



**evocatal**

**fine enzymes for fine chemicals**



Dr. Christian Leggewie (CSO),  
Priv.-Doz. Dr. Thorsten Eggert (CEO),  
Dr. Michael Puls (CMO) – from left

„Let our enzymes  
speed up your process!“

Dr. Sascha Hausmann *Production Manager*

## Solutions for Efficient Biocatalysis

**evocat** develops and produces biocatalysts for the chemical and pharmaceutical industry. Performing contract research (CR) or producing its own enzymes, **evocat** continuously strives to make its customer's business easier.

The company was founded in 2006 as a spin-off from the Institute of Molecular Enzyme Technology, Heinrich-Heine University of Düsseldorf. Our team consists of highly skilled scientists and engineers with extensive backgrounds in molecular biotechnology and

industrial chemistry. Our laboratories and facilities meet biosafety level 1 and 2 standards. Enzymes and processes can be developed and produced in volumes of up to commercial scale.

Ever since its establishment, **evocat** has been actively contributing to international research projects and scientific networks, being always up-to-date on the latest developments in research and technology. The company has co-initiated the German IWBio (Industrial Association Biotechnology) as well as CLIB2021 (Cluster industrial biotechnology).

„Your success is our driving force!“

Dr. Thorsten Eggert *CEO*



2006

2007

2008

Foundation  
of the company

Award winning  
business-plan

First publicly funded  
international R&D-project

1<sup>st</sup> round of  
financing closed

New laboratories

evocat  
national  
Project



## Biocatalysis – Next Generation Chemistry

**Enzymes are the natural key to chiral intermediates. They have been designed by nature to work stereoselectively and extremely efficient under physiologic conditions. Today, we use enzymes to produce fine chemicals of highest optical purity.**

The evocatal enzymes (evozymes®) are most active towards a broad range of educts and are well known for their great process stability. With evozymes your production of chiral intermediates will be faster and more efficient at outstanding space-time-yields.

We provide enzymes for the following reactions:

- Keto-reductions
- Transaminations
- Cyanations
- Esterifications/Transesterifications/Hydrolysis

Whether you produce synthons or work close to the API: With evozymes you will meet the high standards that YOUR CUSTOMERS demand!

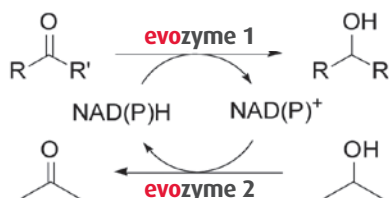
evozymes are optimized for:

- High reactivity
- Stereoselectivity
- Solvent stability
- Highest space-time-yields

**„If chirality is the question –  
evozymes are the answer.“**

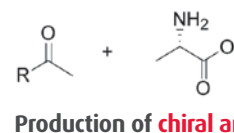
Dr. Michael Puls CMO

### Alcohol Dehydrogenases:



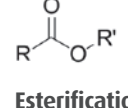
**Production of chiral alcohols**

### Transaminases:



**Production of chiral amino acids**

### Lipases:



**Esterification**

### Oxynitrilases:



**Production of chiral cyanohydrins**



2009

al coordinates  
al BMBF Cluster

Scientific advisory  
board established

evocatal is nominated for the  
Evonik Science-to-Business Award

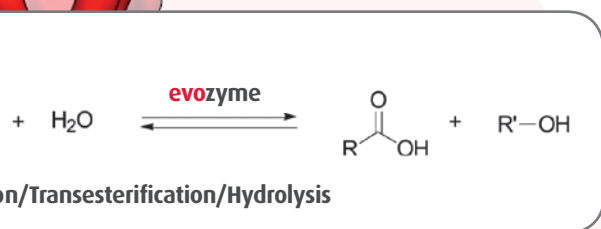
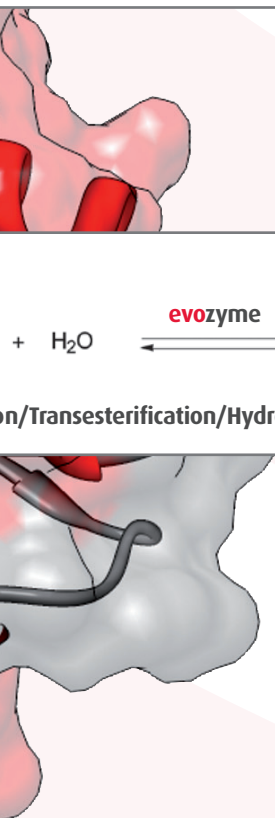
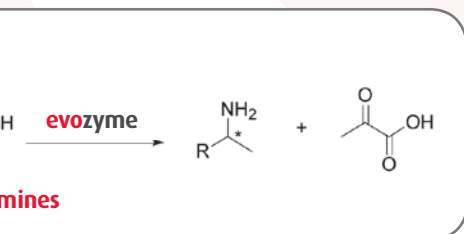
> 20 enzyme products

Start of operation  
of in-house production  
facilities

Distribution  
Sigma-Aldrich



## Speed up Your Process – With Enzymes



**evocat** offers research and development services. Our team has many years of experience in the field of enzyme technology, covering all steps from screening for novel enzymes from natural sources to the development of enzymes at the molecular level.

In addition, we offer screening our in-house enzyme libraries for the most suitable enzymatic solution for your particular reaction. Send us

your educts and we will find the best enzymes within shortest lead times. We have the facilities to develop biocatalytic processes up to kg scale (proof of concept). We are also open for joint research cooperations. Please contact us – we are looking forward to bringing your project to fruition!

- **Metagenomics:** we find new enzymes for your process.
- **Strain development:** we optimize protein expression and secretion for your target protein.
- **Process development:** we determine the best enzymes and process parameters for your biocatalytic step.

**„We tackle the challenges of the future by developing innovative technologies for sustainable chemistry and use of renewable resources.“**

Dr. Christian Leggewie **CSO**



2010

2011

on via  
drich

Enzyme production  
on m<sup>3</sup>-scale

2<sup>nd</sup> round of  
financing closed

Düsseldorf Entrepreneur Award for evocat

biocatalysis labs established (kg scale)

„If you need a good enzyme,  
we will find the best for you.“

Dr. Christian Leggewie **CSO**

## Technologies for Sustainable Chemistry

**Our technologies comprise methods for the identification of new enzymes by metagenomic screening, assay development and cloning techniques as well as the development of suitable production strains. We harbor extensive metagenomic libraries containing a large variety of enzyme variants, ready to screen for the desired activities.**

Our enzymes originate from deep sea habitats and other extreme environments, but also from chemically burdened soils or waste water. In these environments highly diverse organisms have evolved over time. They cope with a variety of unusual chemicals and environmental factors utilizing a large variety of enzymes only waiting to be technologically applied.

Once an enzyme is identified we have a complete toolbox ready to channel this enzyme into a successful production process on industrial scale. Working with suitable strains right from the start, we either adapt the enzyme itself at the molecular level or we alter the strain by methods of molecular biology.

One of our key technologies is the optimization of protein secretion in the GRAS-organism *Bacillus subtilis*. Our Chaperone technology that prevents inclusion bodies solves a major bottleneck problem in protein expression. Furthermore, we have a diverse set of different production strains for different types of target proteins. Our patented IVAC technology even lets us express multiple enzyme clusters in one step. Please contact us – we might have your solution already.

**Metagenomics**

**Enzyme Libraries**

**Tailor-made Enzyme Solutions**

**Process Development**

**Bulk Production**

Fine Chemicals

Sustainable Chemistry

Screening Assays

Biodiversity

Expression Technology

Industrial Biotechnology

Secretion Optimization

Chiral Molecules

Green Chemistry

Chaperone Technology

*Bacillus sp.*






*E. coli*

*Rhodobacter*

*Pichia*

„We are looking forward  
to your success!“



-  biosafety level 1 and 2 laboratories
-  in-house fermentation facilities
-  chemical laboratories up to kg scale
-  interdisciplinary team of scientists and engineers
-  enzyme production on industrial scales

**Further questions?**  
Contact us by e-mail or phone:

phone +49 211 - 1576095-0  
fax +49 211 - 1576095-9  
[info@evocatal.com](mailto:info@evocatal.com)  
[www.evocatal.com](http://www.evocatal.com)

 **evocat** GmbH  
Merowingerplatz 1a  
40225 Düsseldorf, Germany