

Radically new improved tools for every phase

1 Discovery
Upgraded screening tools for a faster process

To find a **suitable enzyme**, it is necessary to look into **thousands of samples**. In RadicalZ, we are developing **new tools** that will speed up this otherwise tedious and time-consuming process.

Droplet microfluidics

We will use **microfluidic chips** that allow enzyme analysis at **very high speeds** by using microdroplets.

Novel bio-based ingredients

Enzymes discovered using our novel tech will allow us to use **new raw materials**, such as **plant waste** for manufacturing antioxidants.

Tailored capsules

We will develop different **strategies to compartmentalise** enzymes and ingredients, thus **avoiding cross contamination** and extend their life.

2 Refinement
Machine learning for more accurate enzymes

In Radical Z, we develop **bioinformatic solutions** to optimize the enzymes discovered through the previous screening.

User-friendly software

We will create **intuitive it solutions** based on machine learning that can be used directly in the **market**.

Massive data

The **prediction models** will be trained with massive datasets of **protein structures**.

Protein engineering

Using **deep learning techniques**, the software will be able to **predict the best approaches** to modify the enzymes and make them more accurate.

3 Application
Testing in three use cases

To examine the new technologies developed in RadicalZ, we will develop three sustainable **consumer products** from newly discovered enzymes.

Nutraceuticals

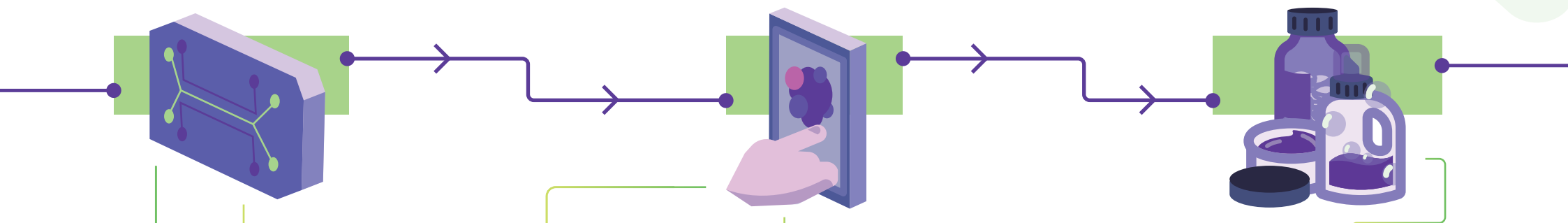
With the enzymes we will bio-synthesise **prebiotics** and glycosides that are used in nutraceuticals.

Laundry products

We will also use the engineered enzymes to produce **thickeners** for liquid detergents.

Cosmetics

We will also use new enzymes to create **sustainable moisturisers, antioxidants and fragrances** used in the cosmetic industry.



Enzymes for a more sustainable Europe

A project to push industry towards a bioeconomy



Nature-inspired processes

Enzymes are proteins that enable in all living organisms. They represent an **ecological alternative** to synthetic catalysts that are usually used in all types of industries to make consumer goods. In this project, we develop tools to facilitate the use of enzymes for **the use of enzymes**.



Enzymes for greater efficiency

Enzymes are specific for a reaction. That is why they are more accurate than the synthetic accelerants, **more affordable**, and produce **less waste**. But discovering new enzymes is tedious and expensive.



Novel tech for enzyme discovery and optimisation

We aim to deliver **innovative tools** to make the enzyme discovery process **faster, cheaper** and more accurate. These approaches will be tested through three use-cases: laundry products, cosmetics and nutraceuticals.



Towards a greener economy

Using enzymes in industrial processes that allow bio-based ingredients and environment-friendly consumer products will help the **European Union** achieve its **sustainability goals** and strengthen the bioeconomy.

Our project in numbers

4 
Years

8 
Countries

12 
Partners

6 
Million €
in funding

Consortium

EPFL



Sustainable Momentum
SUSTAINING CIRCULAR ECONOMY

UNIVERSITY OF
EXETER

INSA INSTITUT NATIONAL
DES SCIENCES
APPLIQUÉES
TULOUSE

bio-product
production

UNIVERSITÄT BREITENBURG
Wissen lokal. Seit 1409

AnalytiCon
discovery
The Natural Product Company

CHR. HANSEN
Improving food & health

UAM
Universidad Autónoma
de Madrid

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RADICALZ

Harnessing enzymes for greener products

