

# FuturEnzyme

## Technologies of the FUTURE for low-cost ENZYMES for environment-friendly products

Meeting #2

Madrid/online, 31 May – 1 June

General comments



Project funded by the European Union's Horizon 2020  
Research and Innovation Programme under grant agreement No [101000327]



# Agenda General Meeting

## Dinner at Picalagartos (Gran Vía, 21)



FuturEnzyme



FUTURENZYME



12-month GENERAL ASSEMBLY meeting (31<sup>st</sup> May - 1<sup>st</sup> June 2022)

Technologies of the Future for Low-Cost Enzymes for Environment-Friendly Products

On-line link:

<https://conectaha.csic.es/b/pat-1d3-guk-x6v>

### Agenda

#### Tuesday, 31<sup>st</sup> May

- 9:30-9:40 Welcome to the 12-month General Assembly meeting  
Manuel Ferrer (CSIC): Project Coordinator  
Patricia Molina (CSIC): Project Manager
- 9:40-10:00 FuturEnzyme: general resume on the activities along the first year of the project  
Manuel Ferrer (CSIC): FuturEnzyme Project Coordinator
- 10:00-10:15<sup>h</sup> CSIC as leader of WP1 and 9  
Manuel Ferrer
- 10:15-11:10<sup>h</sup> BSC as leader of WP2  
Victor Guallar
- 11:10-11:40 Coffee break
- 11:40-12:35<sup>h</sup> Bangor as leader of WP3  
Peter Golyshin
- 12:35-13:30<sup>h</sup> UHAM as leader of WP4  
Pablo Pérez
- 13:30-14:30 Lunch
- 14:30-15:00<sup>h</sup> FHNW as leader of WP5  
Patrick Shahgaldian, Philippo Corvini
- 15:00-15:45<sup>h</sup> ITB as leader of WP8  
Ilaria Re, Sara Daniotti
- 15:45-16:15<sup>h</sup> Gender, Rights and Ethical Task Force annual meeting  
Ilaria Re, Sara Daniotti, Manuel Ferrer
- 20:30 → Project dinner (Sky Bar & Restaurant Picalagartos, Gran Vía 21)

#### Wednesday, 1<sup>st</sup> June

- 09:30-10:00<sup>h</sup> Eucodis as leader of WP6  
Jan Modregger
- 10:00-10:30<sup>h</sup> CLUB as leader of WP7  
Markus Müller
- 10:30-11:00<sup>h</sup> Conclusions, remarks, and future meetings and events  
All, Manuel Ferrer, Patricia Molina
- 11:00-11:30 Coffee break
- 11:30-12:30<sup>h</sup> Exploitation and Innovation Task Force annual meeting  
Markus Müller and Manuel Ferrer





# The FuturEnzyme Consortium: the objective

- To establish **technologies** to develop **enzymes**:

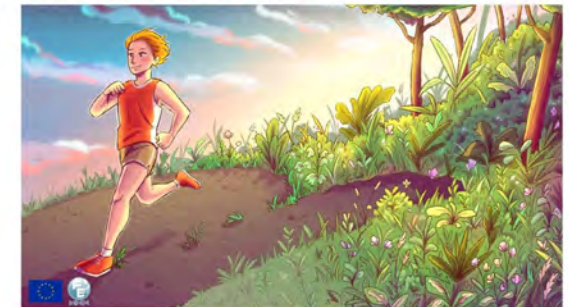
- Low-cost
- Exquisite proficiency and stability

- To improve real **consumer products**:

- Liquid detergents
- Textiles containing Elasthane
- Anti-aging hyaluronic acid cosmetics

- **Making them more:**

- Environmentally friendly
- Valuable
- Functional
- Sustainable





# The FuturEnzyme Consortium: the objective

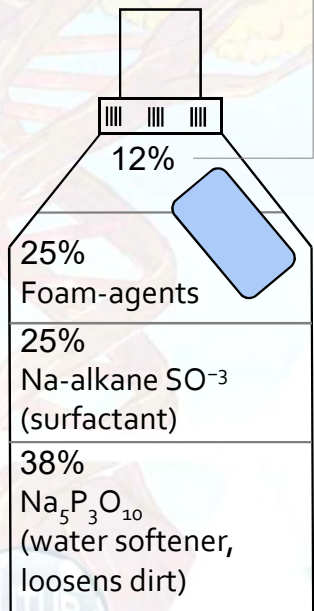
In short, the FuturEnzyme's ambition is the following:

- To develop “intelligent” enzymes that meet the characteristics of efficiency and stability required by industry. This will be achieved through a massive bio-prospecting of enzymes from microorganisms, including those from remote and inaccessible places, and their massive analysis with the help of supercomputers. A number of techniques will be applied to improve, both technically and economically, the performance and productivity of the best enzymes.
- Starting from 1000 pre-selected enzymes, the project will select 180 enzymes with validated manufacturer requirements, of which 18 will be engineered to obtain a 100-fold more effectiveness compared to the existing ones in the market. At the end, 9 enzymes with verified features will be developed to improve 3 consumer products already in the market: a liquid laundry detergent, a hyaluronic acid-based cosmetic cream and textiles.





# The FuturEnzyme ambition: detergent sector



## Enzyme (0.3-1.1%)

Na-alkane- $\text{COO}^{-}$  (soap)  
 $\text{NaBO}_3 \cdot 4\text{H}_2\text{O}$  (oxidising agent)  
Brighteners  
Perfume  
Dirt-suspending agents  
Etc.



Through integrating more efficient and stable enzymes to real-life liquid detergents, we have the ambition to ...

- Decrease the amount of chemicals in the original formulation
- Increase the % of low temperature washes (20-40°C) to save water & energy
- Opening market opportunities by producing stable enzyme formulations

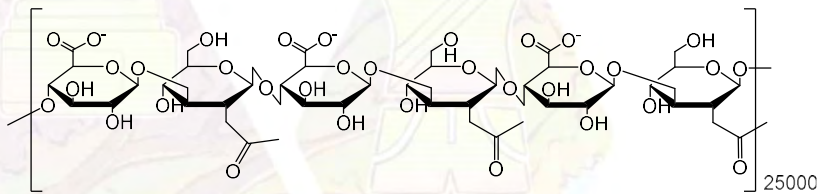
## Request ...

- The enzymes should be active against stubborn stains and stable under conditions relevant to the wash cycle and to storage





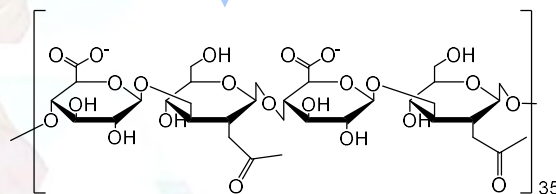
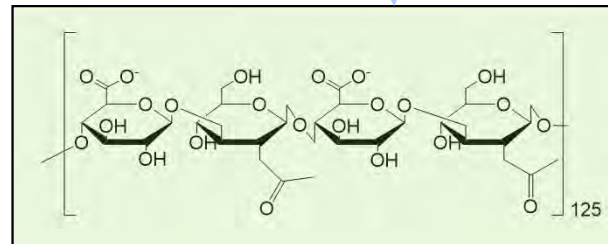
# The FuturEnzyme ambition: cosmetic sector



200 kDa hyaluronic acid

Limited biological anti-ageing activity: low penetration into the skin

Existing technologies like thermal degradation are unsuitable



5-15 kDa hyaluronic acid  
No anti-ageing activity



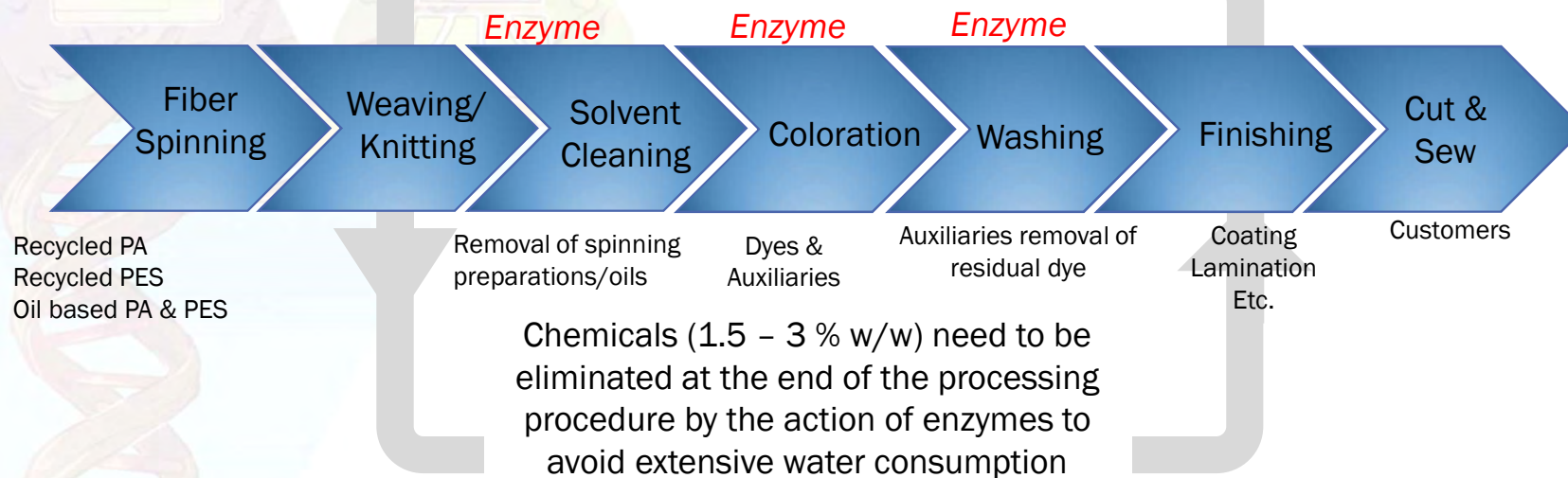
Through the application of more efficient and stable enzymes, we have the ambition to ...

- To generate, under mild conditions, hyaluronic acid with desired molecular weight and polydispersity
- Replace the chemical and thermal hydrolysis processes by a no solvent/waste enzymatic one
- Bring innovative functional characteristics



# The FuturEnzyme ambition: textile sector

## Man Made Fiber

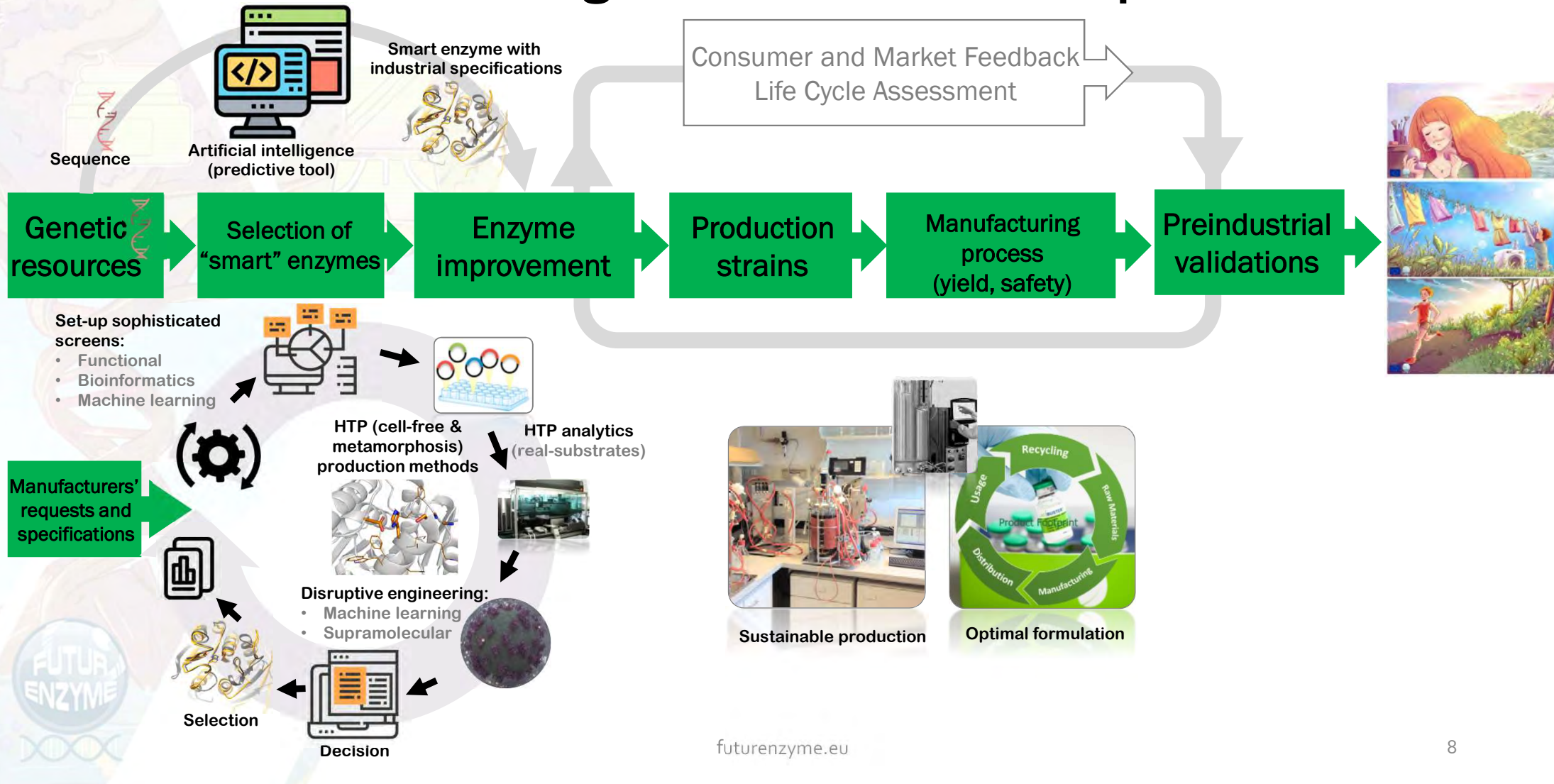


Through integrating more efficient and stable enzymes we have the ambition to...

- Improve the fabrics finishing process, eliminating correction cycles and bringing environmental benefits
- Bring innovative functional characteristics



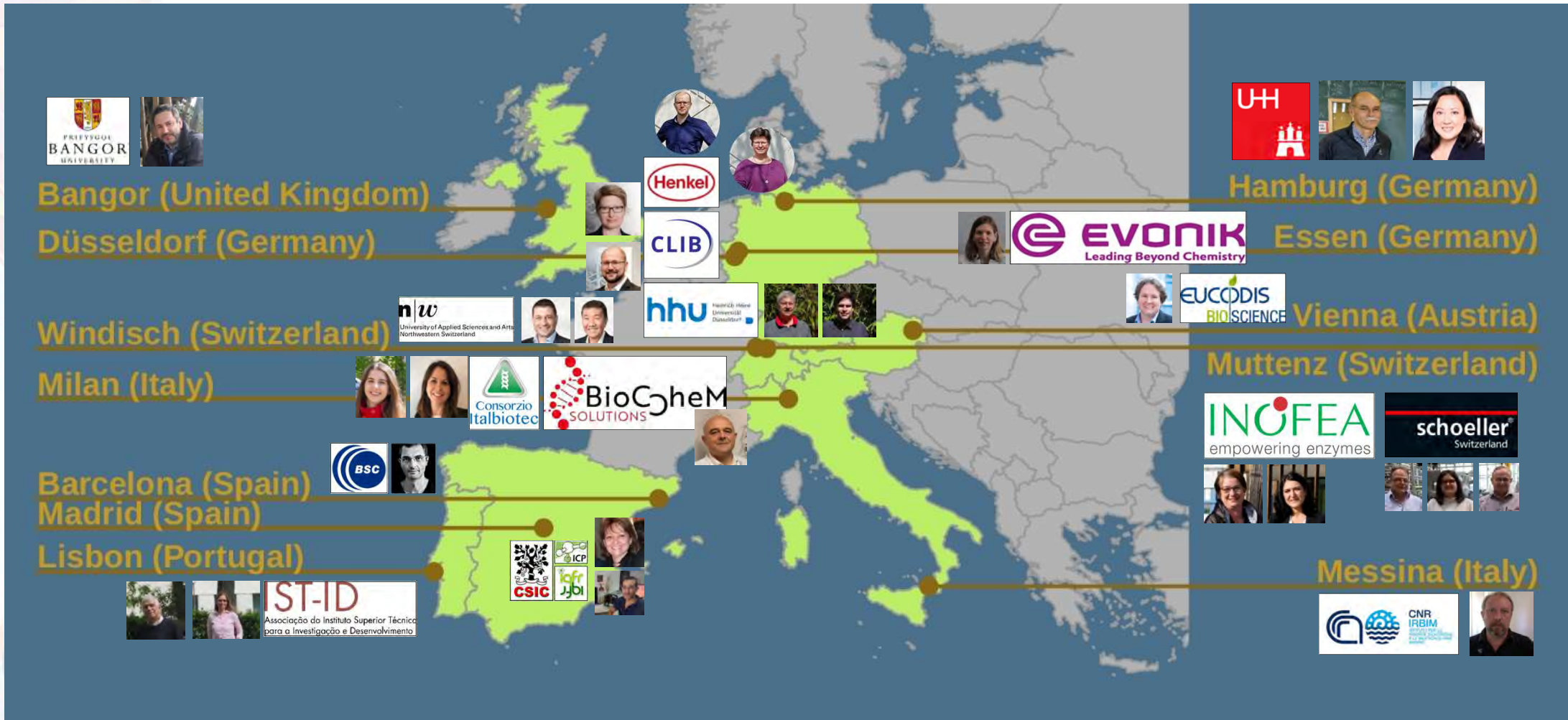
# The workflow: starting from real consumer products







# The FuturEnzyme partners



# General resume: major activities and outcomes to remark

## 1. Protocols and materials (WP2, by all partners)

- A total of 48 standardized protocols for functional screens have been defined and shared.
- A set of raw products (HENKEL, SCHOELLER, EVONIK) have been provided, shared and used for enzyme screening.

Sampling activity for obtaining new biological material

## 2. Bioprospecting of new enzymes (WP3 and WP4)

- By screening (computationally and experimentally) 1353 enzymes, 1387 isolates, 41 enrichment cultures, 197 microbial genomes, 28 metagenomic clone libraries, and 61 shotgun metagenome sequences, a total of 155 promising enzyme candidates have been identified and produced through a synergetic work by partners BSC, IST-ID, CSIC, Bangor, UDUS, UHAM, Bio\_Ch and CNR. Glycerol stocks have been produce to maintain all clones representing each enzyme, and they have QR barcoded.

## 3. Computing and engineering approaches for searching and promote enzyme performances (WP2 and WP5)

- A bioinformatics and computational pipeline has been established that allows in minute time to identify and engineer best enzymes.
- Genetic engineering of 1 best lipase relevant to detergent application, has started by BSC.
- Supramolecular engineering of 3 best lipases relevant to detergent application has started by INOFEA, FHNW, and EUCODIS.

# General resume: major activities and outcomes to remark

4. Formulation and manufacturing of enzymes and consumer' products (WP6 and WP7)
  - Materials for pre-industrial validations have been supplied to partners by HENKEL, EVONIK and SCHOELLER, namely:
    - Real-life hyaluronic acid (added to real-file cosmetics)
    - Real-life liquid detergents plus and minus enzymes
    - Real-life textiles/fabrics; this is key for pre-industrial validations
  - Commercial stained fabrics, suggested by HENKEL, have been ordered and are ready for activity tests and pre-industrial validations
  - An exhaustive patent and bibliographic search has been performed for the:
    - Production of hyaluronic acid for cosmetics: the sequences patented and published have been identified; the process conditions for producing and also hydrolyzing hyaluronic acid have been identified.
    - Use of enzymes in detergent compositions: the sequences patented and published were identified; the compositions of detergents and operational conditions have been identified
    - Use of enzymes in textile industry: the sequences patented and published were identified; the operational conditions for cleaning pretreatment, chall marks, bleaching process, surface functionalization, hydrophilicity, hydrophobicity, dyeing process, and cellulose fibers have been identified.
5. Tasks group meetings organized
6. CLIB, CSIC, and EUCODIS produced first draft of the Exploitation Plan



# General brainstorming

- Questions to answer during the annual meeting:
  1. At which stage the computational and bioinformatics pipeline for enzyme discovery are
  2. Whether we have found enzymes with interesting properties to focus on
    - The complete set of enzymes subjected to study should be all compiled
    - Set of 180 enzymes for experimental focus
    - The shortlist of at least 18 enzymes nominated for engineering
  3. To define the next steps for enzyme production, enzyme testing, enzyme formulation, validation steps, etc.
  4. To discuss about Life Cycle Assessments
  5. Whether the dissemination and communication actions are well implemented, and next actions
  6. To define specific collaborations to speed up the process from lab to industry
  7. Etc.

<b>Work package number <sup>9</sup></b>	WP1	<b>Lead beneficiary <sup>10</sup></b>	1 - CSIC
<b>Work package title</b>	Management and Coordination		
<b>Start month</b>	1	<b>End month</b>	48

#### Objectives

- Coordination, management of the project, research, development, IPR and innovation matters;
- Establishing synergies with other consortia coordinators and generate confidentiality legal documents;
- Steady contact with Commission representative(s);
- Organizing distribution of EC-funding and consultation Partners on financial and management issues;
- Preparation of the regular cost statements and progress reports and submit those to the Commission;
- Organizing, including pre-, post-processing, chairing and preparation of minutes and reports of regular Consortium/Project-related meetings (Consortium General Assembly, Executive Board, etc.); and
- Communication with, and organizing the evaluation and feedback of, the "Panel of External Scientific Advisors, Stakeholders, Policymakers and Consumers".

#### Description of work and role of partners

##### WP1 - Management and Coordination [Months: 1-48]

**CSIC, BSC, BANGOR, UHAM, UDUS, IST ID, CNR, ITB, FHNW, CLIB, INOFEA AG, Bio\_Ch, SCHOELLER, HENKEL, EVO, EUCODIS**

A full-time FuturEnzyme Project Manager will be incorporated at CSIC, whom will help in the effective Management and Coordination of the project.

##### Task 1.1 Technical, administrative and financial management M1-M48

Lead partner – CSIC

Participants: all partners

Within this Task multiple actions will be considered:

1. Set-up the infrastructure for coordinating the project. Assign a Project Manager and personnel, responsible for organizing the work processes and communication channels. The work processes entail implementation of procedures and forms for reporting to the EU, and standardizing the procedures and forms for internal project coordination.
2. Project meetings organization. During the first kick-off meeting, the different bodies within the project consortium will be established and all tasks will be adjusted. Any organisational/managerial moments/issues related to the project will be discussed. All other meetings will be held on regular basis every 6 months, as detailed in Section 3.2. CSIC will also be responsible for Agenda/Minutes preparation documents ensuring to keep the entire consortium competence and projects targets/issues updating.
3. Coordination and timely production of scientific, financial and administrative reports. All participants sign within the Grant agreement to deliver all above mentioned reports in time. In addition, WP leaders will ensure that all partners are compliant to the timelines and rules of reporting in order to edit, compile and publish the RTD reports of each relevant WP. A transparent accounting system will be set-up to provide overviews of the financial status, and assign funds in view of the actual planned work in line with the initial projections and the decisions of the board of directors.
4. Arranging reports and feedback from the "Panel of External Advisory Scientists, Stakeholders, Policymakers and Consumers".

##### Task 1.2 Confidentiality legal documents Inter-Consortia for establishing synergies M1-M48

Lead partner – CSIC

Participants: all partners

Confidentiality legal documents will create a transparent legal and policy framework in which to operate, exploit and disseminate synergies with other funded projects. Templates will be defined with coordinators of other proposals, that will be filled with the specific partner/consortia information and formally controlled by legal authorities. The final version will be produced before being signed by all authorized partners.

Partner number and short name	WP1 effort
1 - CSIC	35.00
2 - BSC	1.00
3 - BANGOR	1.00
4 - UHAM	1.00
5 - UDUS	1.00
6 - IST ID	1.00
7 - CNR	4.00
8 - ITB	2.00
9 - FHNW	1.00
10 - CLIB	2.00
11 - INOFEA AG	1.00
12 - Bio_Ch	1.00
13 - SCHOELLER	1.00
14 - HENKEL	1.00
15 - EVO	3.00
16 - EUCODIS	2.00
<b>Total</b>	<b>58.00</b>

#### List of deliverables

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D1.1	Project meetings and bodies organization plan	1 - CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	6
D1.2	Initial-term external evaluation reports	1 - CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	18
D1.3	Mid-term external evaluation reports	1 - CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	36
D1.4	Final external evaluation reports	1 - CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	48
D1.5	Confidentiality legal documents inter-consortia	1 - CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	24

## Financial statements

- The pre-financial payment (2 897 600,31€) was received by CSIC as Coordinator on June 18th. CSIC transferred to each partner (2 483 969,08 €) the corresponding money.



# Advisory Board

40

60



- The NDAs with the members of the Advisory Board mentioned in the original proposal have been prepared and signed

Board	Name	Address	NDA	
Scientific	Prof. Víctor de Lorenzo	Systems Biology Department, Centro Nacional de Biotecnología, CSIC C/ Darwin, 3 Madrid-Cantoblanco 28049, SPAIN Email: vdlorenzo@cnb.csic.es	Done and signed	Mentioned in the original proposal
Scientific	Prof. Daniele Daffonchio	Professor of Bioscience, Division of Biology, Environmental Science and Engineering, Bldg 2, Lev 3, Room 3236, KAUST, King Abdullah University of Science and Technology, 23955-6900, Thuwal, SAUDI ARABIA Email: Daniele.Daffonchio@kaust.edu.sa	Done and signed	Mentioned in the original proposal
Stakeholders	Dr. Jog Raj	PATENT CO DOO, Industrial site: Vlade Četkovića 1A, 24211 Mišićevo, SERBIA International Business Unit: Južni bulevar 83, 11000 Belgrade, SERBIA Email: jog.raj@patent-co.com	Done and signed	Mentioned in the original proposal
Stakeholders	Dr. Ksenia Niesel	BAYER AG Building G813 65926 Frankfurt, GERMANY Email: ksenia.niesel@bayer.com	Done and signed	Mentioned in the original proposal
Policymakers/ Consumers	Luisa Crisigiovanni	Altroconsumo - Associazione di Consumatori Italiana Via Valassina 22 20159, Milano, ITALY Group Service Manager European Fundraising Public Affairs and Media Relations Email: Luisa.Crisigiovanni@altroconsumo.it	Done and signed	Altroconsumo substitute CIESM

# Web page designer

- The NDAs with the web designer has been prepared and signed

## Confidentiality Statement

Ms. Virginia Osende Robert, (hereinafter "the Designer"), provided with Identification Number 50811560Y, is developing the website of the Project funded by the European Commission under "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" entitled "Technologies of the Future for Low-Cost Enzymes for Environment-Friendly Products", in short "FuturEnzyme", (Grant Agreement 101000327), which is being implemented by 16 Project Members, and coordinated by Agencia Estatal Consejo Superior de Investigaciones Científicas M.P. (CSIC).

The Designer acknowledges that in the scope of her function it is included the management of the website, including publicly accessible information as well as the website intranet, implying that the Designer shall receive from CSIC information owned by the FutureEnzyme Project Members (including CSIC), information that shall be uploaded to the website's intranet by the Designer and may have a confidential nature.

The Designer acknowledges that the preservation of confidentiality is essential for all of these Project Members, and **hereby declares** that:

- all information received from CSIC and owned by the Project Members in the scope of her function shall be considered as confidential;
- she is obliged to keep it secret and to take the necessary measures to ensure the confidentiality of said information, not to not disclose or disseminate it, in any form whatsoever; and
- she shall use such information only for the purpose of the correct management of the Project's website intranet.

The obligations under this statement shall extend during the Project duration and for a period of 4 years after the Project termination, and shall not apply when the Designer can demonstrate that:

- the information entered the public domain prior to its communication, through means different to an infringement of the present statement by the Designer; or
- the information should be disclosed pursuant to law or court or administrative order. In such a case, the Designer shall immediately notify to the Project Member such requirement so the Project Member may exercise any interim measures that may be available by law, and shall not disclose any further confidential information to that strictly requested by court or administrative order.

The Designer hereby confirms and signs this statement:

Ms Virginia Osende Robert

Madrid, October 11, 2021

*Virginia Osende Robert*

(1)

# Deliverables achieved: 19

Deliverable Number	Deliverable Title	WP number	Lead beneficiary	Type	Dissemination level	Due Date	Month/year
D3.1	Bio-resources prepared and exchanged	WP3	3-BANGOR	Other	Confidential, only for members of the consortium (including the Commission Services)	2	July 2021
D3.2	Standard assays, analytics and calculations for monitoring enzymatic performance	WP3	4-UHAM	Report	Confidential, only for members of the consortium (including the Commission Services)	2	July 2021
D8.1	FuturEnzyme website	WP8	1-CSIC	Websites, patents filling, etc.	Public	2	July 2021
D2.1	Manufacturers' needs and specifications: protocol	WP2	1-CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	3	August 2021
D4.1	QR barcoding system, available	WP4	1-CSIC	Other	Confidential, only for members of the consortium (including the Commission Services)	3	August 2021
D8.2	Visual identity guidelines	WP8	1-CSIC	Websites, patents filling, etc.	Public	3	August 2021
D8.3	Plan for using, communication and disseminating project information and knowledge	WP8	8-ITB	Report	Confidential, only for members of the consortium (including the Commission Services)	3	August 2021
D8.4	Data Management Plan	WP8	1-CSIC	ORDP: Open Research Data Pilot	Confidential, only for members of the consortium (including the Commission Services)	4	September 2021
D1.1	Project meetings and bodies organization plan	WP1	1-CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	6	November 2021
D2.2	Set of 250,000 sequences pre-selected	WP2	1-CSIC	Other	Confidential, only for members of the consortium (including the Commission Services)	6	November 2021
D8.5	FuturEnzyme repository for data storage and management	WP8	2-BSC	Websites, patents filling, etc.	Confidential, only for members of the consortium (including the Commission Services)	6	November 2021
D9.1	H - Requirement No. 1	WP9	1-CSIC	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	November 2021
D9.2	Specific sub-deliverables - Requirement No. 1 POPD - Requirement No. 2 Specific sub-deliverables - Requirement No. 2 NEC - Requirement No. 3				Confidential, only for members of the consortium (including the Commission Services)		November 2021
D9.3	Specific sub-deliverables - Requirement No. 3	WP9	1-CSIC	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	November 2021
D9.4	EPQ - Requirement No. 4 Specific sub-deliverables - Requirement No. 4	WP9	1-CSIC	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	November 2021
D3.3	Set of 100 best clones, 10 isolates, and 10 enzymes shortlisted for sequencing or transfer to WP2	WP3	6-IST ID	Other	Confidential, only for members of the consortium (including the Commission Services)	10	March 2022
D2.3	Set of 1,000 enzymes selected using motif screens	WP2	2-BSC	Other	Confidential, only for members of the consortium (including the Commission Services)	12	May 2022
D8.6	Preliminary exploitation plan	WP8	10-CLIB	Report	Confidential, only for members of the consortium (including the Commission Services)	12	May 2022
D8.7	FuturEnzyme project leaflet and brochure	WP8	8-ITB	Websites, patents filling, etc.	Public	12	May 2022



# Deliverables pending for this year: 10

Deliverable Number	Deliverable Title	WP number	Lead beneficiary	Type	Dissemination level	Due Date	Month/year
D2.4	Set of 180 enzymes for experimental focus	WP2	2-BSC	Other	Confidential, only for members of the consortium (including the Commission Services)	14	July 2022
D4.2	The FuturEnzyme Portfolio of 1,000 enzyme (recombinant/native/biomimetic) material, obtained	WP4	1-CSIC	Other	Confidential, only for members of the consortium (including the Commission Services)	16	September 2022
D4.3	Cell-free expression/ reported system, developed	WP4	4-UHAM	Other	Confidential, only for members of the consortium (including the Commission Services)	16	September 2022
D4.4	Biomimetic protease production system, developed	WP4	9-FHNW	Other	Confidential, only for members of the consortium (including the Commission Services)	16	September 2022
D1.2	Initial-term external evaluation reports	WP1	1-CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	18	November 2022
D3.4	Sequence, activity, and stability datasets from best positive bioresources	WP3	3-BANGOR	Data sets, microdata, etc.	Confidential, only for members of the consortium (including the Commission Services)	18	November 2022
D4.6	The metadata on expression yield, activity and stability, available	WP4	5-UDUS	Data sets, microdata, etc.	Confidential, only for members of the consortium (including the Commission Services)	18	November 2022
D4.7	At least 180 enzymes (recombinant, native, biomimetic) with attractive properties, available	WP4	1-CSIC	Other	Confidential, only for members of the consortium (including the Commission Services)	18	November 2022
D5.1	The shortlist of at least 18 enzymes nominated for engineering	WP5	1-CSIC	Report	Confidential, only for members of the consortium (including the Commission Services)	18	November 2022
D8.9	Report on public, intraconsortium, and interconsortia 18-months events	WP8	4-UHAM	Report	Confidential, only for members of the consortium (including the Commission Services)	18	November 2022

# Milestones achieved: 11

Milestone number	Milestone title	WP number	Lead beneficiary	Means of verification	Due Date	Month/year
MS1	First Consortium General Assembly convened	WP1	1-CSIC	Minutes approved, partners – this milestone will consist in the minutes and outcomes from the first general assembly, reviewed and approved by partners.	1	June 2021
MS29	First version FuturEnzyme website	WP8	1-CSIC	Website accessible online - this milestone will attest the completion of the first draft of the website to be made available to the consortium for its evaluation	1	June 2021
MS5	Set of 50,000 homology driven sequences pre-selected	WP2	1-CSIC	Report/sequences available - this milestone will consist in a fasta file containing 50,000 full-length candidate sequences encoding enzymes relevant to FuturEnzyme. The fasta file will be deposited in the FuturEnzyme internal repository	3	August 2021
MS30	First version database for data management completed	WP8	1-CSIC	Tool available to consortium - this milestone will attest the completion of the first draft of the FuturEnzyme internal repository to be made available to the consortium for its evaluation	4	September 2021
MS6	Set of 500 computational driven sequences selected	WP2	2-BSC	Report/sequences available - this milestone will consist in a fasta file containing 500 full-length candidate sequences encoding enzymes relevant to FuturEnzyme with high probability to fulfill manufacturer' specifications based on computational predictions. The fasta file will be deposited in the FuturEnzyme internal repository	6	November 2021
MS9	First round of functional screens completed	WP3	6-IST ID	Materials available – this milestone will attest the realisation of the first screens of available bio-resources.	6	November 2021
MS10	First round of sequencing completed	WP3	3-BANGOR	Data available – this milestone will attest to the realisation of the sequencing of the first selected bioresources found to be positive in the screen tests.	6	November 2021
MS12	First set of 250 enzymes expressed at mg scale	WP4	1-CSIC	Report/material available – this milestone will attest the realisation of the first production batches for 250 enzymes	10	March 2022
MS13	First set of benchmark enzyme materials available	WP4	1-CSIC	Report/material available – this milestone will attest the realisation of the first production batches of benchmark enzyme materials.	10	March 2022
MS11	The first sampling campaign completed	WP3	7-CNR	Sites data, samples available - this milestone will attest completion of campaigns for sampling new bio-resources with information about sample sites available	12	May 2022
MS14	Characteristics, first 180 enzymes (WP2-top ones)	WP4	5-UDUS	Data available – this milestone will attest the realisation and availability of the characteristics of the 180 enzymes selected as priority targets	12	May 2022

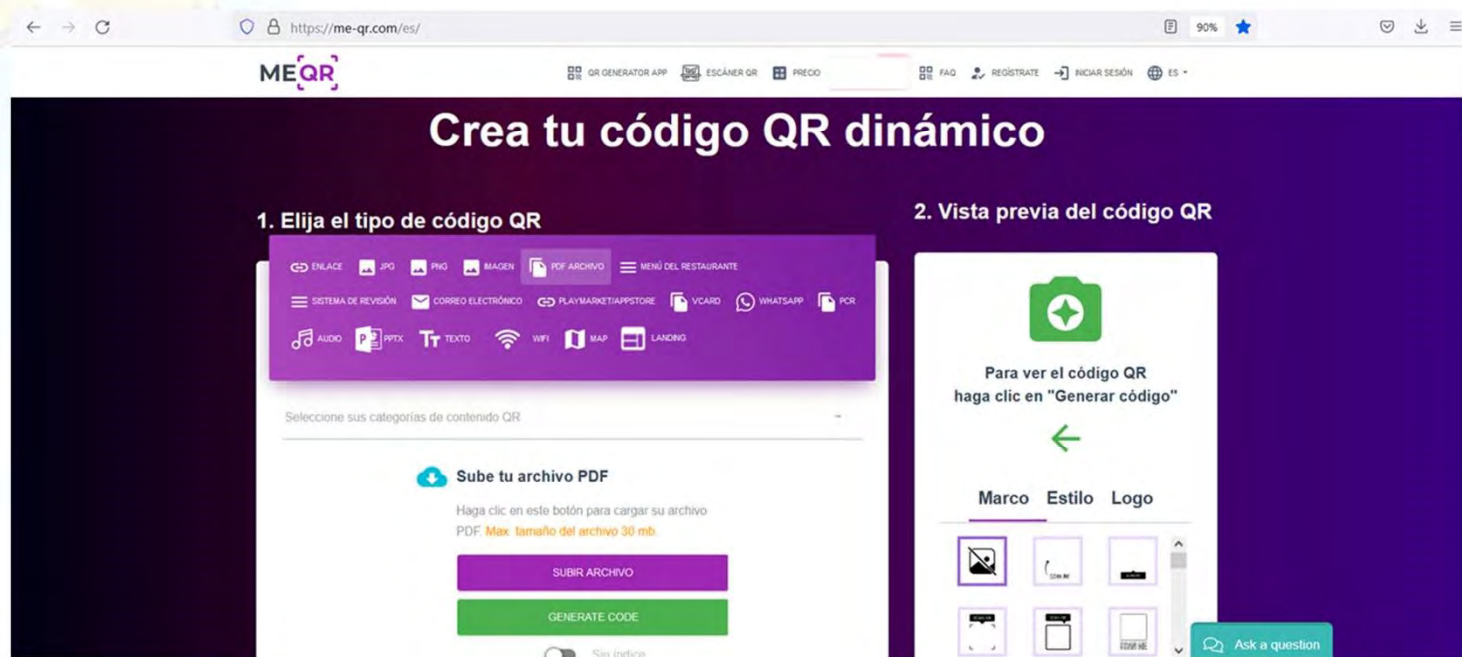
# Milestones pending for this year: 4

Milestone number	Milestone title	WP number	Lead beneficiary	Means of verification	Due Date	Month/year
MS15	Characteristics, first 3 multienzyme blends	WP4	1-CSIC	Data available – this milestone will attest the realisation and availability of the production systems and characteristics of the 3 first multi-enzyme blends containing multiple enzymes	16	September 2022
MS16	Genetic engineering: first round completed	WP5	2-BSC	Report/material available – this milestone will attest the realisation of the first genetic engineering tests	16	September 2022
MS17	Supramolecular engineering: first round completed	WP5	9-FHNW	Report/material available – this milestone will attest the realisation of the first supramolecular (nanoimmobilisation) engineering tests.	18	November 2022
MS18	First set of PluriZymes 2	WP5	2-BSC	Report/material available – this milestone will attest the realisation of the first sets of PluriZymes	18	November 2022



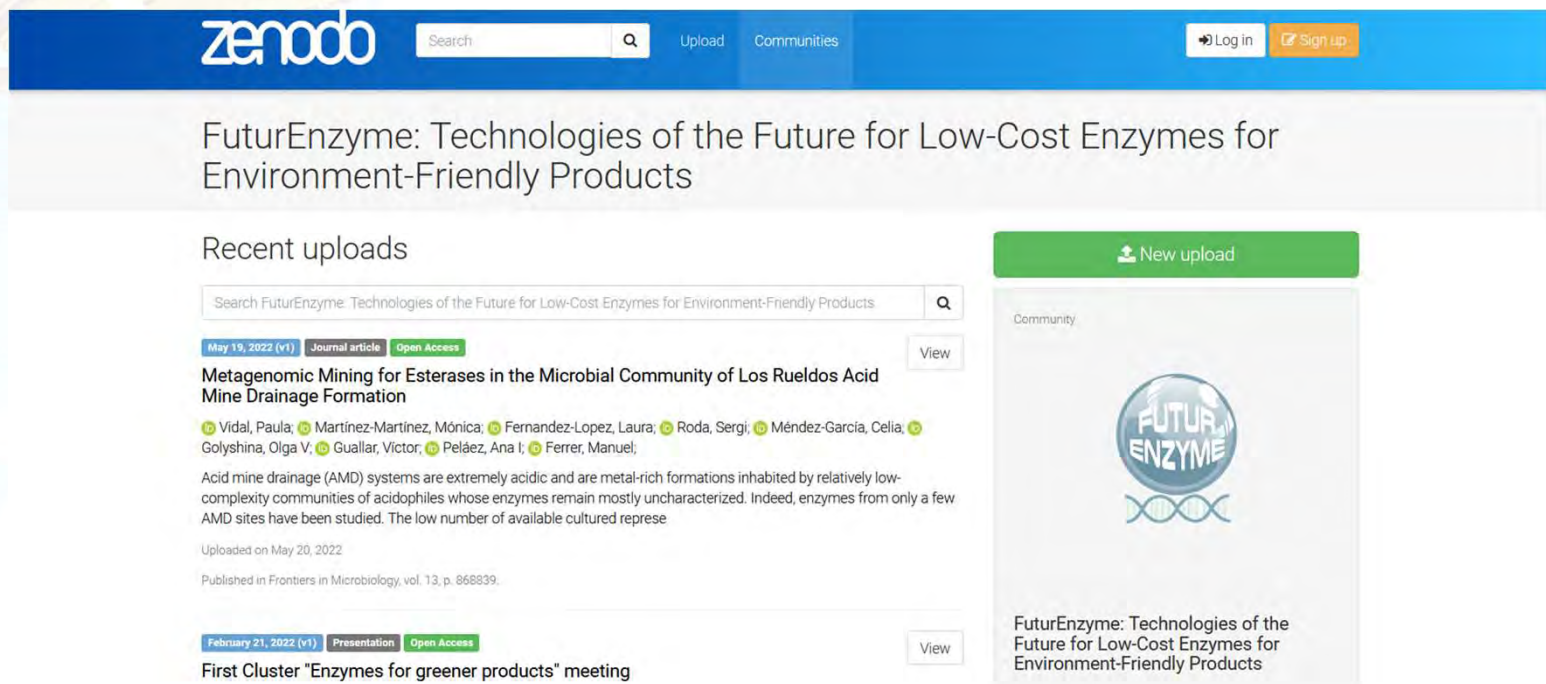
# QR codes

- Use QR codes for the enzymes/microorganisms with potential, and send me the info to add them to the bioresources
- This web created dynamic QR codes, so the pdf attached can be updated at any time
- There is a document with detailed instructions in case you need it



# Publications

- Send abstracts in **early stages** of publication (Consortium Agreement (article 8.4.2.1) and Grant Agreement (article 29.1))
- When published, upload them to our **Zenodo Community**. Importance also of **Open Access datasets** (datasets are expected to be FAIR (<https://www.go-fair.org/fair-principles/>): as open as possible, as closed as necessary))



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## FuturEnzyme: Technologies of the Future for Low-Cost Enzymes for Environment-Friendly Products

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May 19, 2022 (v1) Journal article Open Access View

#### Metagenomic Mining for Esterases in the Microbial Community of Los Ruedos Acid Mine Drainage Formation

Vidal, Paula; Martínez-Martínez, Mónica; Fernández-López, Laura; Roda, Sergi; Méndez-García, Celia; Golyshina, Olga V.; Guallar, Víctor; Peláez, Ana I.; Ferrer, Manuel

Acid mine drainage (AMD) systems are extremely acidic and are metal-rich formations inhabited by relatively low-complexity communities of acidophiles whose enzymes remain mostly uncharacterized. Indeed, enzymes from only a few AMD sites have been studied. The low number of available cultured represe

Uploaded on May 20, 2022

Published in Frontiers in Microbiology, vol. 13, p. 868939.

February 21, 2022 (v1) Presentation Open Access View

#### First Cluster "Enzymes for greener products" meeting

New upload

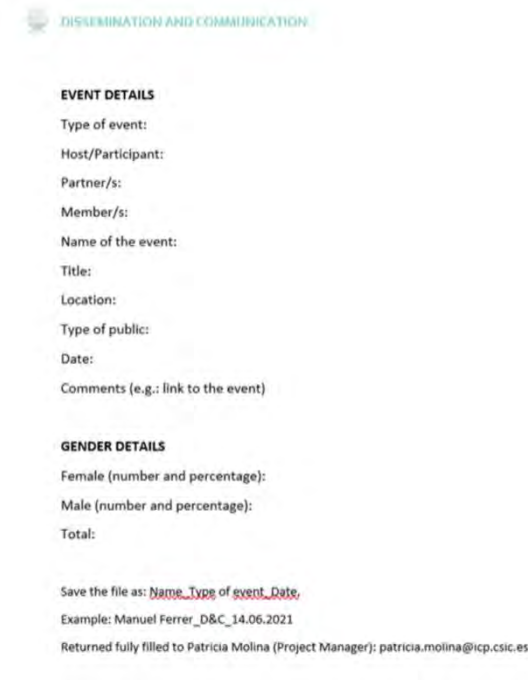
Community

FUTUR ENZYME

FuturEnzyme: Technologies of the Future for Low-Cost Enzymes for Environment-Friendly Products

# Events

- Send events anyone participates on. Divulgative, specialized, etc. Use the template in the intranet. Important for the project reach and for gender dimension



DISSEMINATION AND COMMUNICATION

**EVENT DETAILS**

Type of event:  
Host/Participant:  
Partner/s:  
Member/s:  
Name of the event:  
Title:  
Location:  
Type of public:  
Date:  
Comments (e.g.: link to the event)

**GENDER DETAILS**

Female (number and percentage):  
Male (number and percentage):  
Total:

Save the file as: Name\_Type of event\_Date.  
Example: Manuel Ferrer\_D&C\_14.06.2021  
Returned fully filled to Patricia Molina (Project Manager); patricia.molina@icp.csic.es

## FuturEnzyme events

- Online webinar “Enzymes for more environment-friendly consumer products”. Before 15<sup>th</sup> July
- The plan can be 2 talks of around 1 hour
- Who will lecture? Volunteers now, or let me know before next Monday 6<sup>th</sup> June
- Registration, organisation, and advertising by CLIB and ITB

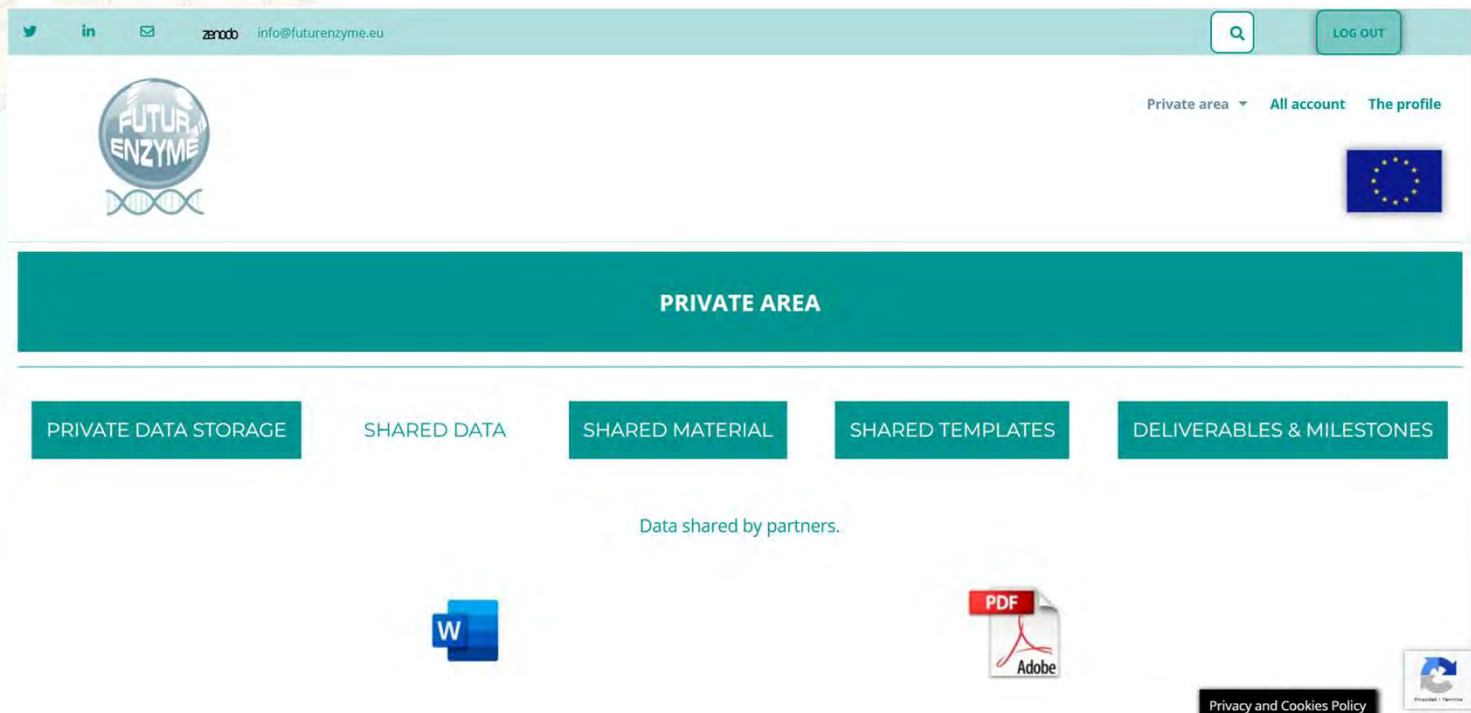


# Ethics

- The need to have all documents confirming that sampling is accepted by country and send to project manager the corresponding document proven it.

# Intranet

- Use the intranet when needed. We can upload results, documents, anything of importance that we think might be of **relevance for others** in the consortium
- Intranet has documents, visual identities, templates...



# Deliverables & Milestones



## Lead

Each **Deliverable/Milestone leader** has to be aware of the **due date**, and is responsible for **gathering the information** from the other partners involved. This information is finally sent to the Coordinator and Project Manager



## Deliverables

Deliverables are **uploaded to the EU portal** by the Coordinator/Project Manager. The document that has to be uploaded follows the corresponding word **template**, available in the **website's intranet**



## Milestones

Milestones are **ticked in the EU portal**. There is no need to upload any document, but we prepare a word file following the Deliverables template to keep track of the process of the achievement.



## Help

Whenever is needed, ask the Coordinator and/or Project Manager for help.



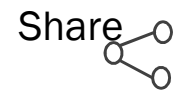
# Reach

Promote our project as you wish. For instance, by institutional web advertising and social media interacting

Send



Comment



Recommend



FuturEnzyme  
website



# Reporting period

- Communicate the Coordinator **any question** that should be transferred to Project Officer (Colombe WARIN) before the reporting period, preferably **by September-October 2022**

# Next meetings

## General Assembly\*

## Executive Committee

2022

18-months

📅 November  
📍 Online

2023

24-months

📅 July  
📍 Hamburg, Germany  
In the frame of ESSIB

30-months

📅 November  
📍 Online

2024

36-months

📅 June  
📍 Düsseldorf, Germany  
In the frame of the Workshop on RRI issues or biotech/bioeconomy conference

42-months

📅 November  
📍 Online

2025

48-months

📅 April  
📍 Madrid, Spain

\*Including Exploitation and Innovation Task Force and Gender, Rights and Ethical Task Force