

EXPLORING ENZYME INNOVATION



OUR MISSION

Solving your enzyme challenge

Deliver market-ready enzyme innovation

- Discover the right enzyme
- Assess enzyme performance
- Create superior enzymes by artificial intelligence

WHO WE ARE

We stand for enzyme passion

45+ years of cumulative expertise

- Biotech CRO, founded Mar 2020 in Nuth/NL
- 200 qm state-of-the-art lab
- 14 MSc/PhD level scientists (Mol. Biology to Biochemistry)
- > 1M EUR seed (private)
- Break-even exp. in 2023



AMINOVERSE PORTFOLIO

Enzyme innovation

1

Enzyme R&D Services “Solving enzyme challenges”

since 2020



2

Biocatalysts “World-first innovations”

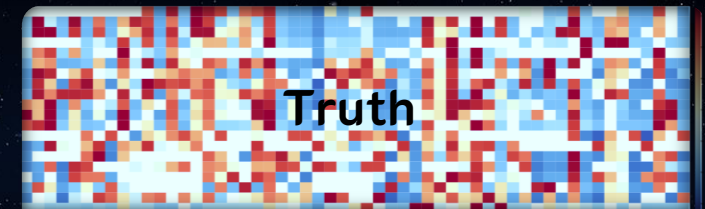
since 2021



3

NextGen Enzyme Engineering “EnzyMAP AI + EnzyREC AI”

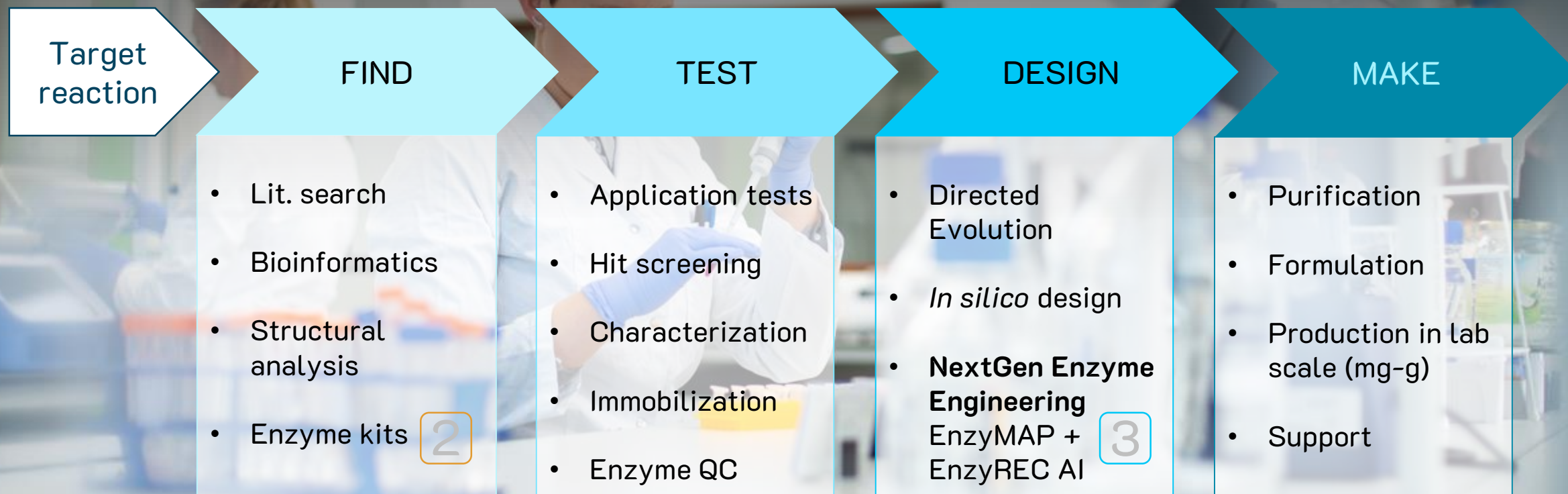
since 2022



Solving enzyme challenges



For companies & start-ups in industrial biotech and pharma



INDUSTRY FOCUS AREAS

We research enzymes...

in **Biocatalysis**
incl. cascades
and
metabolic pathways

- *Pharma*
- *Fine chemicals*
- *Biofuels*
- *F&F*

as an **Ingredient**
in a formulation

- Food & Nutrition
- Feed
- Home Care
- Diagnostics & NGS
- P&P
- CO₂ capture
- Recycling

1

Enzyme services



TRACK RECORD

More than 30 enzyme classes



- Proteases
- Lipases
- Phytases
- Amylases
- Esterases
- Cyclases
- Cellulases
- P450 Monooxygenases
- Unsp. Peroxygenases
- Cutinases
- Xylanases
- Isomaltases
- Sugar Isomerases
- Laccases
- Glucose Oxidases
- Pectinases
- Alcohol Dehydrogenases
- Imine Reductases
- Nitrilases
- Decarboxylases
- Aldolases
- Transaminases
- Aminotransferases
- Oxynitrilases
- Polymerases
- Lyases
- Methyltransferases
- Kinases
- Deiminases
- Hydantoinases
- Peroxidases
- Epoxygenases
- Dehalogenases
- Ene Reductases
- Cutinases
- α KG-dep. Oxygenases



OUR TOOLKIT

Solid wet lab skills



Expression Platforms

- *E. coli*
- *B. subtilis*
- *P. pastoris*

Assay platforms

- Agar plate (10k/day throughput)
- MTP (5-10k/week throughput)

Analytical chemistry

- GC
- HPLC
- LCMS



IN SILICO DESIGN

Cutting-edge computational biology

- Metagenomic databases
- Sequence-structure based discovery
- QM/MM simulations
- Solvent networks (Water/Organic solvent)
- Homology modeling
- Conservation and Hot Spot analysis





INTELLECTUAL PROPERTY

R&D - IP Handling

Enzyme provided by / searched for client

- Enzyme IP with client

Enzyme provided by Aminoverse

- Enzyme IP with Aminoverse
- Enzyme application IP with client

All know-how, methods, protocols, designs, models, analyses, algorithms, assays, tools, with regard to service implementation remain with Aminoverse.

YOUR ADVANTAGES

Success goes hand in hand with...

- **Excellence**
Experienced Master/PhD level scientists
- **Direct communication channel**
Always get someone on the phone
- **Project control**
Committed Deliverables, Milestones, and regular weekly updates

- **True fee-for-service**
with shared-risk models, always royalty-free
- **Personal commitment**
Research is our passion and delivering expected results the consequence
- **100% Tailor Made**
Fully flexible projects with modular/optional work packages, designed to fit every timeline and pipeline
- **Feasibility assessment**
Get a second opinion from our experts on your project

1
Enzyme services

PRODUCT INNOVATIONS

8 of Top10
Pharma Global

3 of Top10
F&F Global

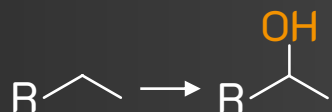
2
Biocatalysts

UPO Enzyme Panel

For pharma/CDMO companies using biocatalysis

44 Unspecific Peroxygenases for

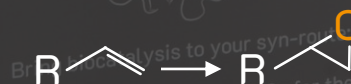
Hydroxylation



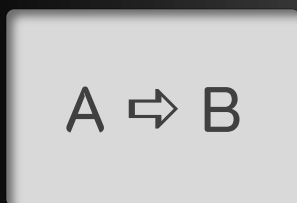
Ketone formation



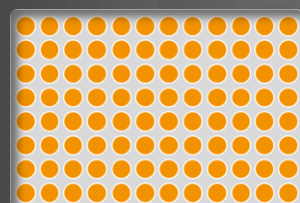
Epoxidation



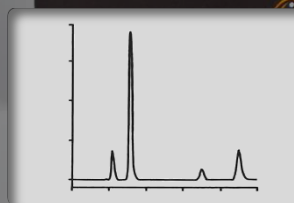
Dealkylation



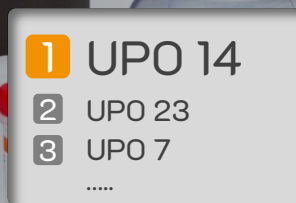
Reaction
identification



UPO screening
with enzyme panel



GC/HPLC/MS
analysis



UPO selection
(and evolution)

www.aminoverse.com/upo

bISY

AMINOVERSE
EXPLORING ENZYME INNOVATION

3

Artificial intelligence

NEXTGEN ENZYME EVOLUTION

Superior enzymes made from BEST mutations

Image recognition algorithm for enzyme screening data

Amino acid

Predicted Enzyme Performance

+1.5

↕ >90% accuracy

Enzyme performance

0.0

Amino acid

True Enzyme Performance

-1.5

Amino acid position



NEXTGEN ENZYME EVOLUTION

EnzyMAP AI features

3
Artificial intelligence



Accurate

EnzyMAP AI predicts ALL point mutants at >90% accuracy



Fast

80-85% reduced experimental workload and screening



Efficient

4x less data input required compared to state-of-the-art algorithms



Valuable

20x higher data/investment ratio compared to existing approaches like *In silico Design*



Affordable

Save 50-200k in R&D budget compared to other approaches

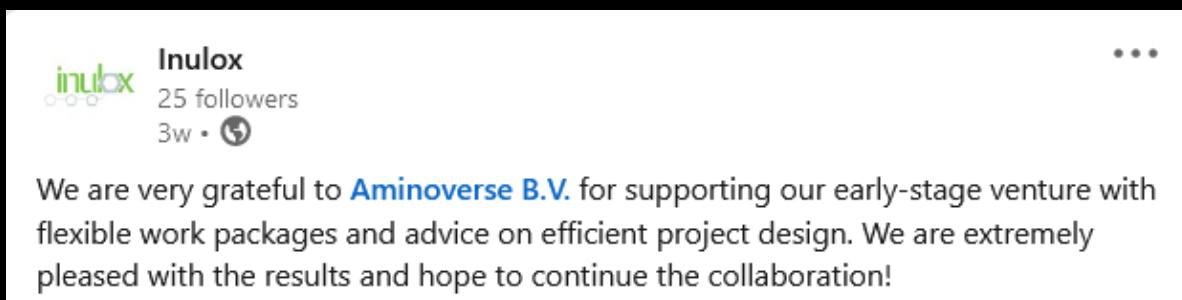


Superior

Superior enzyme performance by combining the **BEST hotspots** available

TESTIMONIALS

Leaving behind happy clients



The image shows a screenshot of a LinkedIn post from the company 'Inulox'. The post includes the company logo, name, follower count, and a testimonial text. The testimonial text expresses gratitude to Aminoverse B.V. for their support.

inulox Inulox
25 followers
3w • 🌐

We are very grateful to [Aminoverse B.V.](#) for supporting our early-stage venture with flexible work packages and advice on efficient project design. We are extremely pleased with the results and hope to continue the collaboration!

Flexibility - Advice - Results





WHAT WE STAND FOR

The final piece

We believe in lasting win-win situations.

We honor honest partnerships and open communication – from both sides.

We play the long game and want to be known as a solid and reliable partner that rather says ‘no’ to a project instead of promising unrealistic results.

We know where our limits are – and where we excel.

Ask us. Challenge us. Work with us.

ENZYME EXPERTISE ON DEMAND

Need an enzyme partner?

Reach out to start your enzyme project.

Mr. David Schönauer

CEO + Founder

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www.aminoverse.com

