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2022 MARCH NEWS



[Donate to Displacement Fund](#)

In response to the current events unfolding in the Ukraine, the IUBMB is offering [Relocation Support for Displaced Trainees](#). The IUBMB will support graduate students and postdoctoral fellows displaced from their labs because of natural disasters, war, or other events beyond their control that interrupt their training. Funds will be provided to relocate to another laboratory in the IUBMB region to continue their training in the biomolecular sciences. The trainee should identify the host lab and use the IUBMB funds to relocate.

See the [list of Life Scientists by EMBO](#) offering to host Ukrainian researchers in their labs.

Applications will be reviewed upon receipt with a decision within a week. Please review the [guidelines](#) before you [apply](#).

CONGRATULATIONS



IUBMB TRAINEE INITIATIVE

Join us to learn about protein structure prediction & design!

David Baker, PhD

The Coming of Age of De Novo Protein Design



Brian Koepnick, PhD

Applying Foldit to help stop COVID-19



Dr. Baker will tell you about his latest work designing novel proteins and Dr. Koepnick will discuss how **you** can get in the game! Literally! With the protein-folding game **Foldit**, which is both fun and functional!



FREE webinar March 30th 9:30am-11:15am PST

 **register now!** <https://tinyurl.com/register-proteindesign>

protein structure image is a Foldit structure: Koepnick...Baker, Nature, 2019



The IUBMB Trainee Initiative is excited to [announce their first event](#): an online webinar about protein design, including a talk from Prof. David Baker and Dr. Brian Koepnick!

REGISTER NOW

UPCOMING IUBMB DEADLINES



There's still time to submit an [abstract](#) and [register](#) by March 10 for an early bird discount to attend IUBMB-FEBS-PABMB Congress 2022!



Open Call for host institutions for FEBS-IUBMB-ENABLE Conferences in 2024

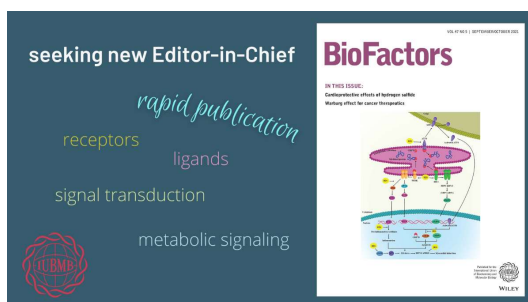
The FEBS-IUBMB-ENABLE Conference is a 3-day international and interdisciplinary winter event for PhD students and postdocs, hosted at a different research institute each year.

The FEBS-IUBMB-ENABLE are now inviting applications from academic institutions (either a university or a research institution) to host the November 2024 conference in any country with an IUBMB Adhering or Associate Adhering Body (except those allowed in 2023). We are looking for academic institutions with a strong research background in molecular life sciences and an active PhD community. This event will be organized by a committee of young researchers belonging to the 5 ENABLE institutions. It will be organized following the standards and structure of the [previous ENABLE events](#). FEBS and IUBMB will fund the event up to a sum of €65,000.

Deadline for Applications

MAR 31: host the 2024 event to any country with an [IUBMB Adhering or Associate Adhering Body](#), except those allowed in 2023

For more information, visit: <https://bit.ly/3w932GN>



IUBMB is seeking a New Editor-in-Chief for BioFactors, a "rapid publication" journal devoted to signal transduction, metabolic signaling, receptors, and ligands.

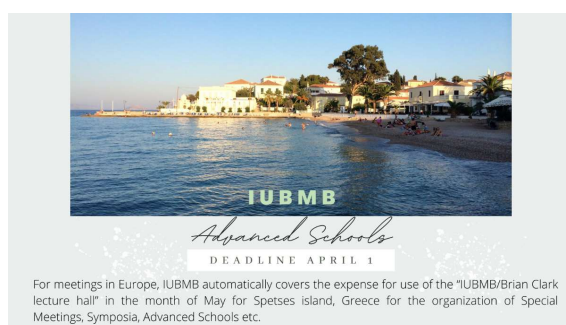
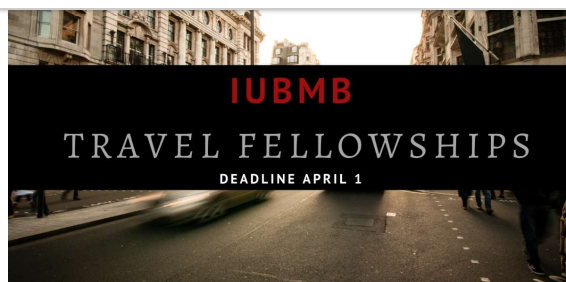
Deadline extended to March 31st. Info: bit.ly/Sy6bzLV

IUBMB FELLOWSHIPS

- Wood-Whelan
- Mid-Career
- Tang Education

Deadline April 1





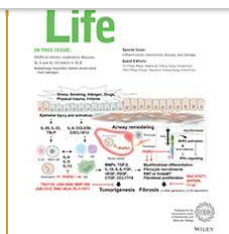
BRI-FING FROM THE BENCH



Celebrate The International Day for Women and Girls in Science with "[some Fabulous female biochemists: A few of my favorite](#)"



IUBMB JOURNALS



New Issue: Volume 74, Issue 2

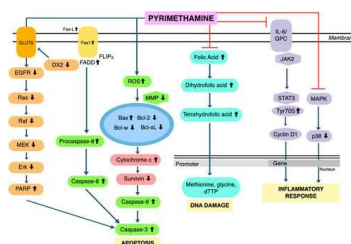
Issue Highlights

- [The multifaceted antineoplastic role of pyrimethamine against human malignancies](#)

By Shanaya Ramchandani, Chakrabhavi Dhananjaya Mohan, Jenaifer Rustom Mistry, Qi Su, Irum Naz, Kanchugarakoppal S. Rangappa, Kwang Seok Ahn

First published: 18 December 2021

Cancer accounted for nearly 10 million deaths in 2020 and is the second leading cause of death worldwide. The chemotherapeutic agents that are in clinical practice possess a broad range of severe adverse effects towards vital organs which emphasizes the importance of the discovery of new therapeutic agents or repurposing of existing drugs for the treatment of human cancers. Pyrimethamine is an antiparasitic drug used for the treatment of malaria and toxoplasmosis with a well-documented excellent safety profile. In the last 5 years, numerous efforts have been made to explore the anticancer potential of pyrimethamine in *in vitro* and *in vivo* preclinical models and to repurpose it as an anticancer agent. The studies have demonstrated that pyrimethamine inhibits oncogenic proteins such as STAT3, NF- κ B, DX2, MAPK, DHFR, thymidine phosphorylase, telomerase, and many more in a different types of cancer models. Moreover, pyrimethamine has been reported to work in synergy with other anticancer agents, such as temozolomide, to induce apoptosis of tumor cells. Recently, the results of phase-1/2 clinical trials demonstrated that pyrimethamine administration reduces the expression of STAT3 signature genes in tumor tissues of chronic lymphocytic leukemia patients with a good therapeutic response. In the present article, we have reviewed most of the published articles related to the antitumor effects of pyrimethamine in malignancies of breast, liver, lung, skin, ovary, prostate, pituitary, and leukemia in *in vitro* and *in vivo* settings. We have also discussed the pharmacokinetic profile and results of clinical trials obtained after pyrimethamine treatment. From these studies, we believe that pyrimethamine has the potential to be repurposed as an anticancer drug.

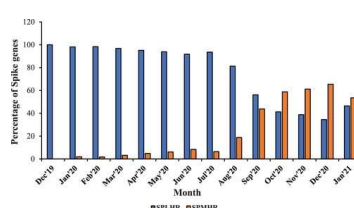


- [Underlying selection for the diversity of spike protein sequences of SARS-CoV-2](#)

By Manisha Ghosh, Surajit Basak, Shanta Dutta

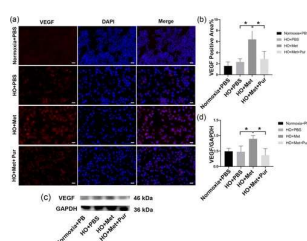
First published: 15 November 2021

The global spread of SARS-CoV-2 is fast moving and has caused a worldwide public health crisis. In the present article, we analyzed spike protein sequences of SARS-CoV-2 genomes to assess the impact of mutational diversity. We observed from amino acid usage patterns that spike proteins are associated with a diversity of mutational changes and most important underlying cause of variation of amino acid usage is the changes in hydrophobicity of spike proteins. The changing patterns of hydrophobicity of spike proteins over time and its influence on the receptor binding affinity provides crucial information on the SARS-CoV-2 interaction with human receptor. Our results also show that spike proteins have evolved to prefer more hydrophobic residues over time. The present study provides a comprehensive analysis of molecular sequence data to consider that mutational variants might play a crucial role in modulating the virulence and spread of the virus and has immediate implications for therapeutic strategies.



- [Metformin regulates macrophage polarization via the Shh signaling pathway to improve pulmonary vascular development in bronchopulmonary dysplasia](#)

Metformin has potential anti-inflammatory properties and accelerates wound healing by enhancing vascular development. In this study, we aimed to investigate the effects of metformin on pulmonary vascular development and the underlying mechanism. Newborn mice were subcutaneously injected with metformin from day 2 after exposure to hyperoxia. Pulmonary vascular development, inflammation, and Shh signaling pathway-related protein expression were evaluated by western blotting and immunofluorescence staining. M2 macrophage polarization was measured by flow cytometry. The effect of metformin on macrophage polarization was determined using RAW264.7 macrophages exposed to 90% oxygen in vitro. The role of metformin and purmorphamine on M1 and M2 polarization was observed by flow cytometry. M2 polarization of pulmonary macrophages was inhibited after hyperoxic exposure, and metformin increased the number of M2 macrophages in the lung on postnatal day 14. Metformin upregulated CD31 expression and suppressed inflammation in the lung of mice exposed to hyperoxia on postnatal days 7 and 14. Metformin downregulated the Gli1 expression in macrophages in the lung after exposure to hyperoxia on postnatal day 14. In vitro studies showed that metformin inhibited the Gli1 expression in RAW264.7 macrophages exposed to 90% oxygen, which was reversed after purmorphamine pretreatment. Exposure to 90% oxygen inhibited the polarization of M2 macrophages, whereas metformin increased the number of M2 macrophages. Purmorphamine reversed the effects of metformin on M2 polarization and vascular endothelial growth factor (VEGF) upregulation in RAW264.7 macrophages exposed to hyperoxia. In conclusion, metformin regulates macrophage polarization via the Shh signaling pathway to improve pulmonary vascular development in bronchopulmonary dysplasia.



SPECIAL ISSUE CALL FOR PAPERS

See the full list of Calls for papers [here](#)

NEW VIRTUAL ISSUES

See all the new IUBMB Life Virtual issues [here](#)



[New Special Issue: Volume 48, Issue 1](#)

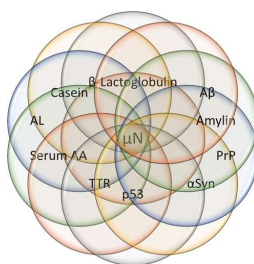
Issue Highlights

- [Nutrient-sensing amyloid metastasis](#)

By Luis Mauricio T.R. Lima, Thayna Sisnande

First published: 06 February 2022

Amyloids are organized suprastructural polypeptide arrangements. The prevalence of amyloid-related processes of pathophysiological relevance has been linked to aging-related degenerative diseases. Besides the role of genetic polymorphisms on the relative risk of amyloid diseases, the contributions of nongenetic ontogenic cluster of factors remain elusive. In recent decades, mounting evidences have been suggesting the role of essential micronutrients, in particular transition metals, in the regulation of amyloidogenic processes, both directly (such as binding to amyloid proteins) or indirectly (such as regulating regulatory partners, processing enzymes, and membrane transporters). The features of transition metals as regulatory cofactors of amyloid proteins and the consequences of metal dyshomeostasis in triggering amyloidogenic processes, as well as the evidences showing amelioration of symptoms by dietary supplementation, suggest an exaptative role of metals in regulating amyloid pathways. The self- and cross-talk replicative nature of these amyloid processes along with their systemic distribution support the concept of their metastatic nature. The role of amyloidosis as nutrient sensors would act as intra- and transgenerational epigenetic metabolic programming factors determining health span and life span, viability, which could participate as an evolutive selective



[New Issue: Volume 69, Issue 1](#)

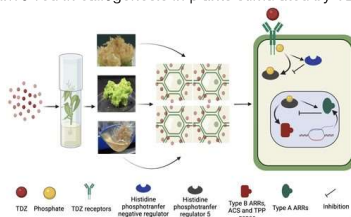
Issue Highlights

- [The multipotent thiazuron: A mechanistic overview of its roles in callogenesis and other plant cultures in vitro](#)

By Haroon Muhammad Ali, Tariq Khan, Mubarak Ali Khan, Nazif Ullah

First published: 19 January 2022

Thiazuron (TDZ) is an active substituted phenyl urea compound that has found a significant role as a plant growth regulator. The most exciting aspect of its function is that it can mimic auxins and cytokinin but is chemically different from these two. Many theories have been put forward, and experiments performed to understand the mode of action of TDZ in callogenesis. One suggested mechanism presents that it works by inhibiting the cytokinin degrading enzymes that compete with cytokinin for an active site on the enzyme. An example is the TDZ-induced suppressed expression of gibberellic acid (GA) biosynthesis genes encoding GA3 and GA20 oxidases. This is entailed with a slightly increased expression of GA catabolism genes encoding GA20 oxidase. Similarly, one of the recommendations is that TDZ induces the expression of specific genes and transcription regulatory sequences that are either responsible directly for callus formation or in turn induce other auxins or cytokinin for callogenesis. There is no concise review available that discusses the details of TDZ-induced callus, specifically and other in vitro cultures in general. This review is an attempt to explore all these pathways and mechanisms involved in callogenesis in plants stimulated by TDZ.



[New Virtual Issue on Teaching in the Time of COVID-19](#)

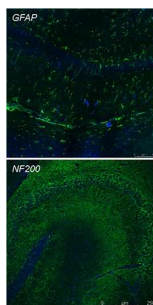
[New Issue: Volume 50, Issue 1](#)

Issue Highlights

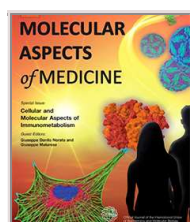
- [Introducing immunohistochemistry to the molecular biology laboratory](#)

By Audrey Chen, Eric Tarapore, Allisen G. To, Davis M. Catolico, Kelly C. Nguyen, Melissa J. Coleman, Rory D. Spence

Widely used in research laboratories, immunohistochemistry (IHC) is a transferable skill that prepares undergraduate students for a variety of careers in the biomedical field. We have developed an inquiry-based learning IHC laboratory exercise, which introduces students to the theory, procedure, and data interpretation of antibody staining. Students are tasked with performing IHC using an "unknown" antibody and then asked to identify the cells or molecular structures within the nervous systems specific for that unknown antibody. In two lab sessions, students are exposed to handling of delicate brain slices, fluorescent microscopy, and data analysis using the Allen Brain Atlas (ABA), an online freely accessible database of mRNA transcript expression patterns in the brain. Here, we present guidelines for easy implementation in the classroom and assess learning gains achieved by the students upon completion of the IHC laboratory module. Students clearly displayed an increase in knowledge in data interpretation, procedural knowledge, and theory surrounding IHC. Thus, this module works as an inquiry-based learning based method to introduce IHC principles to undergraduate students.



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Volume 79 (June 2021) 100885

[Targeting O-GlcNAcylation to develop novel therapeutics](#)

By Yi Zhu and Gerald W. Hart

UPCOMING MEETINGS



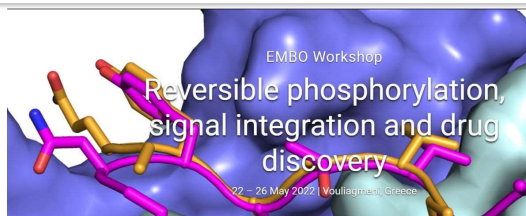
The [2022 ASBMB Annual Meeting](#), held in conjunction with Experimental Biology, will take place in person April 2-5 in Philadelphia.

MAR 1: Advance registration begins



How important is phase separation for our understanding of biological processes? Join to discuss & learn from scientists from different fields about condensates in biology and disease.

MAR 7: [On-site Registration](#) | **MAY 2:** [Virtual Registration](#) | [Meeting details](#) | [Online poster](#)



We invite you to the [EMBO Workshop: Reversible phosphorylation, signal integration and drug discovery](#) hybrid meeting on May 22-26, 2022 in Vouliagmeni, Greece.

The aim of this EMBO Workshop is to bring together leading scientists and trainees in reversible phosphorylation, signal integration and drug discovery to present and discuss their latest findings, challenges and gaps in our knowledge. Topics will include protein phosphatases in immunobiology and immunotherapy, cancer biology and structure-function.

MAR 21: Abstract Submission Deadline | **APR 4: Registration & Payment Deadline** | [Online poster](#)



We would like to announce a webinar series on "Innovation in Undergraduate Teaching of Life Sciences".

This webinar series replaces and complements the "1st Swiss Symposium on Innovation in Undergraduate Teaching of Life Sciences" (cancelled for now because of the pandemic).

With monthly online seminars in English (usually on Wednesday at 17.30 CET), it aims to create a **forum and a community to help improving the quality of undergraduate education in the life sciences**.

Guest Speaker: [Manu Kapur](#) (ETH Zürich, Switzerland);
Productive Failure

REGISTRATION IS FREE, for LS2 members and non-members, and for the whole Seminar Series. Only registered participants will receive the zoom link of the webinar.

MAR 9 : Event 17:30 hr CET | [Registration](#)



FEBS Junior Sections initiative

This March talk is organised by [Young NVBMB](#), the junior section of the [NVBMB](#).

Speaker: Dr Tessa Sinnige, Utrecht University, The Netherlands

Topic: "Elucidating the molecular mechanisms of protein aggregation in *C. elegans* as a living model system"

Time: **10 March 2022, 19:00 (CET)**

Registration: <https://us02web.zoom.us/join/register?MFN=ocw-HMYSiucY7FoelPBsw>

For [more information](#), see the presentation abstract below and visit the [Sinnige lab website](#).



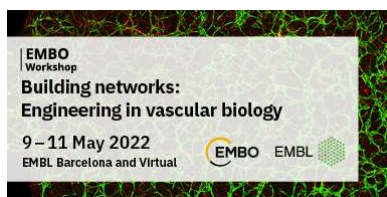
Proteins are the molecular machines of the living cell, and need to fold into their correct three-dimensional conformations in order to function. However, proteins may also misfold into non-functional and potentially hazardous structures. Amyloid fibrils are a prime class of non-native protein assemblies that accumulate as insoluble aggregates in a wide variety of human disorders, including Alzheimer's, Huntington's and Parkinson's diseases. The process of fibril formation has been studied in molecular detail using kinetic studies on purified proteins. However, it is not yet clear to what extent the biophysical principles of amyloid formation established in these studies translate to the complex environment of living cells and organisms. In my lab, we use the nematode *C. elegans* as a model system to investigate the molecular mechanisms of protein aggregation in a living and ageing animal. In my talk, I will present recent work on the kinetic analysis of polyglutamine, which is associated with Huntington's and other polyglutamine expansion diseases.



**Universiteit
Utrecht**



On behalf of the Organizing Committee, it is a pleasure to invite you to the 8th FEBS Advanced Lecture Course on [Matrix Pathobiology, Signaling and Molecular Targets](#), to be held in [Aldemar Knossos Royal's](#) conference



Are you a vascular biologist or bioengineering researcher working with microfluidic and tissue engineering technologies? Join EMBO Workshop: Building networks: engineering in Vascular Biology at EMBL Barcelona.

MAR 14: [Abstract Submission](#) | **MAR 28:** [Registration](#) | [Meeting details](#) | [Online poster](#)



Are you interested in mechanobiology at the molecular, cellular and tissue level? Registration now.

MAR 14: [On-site Registration](#) | **MAY 8:** [Virtual Registration](#) | [Meeting details](#) | [Online poster](#)



'Microtubules: from atoms to complex systems' will bring together early-career and established researchers from all over the world interested in fundamental microtubule biology. Are you one of them?

MAR 16: [Abstract Submission](#) | **APR 6:** [On-site Registration](#) | **JUN 1:** [Virtual Registration](#)
[Meeting details](#) | [Online poster](#)



The [IUBMB Focused Meeting on Hemoglobin Switching](#) covers the most current topics in a variety of fields related to globin gene regulation and pathophysiology will contribute to an ease of scientific exchange and dialog that will make the 22nd conference memorable. [Online poster](#)

MAR 18: Early Registration Deadline & payment for accommodation
MAR 21: Written Cancellation Deadline (for a full refund)
MAR 31: Registration Deadline
APR 1: Abstract Submission Deadline



MAR 22-25: [Event](#) | [Online poster](#)



Interested in the dissemination and metastatic colonisation of tumour cells? Here's a unique opportunity for exchange on metastasis and its therapeutic challenges

MAR 27: Abstract Submission | **MAY 8:** [On-site Registration](#) | **JUN 12:** [Virtual Registration](#)

[Meeting details](#) | [Online poster](#)



We invite you to the [RNAs in gene control across kingdoms](#), taking place May 2-5, 2022.

This international meeting will be a unique opportunity to welcome remarkable scientists and to highlight RNA research in Strasbourg within a stimulating and international environment. It will cover two related topics: RNA regulation and the genetic code in translation. This meeting is also organized for the achievements of Prof. Eric Westhof who has initiated and coordinated the NetRNA labEx (Networks of regulatory RNA across kingdoms in response to biotic and abiotic stresses).

We are delighted to announce the IUBMB Jubilee Lecture is [Professor Sarah Woodson](#).

APR 8: [Registration Deadline](#) | **APR 15:** Abstract Submission Deadline | [Online poster](#)



Interested in attending a virtual meeting?

Now you can by applying for the IUBMB MilliporeSigma Virtual Meeting Fellowships with **OPEN DEADLINES** to cover registration costs.

[Apply Now](#)

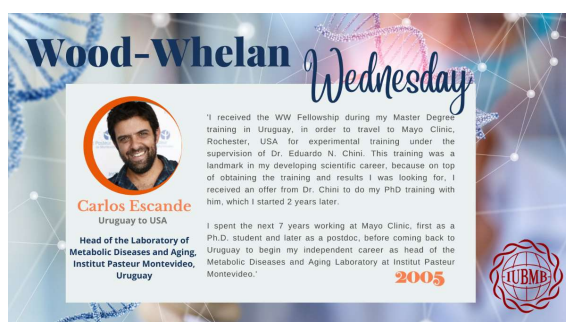
ANNOUNCEMENTS



It's Wood Whelan Wednesday! As a PhD student, **Nicolas Vozza**, went from Argentina to Denmark to apply a state-of-the-art system in bacterial biofilms to his studies. He is now a Medical Education Manager at The Janssen Pharmaceutical Companies of Johnson & Johnson in Canada.

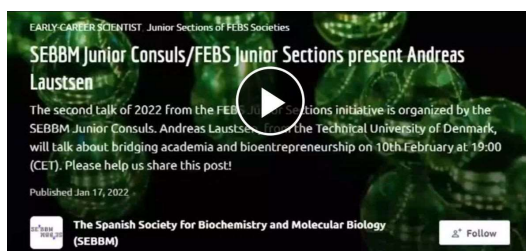


It's Wood Whelan Wednesday! **Ramiro Iglesias-Bartolome** went from Argentina to Canada to do advanced research training to finish his Ph.D. This gave him the confidence to continue advancing in his career. He is now a NIH Stadman Investigator, LCMB, Center for Cancer Research, National Cancer Institute in USA.



I received the WW Fellowship during my Master Degree training in Uruguay, in order to travel to Mayo Clinic, Rochester, USA for experimental training under the supervision of Dr. Eduardo N. Chini. This training was a landmark in my developing scientific career, because on top of obtaining the training and results I was looking for, I received an offer from Dr. Chini to do my PhD training with him, which I started 2 years later.

I spent the next 7 years working at Mayo Clinic, first as a Ph.D. student and later as a postdoc, before coming back to Uruguay to begin my independent career as head of the Metabolic Diseases and Aging Laboratory at Institut Pasteur Montevideo.



The recording is now available in case you missed it!

FEBS Junior Sections – [Andreas Laustsen: Bridging academia and bioentrepreneurship webinar](#)

A webinar about how to bridge academia and entrepreneurship in the life sciences, from Andreas Laustsen, at the Technical University of Denmark. The event was organised by the SEBBM Junior Consuls as part of the FEBS Junior Sections' 2022 series of online talks on key research and career topics.



The [German Society of Proteome Research](#) in cooperation with [European Proteomics Association \(EuPA\)](#) invites you attend the [XIV Annual Congress of the European Proteomics Association \(EuPA 2022\)](#) from April 3 -7, 2022 in Leipzig, Germany. Late registrations are still being accepted.

Area of expertise: Proteomic, Genetic engineering, Bioinformatics, Bioinformatics, Biochemistry



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