODIS CalB01 EUCODIS CalB02	ELCB01 ELCB02	engineered variants of *Candida antarctica* Lipase B	
EUCODIS Lipase CalB10, wildtype	ELCB10	*Candida antarctica* Lipase B, wildtype	

Lipase Service On Request

- Enzyme screening service: screening of your substrate against our library
- Development of lipase formulations tailored to your application
- EUCODIS Lipases can be immobilized for easy recovery and repeated use in continuous batch reactors

Immobilized Lipases

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
EUCODIS Immobilized Lipase Kit	ELIM Kit	7 unique EUCODIS Lipases, each immobilized by adsorption and covalent binding: CalB01, CalB02 and EL012, EL020, EL030, EL067, EL070; Also available separately	5 g each
EUCODIS CalB01	ELCB01IA	immobilized by adsorption on hydrophobic carrier	1 g – 1 kg, bulk
EUCODIS CalB02	ELCB02IA		
EUCODIS Lipase 070	EL070IA		
EUCODIS CalB01	ELCB01ICE	covalent immobilization on hydrophobic carrier	
EUCODIS CalB02	ELCB02ICE		
EUCODIS Lipase 070	EL070ICE		
EUCODIS Lipase CalB10, wildtype	ELCB10IA	*Candida antarctica* Lipase B, wildtype immobilized by adsorption	

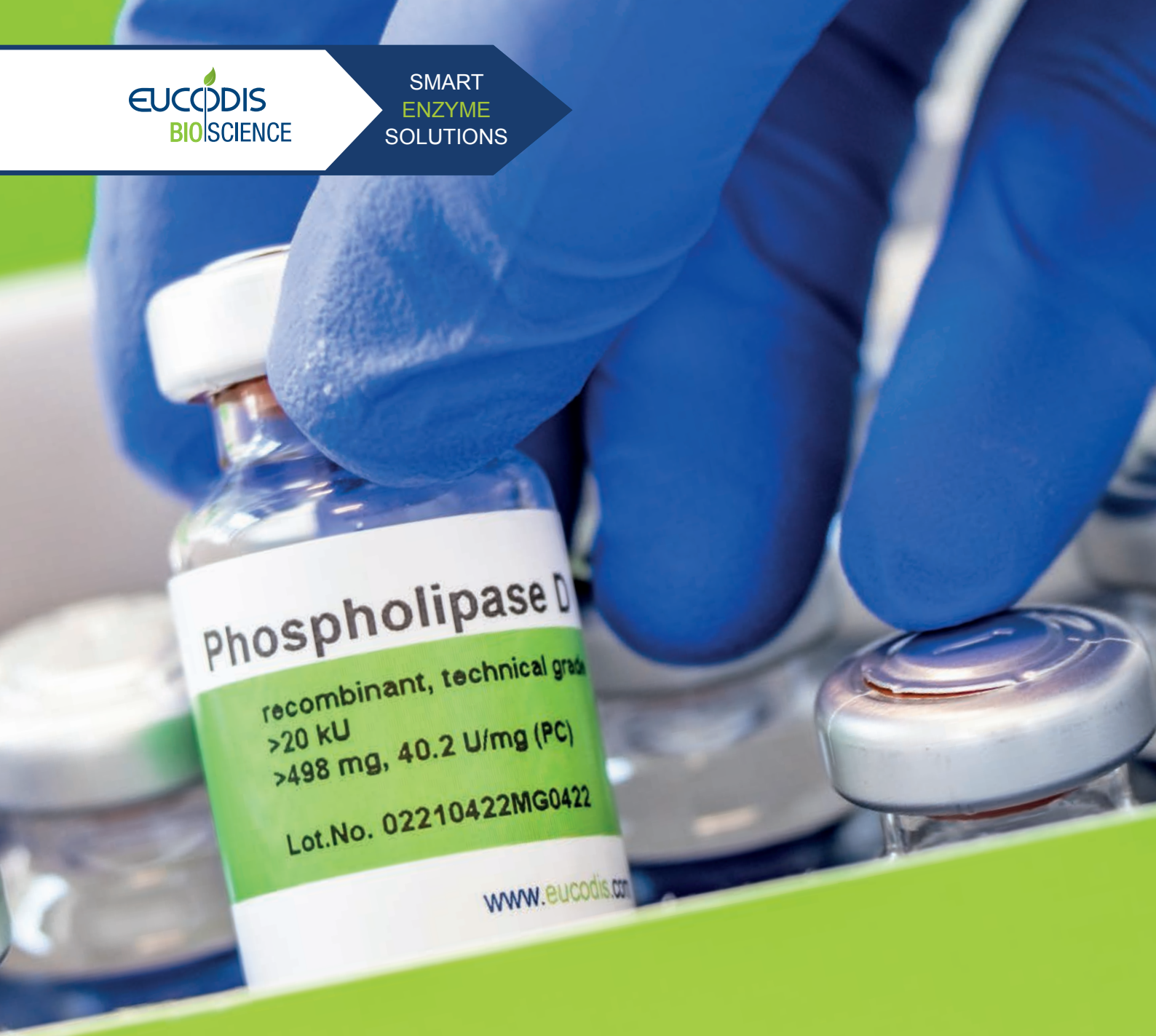
Lipase Suicide Inhibitors

EUCODIS lipase suicide inhibitors can be utilized to determine lipase and hydrolase activity, even in complex protein mixtures. The molar amount of enzyme can be determined by active site titration experiments.

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
Methyl 4-nitrophenyl hexyl phosphonate	ESIC01	chromogenic substrates for determination of active sites in lipases	10 mg
Butyl 4-nitrophenyl hexyl phosphonate	ESIC02		
Octyl 4-nitrophenyl hexyl phosphonate	ESIC03		
Methyl 4-methylumbelliferyl hexyl phosphonate	ESIF01	fluorogenic substrate for determination of active sites in lipases	2 mg

EUCODIS BIOSCIENCE

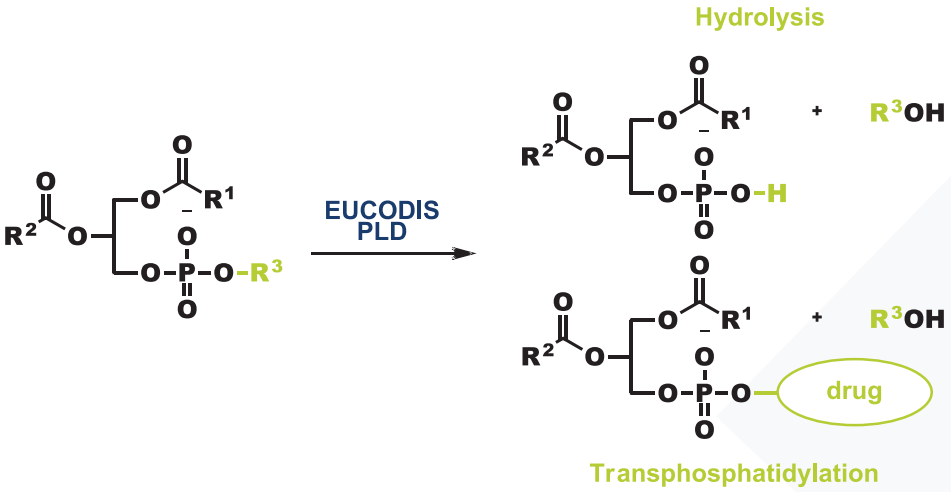
SMART ENZYME SOLUTIONS



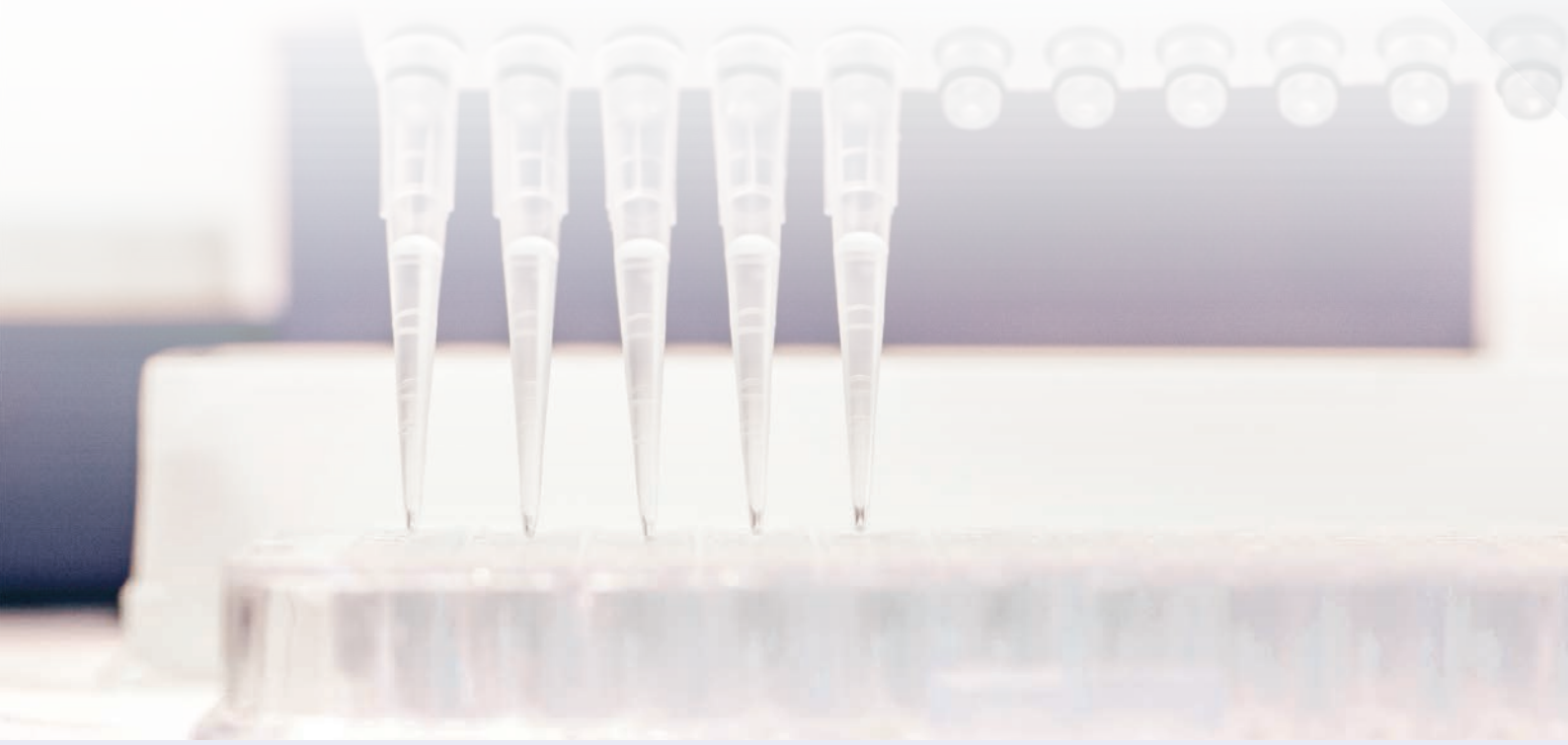
EUCODIS | PHOSPHOLIPASE D

Phospholipases D

EUCODIS phospholipases D can be used as versatile tools in hydrolysis and transphosphatidylation of phospholipids for pharma, chemical and food applications.



PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
Phospholipase Kit	EPLD Kit	4 unique EUCODIS PLDs; recombinant, contains EPLD027, EPLD029 and EPLD040 (from *Streptomyces* sp.) and EPLD028 (from *Rhodococcus* sp.), also available separately	100 mg – 1 g, bulk
Phospholipase D 40	EPLD040	from *Streptomyces antibioticus*, recombinant	



EUCODIS BIOSCIENCE

SMART ENZYME SOLUTIONS



EUCODIS | LacBUSTER™

EUCODIS manufactures and delivers pure, high-quality, high-performing products. LacBuster™ has been optimized for sterility testing and environmental monitoring in the manufacture and dosage formulation of beta-lactam antibiotics. LacBuster™-S is a solid formulation with a broad substrate range against clinically relevant beta-lactam antibiotics including carbapenems, cephalosporins up to 5th generation and penicillins. LacBuster™-S is available as a freeze-dried gamma-irradiated powder.

LacBuster™-L is a novel sterile ready-to-use solution. Due to its high performance LacBuster™-L is especially well suited for the direct innoculation method and membrane filtration tests according to US Pharmacopeia (USP <71>) and European Pharmacopeia (EP <2.6.1>). It can be directly implemented into existing standard.

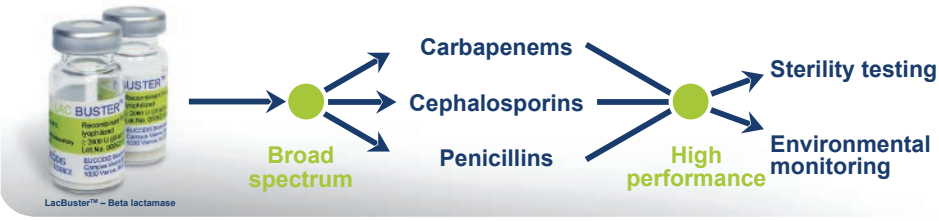


Beta-Lactamases

LacBuster™ is a broad range beta-lactamase formulation recombinantly produced in *E. coli* with activity towards penicillins, 4th and 5th generation cephalosporins and carbapenems.

PRODUCT NAME	CATALOGUE #	FORMULATION	SALES UNIT (UI β-LACTAMASE II)	ENZYMATIC ACTIVITY
LacBuster™ - L	EB008.1	Sterile liquid	1000 IU (10 ml)	
LacBuster™ - S	EB006.1	Sterile freeze dried powder, gamma irradiated	50 IU	β-Lactamase I & β-Lactamase II
	EB006.2		2000 IU	
	EB006.4		5000 IU	
Penase	EB002.1	Freeze dried powder	3300 IU	β-Lactamase I (Penicillinase)

Product Highlights



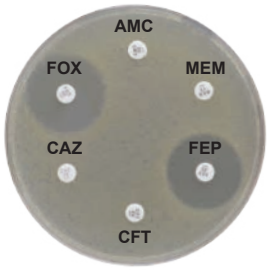


LacBuster™ Inactivates Clinical Relevant Cephalosporins Better Than Any Other Product Available On The Market

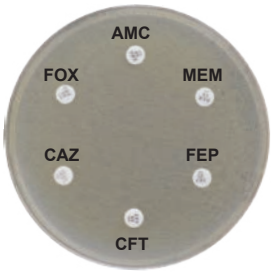
Agar diffusion test on CASO agar containing 500 IU beta-lactamase II-/L medium of indicated enzyme, using a commonly used bacterial indicator strain, like *S. aureus* ATCC6538, as a test microorganism.

Antibiotics discs used: AMC – Amoxicillin/Clavalunate (20/10 µg), MEM – Meropenem (10 µg), FEP – Cefepime (30 µg), CFT – Ceftibuten (30 µg), CAZ – Ceftazidime (10 µg), FOX – Cefoxitin (30 µg).

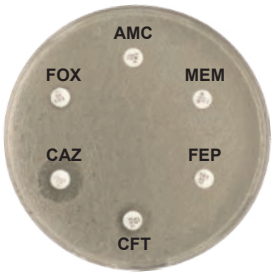
COMPETITOR A



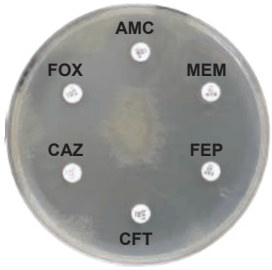
LACBUSTER™-S



COMPETITOR B



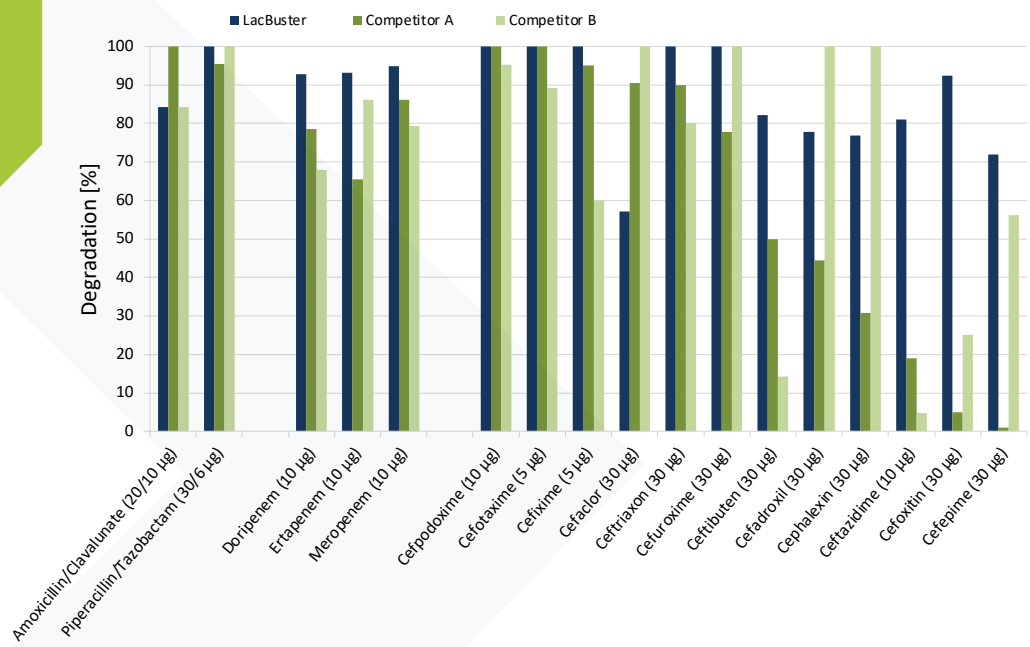
NO ENZYME



LacBuster™ Inactivates Following Beta-Lactam Antibiotics Efficiently

CEPHALOSPORINS	CARBAPENEMS	PENICILLINS
Cefaclor, Cefadroxil, Cefazolin, Cefepime, Cefixime, Cefotaxime, Cefoxitin, Cefpodo-xime, Ceftazidime, Ceftibuten, Ceftriaxon, Cefuroxime, Cephalexin	Doripenem, Ertapenem, Imipenem, Meropenem	Amoxicillin, Ampicillin, Benzylpenicillin, Oxacillin, Piperacillin, Ticarcillin

LacBuster™ Shows A Superior Activity Profile On A Broad Range Of Carbapenems, Cephalosporins And Penicillins



Agar diffusion test on Mueller-Hinton agar plates containing 50 IU beta-lactamase II activity/L (LacBuster™-S).

LacBuster™ Agar Plates For Environmental Monitoring

A general purpose growth medium supplemented with LacBuster™ to effectively neutralise beta-lactam antibiotics. Suitable for the cultivation of a wide variety of microorganisms for environmental monitoring within the pharmaceutical industry.

Available as contact and settle plates for high performance monitoring of your isolators and clean rooms during beta lactam manufacture.



Why use LacBuster™ media plates?

- High enzymatic activity of 1.000 IU Cephalosporinase and 10.000 IU Penase per litre medium
- Optimized formulation: Supplemented with neutralizers for all commonly used disinfectants
- H_2O_2-impermeable triple-sleeve packaging, gamma-irradiated
- Long shelf life: 6 months
- Convenient storage at room temperature
- Perfect price for value

Environmental Monitoring

Settle and Contact Plates with EUCODIS beta lactamase formulations are available via other suppliers in cooperation with EUCODIS. Please inquire for more details.

PRODUCT NAME	CATALOGUE #	FORMULATION	SALES UNIT	ENZYMATIC ACTIVITY
LacBuster™ - Settle plates	EB010.1	Agar Plates	10 plates	10.000 IU/L (β-Lactamase I) 1.000 IU/L β-Lactamase II)
LacBuster™ - Contact plates	EB011.1			



EUCODIS | PEROXIDASES

EUCODIS Bioscience offers a collection of selected recombinant peroxidases of bacterial, fungal and plant origin with distinct properties for customers in the chemical, flavor, feed, cosmetics, paper and other industries. Eucodis Peroxidases use hydrogen peroxide as a co-substrate to catalyze reactions similar to cytochrome P450 oxidoreductases, but eliminating the need for expensive cofactor recycling systems. Eucodis Peroxidases belong to the class of the heme-peroxidases. The enzymes with heme as prosthetic group can be used in oxygenation reactions using hydrogen peroxide as a co-substrate.

- 2 novel oxidative enzymes for industrial applications
- Biocatalytic oxidation reactions beyond known dehydrogenases, P450 enzymes, reductases:
  - highest activity, specificity and selectivity,
  - mild conditions,
  - minimize side reactions, reducing waste and process energy,
  - hydrogen peroxide as co-substrate, eliminating the need for cofactor recycling systems.

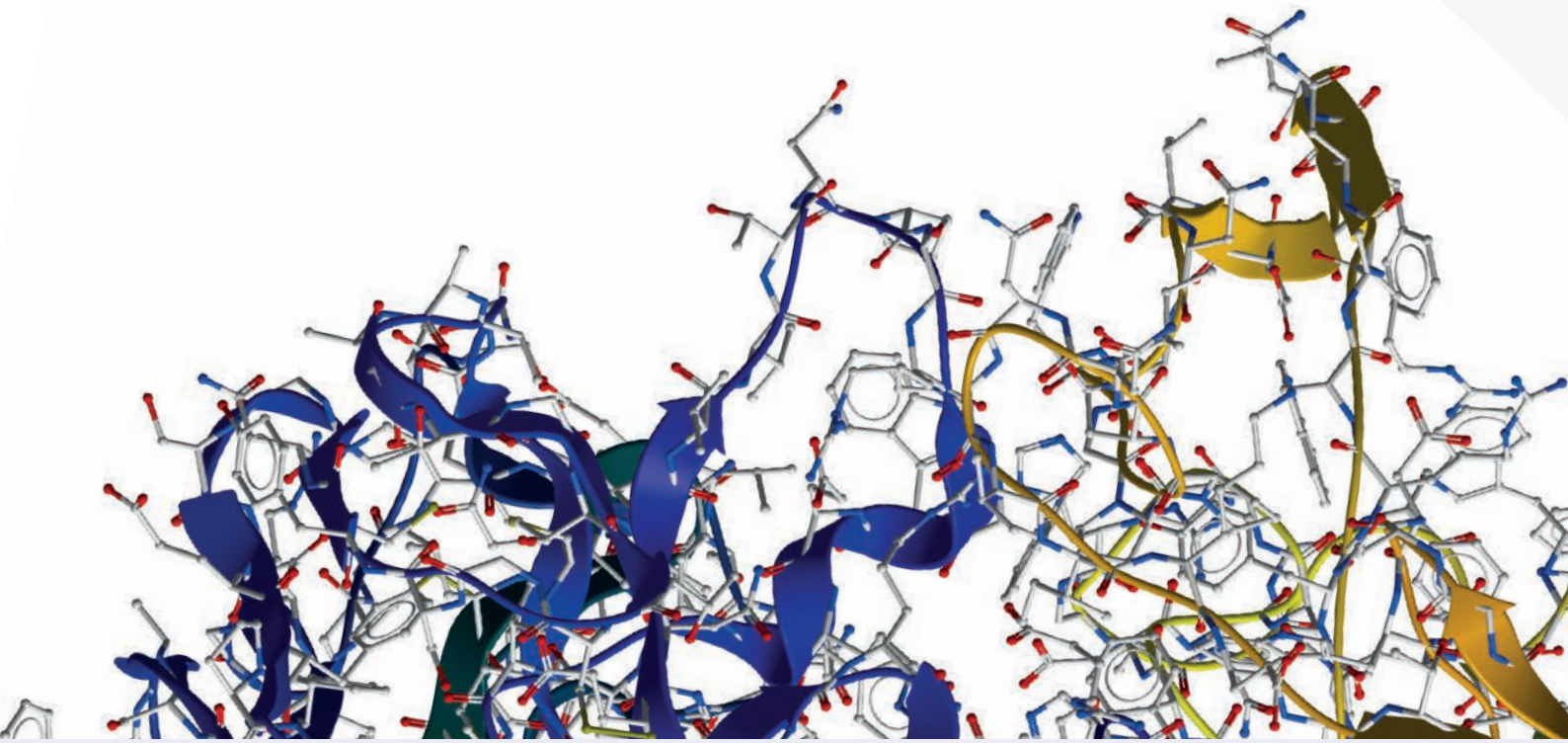
Broad Range Of Industrial Applications

Pharmaceutical applications	Biocatalytic conversions, e.g. in chemical building blocks or APIs
Waste water treatment	Oxidation of chemical effluents from industrial waste
Fabric industry	Colorizing and decolorizing dyes
Food and flavor industry	Synthesis of flavors
Cosmetics	Fragrances

Peroxidases

EUCODIS peroxidases can be utilized as enzymes catalyzing e.g. aromatic ring hydroxylation, epoxidation, halogenation, N- or S-oxidation, ether cleavage, alcohol/aldehyde oxidation reactions and N-demethylation. EUCODIS peroxidases catalyze reactions similiar to cytochrom P450 enzymes but without the need for co-factor recycling and using hydrogen peroxide as co-substrate.

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
Peroxidase Kit	EP Kit	2 peroxidases of bacterial, fungal and plant origin, recombinant	2 x 100 mg – 1 g, bulk





EUCODIS | OTHER PRODUCTS

EUCODIS Bioscience delivers high-performance enzyme solutions for applications in pharma, biotech, fine chemicals, food & feed, diagnostic and cosmetics industries.

Possible target enzymes can be manufactured in kilogram quantities on demand at a short notice. Further scaling up can be performed on a customer basis.

EUCODIS powerful enzyme solutions for challenging industrial applications include:

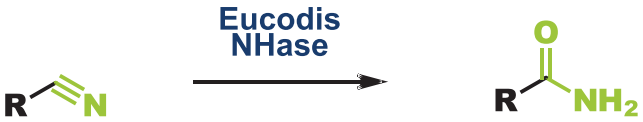
- Nitrile Hydratases
- Amidases
- Isoamylase
- Proteinases/Peptidases
- T7 RNA Polymerase
- Catalase

Besides the above listed enzymes, we also provide the SARS-CoV-2 Main Protease, as well as recombinant Trypsin on demand.

Nitrile Hydratases



EUCODIS nitrile hydratases can be utilized to convert, e.g. nitriles in large scale into their corresponding amides. Currently nitrile hydratases are used for the production of acrylamide from acrylonitrile. Additional applications are e. g. in the removal of nitriles from industrial waste water.



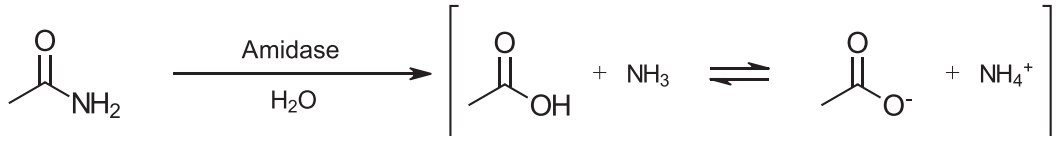
R = alkyl, phenyl, etc....

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
EUCODIS Nitrile Hydratase Kit	ENH Kit	10 recombinant enzymes with different substrate specificities	100 mg – 1 g, bulk

Amidases



EUCODIS amidases belong to the family of hydrolases, acting on carbon-nitrogen bonds other than peptide bonds, specifically in linear amides.



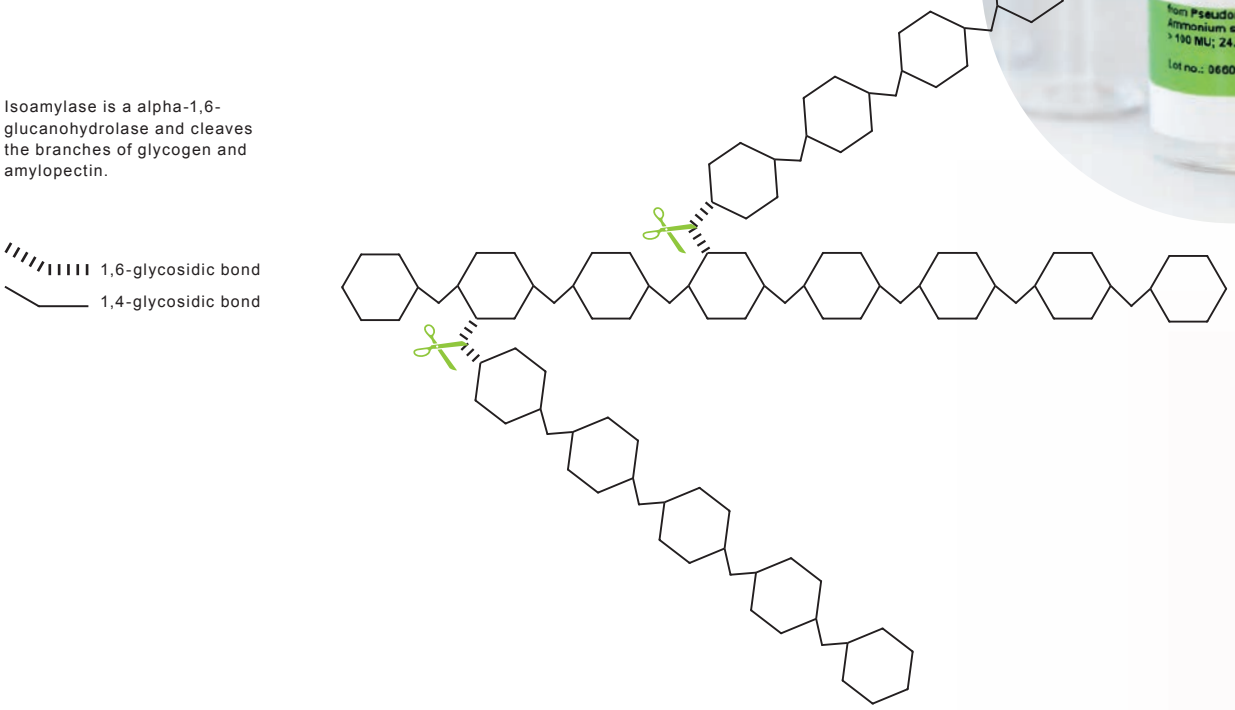
PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
EUCODIS Amidase 01	EAM01	from *Pseudomonas aeruginosa*, recombinant	100 mg - 1 g, bulk
EUCODIS Amidase 02	EAM02	from *Rhodococcus* sp., recombinant	

Isoamylase

EUCODIS isoamylase belongs to the family of carbohydrolases acting specifically on α-1,6-glucosidic branch linkages in carbohydrates like amylopectin or glycogen.



Isoamylase is a alpha-1,6-glucanohydrolase and cleaves the branches of glycogen and amylopectin.



PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
Isoamylase	EIA01	from *Pseudomonas* sp., recombinant (≥ 3 MU/mg protein)	1 MU – 5 MU, bulk

Proteinases/Peptidases

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
Carboxypeptidase Y	ECPY001	from *S. cerevisiae*, recombinant	100 mg – 1 g, bulk



Catalases

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
Catalase	ECAT001	patent protected catalase formulation	bulk

EUCODIS catalase neutralizes hydrogen peroxide at much higher concentrations (>10 %) compared to pyruvate, which is only capable of completely neutralizing hydrogen peroxide at the lowest concentration tested (2 %).

T7 RNA Polymerase

PRODUCT NAME	CATALOGUE #	CHARACTERISTICS	SALES UNIT
T7 RNA Polymerase	ERP01	from Bacteriophage T7, Recombinant	5 kU, bulk





TECHNOLOGIES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EUCODIS BIOSCIENCE

SMART ENZYME SOLUTION



EUCODIS | CATALASE

Catalases & Environmental Monitoring

Hydrogen peroxide vapor is routinely used in disinfection and sterilization of clean rooms and production facilities. It offers many advantages like its universal applicability, simple handling and virtually no residues. However, there are stringent requirements for a safe and effective method to ensure that no traces of H_2O_2 are present ultimately interfering with the monitoring of the sterilization process.

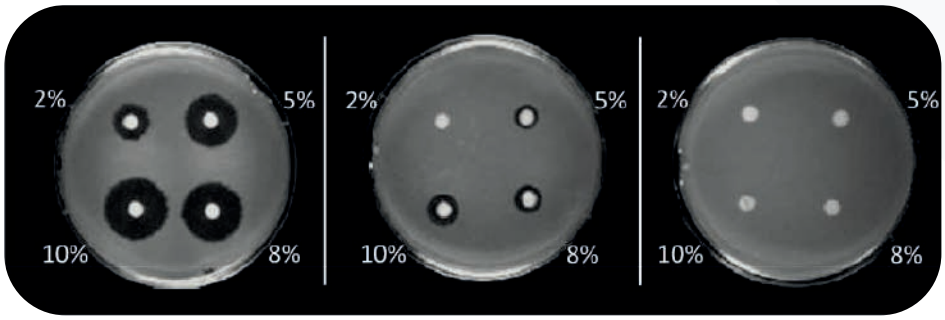
Currently, agar plates for monitoring the disinfection or sterilization are supplemented with pyruvate, which is however consumed during the neutralization of hydrogen peroxide. Therefore, pyruvate has difficulties in neutralizing higher concentrations and amounts of hydrogen peroxide.

Catalase as a supplement offers a more effective and reliable solution for safe and secure environmental monitoring of sterilization in clean rooms, isolators or production facilities by also removing remaining traces and spots of high concentration of H_2O_2 when used in agar plates.

A Novel Catalase For Complete H_2O_2 Neutralization In Agar Plates

- Easy to use formulation
- Complete biocatalytic inactivation of H_2O_2
- Potent, stable alternative to chemical neutralizers, more reliable than pyruvate
- Secure and effective degradation up to 10% H_2O_2
- Patent-protected in all important markets (EP2861715; US 9,951,306)

Reliable And Complete Degradation Of All Applied H_2O_2 (2-10%)

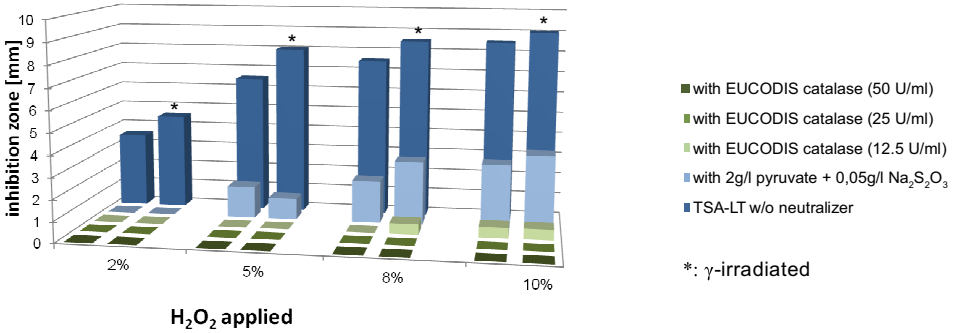


CONTROL (NO NEUTRALIZER) | WITH PYRUVATE | WITH CATALASE

Agar diffusion test on TSA-LT agar inoculated with *B. subtilis*, filter disks with 10 µL of 2%-10% H_2O_2.

Catalase Adds Additional Safety To Neutralizing Plates

EUCODIS catalase is more effective than chemical neutralizers currently used in environmental monitoring agar plates, such as pyruvate.



*: γ-irradiated

More Benefits

- High stability in agar media
  - Stability at 50°C, allows for easy preparation of media and processing into plates.
  - Storage (> 6 months at 4/25°CC), no special storage conditions required.
  - Irradiation at 20-30 kGy possible, for sterilization of prepared media.
- Patent granted: EP2861715; US 9,951,306

OEM License Offering

We are offering access to the patented technology to interested parties for collaboration in application development. Eucodis also offers ready-to-use media plates containing catalase for sterility monitoring and OEM supply of the enzyme for your environmental monitoring media or other applications.







EUCODIS

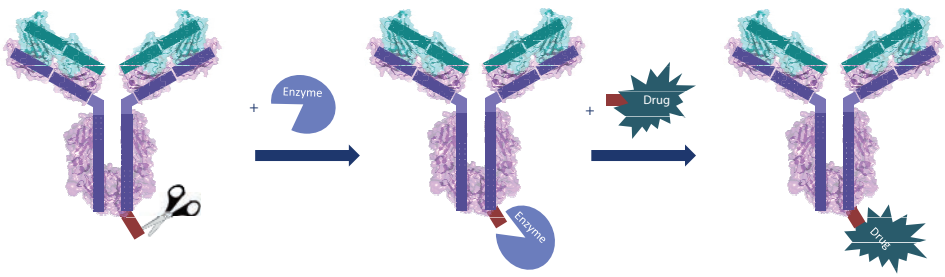
CTAT

ENZYMATIC ANTIBODY DRUG CONJUGATION

Technology

This novel linker system is designed to covalently attach your recombinant antibody or antibody fragments to your therapeutic drug - through a specific enzymatic reaction. The CTAT enzyme recognizes a short sequence of 3-4 amino acids at the C-terminus of your antibody. This unique target sequence is easily introduced by an expression plasmid. As shown in figure 1, the CTAT enzyme cuts at this specific target site and covalently links the drug molecule to the antibody. This directed conjugation method is not interfering with the antigen binding site.

How Does CTAT Labeling Work? By Transamidation!



Antibody with 3-4 amino acid ▬ recognition sequence.

Cleavage of the recognition sequence by the enzyme, formation of the antibody-acyl enzyme intermediate.

Antibody-Drug-Conjugate by nucleophilic addition of the drug to the antibody, and release of the enzyme.

Benefits Of The CTAT-Conjugation Technology

Site specific modification

No interference with antigen binding site, structural integrity of the antibody/(sc)FAB/scFv maintained.

Covalent conjugation

Stable covalent linkage between antibody and drugs, dyes, beads, matrices and surfaces.

Defined conjugation per antibody

Defined drug to antibody ratio (DAR) is possible.

Short recognition sequence – Short linker

Linker sequence between label and protein is small and non-immunogenic but can be extended if needed for the application.

Cleavage possible

Enzymatic removal of conjugate is possible if wanted.

Therapeutic Applications

Antibody-drug conjugates – ADCs:

functionalisation of antibodies for therapeutic applications; targeted delivery of potent cytotoxic agents

Diagnostic Applications

Labeling of recombinant proteins, antibodies or antibody fragments for:

fluorescence microscopy, flow cytometry, antibody-based assays (ELISA)

Industrial Applications

Covalent, directional immobilization on:

beads, matrices, columns



EUCODIS Bioscience GmbH
Campus Vienna Biocenter II,
Viehmarktgasse 2a
1030 Vienna, AUSTRIA

PHONE: +43 1 8900804-0
E-MAIL: office@eucodis.com

Contact:
EUCODIS Sales Team
PHONE: +43 1 8900804-30
E-MAIL: sales@eucodis.com
www.eucodis-enzymes.com