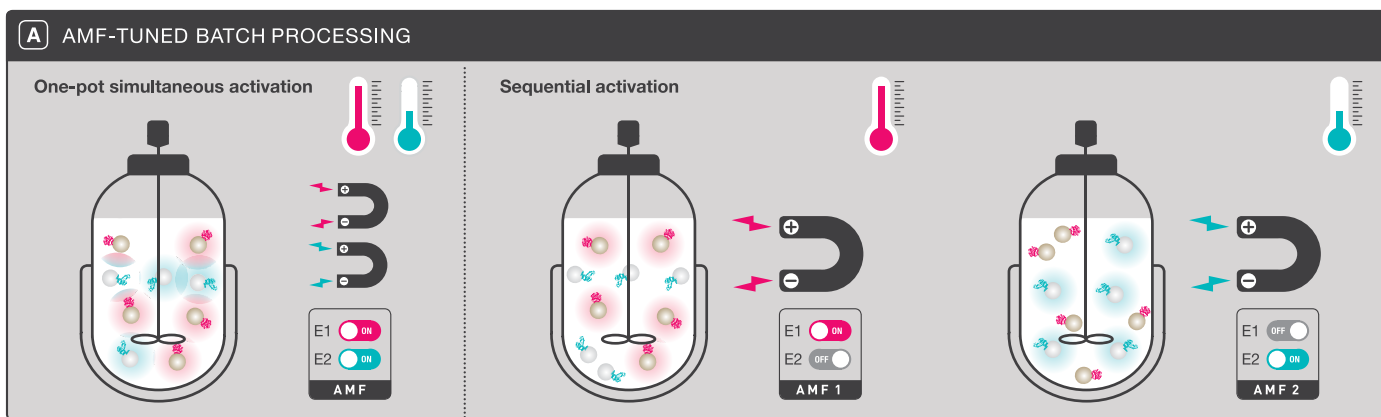
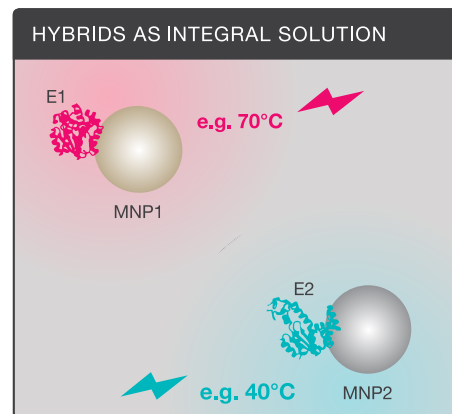
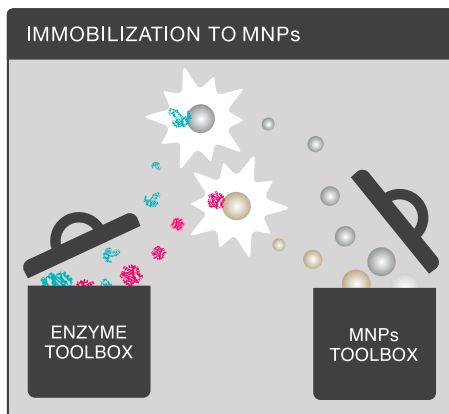
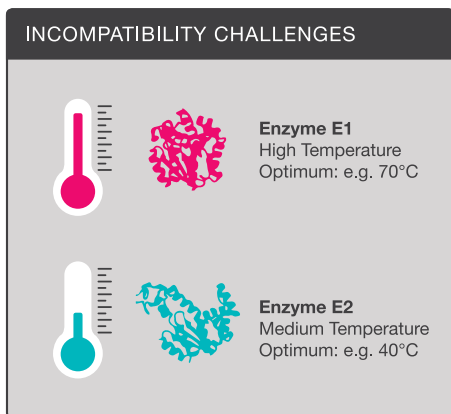


Welcome to our third newsletter of the H2020-FETOPEN project HOTZYMES.

In 2021, the Corona pandemic still made it impossible to travel and exchange new ideas and insights in the fascinating field of biocatalysis in person.

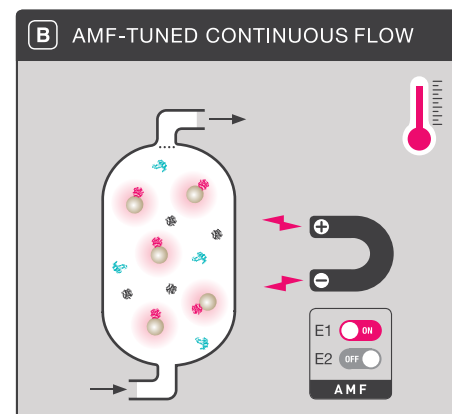
Still, the HOTZYMES consortium managed to be very active in the participation and organization of online events and workshops and published promising results in various papers and magazines. Therefore, we are happy to present selected highlights and upcoming events within HOTZYMES.



HOTZYMES aims to enhance the biotechnological production of pharmaceutical and biocommodities. The use of multi-enzymatic processes is considered a promising biomanufacturing platform, although several challenges need to be solved – from cross reactivity found in enzyme cascades over enzyme inactivation or inhibition at unsuitable temperature to finding the optimal reaction conditions.

Indeed, the Consortium has been able to demonstrate the feasibility of HOTZYMES's main hypothesis of triggering multiple hotspots within the same vessel without raising the global temperature of the media by using magnetic particles with different magnetic heating properties under the application of an Alternating Magnetic Field (AMF). This proof of concept was published in Nanoletters having been highlighted as Frontcover after having patented the supporting results (Nano Lett. 2021, 21, 17, 7213–7220]. In addition to show the simultaneous generation of hotspots with different local temperatures using the same AMF, it was also shown the feasibility of a sequential activation of hotspots using different alternate AMF conditions.

Both concepts are being currently used by consortium members to gain simultaneous or sequential control over model multienzymatic cascades of industrial interest. To meet this technological break-through, a new generation of magnetic bio- reactors specific to the field of biocatalysis is also being designed and tested.



Further information on www.hotzymes.eu



HOTZYMES AT EIC INNOVATION TRAINING WORKSHOP

HOTZYMES partners from CSIC-ICMM, CSIC-ICMA and nB were followed the invitation of the European Innovation Council Business Acceleration Services and attended the 7th and 8th editions of the EIC Innovation Training Workshop. The two-day virtual workshop was the first workshop for HOTZYMES and offered not only concrete business tools through interactive sessions but also brought very interesting people together. This was a great support for research.

SECOND ANNUAL MEETING

On 16th of March 2021 the second annual meeting of the HOTZYMES consortium, which consists of 7 partners from 4 different European countries, was held online due to the circumstances of the COVID-19 pandemic. Scientific results, the participation in online conferences to spread the word and measures in dissemination and exploitation in order to get in touch with potential industry partners and interesting people from science were discussed. And everyone hoped, that the next meeting will be held in person - so that all the partners can meet again!

STAKEHOLDER WEBINAR

On 18th January 2022 the first HOTZYMES Stakeholder Webinar “Enzymatic cascades in well-coordinated one-pot systems” was held. HOTZYMES consortium members showed the suitability of magnetic nanoparticles for biocatalytic cascades and presented latest development steps of an AMF bioreactor. Furthermore, application fields of this novel and groundbreaking technology were introduced.

VIDEO ON ENZYMATIC CELLOBIOSE PRODUCTION IN ONE POT

Bioprocesses with multi-enzymatic cascades are challenging. The HOTZYMES project provides a solution by coupling enzymes to magnetic nanoparticles and applying an alternate magnetic field. Anisha Vyas from HOTZYMES partner Graz University of Technology explains in the video below – made by HOTZYMES partner acib – how sucrose can be converted to cellobiose with the help of the technology developed within HOTZYMES.

Link to the video:

<https://www.youtube.com/watch?v=YjmhS-QQa70>



HOTZYMES consortium member Bernd Nidetzky, Professor at the Institute for Biotechnology and Biochemical Engineering at Graz University of Technology and CSO of acib GmbH, both partners from HOTZYMES, was honored with the Elmer L. Gaden Award - assigned by the renowned trade journal "Biotechnology and Bioengineering." The prize was named after Elmer L. Gaden Jr., described as the "father of biochemical engineering". Bernd Nidetzky is only one of four Europeans who got the prize since its foundation more than 20 years ago.



CONFERENCES & EVENTS



LATINX CHEM2021

HOTZYMES coordinator Valeria Grazú from CSIC joined the jury of the virtual forum Latinx Chem in the category LX-chemBio in September 2021. This virtual forum brings Latin American chemists, located anywhere in the world, together so they can share and discuss their research results and advances.

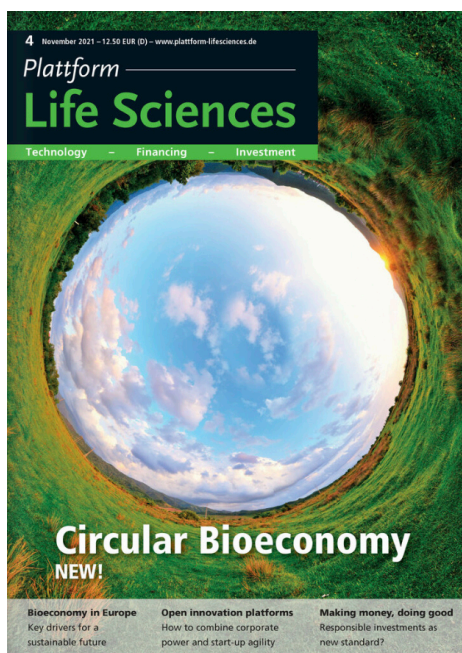
BIOTRANS CONFERENCE 2021

Eduardo Macedo de Melo from HOTZYMES partner Forschungszentrum Jülich presented the poster „An approach for temporal regulation of one-pot multienzymatic cascades by local magnetic heating” at the International Symposium on Biocatalysis and Biotransformations (Biotrans 2021) that was hosted as an online conference by University of Graz between July 19-22.



MECP2020+1

Between 13-16th September 2021, the 5th MULTISTEP ENZYME CATALYZED PROCESSES CONFERENCE (MECP2020+1), organized by HOTZYMES partner Forschungszentrum Jülich, took place as an online format. With more than 100 participants from 18 countries, partners spent four wonderful days of oral and poster presentations - with great feedback from the participants. One session was dedicated to the regulation of enzymes in cascades and was opened by our HOTZYMES coordinator, Valeria Grazú from CSIC with an exciting talk.



HOTZYMES FEATURED IN PLATTFORM LIFE SCIENCES MAGAZINE

HOTZYMES was featured in the Plattform Life Sciences Magazine under the thread “Circular Bioeconomy”. If you want to know, how HOTZYMES is contributing to modernize catalytic processes to enable novel products in areas such as food and feed and the pharma industry, you can read the article (pages 34 and 35) under the link below.

Link to the publication:

https://www.goingpublic.de/wp-content/uploads/epaper/2021_4_LS/#0



HOTZYMES PUBLICATION IN NANO LETTERS

An article about the HOTZYMES publication with the title “Selective Magnetic Nanoheating: Combining Iron Oxide Nanoparticles for Multi-Hot-Spot Induction and Sequential Regulation” written by Jesus G. Ovejero, Ilaria Armenia, David Serantes, Sabino Veintemillas-Verdaguer, Nicoll Zeballos, Fernando López-Gallego, Cordula Grüttner, Jesús M. de la Fuente, María del Puerto Morales and Valeria Grazu was published in the trade magazine Nanoletters and also was chosen as a front cover.

Link to the publication:

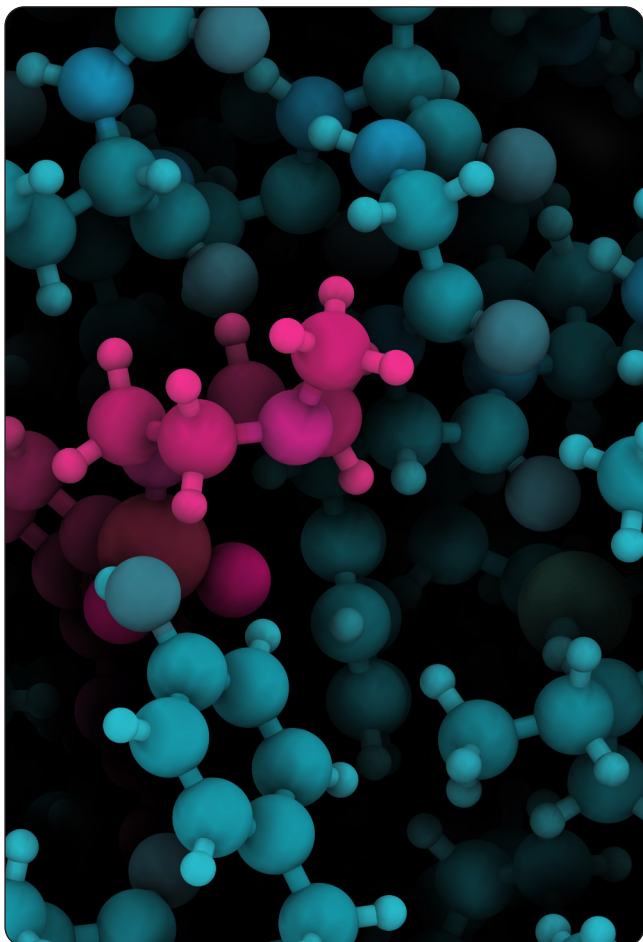
<https://pubs.acs.org/doi/abs/10.1021/acs.nanolett.1c02178>



HOTZYMES @ ZENODO

Since these are only a few selected publications, you can visit our Zenodo#HOTZYMES community to find all our publications derived from our project here:

<https://zenodo.org/communities/hotzymes/about>



FINAL HOTZYMES CONFERENCE

At the project end, the HOTZYMES team will organize a final conference dedicated to biocatalytic cascadic systems on 19th September 2022 in Graz, Austria. acib will host the event together with their key researcher, Prof. Wolfgang Kroutil from University of Graz, who has a long-lasting experience in biocatalysis.

Registration will open in late spring!

ESAB WEBINARS

Use the opportunity to participate in webinars organized by the European Society of Applied Biocatalysis (ESAB). ESAB is chaired by our Expert Advisory Board (EAB) member Prof. Dr. Roland Wohlgemuth.

Check the list of upcoming webinars at:
www.esabweb.org

More Info & News

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HOTNEWS Editorial Team:

Coordinator: Valeria Grazú, ICMA-CSIC; **Newsletter-Text:** Martin Walpot and Katrin Weinhandl, acib GmbH; Dörte Rother, Forschungszentrum Jülich; **Layout:** Dietmar Cseh, acib GmbH; **Pictures:** HOTZYMES; **Contact:** vgrazu@unizar.es; **Copyright by** HOTZYMES 2022



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