2022 FEBRUARY NEWS

IUBMB TRAINEE INITIATIVE

President Alexandra Newton met with trainees from UK, Germany, USA, and Benin in mid January to brainstorm on how to build the IUBMB Trainee Initiative.

"Trainees are our future and the best investment we can make is to nourish their interests, provide opportunities for their research, education, and career development, and engage their passion in biochemistry and molecular biology. I am thus thrilled to welcome the leaders of tomorrow to the international biochemistry and molecular biology community." **– Alexandra Newton, January 2022.**

We are delighted to welcome the IUBMB Trainee Leadership Committee, chaired by Élyse Fischer (FEBS) and co-chaired by Osvaldo Contreras (FAOBMB)

"We are all scientists because someone else influenced us. Someone we admired, who might have mentored us, or simply a person who created a good feeling about doing science. We, early career

the new IUBMB Trainee Initiative can provide a place by which early career researchers can immerse themselves in the beauty of research, make connections with other passionate scientists, and collectively create a platform to both be inspired and to inspire others." **– Osvaldo & Élyse, January 2022.**

CONGRATULATIONS

UPCOMING IUBMB DEADLINES

Open Call for host institutions for FEBS-IUBMB-ENABLE Conferences in 2023 and 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

2023) to host the November 2024 conference. 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

FEB 7 (Deadline Extended): host the 2023 event in a country with a FEBS Constituent Society

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

There's still time to submit an abstract and register to attend IUBMB-FEBS-PABMB Congress 2022!

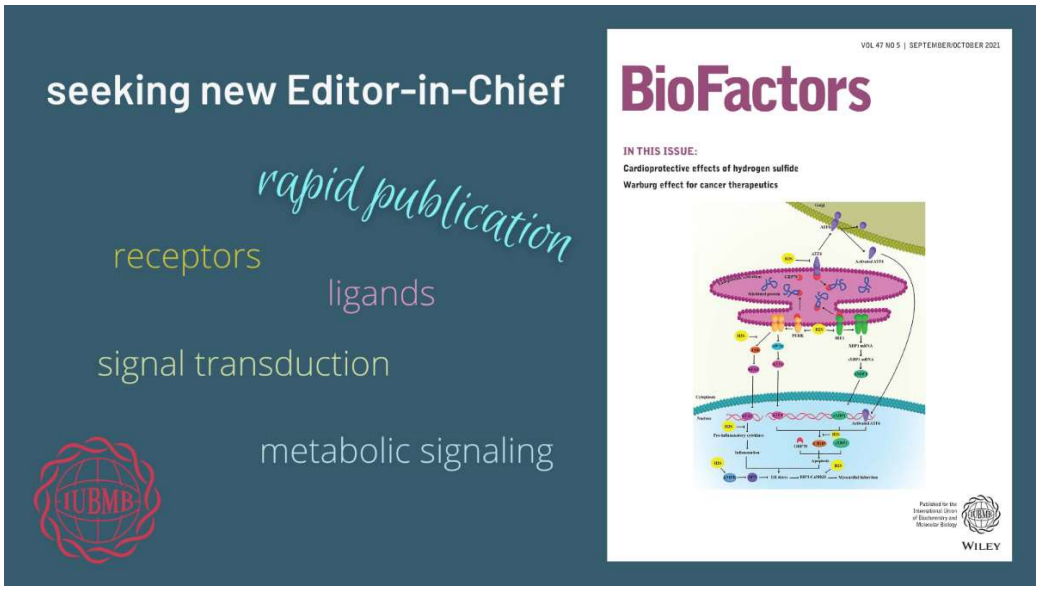
PROLAB is a joint venture between the Pan-American Association for Biochemistry and Molecular Biology, the International Union of Biochemistry and Molecular Biology, and the American Society for Biochemistry

Application Deadline February 25th

The Promoting Research Opportunities for Latin American Biochemists (PROLAB) program allows graduate students and postdoctoral fellows to spend up to six months in U.S. or Canadian laboratories.

Participants get access to technologies and expertise that may not be readily available in their home countries, allowing them to grow their skills and contribute to building capacity in the life sciences at home.

Trainees and new investigators (not more than five years past postdoctoral work) from all countries active in the PABMB, including Spain and Portugal, are invited to apply.

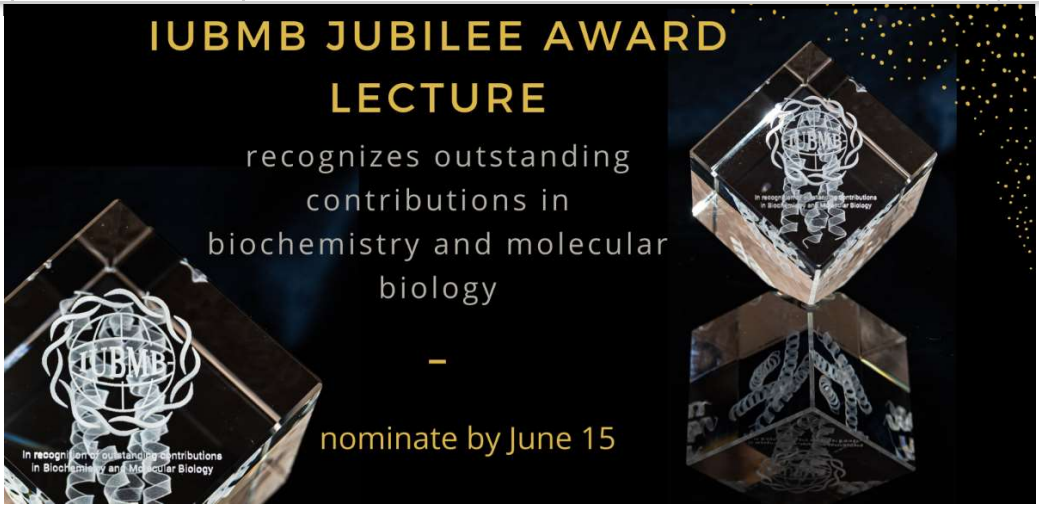


IUBMB is seeking a New Editor-in-Chief for BioFactors, a *rapid publication* journal devoted to signal transduction, metabolic signaling, receptors, and ligands. ***Deadline extended to March 31st.*** *Info: bit.ly/3y6bzLV*

Advanced Schools

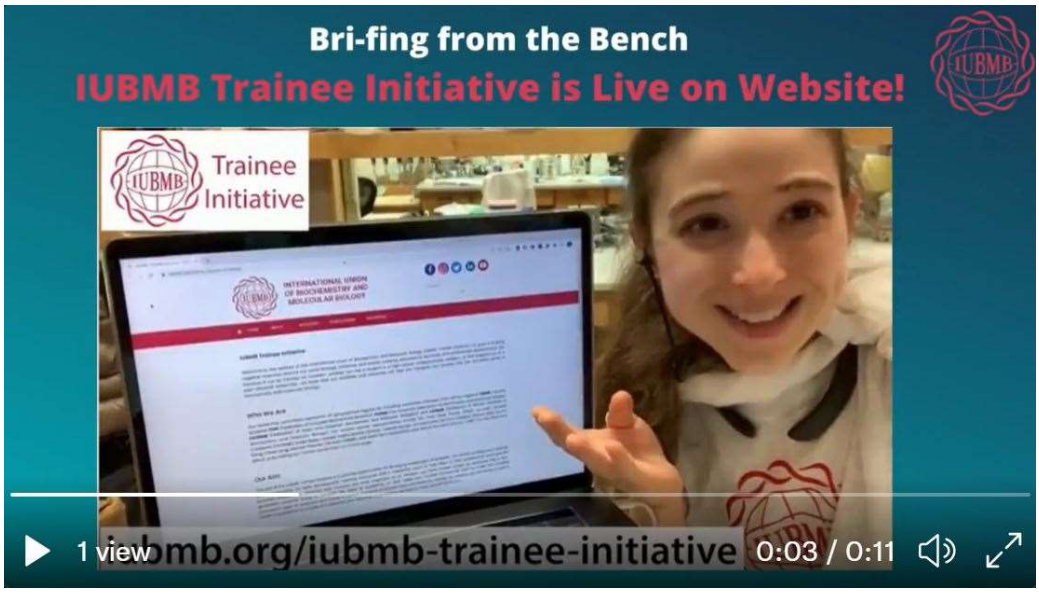
DEADLINE APRIL 1

For meetings in Europe, IUBMB automatically covers the expense for use of the "IUBMB/Brian Clark lecture hall" in the month of May for Spetses island, Greece for the organization of Special Meetings, Symposia, Advanced Schools etc.



Are you organizing a meeting in the molecular biosciences? Nominate your plenary lecturer for an IUBMB Jubilee Award Lecture. *Info: https://bit.ly/344XBPj*

BRI-FING FROM THE BENCH



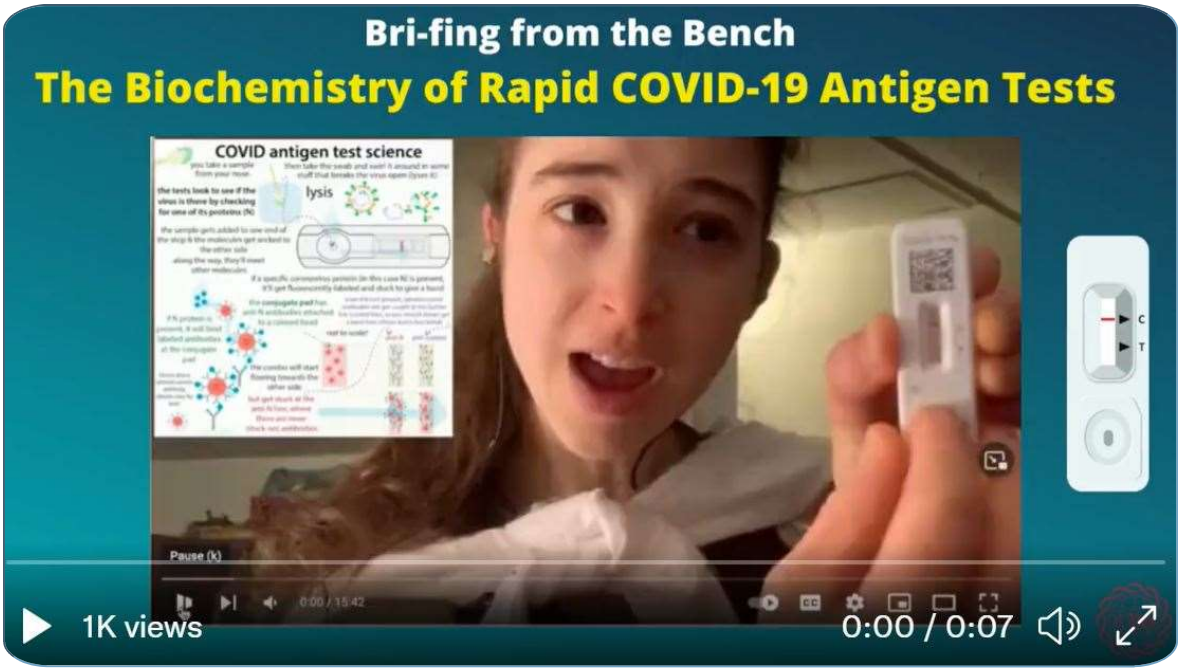
****Breaking News****

Our Postgraduate Student Ambassador, Bri Bibel, announces the new IUBMB Trainee Initiative. She is joined by students and postdocs from around the world to engage fellow trainees around the globe.

This initiative is supported by the IUBMB and is run by trainees and for trainees. The Trainee Initiative plans to host events, run contests, send newsletters, and reunite training biochemists and molecular biologists - to support you!

Click this link to become a friend of the IUBMB Trainee Initiative: http://eepurl.com/hSTcSX and follow us on Twitter and Instagram (@iubmb_trainee) to stay updated.

We are also looking for a few more enthusiastic young scientists to join our committee. Particularly



IUBMB JOURNALS

New Issue: Volume 74, Issue 1

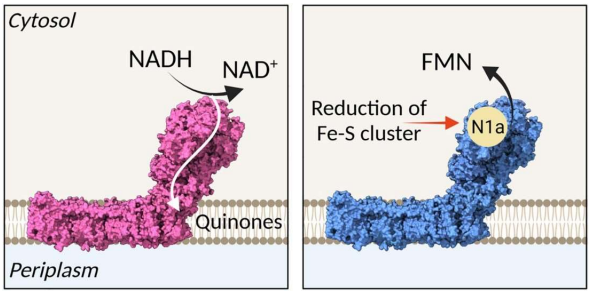
Issue Highlights

- Dynamic association of flavin cofactors to regulate flavoprotein function

By Danny Schnerwitzki, R. Martin Vabulas

First published: 11 January 2022

FMN and FAD confer the required chemical reactivity to flavoenzymes. In most cases, the interaction between the proteins and the flavins is noncovalent, yet stronger in comparison to other redox-active cofactors, such as NADH and NADPH. The association is considered static, but this view has started to change with the recent discovery of the dynamic association of flavins and flavoenzymes. Six cases from different organisms and various metabolic pathways are discussed here. The available mechanistic details span the range from rudimentary, as in the case of the ER-resident oxidoreductase Ero1, to comprehensive, as for the bacterial respiratory complex I. The same holds true in regard to the assumed functional role of the dynamic association presented here. More work is needed to clarify the structural and functional determinants of the known examples. Identification of new cases will help to appreciate the generality of the new principle of intracellular flavoenzyme regulation.



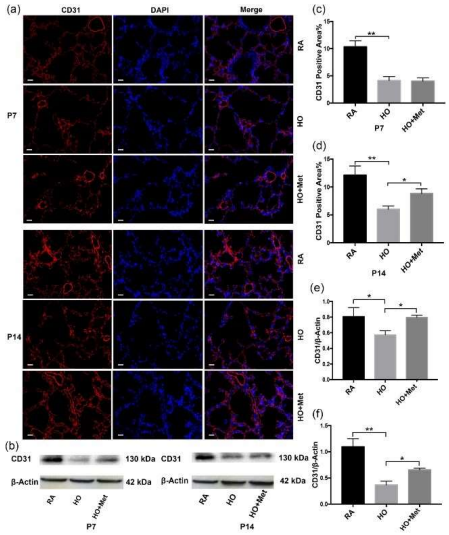
- Metformin regulates macrophage polarization via the Shh signaling pathway to improve pulmonary vascular development in bronchopulmonary dysplasia

By Xiaowen Xiang, Lin Zhou, Zhiwei Lin, Xia Qu,Yanru Chen, Hongping Xia

First published: 15 December 2021

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

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.

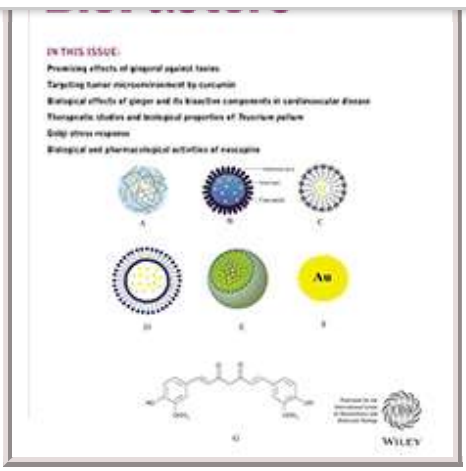


SPECIAL ISSUE CALL FOR PAPERS

See the full list of Calls for papers *here*

NEW VIRTUAL ISSUES

See all the new IUBMB Life Virtual issues *here*



New Issue: Volume 47, Issue 6

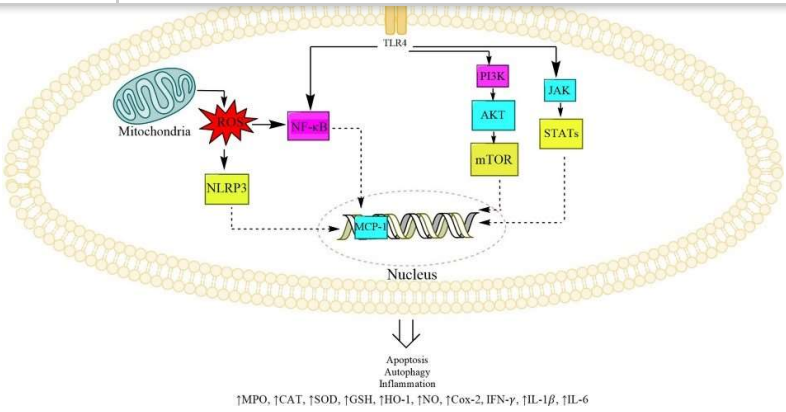
Issue Highlights

- Ginger and its constituents: Role in treatment of inflammatory bowel disease

By Naser-Aldin Lashgari, Nazanin Momeni Roudsari, Danial Khayatan, Maryam Shayan, Saeideh Momtaz, Basil D. Roufogalis, Amir Hossein Abdolghaffari, Amirhossein Sahebkar

First published: 09 December 2021

Inflammatory bowel diseases (IBD), with obscure etiology, are rising and are of worldwide concern. Of the various components of IBD pathogenesis and progression, irritation appears to play a major part. Investigations on the molecular and cellular pathways that activate the IBD provide the focus for the development of useful therapies. Ginger (the rhizome of Zingiber officinale) has a broad spectrum of clinical applications due to its anti-inflammatory and anti-oxidative functions. Inflammation and oxidative stress are the key pathogenic factors in many diseases, including IBD. The most established components of ginger are phenolic compounds called gingerols. A wide range of pharmacological activities of the potential therapeutic benefit of Z. officinale have been detailed. In this regard, the anti-inflammatory activity of ginger has been documented by many researchers. It was shown that ginger is a potent inhibitor of the nuclear factor kappa B (NF-κB), signal transducer of activators of transcription (STATs), Nod-like receptor family proteins (NLRPs), toll-like receptors (TLRs), mitogen-activated protein kinase (MAPKs), and mTOR (mTOR) pathways, as well as inhibiting various pro-inflammatory cytokines. In the present report, the potential application of ginger in the management of IBD is reviewed in detail, with an emphasis on the relevant properties of ginger and its bioactive components. The significance of the functions, side effects, and delivery of ginger to the digestive system for particular application in IBD are also considered.

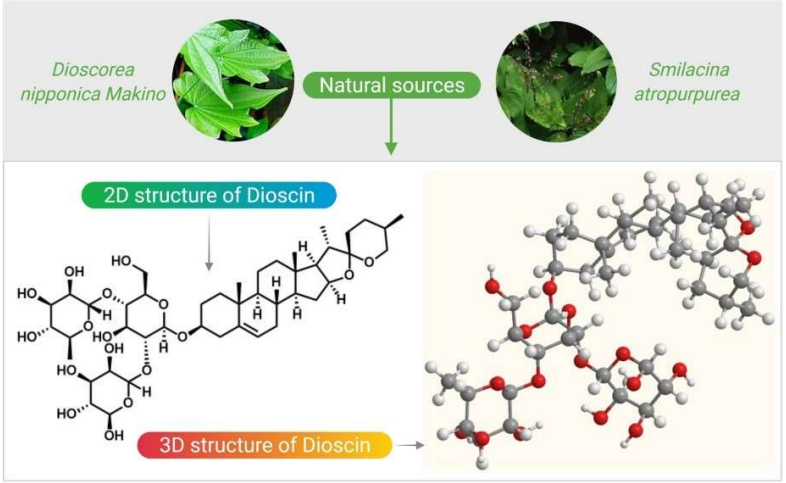


- Dioscin: A review on pharmacological properties and therapeutic values

By Shinjini Bandopadhyay, Uttpal Anand, Vijaykumar Shivaji Gadekar, Niraj Kumar Jha, Piyush Kumar Gupta, Tapan Behl, Manoj Kumar, Radha, Mahipal S. Shekhawat, Abhijit Dey

First published: 16 December 2021

Dioscin has gained immense popularity as a natural, bioactive steroid saponin, which offers numerous medical benefits. The growing global incidence of disease-associated morbidity and mortality continues to compromise human health, facilitating an increasingly urgent need for nontoxic, noninvasive, and efficient treatment alternatives. Natural compounds can contribute vastly to this field. Over recent years, studies have demonstrated the remarkable protective actions of dioscin against a variety of human malignancies, metabolic disorders, organ injuries, and viral/fungal infections. The successful usage of this phytocompound has been widely seen in medical treatment procedures under traditional Chinese medicine, and it is becoming progressively prevalent worldwide. This review provides an insight into the wide spectrum of pharmacological activities of dioscin, as reported and compiled in recent literature. The various novel approaches and applications of dioscin also verify the advantages exhibited by plant extracts against commercially available drugs, highlighting the potential of phytochemical agents like dioscin to be further incorporated into clinical practice.

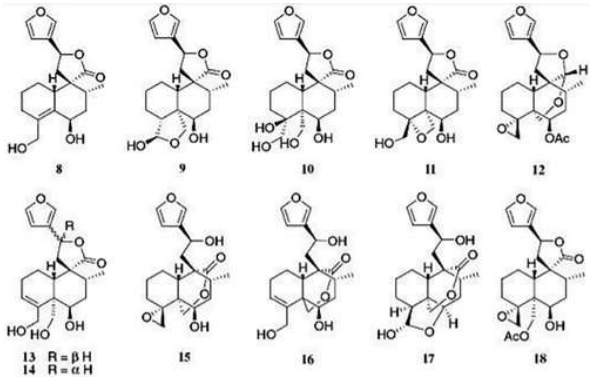


- Therapeutics studies and biological properties of Teucrium polium (Lamiaceae)

By Fatma Rahmouni, Mongi Saoudi, Tarek Rebai

First published: 01 December 2021

Teucrium polium has been used in traditional medicine as antifungal, antipyretic, antispasmodic, and antibacterial. It is consumed by many jordanians for the treatment of many diseases. The effects of this plant have been investigated in kidney, liver, and brain. Its antidiabetic, antimicrobial, antioxidant, and anticancer effects have been introduced. Polyphenolic compound, flavonoids, monoterpenes, alkanoides, and essential oils were identified. Several studies revealed that this plant has a hypoglycemic effect and can help to control blood sugar. It was reported that plants containing flavonoids and phenolics compounds exhibit a large array of biological activities like genotoxicity (chromosomal aberrations and sister chromatid exchange) and oxidative stress damage. These phytochemicals are found in herbal and vegetables plants, as well as being reliably protective against oxidative stress damage and lipid peroxidation. In addition, T. polium has secondary effects on different organs, namely liver, kidney and at high doses this plant becomes toxic. In conclusion, this review investigates many pharmacologicals properties and side effects of T. polium.



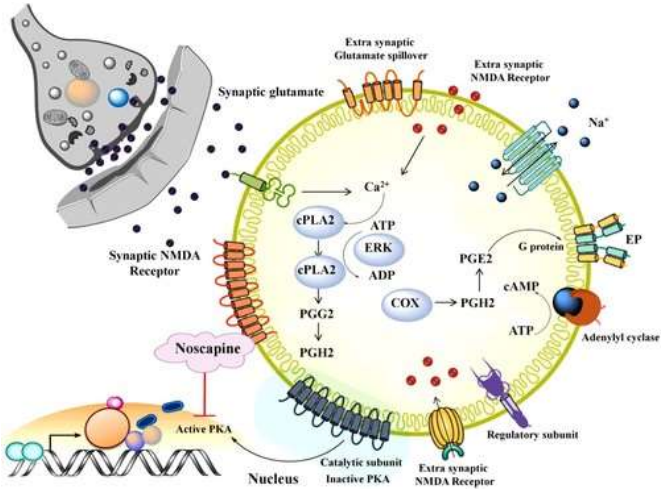
- Biological and pharmacological activities of noscapine: Focusing on its receptors and mechanisms

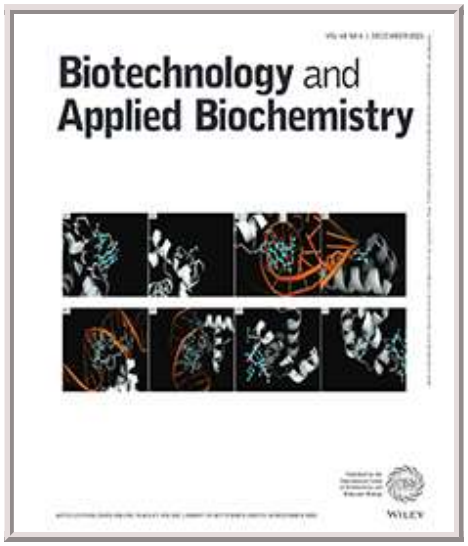
By Fahimeh Nourbakhsh, Vahid Reza Askari PharmD, PhD

First published: 17 September 2021

Noscapine has been mentioned as one of the effective drugs with potential therapeutic applications. With few side effects and amazing capabilities, noscapine can be considered different from other opioids-like structure compounds. Since 1930, extensive studies have been conducted in the field of pharmacological treatments from against malaria to control cough and cancer treatment. Furthermore, recent studies have shown that noscapine and some analogues, like 9-bromonoscapine, amino noscapine, and 9-nitronoscapine, can be used to treat polycystic ovaries

properties, therapeutic effects, and the role of receptors in the treatment of noscapine.





New Issue: Volume 68, Issue 6

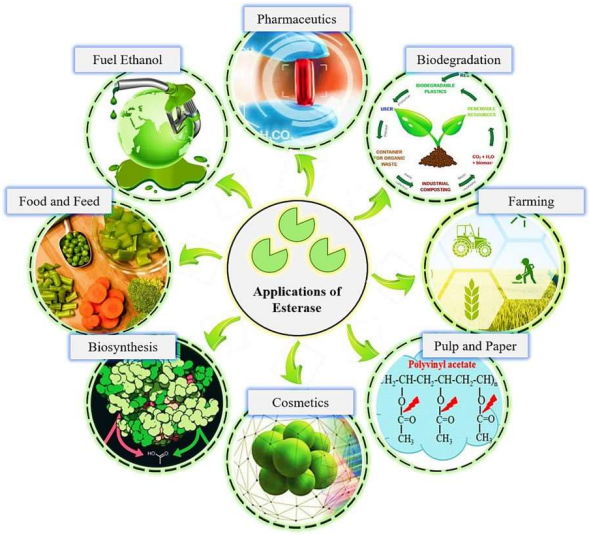
Issue Highlights

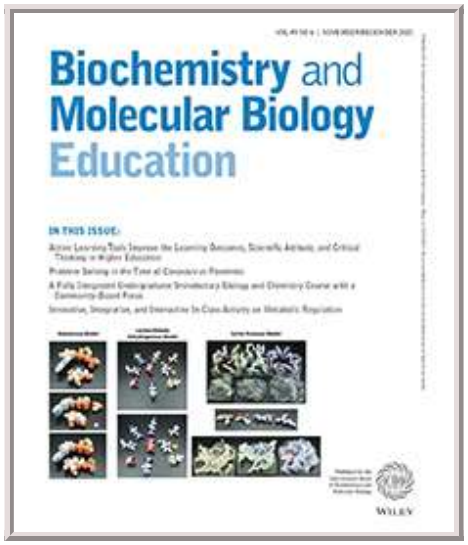
- Esterases as emerging biocatalysts: Mechanistic insights, genomic and metagenomic, immobilization, and biotechnological applications

By Hamza Rafeeq ,Asim Hussain, Sumaira Shabbir, Sabir Ali ,Muhammad Bilal, Farooq Sher, Hafiz M. N. Iqbal

First published: 26 October 2021

world's industrial enzymes market. Due to their unique biocatalytic attributes, esterases contribute to environmentally sustainable design approaches, including biomass degradation, food and feed industry, dairy, clothing, agrochemical (herbicides, insecticides), bioremediation, biosensor development, anticancer, antitumor, gene therapy, and diagnostic purposes. Esterases can be isolated by a diverse range of mammalian tissues, animals, and microorganisms. The isolation of extremophilic esterases increases the interest of researchers in the extraction and utilization of these enzymes at the industrial level. Genomic, metagenomic, and immobilization techniques have opened innovative ways to extract esterases and utilize them for a longer time to take advantage of their beneficial activities. The current study discusses the types of esterases, metagenomic studies for exploring new esterases, and their biomedical applications in different industrial sectors.





New Virtual Issue on Teaching in the Time of COVID-19

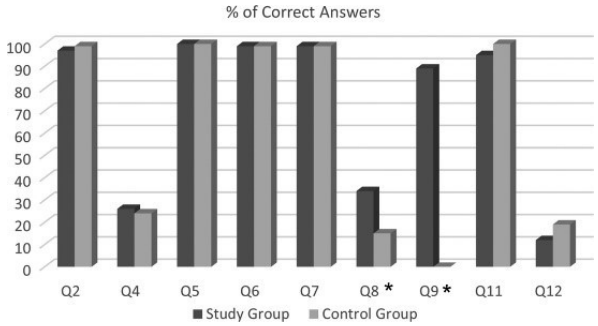
New Issue: Volume 49, Issue 6

- Knowledge and perception of middle school students regarding COVID-19 disease at the start of the pandemic

By Maria Manuel Azevedo, Elisa Saraiva, Fátima Baltazar

First published: 11 January 2022

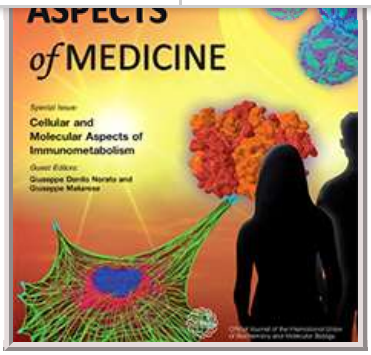
Facing recent threats of coronavirus disease (COVID-19), an educational strategy was designed and applied to middle school students in order to reinforce related knowledge and behaviors. A group of 65 middle school students (14–18 years old) developed several designed online curricular activities. After the intervention, students answered a questionnaire to assess if they: (a) were familiar with the terms COVID 19 and SARS-CoV-2; (b) were conscious about the importance of preventive measures to stop the spread of this disease; (c) were engaged in these activities; (d) were motivated to research on health-related issues. This study was a first to attempt to evaluate student's perceptions about SARS-CoV-2 infection and support education regarding COVID-19, mainly on the reinforcement of preventive measures.



Volume 80 (August 2021) 100870

NK cells and ILCs in tumor immunotherapy

By Sivori S., Pende D., Quatrini L., Pietra G., Della Chiesa M., Vacca P.,Tumino N., Moretta F., Mingari M.C., Locatelli F., Moretta L.

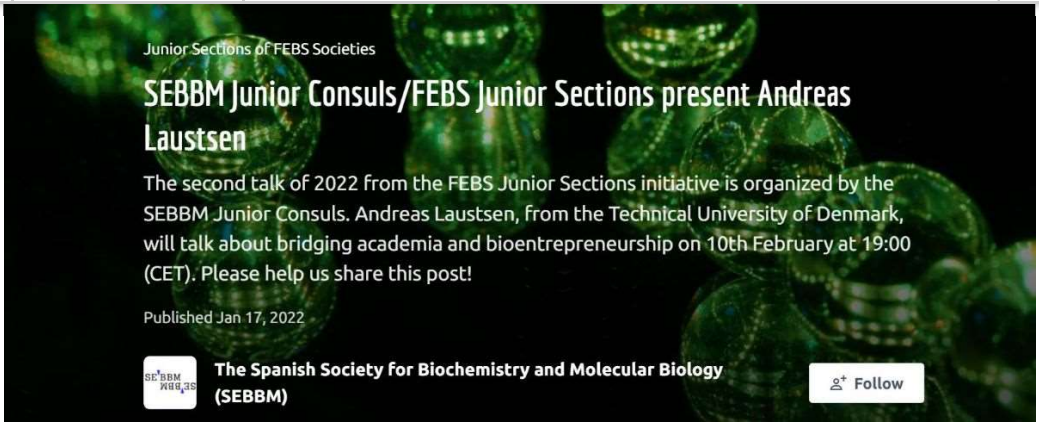


UPCOMING MEETINGS

We're excited to invite you to the 47th Lorne Conference on Protein Structure and Function, taking place February 6-10, 2022.

Given the ongoing uncertainty around domestic and international travel in Australia due to the COVID-19 pandemic, the Lorne Proteins 2022 conference will be offered as a **hybrid model**. We welcome delegates to the Mantra in Lorne, but for those unable to participate face-to-face, all content will be available through a virtual platform.

We are delighted to announce our 2022 Leach Lecturer Professor Leann Tilley, and the IUBMB Jubilee Lecture Dr. Hao Wu.



FEBS Junior Sections initiative

In 2021 young representatives of some of the national Societies that form FEBS contacted us to ask for help setting up a new initiative: a network of students and young researchers across Europe, called the FEBS Junior Sections. Their aims are to collaborate and share resources, as well as to encourage mobility across Europe for young scientists.

Currently the FEBS Junior Sections are made up from the junior sections of the Austrian, Croatian, Dutch, German, Italian, Spanish, and UK national Societies. They are keen to **invite young researchers and groups from other national Societies** to join their initiative. Also, to encourage those Societies that do not have a formal junior section, to set one up. To support this, they have created posts and videos on the FEBS Network describing their national junior sections.

In addition, the FEBS Junior Sections take turns organizing monthly online talks on research and career topics. In 2021 they organized a talk from the Wellcome Sanger Institute and one from the team at EMBL-EBI that co-developed the AlphaFold database.

In 2022 they started a new series of talks in January with Dr Andreas Schlundt, at Goethe University Frankfurt talking about The roles of sequence, structure and dynamics for specific RNA-recognition by proteins.

Speaker: Dr Andreas Laustsen, Technical University of Denmark (DTU)
Topic: "Bridging academia and bioentrepreneurship"
Time: **10 February 2022, 19:00 (CET)**
Registration: https://forms.gle/nT7wBBCXzQbh9Lwf6

For **more information**, see the presentation abstract on the FEBS Network and visit Laustsen's Tropical Pharmacology Lab website.

Due to the coronavirus pandemic and after careful consideration, the IUBMB Focused Meeting / FEBS Workshop on "Crosstalk between Nucleus and Mitochondria in Human Disease" (CrossMitoNus) in Seville, Spain has been postponed to 22-25 March 2022. The event will take place at the Research Scientific Centre Isla de la Cartuja (cicCartuja).

FEB 13: Abstract and Registration Deadline | **MAR 22-25**: Event | *Online poster*

Please note that this event will now take place virtually.

How can recent developments in whole-organism physiology pave the way to novel therapies for degenerative disease?

FEB 21: Registration | Meeting details | *Online poster*

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

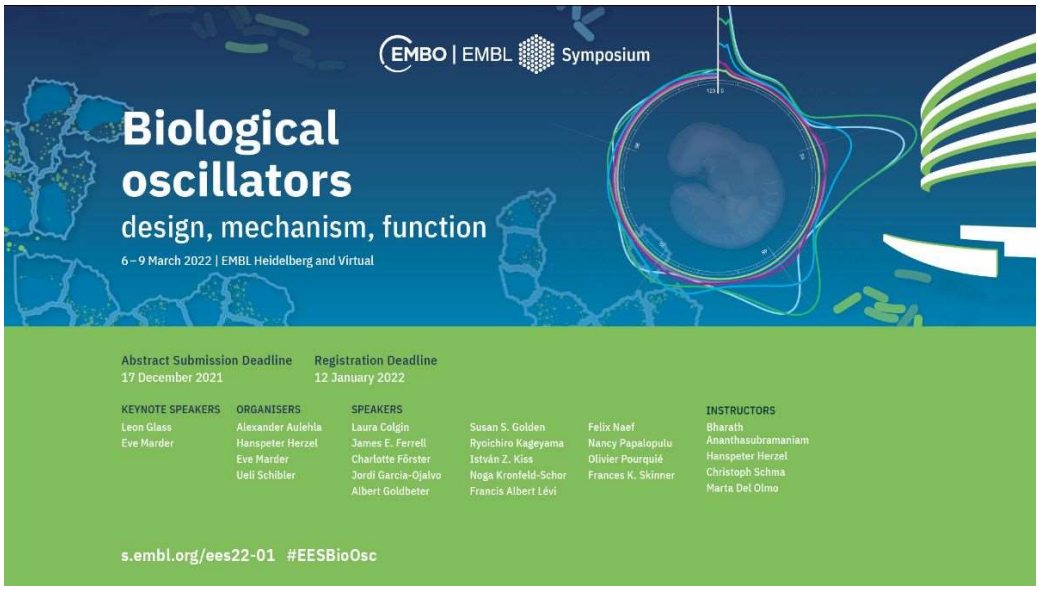
Teaching of Life Sciences" (cancelled for now because of the pandemic).

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: François Lombard (Universität Zürich, CH);
Does the order of your slides matter? Measuring progressive organization of conceptual understanding during learning – implications for education.

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.

FEB 23 : Event 17:30 hr CET | Registration



Are you interested in oscillatory phenomena and biological dynamics? Join this symposium where we will discuss common mechanisms underlying the generation of oscillations.

FEB 27: Virtual Registration | Meeting details | *Online poster*

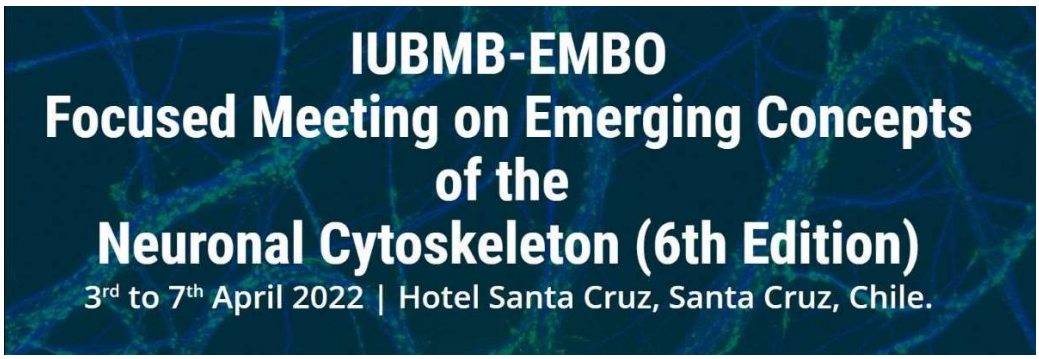
FEB 28: Early registration ends | **MAR 1**: Advance registration begins

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



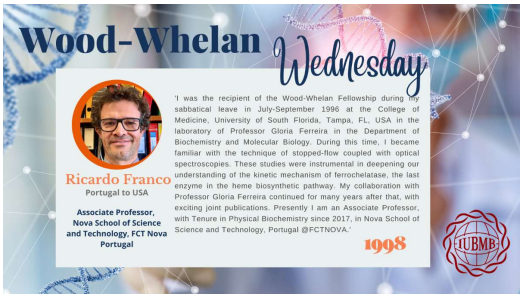
****This meeting has been postponed to March 26-30, 2023****

We have been monitoring omicron's wave around the world in the past weeks and we have reached the unhappy conclusion that having an in-person meeting in April 2022 is not feasible. A real pleasure of this meeting is that it is in a small friendly setting (~ 100 attendees) with a high quality of science, much of which is unpublished. As such, face to face interactions are key to the success of the meeting. We hope to see many of you returning to this fabulous meeting.

The meeting will be an EMBO workshop organized by Christophe Leterrier, Carlos Wilson, and Stephanie Gupton, and supported in part by funds from EMBO, IUBMB, and IBRO. We have lined up a fantastic program, including keynote speaker Erika Holzbaur. We are currently working to update the website with new information, so please check back soon.

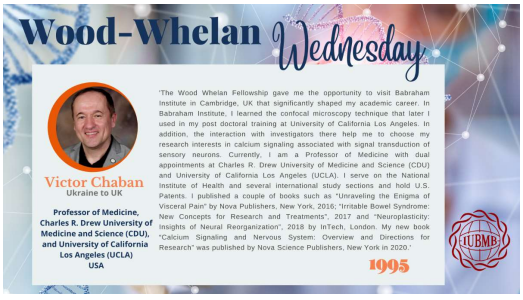
from Santiago (2 hours and 15 minutes driving from Santiago International Airport). The town is located at Colgachua Valley, where most of the best Chilean wines are produced. It is a very charming town, and it was the site of the first meeting of the series in 2011, when it was first created by Christian Gonzalez Billault .

Foldit is a citizen science biochemistry video game that brings people together from all over the world for the purpose of scientific progression through protein folding and related biochemistry problems. In Foldit, players collaborate and compete to solve the biochemistry puzzles using their puzzle-solving intuition. *Info: bit.ly/3J6yM4X*

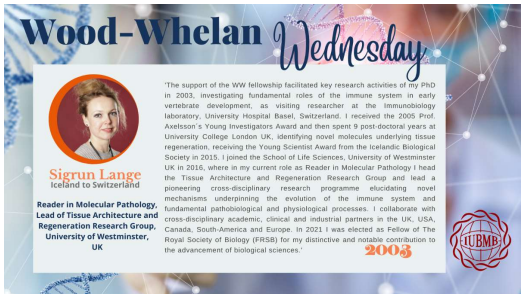


Ricardo Franco went from Portugal to the US to learn useful techniques and has collaborated on joint publications with his mentor years after. He is now an Associate Professor with Tenure in Physical Biochemistry in Nova School of Science and Technology in Portugal.

Andrea Pennati, Italy, came to the US to acquire new skills in mechanistic enzymology and to improve his English. He is now an Associate Director of Research & Development Program for Advanced Cell Therapy at UW - School of Medicine and Public Health in the USA.



Victor Chaban went from Ukraine to the US to learn the confocal microscopy technique and was able to apply it in his post doctoral training. He is



As a PhD student, **Sigrun Lange** went from Iceland to Switzerland to advance her training in immunology, garnering her Prof.

Medicine and Science (CDU) and University of California Los Angeles (UCLA) in the USA.

Architecture & Regeneration Research Group at the University of Westminster in the UK.

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