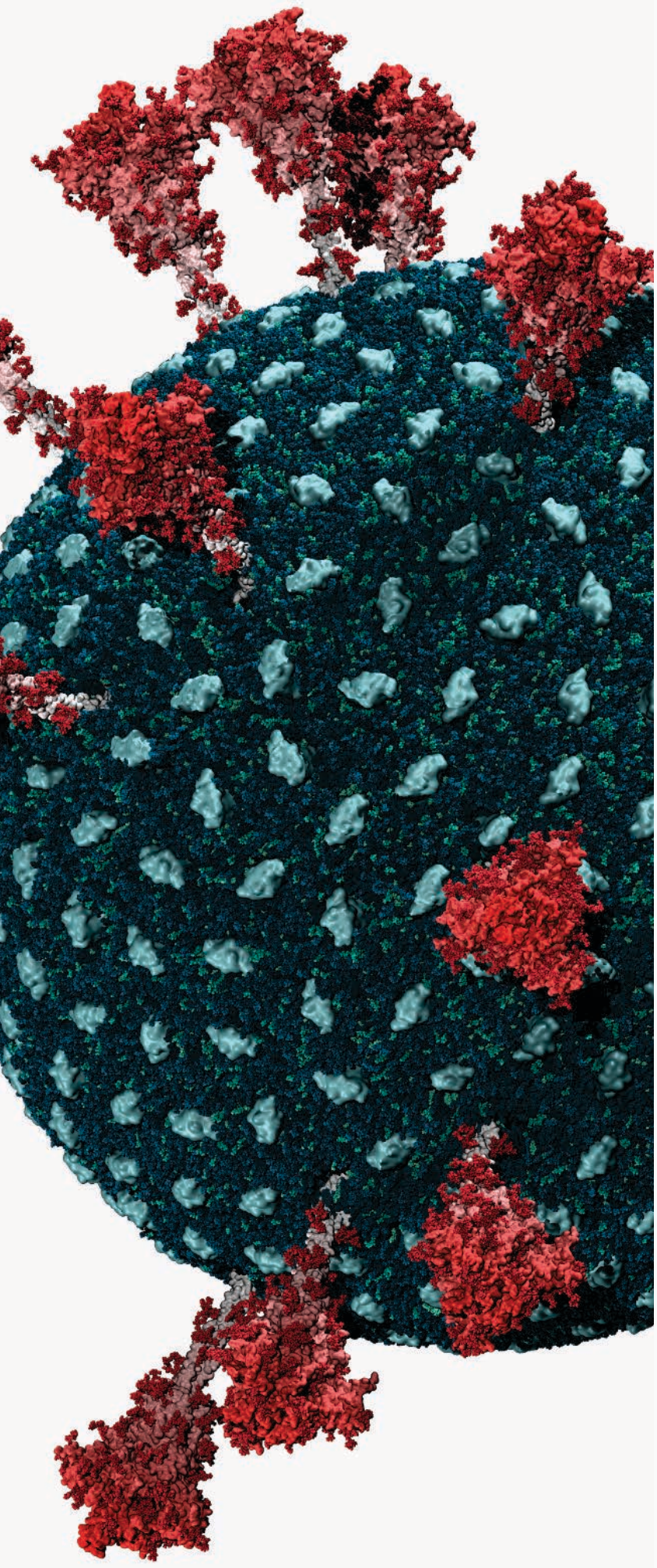
ISSUE NO. 12 • DECEMBER 2021

# IUBMB NEWSLETTER

Image:
*Molecular representation of delta SARS-CoV-2 all-atom model. Spike proteins are colored in red; M and E proteins are depicted in cyan. Viral membrane is shown in teal, blue, and green.*

Credits:
*Abigail Dommer (Amaro Lab, UCSD). Modeling: Abigail Dommer, Lorenzo Casalino, Fiona Kearns, Mia Rosenfeld, Nicholas Wauer, Clare Morris, Rommie Amaro (Amaro Lab, UCSD).*



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# Message from the President

Alexandra Newton

I am honored to serve as President of the International Union of Biochemistry and Molecular Biology for the next three years. First and foremost, I thank Past-President Professor Andy Wang (China, Taipei) for steering the ship through unprecedented times as we navigated how to best serve the community in the wake of the pandemic, and Professor Joan Guinovart (Spain) who served as Past-President during the three years I was President-elect and was a tireless mentor in my 'training' period. I also welcome on board President-elect Dario Alessi (UK) and the new Executive Committee members Professor Yang Mooi Lim (Education and Training Member, Malaysia), Iqbal Parker (General Secretary, South Africa), and Loredano Pollegioni (Treasurer beginning in January, Italy). I look forward to productive collaborations with them and my friends and colleagues staying on another term, Ilona Concha Grabinger (Congresses and Meetings; Chile) and Zengyi Chang (Publications; China), and, until January, Franco Bonomi (Treasurer, Italy). I thank all of them for volunteering their time and expertise to help the global community of biochemists and molecular biologists. Together, we plan to do great things in the next triennium.

I am very pleased that the IUBMB leadership team demonstrates our strong commitment to gender equity and to geographical diversity. According to a report on Inclusion and Participation of Women in Global Science Organizations, the IUBMB is one of the International Science Council unions in the physical/natural sciences with the highest percentage of women on the leadership team (38% where the average is 24%). Furthermore, our newly reconstituted Nominating committee, Congresses and Focused Meetings committee, Education and Training committee, and Fellowship committee are each composed of at least 50% women. In terms of geographical diversity, we have representatives from all four geographical regions (Europe (FEBS), Africa (FASBMB), Asia/Oceania (FAOBMB), the Americas (PABMB)) on the Leadership team and most of our committees. On a personal note, the richness of the cultural, linguistic, and geographical diversity of our team and you, our members, is a great 'perk' of my service to the IUBMB. I grew up on three continents (Africa, Europe, North America) in a multi-lingual family, instilling an avid interest in languages, cultures, and countries.

Awareness of the critical importance of research and education in the biomolecular sciences has never been greater than now, when 'PCR', 'sequencing', 'mutations', 'spike protein', 'mRNA' have become household words. Indeed, the feats accomplished by biochemists, molecular biologists, structural and computational biologists (see our cover image), virologists, and immunologists, among many other disciplines, in the past two years are an exaltation of the biomolecular sciences, raising the public's understanding and appreciation of research to new levels. It has also been a paragon of international collaboration. The global community of biomolecular scientists came together to understand the virus and its mechanism of action, to create vaccines to reduce infections and disease severity, and drugs to treat the disease.

All these advances were possible because of decades of basic research that laid the foundation for the staggering speed and success of the vaccines. We are enormously grateful to all the researchers who work tirelessly to advance science so that it can serve humanity as it has done for helping the world adjust and recover from the Sars-CoV2 pandemic.

I have three priorities in my term as president:

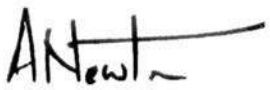
1] give the trainees around the world a voice at the IUBMB by creating a Trainee Initiative. In the past triennium, I worked with our (now Post Graduate) Student Ambassador, Bri Bibel, to engage the next generation of biochemists and molecular biologists with the IUBMB. For example, an enthusiastic group of trainees from around the world volunteered to work with Bri to translate her infographics on Covid-19 PCR tests into 30 languages – see article on FEBS News Channel. Our Trainee Initiative will comprise at least three students from each geographical region who will work together to organize monthly events on research, education, or career workshops.

2] increase membership and visibility, particularly in Africa. The IUBMB provides funds for fellowships, education, and meetings for member organizations. Expanding membership, particularly in less developed countries, will provide much needed opportunities to talented and motivated students to help them advance their training and build their careers. Fellowships such as the Wood Whelan, which fund students to go to a lab in a different country for four months, can open doors and be life changing.

3] undertake a fund-raising campaign to provide more resources to the next generation of biomolecular scientists.

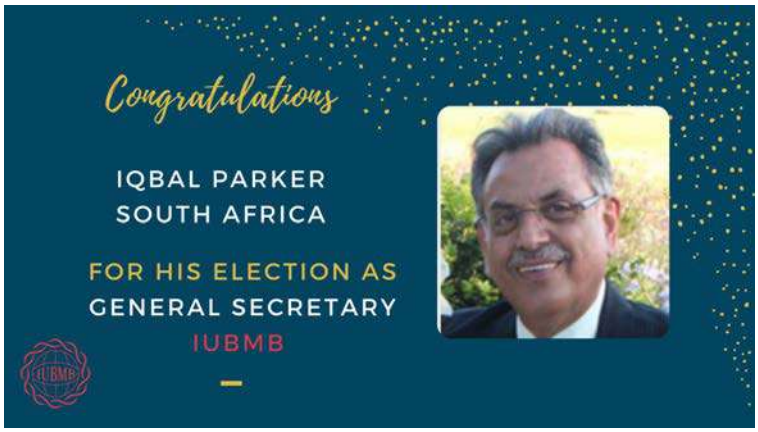
I look forward to meeting you at the upcoming IUBMB Congress or one of the Focused Meetings, Workshops, or Educational Events that bring biochemists and molecular biologists around the world together. In the meantime, I welcome suggestions from the global community of biochemists and molecular biologists on how the IUBMB can better serve you.

Sincerely,



Alexandra Newton, PhD
President, IUBMB

# NEW EXECUTIVE COMMITTEE MEMBERS




# NEW COMMITTEE CHAIRS


# ANNOUNCING NEW IUBMB COMMITTEES



The Nominating Committee proposes new candidates for the Executive Committee. The committee consists of the President and another Officer of the Executive Committee, and five other members elected by the Adhering Body delegates. A new Committee will be elected at each Ordinary General Assembly.

# ANNOUNCING NEW IUBMB COMMITTEES

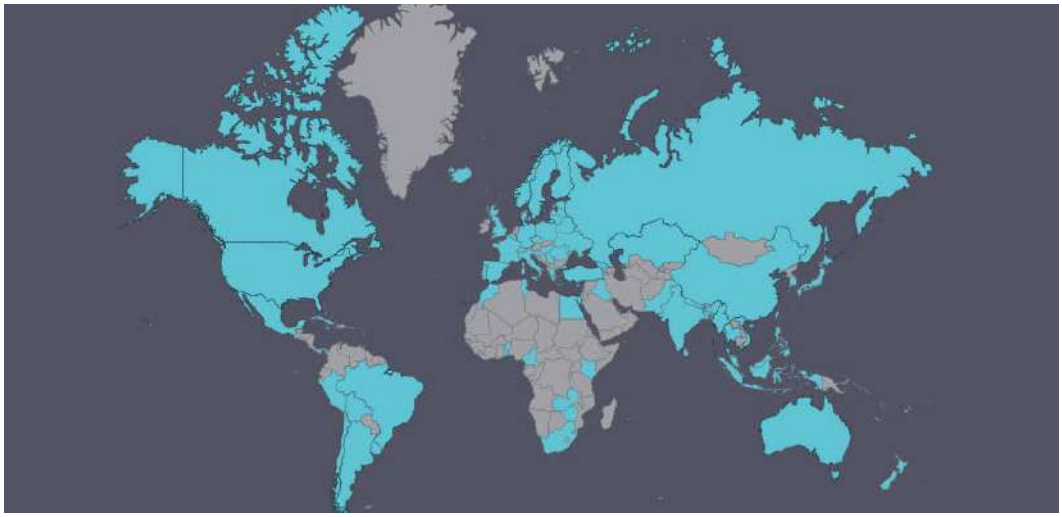

The Congresses and Focus Meetings Committee encourages and supports the organization of meetings for the presentation of original research at the cutting edge of Biochemistry and Molecular Biology and is committed to the robust representation of women, junior investigators, and participants from underrepresented groups from all regions of the world.


The IUBMB Education and Training Committee provides sponsorship and leadership for activities designed to strategically improve education in biochemistry and molecular biology at all levels and to develop the knowledge and skills of educators. The Committee encourages applications and involvement from members of IUBMB Adhering Bodies, Associated Adhering Bodies and Regional organisations.

# ANNOUNCING NEW IUBMB COMMITTEES


The IUBMB Fellowship Committee oversees the IUBMB Research Fellowships. These short-term fellowships support early and mid-career scientists to travel and work in laboratories in other countries to learn techniques and for advanced training not available in their own countries. The fellowships enable the recipients to build valuable collaborations and networks to support their careers.

# THE WORLD OF IUBMB



## IUBMB Adhering Bodies

Argentina • Australia • Belgium • Brazil • Canada • Chile • China (Beijing) • China (Taipei) • Croatia • Czech Republic • Cyprus • Denmark • Egypt • Finland • France • Germany • Greece • Hungary • India • Iraq • Israel • Italy • Japan • Korea • Malaysia • Mexico • New Zealand • Norway • Pakistan • Peru • Poland • Portugal • Russia • Serbia • Slovenia • South Africa • Spain • Sweden • Switzerland • Thailand • Turkey • Ukraine • United Kingdom • Uruguay • USA

## IUBMB Associate Adhering Bodies

Armenia • Bangladesh • Belarus • Benin • Bolivia • Cameroon • Cuba • Estonia • Georgia • Hong Kong • Iceland • Indonesia • Kazakhstan • Kenya • Latvia • Lithuania • Moldova • Morocco • Myanmar • Nepal • Panama • Philippines • Romania • Singapore • Sri Lanka • Togo • Tunisia • Vietnam • Zambia • Zimbabwe

## IUBMB Regional Associated Organizations

**FAOBMB** • Federation of Asian and Oceanian Biochemists and Molecular Biologists
**FASBMB** • Federation of African Societies of Biochemistry and Molecular Biology
**FEBS** • Federation of European Biochemical Societies
**PABMB** • Pan-American Association for Biochemistry and Molecular Biology

## IUBMB Associated Organizations

**IFCC** • International Federation of Clinical Chemistry and Laboratory Medicine
**ISN** • International Society for Neurochemistry
**SFRRI** • Society for Free Radical Research International

# WELCOME PROFESSOR TERRY PIVA

## IUBMB Ambassador for FAOBMB

Terry Piva

Professor Terry Piva was recently appointed as the new IUBMB Ambassador to the Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB) Region. This appointment was made by the IUBMB Executive Committee, after consultation with the FAOBMB Executive Committee. This IUBMB Ambassador position was previously held by Professor Lim Yang Mooi from 2018-2021, and by Professor Phillip Nagley from 2016-2018.

Professor Piva is from RMIT University in Melbourne, Australia. He is a member of the Australian Society for Biochemistry and Molecular Biology (ASBMB) and has been the society's delegate on the FAOBMB Council since 2018.

The purpose of the IUBMB Ambassador appointment is to make contact with organised groups or societies of biochemists and molecular biologists in countries of the FAOBMB region that are not presently Adhering Bodies or Associate Adhering Bodies of IUBMB. Because IUBMB and FAOBMB work very closely, with congruent objectives for the development of research, education and training in biochemistry and molecular biology (IUBMB globally and FAOBMB regionally), there is a parallel role for the Ambassador to help recruit groups or societies of biochemists and molecular biologists in this region to become Members of the Federation of Asian and Oceanian Biochemists and Molecular Biologists, and International Union of Biochemistry and Molecular Biology. The FAOBMB region covers about one-third of the world population, ranging from western parts of Asia and some parts of the Middle East, across Asia and Oceania to the Islands of the South Pacific as far as Hawaii in the East. The additional members to be recruited would gain benefits from becoming formally associated with IUBMB and FAOBMB, especially where the discipline of biochemistry and molecular biology may not be well developed compared to other countries in the region and worldwide.

# BRIANNA BIBEL

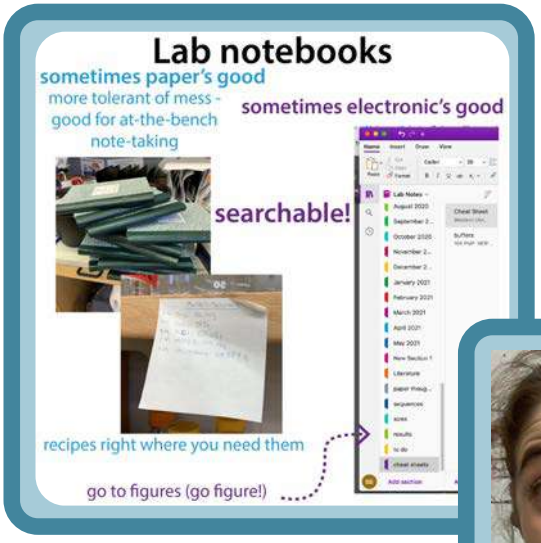
## IUBMB Postgraduate Student Ambassador

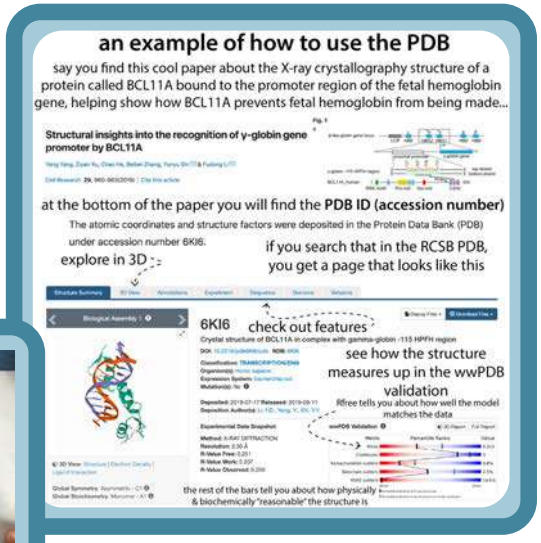
Bri Bibel

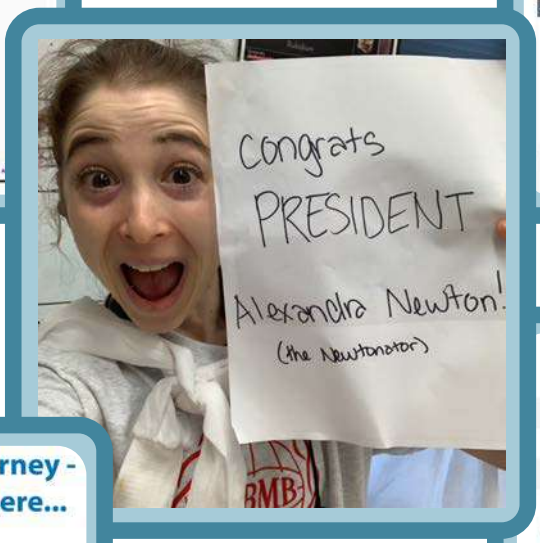
It's been quite the few months... In October I successfully defended my thesis, so your IUBMB grad student ambassador is now your postgraduate student ambassador! Writing my thesis and defending it (and going through grad school in general!) were totally foreign processes/concepts for me. In fact, much of academia seemed like scary black boxes at times. In order to try to make it a little less scary for others, and hopefully make grad school more accessible, over the years as ambassador I've committed myself to taking you all behind the scenes with my weekly "Bri*fings from the Bench." And the thesis-izing? process was no different. From "What is a thesis anyway?" (basically a long document where you write up "all" the work you've done in grad school and how it fits into the bigger scientific context); to "What happens during the defense?" (basically you give a talk about your work and then a committee of professors asks you questions about it); to "What happens after the defense?" (basically they typically ask you to make some minor edits to the thesis and then it's all official). But of course, to get to that point, you first need to apply to grad school and then learn and do a ton of science. Therefore, I shared some advice for making a strong application, as well as tips for things like studying and reading science articles. And one of my favorite Bri*fings - from November, was a guide to some (okay, a LOT) of biochemistry resources (books, websites, articles, videos, software, etc.) that I have relied on and still rely on. Speaking of relying on things, I'm so grateful to have the continuing support of the IUBMB in sharing the love of biochemistry with the world and making it more accessible to all. Here's to a molecular-marvelous postgraduate and then postdoc ambassadorship!

# BRIANNA BIBEL

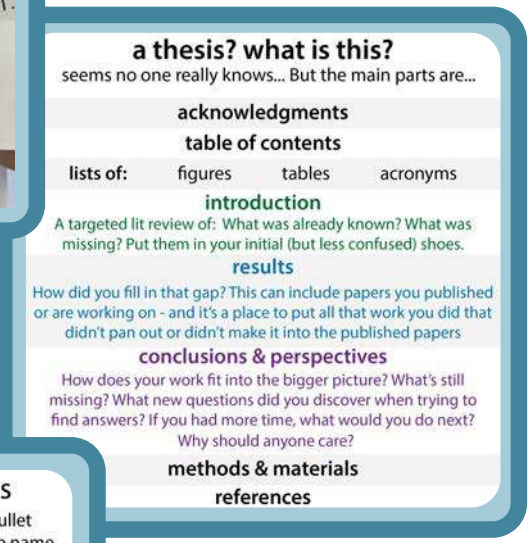
## IUBMB Postgraduate Student Ambassador

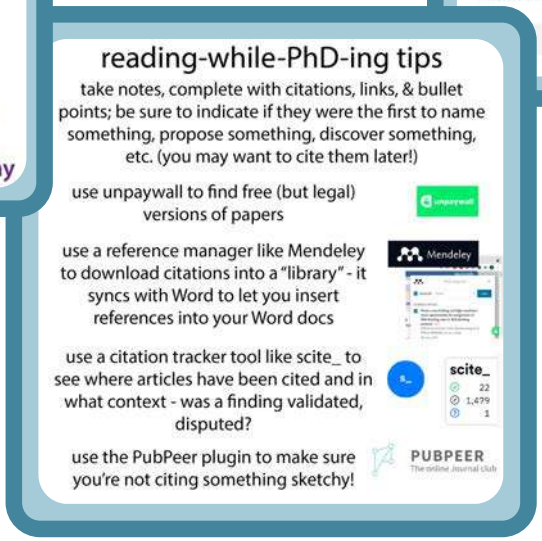




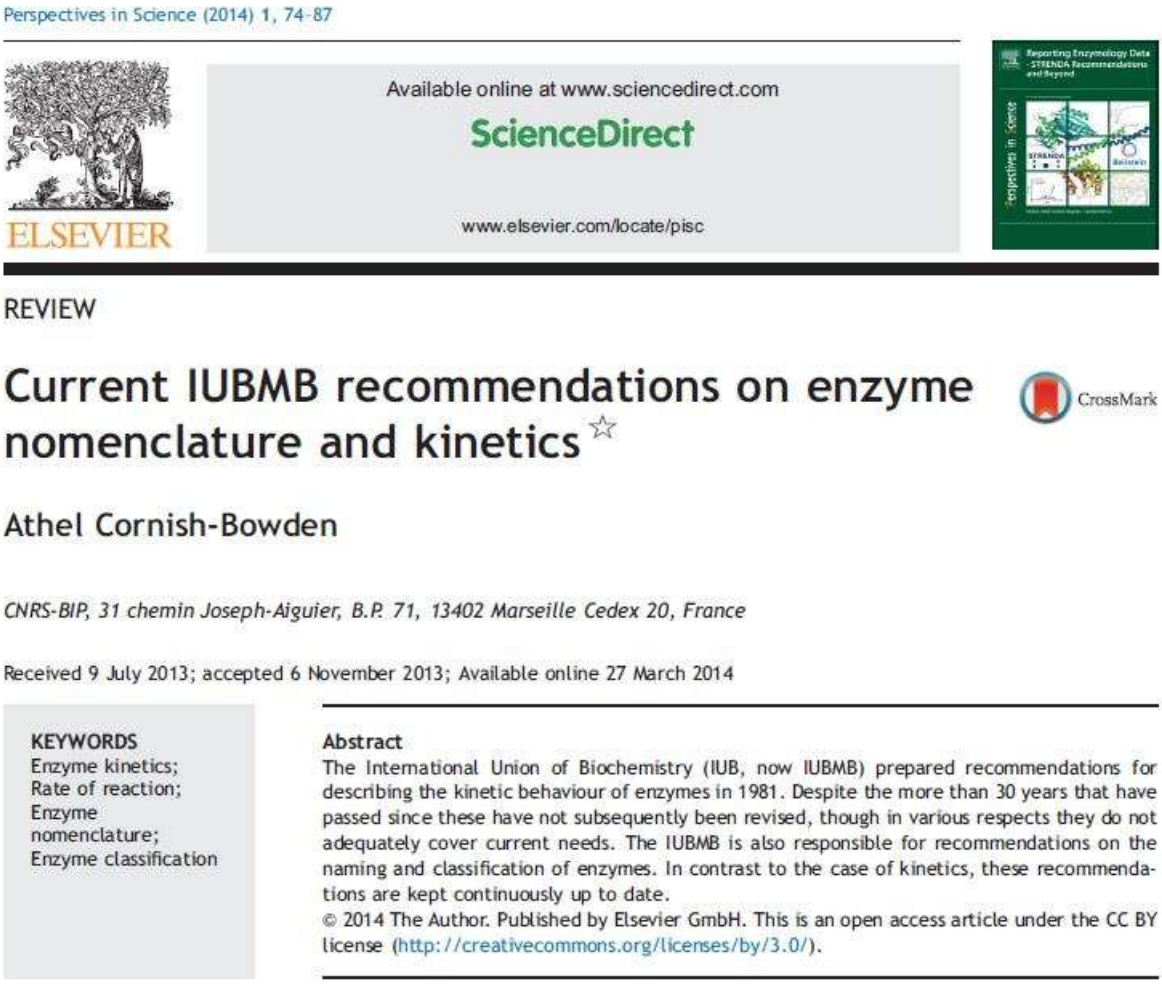



**An exclusive interview with IUBMB President Alexandra Newton (the Newtonator)**

# LATEST NOMENCLATURE ARTICLE

## on the Joint Commission on Biochemical Nomenclature (JCBN) Newsletters



Perspectives in Science (2014) 1, 74–87

Available online at www.sciencedirect.com

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REVIEW

### Current IUBMB recommendations on enzyme nomenclature and kinetics ☆

Athel Cornish-Bowden

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Received 9 July 2013; accepted 6 November 2013; Available online 27 March 2014

**KEYWORDS**
Enzyme kinetics;
Rate of reaction;
Enzyme nomenclature;
Enzyme classification

**Abstract**
The International Union of Biochemistry (IUB, now IUBMB) prepared recommendations for describing the kinetic behaviour of enzymes in 1981. Despite the more than 30 years that have passed since these have not subsequently been revised, though in various respects they do not adequately cover current needs. The IUBMB is also responsible for recommendations on the naming and classification of enzymes. In contrast to the case of kinetics, these recommendations are kept continuously up to date.


Link to full article: https://bit.ly/3rlHx5d

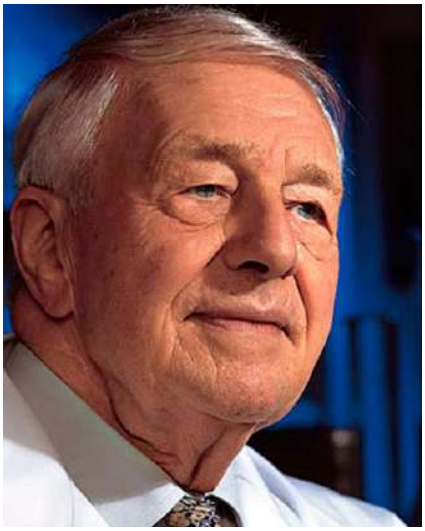
The International Union of Pure and Applied Chemistry (IUPAC) and the International Union of Biochemistry and Molecular Biology (IUBMB) have established the IUPAC-IUBMB Joint Commission on Biochemical Nomenclature (JCBN) and the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology (NC-IUBMB).

More detailed information and the recommendations for biochemical nomenclature including enzyme nomenclature can be found on the nomenclature website and on a website with sophisticated search function that is dedicated to enzyme nomenclature. JCBN Newsletters can be found at JCBN Newsletters

# IN MEMORIAM: BILL WHELAN

## William "Bill" Joseph Whelan (1924 - 2021)

By Alexandra Newton • June 5, 2021



We are sad to relay the news that William 'Bill' Whelan, a renowned biochemist with a long history of influential service to the IUBMB, died June 5, 2021 at his home in Miami. He was 96.

Bill was born on November 14, 1924, in Salford, Lancashire, England. He received his undergraduate and graduate training at the University of Birmingham, receiving a B.Sc., Ph.D., and D.Sc. degrees. He held faculty appointments at the University of Birmingham, University College of North Wales, University of London Linster Institute, and the Royal Free Hospital, where he was head of the Department of Biochemistry. In 1976, Whelan moved to the U.S. to accept the position of Professor and Chair of the Department of Biochemistry at the University of Miami School of Medicine. He was Chair for 24 years, and an active faculty until his retirement in 2019. He was highly influential in shaping the course of the Miami School of Medicine, as outlined in an article in the University of Miami Magazine. He also created the Miami Winter Symposium conferences in 1968, which will be holding its 54th meeting in 2022.

Bill's contributions to biochemistry were vastly influential. He discovered the enzyme glycogenin, a self-glycosylating protein that primes glycogen synthesis and plays a central role in the structure and metabolism of this storage polysaccharide. He offers some additional insight in his IUBMB Life article "My favorite enzyme: glycogenin". He received many awards for his scientific contributions, including the FEBS Millenium Medal, Ciba Medal, and was elected as a fellow of the Royal Society in 1992. He is a Life Time Special Member of IUBMB. In addition to his own research, Bill was highly influential in promoting biochemistry. He started the journals TIBS and FEBS letters, and was the co-Editor-in-Chief along with Angelo Azzi of IUBMB Life from 2000 to 2020. He was IUBMB General Secretary (1973-1983) and President-elect, President, and Past-president from 1994-2003. His extraordinary commitment to training the next generation of biochemists was recently honored by IUBMB with the creation of the Whelan Young Investigator Award. Also named in his honor are the highly popular Wood-Whelan Fellowships that provide opportunities for trainees around the world to visit labs in different countries to enhance their training.

Bill shaped biochemistry, the IUBMB, and three generations of biochemists. We will miss his keen insight, generosity, and sense of humor.

# ENABLE

## "EXPLORING LIFE DYNAMICS: In and out of equilibrium"

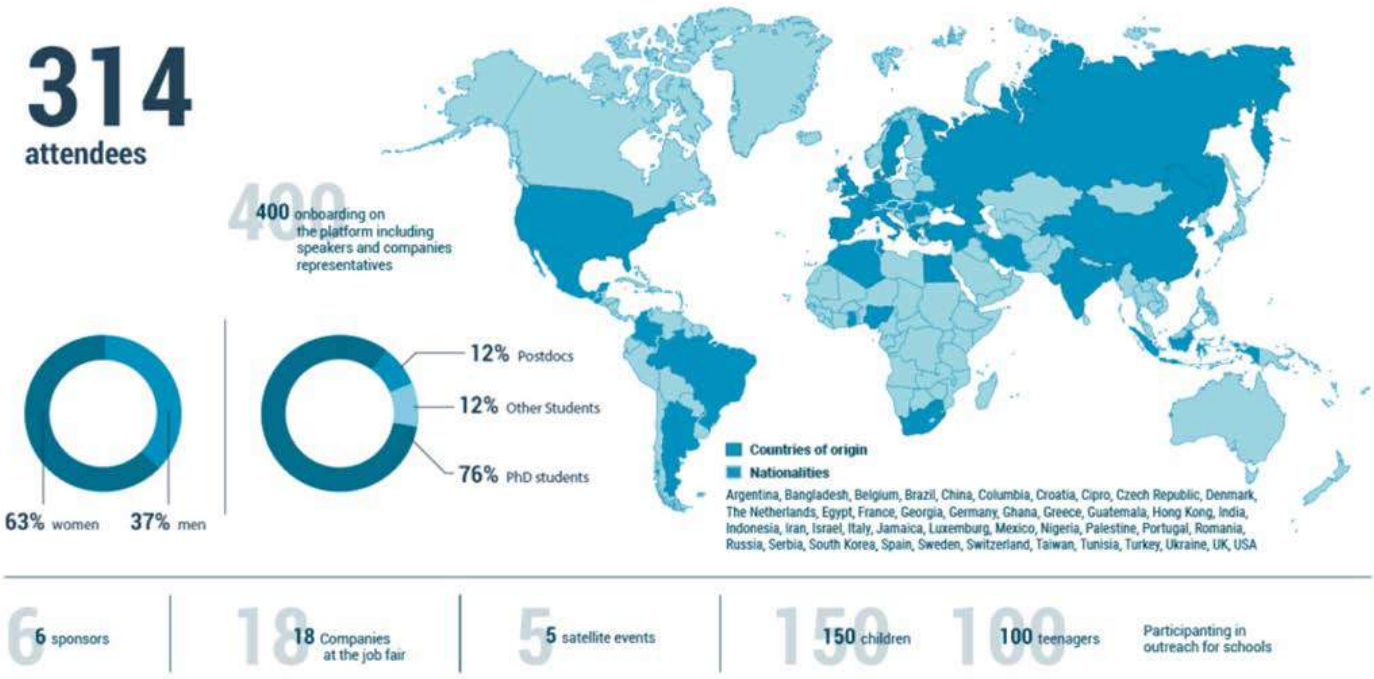
12th 14th May 2021

Report by Francesco Bonomi, IUBMB Treasurer (Italy)

This ENABLE event was the fourth in the EU-sponsored series. Previous ones took place in Barcelona, Copenhagen, and Nijmegen, that is, in locations where three of the original proponents were based. The European School of Molecular Medicine was in charge of the Milan event, initially scheduled for November 2020, but postponed because of the COVID-19 pandemic until May 12-14, 2021. Always because of the pandemic, the event was completely online, with the catchy title: **"EXPLORING LIFE DYNAMICS: In and out of equilibrium"**.

Regardless of its online format, the ENABLE 2021 event was very successful, with 314 young researchers in virtual attendance, representing 43 countries (both EU and non-EU). A vast majority of the attendants (74%, see below) was made up of graduate students, with the remainder of the attendants split almost equally between post-docs and other students.

The format of the event mirrored that of previous editions, merging three main components: a scientific symposium, a Career Day, and a number of outreach events for high school students and for the general public. Some of the data pertaining to gender and geographical distribution are presented in the figure here below (from the ENABLE website).



## Scientific Sessions

The scientific sessions relied on eight keynote speakers (four for each gender, including two non-European) from seven countries, that used distinct time slots to cover the following topics:

**Fundamental Biology:** The many hats of the cell
**Integrative Omics:** Towards personalised medicine: solving the enigma of bytes
**Translational Medicine:** Bridging the gap between bench and bedside
**Multidisciplinary Research:** Life sciences join forces to push biomedicine forward

## Satellite Events

Since the event was held online, the funds raised from the sponsors (FEBS, IUBMB, EATRIS, Zeiss, The Company of Biologists and New England Biolabs) were not used to award travel grants, but to support a total of five satellite events. Interested participants had the opportunity to submit a satellite event proposal, to be held in a separate location and date. A list of the satellite events includes:

A) **Bridging the gap between academic, clinical and industry collaborations: impact across the research lifecycle**
Virtual workshop promoting the career development of international early career researchers.
*10 May 2021, University College of London, UK.*

B) **Targeting translational biomedicine through interdisciplinary science**
Virtual congress on the role of interdisciplinary science in biomedical research, giving a global perspective of career development pathways through the experiences of early-career researchers.
*10 May 2021, Maimónides Institute for Biomedical Research of Córdoba (IMIBIC), Spain.*

C) **ENABLE your Career: PhD, and What's Next!**
In-person event. Academia vs. Industry round table and "Scientist for a Day" (outreach event with local primary school students).
*11 May 2021, Centro de Investigación Médica Aplicada (CIMA), Spain.*

D) **POP UP LAB – Improv meets Biomedicine**
Improvised theatre was used as a medium to engage the general public with some of the latest scientific research in biomedicine.
*10 May 2021, Novo Nordisk Foundation Center for Protein Research (CPR), Denmark.*

E) **How to simplify science without inaccuracies**
Virtual event aiming to give scientists tips on how to improve their science communication skills for the general public.
*15 June 2021, Institute for Research in Biomedicine (IRB), Spain.*

## Career Day

The Career Day is one of the core activities of all ENABLE events so far. Despite the online format of the ENABLE 2021 gathering, participants had a chance to take part in three complementary career activities: discussions with 12 experts from different career paths in the “Career chats” section, 12 “workshops” aimed at building new skills, and an “Opportunity Fair” hosting 18 participating institutions from academia, start-ups, as well as from the biotech and pharmaceutical world and from scientific societies, including FEBS and IUBMB. Representatives from both the scientific societies (Jerka Dumic for FEBS and Francesco Bonomi for IUBMB) were manning a “virtual booth” for each organization, in which they were able to answer questions from interested participants (not too many, at least in the case of IUBMB) and to chat online with some of the attendants. As usual, fellowship-related issues were among the most discussed topics.

Screenshots from one of workshops and from one of the career chats (both from the ENABLE website) are provided on the next page. The latter picture also offer an opportunity to appreciate the general layout of the interactive screen used all through the virtual ENABLE 2021.

***Workshops***

*ENABLE 2021 participants had the opportunity to join one of the 12 workshops on personal and professional development, covering a broad range of topics, including:*

- *How to prepare a competitive application for funding schemes in cancer research*
- *Talk that science! – Tips for science communication and outreach*
- *Building Personal Resilience and Handling Stress*
- *Goal setting and time management*

***Career chats***

*Career chats are meant to foster a direct interaction between the PhD and Postdoc communities and experts such as PIs, industry CEOs, medical science liaisons, medical advisors, regulatory affairs managers, science management consultants, editors and science communicators. Each event had a dedicated virtual room, with the possibility to switch from one chat to another.*

***Opportunity Fair***

*This activity is meant to provide an opportunity to meet up with companies and organisations and build constructive interactions with people from various life science sectors. Representatives were present from:*

*Pharmaceutical and Biotech companies*
*Academic organisations*
*Scientific Societies*

From one of the workshops


From one of the career chats

## Outreach activities

Behind all the ENABLE activities is the belief that science should not be hidden within academic experts, and public outreach has always been a core value for ENABLE. The COVID pandemic has confirmed that science needs to be properly shared to avoid misinformation and its consequences. Online outreach and public engagement activities at ENABLE 2021 included:

**Ask the scientist**
In collaboration with WIRED, an online science and technology magazine, a virtual event was developed to approach the frontiers of Neuroscience. Chaired by Andrea Gentile from WIRED magazine, four experts with different backgrounds discussed a variety of top research lines, from epigenetics to the ethical framework of neurogenomics and psychiatry, with Artificial Intelligence as a backbone topic.

**Cross-Disciplinary Session**
In collaboration with eXtemporanea, a community of young European researchers, this virtual event considered the intersection between Artificial Intelligence and humans. The topics ranged from the basics of algorithms to their limitations in solving some scientific (and human) problems, raising questions about the connection between social dynamics and machines.

**Activities for schools**
Outreach events targeted at children and teenagers included an educational activity called “Discovering the invisible world” involved 10-11 year old primary school students with a practical section in which children performed basic and fun experiments to learn about microbes.

Middle school students aged 12-13 attended “Genome editing: goals and new challenges” and introduced to the concepts of DNA and how it can be modified.

The activity “A model for each experiment”, which targeted high school students, explained the most common models used in life science research–from cells to complex organisms–and their applications to study human diseases.

**Pub Talks**
This is another “classical” ENABLE activity, with attendants volunteering to present 10-minute talks about mind-blowing science, still online but over a beer...! International PhD students and Postdocs taking part in the ENABLE conference shared their work with the general public in a short, entertaining and easy-to-grasp manner. All talks were streamed on YouTube.

## Overall comments

Admittedly, given age and old-school habits, yours truly was a tad skeptical on my involvement in an online-only event. However, everything went in an extremely smooth fashion, thanks to the professional backstage assistance and to the patient attitude of everyone. The topics of the scientific sessions were interesting, and the participants to the other events I attended were dripping genuine and contagious enthusiasm (maybe I should be more careful in my choice of adjectives in these pandemic times...). Anyway, no matter whether “live” or “remote”, ENABLE seem to deserve to live longer than the four year of EU support, and this is why both FEBS and IUBMB have joined their efforts to make sure that this initiative will live on, and possibly acquire a worldwide visibility and impact.

# THE IUBMB-FAOBMB-CBSL VIRTUAL EDUCATION SYMPOSIUM 2021

## "The 'New Normal' Biochemistry and Molecular Biology (BMB) Education"

30th July 2021

Report by Sugandhika Suresh[1], Tharanga Thoradeniya[2], Sharmila Jayasena[3], Gracia Fe B. Yu[4]

[1] Past President, College of Biochemists of Sri Lanka and University of Sri Jayewardenepura
[2] Vice-President, College of Biochemists of Sri Lanka and University of Colombo
[3] President, College of Biochemists of Sri Lanka and University of Colombo
[4] Education Committee Chair, Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB), and University of the Philippines Manila


### Background

The International Union of Biochemistry and Molecular Biology (IUBMB), the Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB) and the College of Biochemists of Sri Lanka (CBSL), conducted the 1st Virtual Education Symposium themed "The 'New Normal' Biochemistry and Molecular Biology Education", on the 30th of July 2021.

In response to the current challenging times of uncertainty and postponement of learning activities, this event was planned to provide the participants with a much-needed opportunity to explore more creative, innovative, and interactive ways of teaching and learning in the 'new normal'. The term 'new normal' was coined during the COVID-19 pandemic where unforeseen changes occurred in all fields of life including education, requiring adjustments to efficient delivery of content with minimal in-person activities. The first FAOBMB virtual BMB education aimed to identify gaps, challenges and ways forward for effective delivery of BMB curricula.

The programme of the symposium comprised three sessions. The first session composed of the keynote speech and the plenary lectures. The second session was conducted as four parallel breakout sessions that culminated in the third session. Although the symposium was a virtual event, the activities were conducted with the in-person participation of members of the organizing committee and the service provider at Jaic Hilton Residencies, Colombo which was the symposium venue.

**PROGRAMME**
**Opening Ceremony and Plenary Session**

| **IUBMB – FAOBMB – CBSL - Virtual Education Symposium 2021 Program<br>"The 'New Normal' Biochemistry and Molecular Biology (BMB) Education"<br>30th July 2021<br>0700 – 1400 IST (Indian Standard Time)** | | |
|---|---|---|
| | **OPENING CEREMONY** | |
| **0700 - 0730**<br><br>*0930 - 1000 (PHL)*<br>*0930 - 1000 (TW)*<br>*1030 - 1100 (JP)*<br>*2130 - 2200 (USA)*<br>*11:30 - 24:00 (AU)* | Opening Remarks | **PROF. ANDREW WANG (TW)**<br>**IUBMB *President***<br><br>**PROF. AKIRA KIKUCHI (JP)**<br>***FAOBMB President***<br><br>**PROF. SHARMILA JAYASENA (SL)**<br>**CBSL President**<br>UNIVERSITY OF COLOMBO, SRI LANKA<br><br>**PROF. CHANDRIKA WIJERATNE** (SL)<br>VICE CHANCELLOR, UNIVERSITY OF COLOMBO, SRI LANKA<br><br>**PROF. SUDANTHA LIYANAGE** (SL)<br>VICE CHANCELLOR, UNIVERSITY OF SRI JAYAWARDENAPURA, SRI LANKA |
| 0730 - 0735<br>*1000 - 1030 (PHL)* | Introduction of the Keynote Speaker | **PROF. GRACIA FE B. YU (PH)**<br>University of the Philippines Manila, Philippines |
| 0735 - 0815 SL<br>*2205 - 2245 (USA)* | **Keynote Speech:**<br>*The Push We Needed: How the Global Pandemic Forced us to Reconsider How we Deliver a BMB Curriculum* | **PROF. DANIEL R. DRIES (US)**<br>Juniata College, Pennsylvania, USA |
| | **Master of Ceremony** | |
| | **SESSION 1**<br>**PLENARY SESSION**<br>**Innovative and creative techniques in teaching and learning BMB in the 'New Normal'**<br><br>Chairperson: Prof. Sheila Nathan (MY) | |
| 0815 - 0845<br>*2345 - 0015 (Brazil)* | *Teaching Laboratory activities in transformation: adaptations during and after COVID-19* | **PROF. GABRIEL HORNINK (BR)**<br>Federal University of Alfenas, Brazil |
| 0845 - 0915<br>*2315 - 2345 (USA)* | *The 10 Best practices for taking experiential learning online* | **PROF. GLENDA GILLASPY (US)**<br>*Virginia Tech,* USA |
| 0915 - 0945<br>*2345 - 0015 (USA)* | *"Python and Jupyter Notebooks in BMB Teaching and Research"* | **PROF. PAUL CRAIG (US)**<br>Rochester Institute of Technology, NY, USA |
| 0945 - 1015<br>*1415 - 1445 (AU)* | *Innovative and creative techniques in BMB education in the new normal* | **PROF. ELIZABETH JOHNSON (AU)**<br>Deakin University, Melbourne, Australia |
| 1015 - 1045<br>*1245 - 1315 (SG)* | *Making online learning more fun and more effective through peer instruction* | **PROF. THILO HAGEN (SG)**<br>National University of Singapore |
| | Introduction to Session 2 | |
| 1045 - 1100 | *HEALTH BREAK* | NZ Video/ Video on CBSL/SL |

## Inauguration

The symposium was inaugurated at 7:00 a.m. local time in Colombo, with the participation of many eminent dignitaries from FAOBMB and Sri Lanka. Professor Andrew Wang, the IUBMB immediate Past President delivered the welcome address, which was preceded by playing the national anthem of Sri Lanka. FAOBMB President, Professor Akira Kikuchi, offered his congratulatory message which was followed by the address of the President of CBSL, Professor Sharmila Jayasena. Professor Jayasena while welcoming the participants, briefly outline the organizing activities related to the symposium. Senior Professor Chandrika Wijeyaratne, Vice Chancellor, University of Colombo and Senior Professor Sudantha Liyanage, Vice Chancellor, University of Sri Jayewardenepura addressed the gathering as Guests of Honour.

## Keynote Speech

Professor Gracia Fe B. Yu, Education Committee Chair-FAOBMB, introduced the keynote speaker Professor Daniel Dries, Juniata College, Pennsylvania, USA who delivered an eye-opening and captivating talk titled “The push we needed: How the global pandemic forced us to reconsider how we deliver a BMB curriculum”.

## Session 1

The theme of this session was “Innovative and creative techniques in teaching and learning BMB in the ‘new normal’” This session was chaired by Professor Sheila Nathan, General Secretary-FAOBMB.

The first plenary talk was delivered by Professor Gabriel Hornink, from Federal University of Alfenas, Brazil who discussed “Teaching laboratory activities in transformation: adaptation during and after COVID-19”. He expressed that there are activities that can be conducted with a focus on laboratory practical activities, using animations, simulations and interactive videos embedded in the teaching platform.

Professor Glenda Gillaspy from Virginia Tec, USA delivered her plenary lecture on “The ten best practices for taking experiential learning online”, where she elaborated on the Research and Extension Experiences for Undergraduates (REEU) program conducted at her university where it had been originally designed, implemented and adapted to deliver an at-home research experience that maintained student engagement and mentorship, and a shared sense of community.

Professor Paul Craig joined from the Rochester Institute of Technology, USA to speak on “Python and Jupyter note books in BMB teaching and research”. He explained that Jupyter notebooks are a powerful tool for teaching and research that enable instructors and students to move beyond spreadsheets and web applications for data analysis, plotting and forecasting.

“Innovative and creative techniques in BMB education in the new normal” was the title of the plenary lecture delivered by Professor Elizabeth Johnson, Deakin University, Melbourne, Australia. She highlighted that teaching science needs to address the twin challenges of authenticity and engagement in an increasingly digital world, where the learning design and mode of delivery should be selected to match the outcomes intended through intentional curriculum design.

The final plenary speaker of the symposium was Professor Thilo Hagen from the National University of Singapore who discussed “Making online learning more fun and effective through peer instruction”. He reiterated that team-based learning has numerous advantages and is an especially useful approach to engage students in an online setting. He shared his experience with implementing team-based learning and peer instruction using the Learning Catalytics courseware.

## Session 2 - Breakout sessions: "Identification of gaps and challenges in 'new normal' BMB education"

The highlight of the symposium was the session 2 where participants who were pre-registered for a selected track of their choice, gathered in breakout rooms to discuss different aspects of BMB education. The four parallel breakout sessions took off with mini introductory talks that paved the way for the discussions. For each breakout session, there were 2-4 facilitators who led the discussions and identified contributors and other participants actively contributed to identify the gaps, challenges and ways forward for each aspect of BMB education. Rapporteurs were appointed to record and take down notes for further processing.

| | | | | |
|---|---|---|---|---|
| **1100 - 1230**<br>*1330 - 1500 (PH)* | **SESSION 2**<br>**PARALLEL SESSIONS**<br>**(Breakout rooms)**<br>**"Identification of gaps and challenges in 'new normal' BMB education"** | | | |
| | Introduction to Session 2 (MC) | | | |
| | **Large classes** | **Teaching Labs** | **Assessments** | **Student perception** |
| | **Link 2:**<br>***Mini Introductory Talk***<br>***Prof. Ban Hon Kim Kenneth*, (SG)**<br><br>Facilitator:<br>Contributors: | **Link 3:**<br>**Mini Introductory Talk**<br>***Dr. Amaal Abrahams (SA)***<br><br>Facilitator:<br>Contributors: | **Link 4:**<br>**Mini Introductory Talk**<br>***Prof. Rasika Perera* (SL)**<br><br>Facilitator:<br>Contributors: | **Link 5:**<br>**Mini Introductory Talk**<br>***Dr. Crist John Pastor (PH)***<br><br>Facilitator:<br>Contributors: |
| 1230 - 1245 | *HEALTH BREAK* | | | |

### Breakout session 1 – Teaching large classes

Professor Shannon Au, (Hong Kong), Professor Joon Kim, (Republic of Korea) and Professor Sugandhika Suresh, (Sri Lanka) were the facilitators of the session. Professor Suresh introduced the mini speaker and the facilitators of the session to the audience and set down the ground rules for the procedures of the session. Prior to the mini introductory lecture, a poll was conducted to determine whether the participants had experience in teaching virtual large classes. The results revealed that 86% of the participants had such experience. Professor Ban Hon Kim Kenneth from the Yong Loo Lin School of Medicine, Singapore delivered the mini introductory lecture to kick-start the procedures of this breakout session. He briefly discussed possible approaches to handling virtual large classes. Following the talk, the facilitators led the discussion to elicit responses of the participants.

The discussion revolved around four questions:

i. How to keep the learners interested and focused during a virtual large class
ii. How do we ascertain that the learners in large classes are interested and focused?
iii. How to motivate the learners to learn actively by interacting and contributing **during** a large class
iv. How to motivate the learners to learn actively **after** a large class

There was a very active participation from all the participants and they expressed their opinions regarding the posed questions and attempted to figure out the gaps, challenges and ways forward. Everyone agreed that teaching large classes online which could have more than 500 students at a time is quite challenging. This group was further divided into 10 sub-breakout rooms where more in-depth discussions were held in much smaller groups. Table 1 summarizes the details of the discussion. The discussions were followed by a demonstration by Professor Thilo Hagen who conducted a hands-on peer teaching activity session for the participants. He demonstrated how peer teaching employed productively during a large class teaching.

*Table 1 - Brief summary of the discussion in the parallel session on teaching large class*

| Gap/Challenge | Ways forward/Suggestions |
|---|---|
| Lack of interest and focus during virtual large classes | • Using animated contents, videos and attractive tools<br>• Giving small breaks during the class.<br>• Giving the lecture note one day prior to the class and asking the students to come prepared<br>• Giving a question related to real life scenarios to be answered in breakout groups<br>• Asking questions by name<br>• Having a Teaching Assistant/Demonstrator present during the class |
| Inability to ascertain whether students are attentive and motivated during the class | • Getting the students to switch the cameras on and answer questions during the lecture<br>• Encouraging students to ask questions verbally or in the chat, and making sure that answers are given during a lecture break or after<br>• Using annotate function and interactive software |
| Inability to check whether students are motivated to learn after the class | • Conducting tutorials and small group discussions<br>• Getting all the students to speak during the tutorials<br>• Uploading lesson materials to LMS |

### Breakout session 2 – Teaching Labs

The second parallel session focused on teaching labs online. The facilitators of the session were Professors Yang Mooi Lim (Malaysia), Dong-Yan Jin (Hong Kong) and Dr. Tharanga Thoradeniya (Sri Lanka). A poll conducted, reflected that 78% of the participants in this breakout session had conducted practical classes online.

Dr. Thoradeniya introduced the facilitators of the session and proceeded to invite Dr. Amaal Abrahams, University of Cape Town, South Africa to deliver the mini introductory lecture. She explained that traditionally, biochemistry and molecular biology at the undergraduate level consisted of a lecture followed by a hands-on practical component, where theoretical content and concepts into the practical is considered essential in developing applied, analytical and problem-solving skills which are all essential attributes of a science student. She stated that many academics, viewed the forced transition from on-sigh t to online teaching due to the pandemic as an interim measure. Dr. Abrahams elaborated that even though it is now more than one and half years since the onset of the COVID-19 pandemic, students continue to have limited or no access to laboratory facilities.

The participants then engaged in discussing the following points:

i. How are the teaching labs different to other modes of teaching?
ii. How to keep the learners interested and focused during a virtual/remote teaching lab?
iii. Are there innovative solutions you have introduced to your classes esp. in resource limited setting?

It was unanimously agreed that practical sessions cannot be completely replaced by online teaching sessions. Since it is essential to get hands-on experience in certain area of BMB curricula, teaching labs is considered the greatest challenge among online teaching activities. Therefore, virtual labs differ significantly from other modes of teaching.It was expressed that certain components can be effectively taught online leaving room for essential components to be handled in on-sight laboratory teaching. Participants discussed these points were in sub-breakout rooms. The main points identified are summarized in Table 2.

Table 2. Brief summary of the discussion in the parallel session on Teaching Labs

| Challenge | Ways forward/suggestions |
|---|---|
| Lack of an ideal virtual lab | • Conducting live practical sessions from the lab for students to join online and participate actively<br>• Having prerecorded practical sessions for students to go through<br>• Using different software, AI and apps |
| Inability to ascertain whether students are attentive and motivated during the class | • Having live Q and A discussion during the virtual lab<br>• Giving assignments on the practical sessions |
| Identifying innovative methods of conducting online labs | • Getting students to conduct basic practical sessions using improvised ingredients from home |

### Breakout session 3 – Online Assessments

The third parallel session dealt with the challenging issue of conducting online assessments in BMB. Professors Tuangporn Supthiphogchai (Thailand), Wen Jiang, (China) and Sharmila Jayasena (Sri Lanka) were the facilitators for this session. Professor Jayasena introduced the mini introductory lecturer of the session Professor Rasika Perera, University of Sri Jayewardenepura, Sri Lanka who set the stage for the discussion by emphasizing the importance of assessing knowledge, skills as well as attitudes regarding BMB education. Professor Perera highlighted that assessments are a major force that drives learning. He stressed that the challenging task was to assess the competencies of students online in a credible manner.

With the active participation of facilitators and participants, the group discussed the following points regarding BMB assessments online:

i. How to assess whether the learning outcomes of the lesson are achieved
ii. How to assess the depth of learning
iii. How to ensure the transparency and credibility

The participants of these sessions stressed that meticulous measures are needed in place to ensure the credibility of online assessments. Resources and infrastructure facilities should be available for the students to complete examinations online. The participants deliberated on these in smaller groups in sub-breakout rooms. The main findings of session 3 are shown in Table 3.

Table 3 – Brief summary of the discussion in the parallel session on Assessments

| Gap/Challenge | Ways forward/Suggestions |
|---|---|
| Ensuring learning outcomes are achieved | • Having structured viva<br>• Giving open-book assessments<br>• Focusing on formative assessments<br>• Using google forms immediately after a class |
| Achieving desired depth of the curriculum | • Having open book exams testing deeper level of understanding/ questions requiring critical thinking<br>• Software to monitor progression of learning |
| Ensuring credibility / preventing cheating in the online assessments | • Using Webcams positioned to view student environment<br>• Crosschecking the authenticity via interview/ chat following the online exam |

### Breakout session 4 – Student perception

The most anticipated session of the symposium, without doubt, was the parallel session on student perception regarding online teaching of BMB. This is the first time such a session has been dedicated to get an input from student participants during an education symposium. This session was conducted entirely by undergraduate and graduate students. Dr. Indika Neluwa-Liyanage and Miss Ghajhanee Vigneswaran, University of Sri Jayewardenepura, Sri Lanka and Mr. Minul Doluweera, Mr. Asel Jatunarachchi and Mr. Harindu Kirihena from University of Colombo, Sri Lanka were the facilitators for this session. Dr. Indika Neluwa-Liyanage invited Professor Crist John Pastor, Philippine Normal University, Philippines to deliver the mini introductory lecture of the session.

He explained the importance of understanding student perception especially in virtual education. The key for active student engagement is their positive attitudes towards learning which is directly affected by student perception. The 'T pach model' related to content, pedagogical knowledge and technical knowledge was used by the speaker to emphasize the importance of sound technical knowledge of educators and the balance between pedagogy and technology. The teacher being available to answer students' queries and interact with them through various virtual platforms and setting tasks to students which involve interaction with their family members were discussed as vital requirements during the new normal BMB education.

The team held the discussion to address the issues mentioned below:

i. How to motivate students during an online class
ii. How to improve critical analytical skills
iii. Different virtual platforms for online teaching/learning

As an ice-breaker, a poll was conducted which revealed that the friendly encouraging environment created by the virtual setting to ask questions by any student is an advantage of online learning whereas lack of motivation in students during online lectures was identified as a major challenge. A role-play was staged to depict the flaws of the current scenario faced by both teachers and students and this was an eye-opener for discussions. There were sub-breakout rooms where participants continued the discussion in smaller groups. The main findings of the parallel session on student perception are given in Table 4.

Table 4 – Brief summary of the discussion in the parallel session on Student Perception

| Gap/ Challenge | Ways forward |
|---|---|
| Lack of motivation by students | • Using a variety of modalities to teach (role play, drama)<br>• Conducting small group discussions and breakout rooms to cut through the barrier of fear to engage |
| Selecting the best virtual platforms used world over to teach BMB | • Zoom platform (due to its user-friendly interface, larger audience capacity and breakout room availability)<br>• Google-meet and Microsoft-teams<br>• Apps like Kahoot, virtual Universities and other social media features |

**Session 3 – Wrap up session on "Making BMB education more effective in the 'new normal' – The way forward"**

| | | |
|---|---|---|
| | **SESSION 3**<br>**"Making BMB education more effective in the 'new normal' – The way forward"**<br><br>Moderator: Dr. Tharanga Thoradeniya | |
| 1245 - 1345<br>***1515 - 1545 (PH)*** | **Link 1:**<br>**Outcome presentations** by facilitators from the 4 groups to present (8-10 min each) | |
| 1345 - 1400 | Closing Remarks | Prof. Sugandhika Suresh |

Key findings of the of the Session 2 were summed up and presented in this final session for the day. Dr. Tharanga Thoradeniya chaired the session. The chairperson invited Professors Sugandhika Suresh, Yang Mooi Lim, Sharmila Jayasena and Dr. Indika Neluwa-Liyanage to present the essence of findings from the respective breakout sessions. Each speaker highlighted the identified challenges and the suggested ways forward for BMB education in the 'new normal'. Professor Sugandhika Suresh delivered the closing remarks of the symposium. Professor Suresh presented a gist of the discussions held during the conference and continued with the vote of thanks on behalf of the Organizing Committee and the College of Biochemists of Sri Lanka.

The IUBMB – FAOBMB – CBSL - Virtual Education Symposium 2021 titled "The 'New Normal' Biochemistry and Molecular Biology (BMB) Education" was thus successfully conducted.

### Participants

There was an overwhelming participation for the symposium from all continents of the world. The total number was 445 from 26 countries. In addition to this number, many participants have joined the symposium from a single venue/device making the actual number of participants more than 500.

***List of participant countries***

| | | |
|---|---|---|
| Australia | Japan | Republic of Korea |
| Bangladesh | Malaysia | Singapore |
| Brazil | Mongolia | South Africa |
| Canada | Myanmar | Sri Lanka |
| China | New Zealand | Taiwan |
| Germany | Nigeria | Thailand |
| Hong Kong | Pakistan | USA |
| India | Philippines | Vietnam |
| Indonesia | Qatar | |

| **SYMPOSIUM EVALUATION :** | |
|---|---|
| 1. How do you rate the overall organization of the Symposium? | Excellent – 78%<br>Good - 21.3% |
| • The regular email communication leading up to the meeting was extremely helpfull like all the speakers.<br>• The topic is very timely.<br>• Superb symposium<br>• Great, smooth and professional conference organization.<br>• Great work | |
| 2. Were you able to gain new and/or beneficial knowledge about BMB Education in the new normal by participation in the symposium? | Yes - 95%<br><br>Somewhat - 5% |
| • I was encouraged to reconsider new ways to focus on student learning and active learning in the classroom<br>• Very useful<br>• Amazing<br>• Provide more beneficial symposium<br>• The symposium was definitely relevant in he new normal<br>• It is very important<br>• Yes, available and open-source computational tools ave been shared as well | |
| 3. How would you state the opportunity available to interact and network with other participants: | Excellent. - 59.0%<br>Good - 29.5%<br>Adequate - 9.0%<br>Lacking - 0.5% |
| • super duper<br>• paticipative<br>• enjoyable<br>• Breakout sessions are very good<br>• There is a focus group discussion in the breakout session<br>• It's good to have interaction with others to gain new insights | |
| 4. Symposium duration event | Adequate - 88.8%<br>Too short. – 7.5% |
| • Time duration good<br>• Congratulations for the well-planned and amazing<br>• Give more time on seminar like this<br>• Keep it up<br>• Just enough to make it | |
| 5. Which session did you like the best? | Keynote - 30.4%<br><br>Plenary - 40.5%<br>Session II - 22.8%<br>Session III - |
| • Dr. Dries really challenged me to consider my thought and attitudes in teaching<br>• Got chance to interact<br>• Informative<br>• Sharing of experiences<br>• Breakout sessions good | |
| 6. Why did you attend this symposium | |
| • To be updated on the practices in Teaching Science and find solutions to problems during online classes<br>• To have different perspective in online teaching<br>• To improve knowledge in BMB<br>• BMB Education is my prime responsibility<br>• Gain new insights | |
| 7. Were your expections met? | Yes - 92.5%<br>Somewhat – 7.5% |
| 8. Additional comments/suggestions for further improvements | |
| • Thank you for the well-organized event!<br>• All in all excellent<br>• Thank you<br>• Observe time management<br>• Provide a copy of the presentation used by speakers<br>• Overall, it is a great opportunity to attent the symposium perhaps it would be good to have more time for Q&A | |

## Organizing Committee

Professor Gracia Fe Yu
Overall Organizing Committee
Chair, FAOBMB Education Committee
University of the Philippines Manila, Philippines

Professor Sharmila M.T. Jayasena
Organizing Co-Chair
President, CBSL
University of Colombo

Dr. K.D.K Peshala Kumari
Organizing Co-Chair
General Sir John Kotelawal Defence Univ.

Professor T. Sugandhika Suresh
Organizing Co-Chair
University of Sri Jayewardenepura

Dr. Tharanga Thoradeniya
Organizing Co-Chair
Vice-President, CBL
University of Colombo

Mr. Samantha Bandara
Treasurer, CBSL
University of Sri Jayewardenepura

Dr. Indika Neluwa-Liyanage
University of Sri Jayewardenepura

Ms. Miruna Rabindrakumar
NSBM Green University

Dr. Udara Senarath
University of Sri Jayewardenepura


## Supporting Team

Professor Lohini Athiththan
President-Elect CBSL
University of Sri Jayewardenepura

Dr. Anoja Attanayake
University of Ruhuna

Dr. Swarna Hapuarachchi
University of Colombo

Prof. Usha Hettiaratchi
University of Sri Jayewardenepura

Dr. Banukie Jayasuriya
University of Sri Jayewardenepura

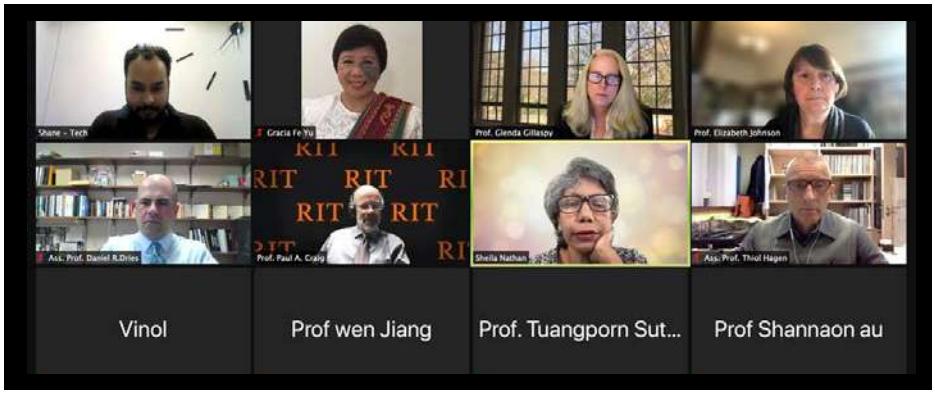
Prof. Rasika Perera
University of Sri Jayewardenepura

Dr. Sanath Mahawithanage
University of Sri Jayewardenepura

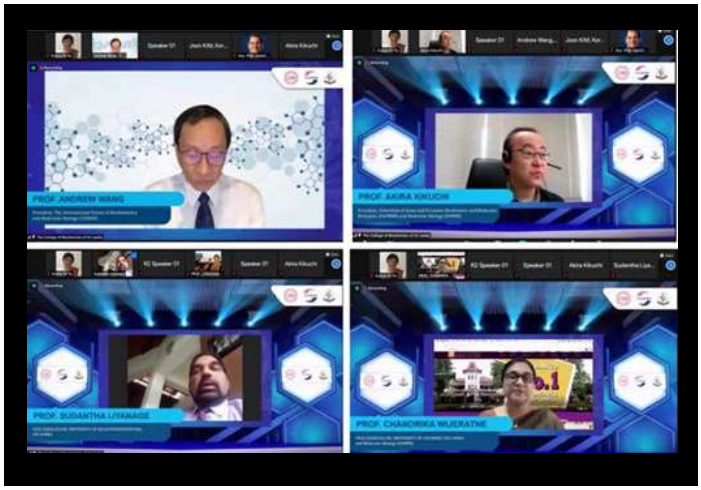
Dr. Kalpani Ratnayake
CINEC Campus

Dr. Udaya Wijesekara
University of Sri Jayewardenepura

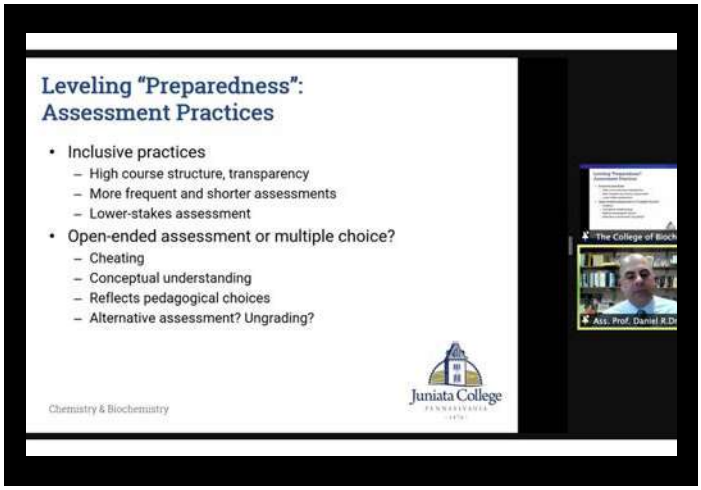
Dr. Niroshima Withanage
University of Sri Jayewardenepura




**Pre-Virtual Symposium with the plenary speakers, mini lecture speakers and moderator**



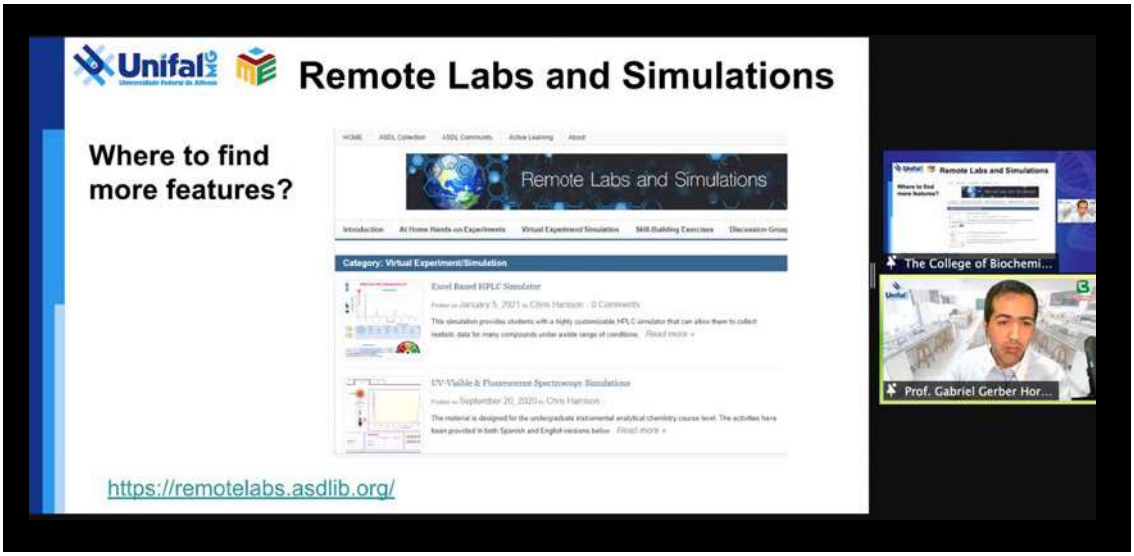
**Opening Ceremony**




**Keynote Speaker**

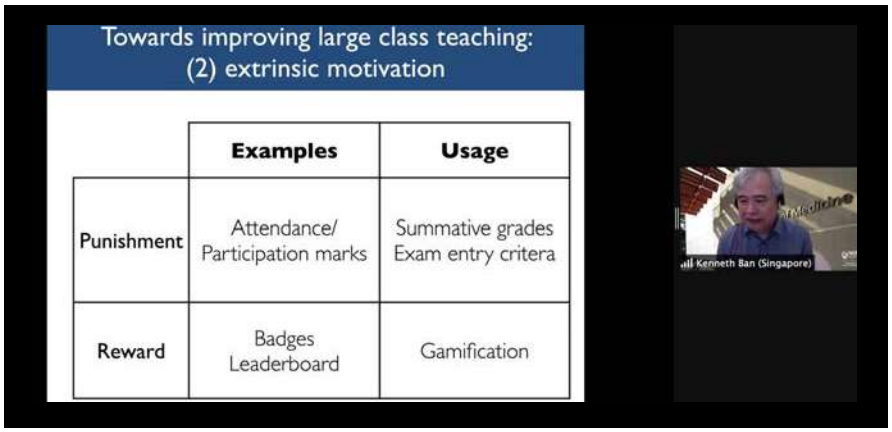
***Daniel Dries**, Juniata College, Pennsylvania, USA*

## Session 1 - Plenary Session




***Gabriel Hornink**, Federal University of Alfenses, Brazil*

## Session 2 - Parallel Sessions

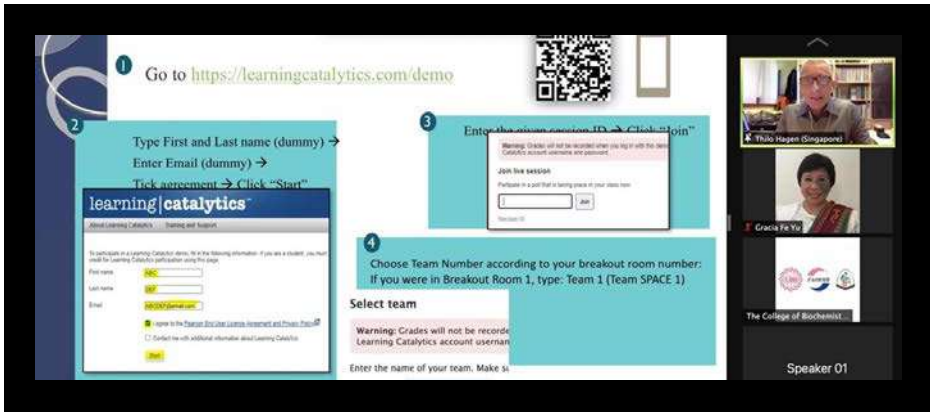


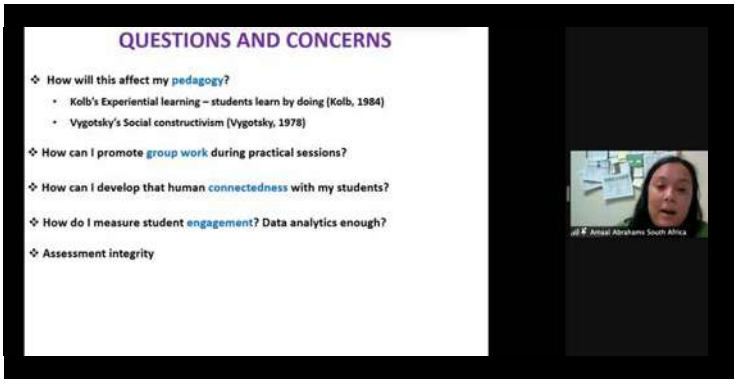

**Breakout room 1 - Teaching Large Classes**

***Ban Hon Kim Kenneth***,
*Yong Loo Lin School of Medicine, Singapore*

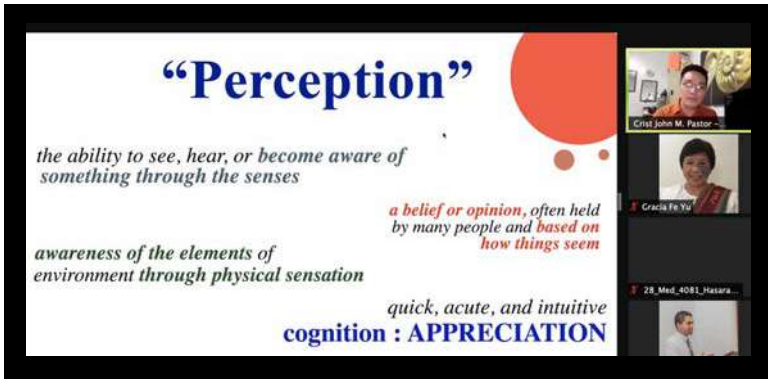
**Breakout room 1 - Teaching Large Classes**

***Thilo Hagen***,
*National University of Singapore, Singapore*



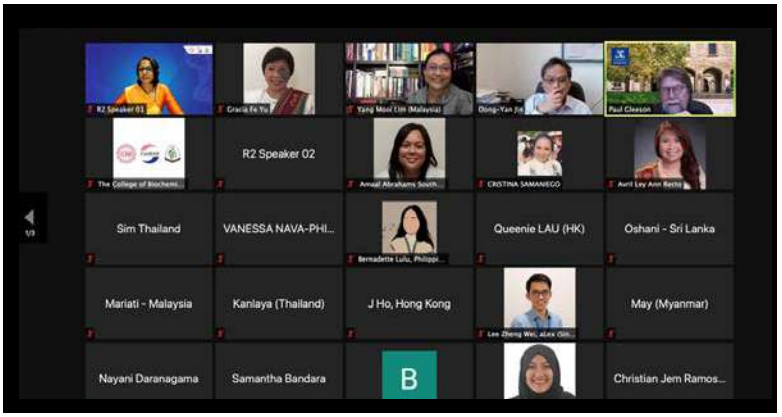




**Breakout room 2 - Teaching Labs**
***Amaal Abrahams***, *University of Cape Town, South Africa*



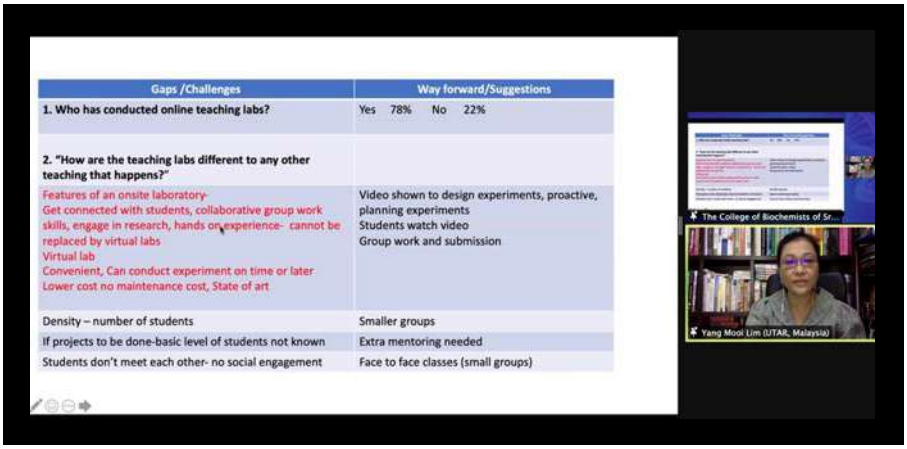

**Breakout room 4 - Student Perception**
***Christ John Pastor***, *Philippine Normal University, Philippines*

## Breakout Discussions




## Breakout - Student Perception: Students' Dramatization of online classes

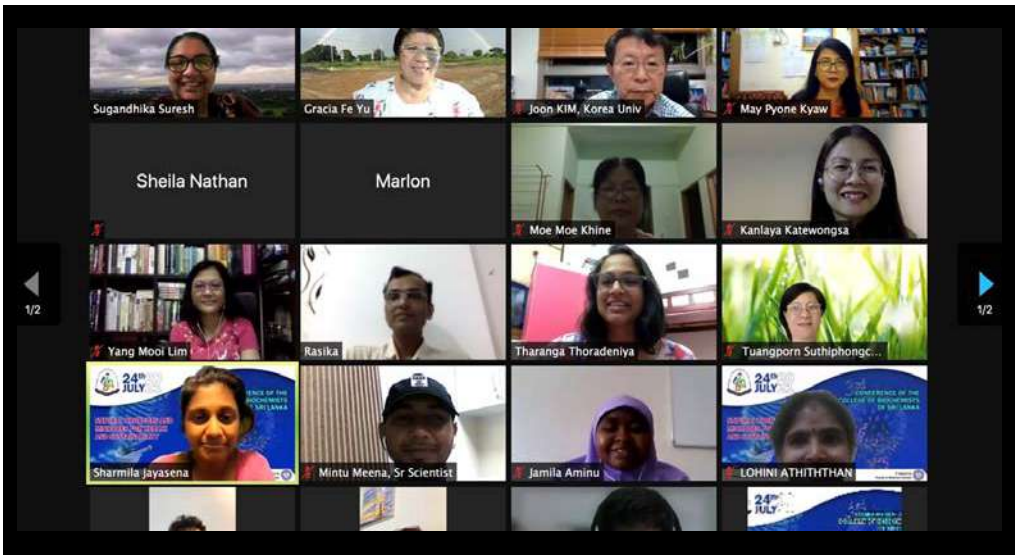
## Session 3 - Outcome Presentation

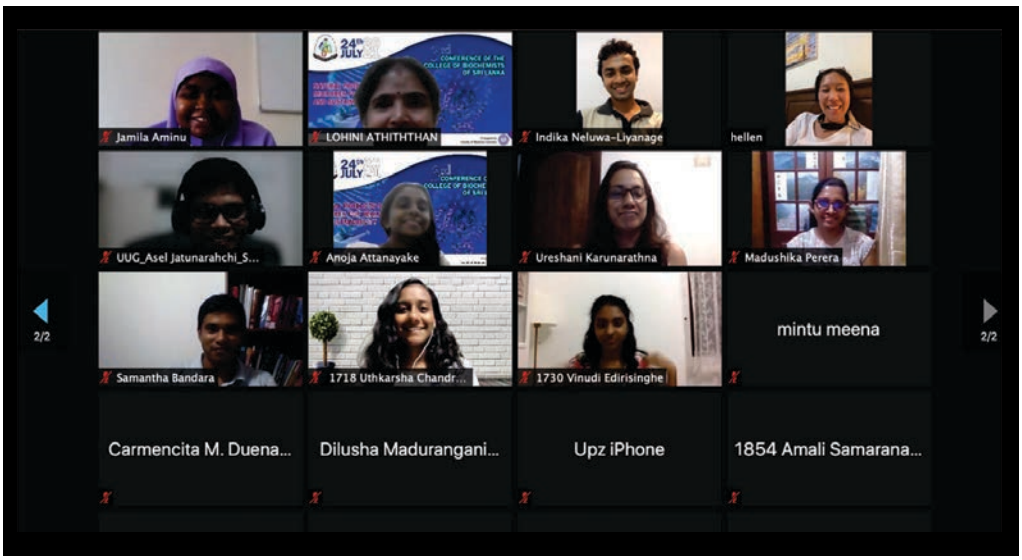



**Breakout room 2 - Teaching Labs Outcome Presentation**

*Yang Mooi Lim, Universiti Tunku Abdul Rahman, Malaysia*

## Facilitators





**Post-Virtual Education Symposium: Thumbs up for the organizers**

# The FAOBMB-IUBMB Young Scientist Programme

## 19th - 21st November 2021

Report by Wayne Patrick, Congress Chair (New Zealand)

***Co-Chairs**: Dr Tatiana Soares da Costa (La Trobe Institute for Molecular Science, Australia) and Dr Ghader Bashiri (University of Auckland, New Zealand)*

The FAOBMB-IUBMB Young Scientist Programme (YSP) preceded the 16th FAOBMB Congress. As with the main meeting, the COVID-19 pandemic forced the YSP to move entirely online, leading to some last-minute changes in the organisation. Regardless, the attendees made the most of their opportunities to learn about fascinating new research, ponder their career options—and most of all, to build their networks. After all, as we learned, "it's not about what you know, it's not about who you know—it's about who knows you".

In total, 49 postgraduate students and ECRs were selected through competitive processes to attend the YSP. Of these, 40 were selected by an FAOBMB/IUBMB panel, from over 100 applicants. They were joined by the two FAOBMB Young Scientist Award winners, Drs Sakowan Kuhaudomlarp and Stanley Cheng Xie, as well as six delegates supported by the New Zealand Microbiological Society and one from the New Zealand Society of Plant Biologists. The delegates came from 10 countries across the FAOBMB, FEBS and FASBMB regions of IUBMB.

The action-packed programme required each delegate to pre-record a 3-minute talk about their research. These were played in five sessions, which were followed by lively Q&A and discussion. In addition, there were invited presentations on "From post-doc to lab head" (A/Prof Peter Mace) and "Forging a career outside academic research" (Drs Michael Baker, Heidi Walkden, Krish Jayatilleke and Annika Bokor). There were also two workshops, one on "Scoring your next interview" (Prof Emily Parker) and the other a particularly enlightening one on "Science communication" (Dr Shane Huntington).

As if that wasn't enough, the delegates also bonded in friendly competition, randomly assigned into teams for a game called The Online Breakout Challenge. Five of the seven teams escaped their locked offices, but congratulations to Meg, Amy, Damola, Jenn and Linden for winning the Virtual Cup ☺

Special congratulations are also due to those who joined the YSP from time zones as tricky as the Netherlands and Nigeria —fully 12 hours different from New Zealand. We hope your sleep patterns have returned to normal now!

A selection of testimonials, images and Tweets are appended below, to give a taste of the event. Thank you to FAOBMB and IUBMB for the financial support that allowed the Pandemic Edition of the YSP not only to survive, but to thrive.

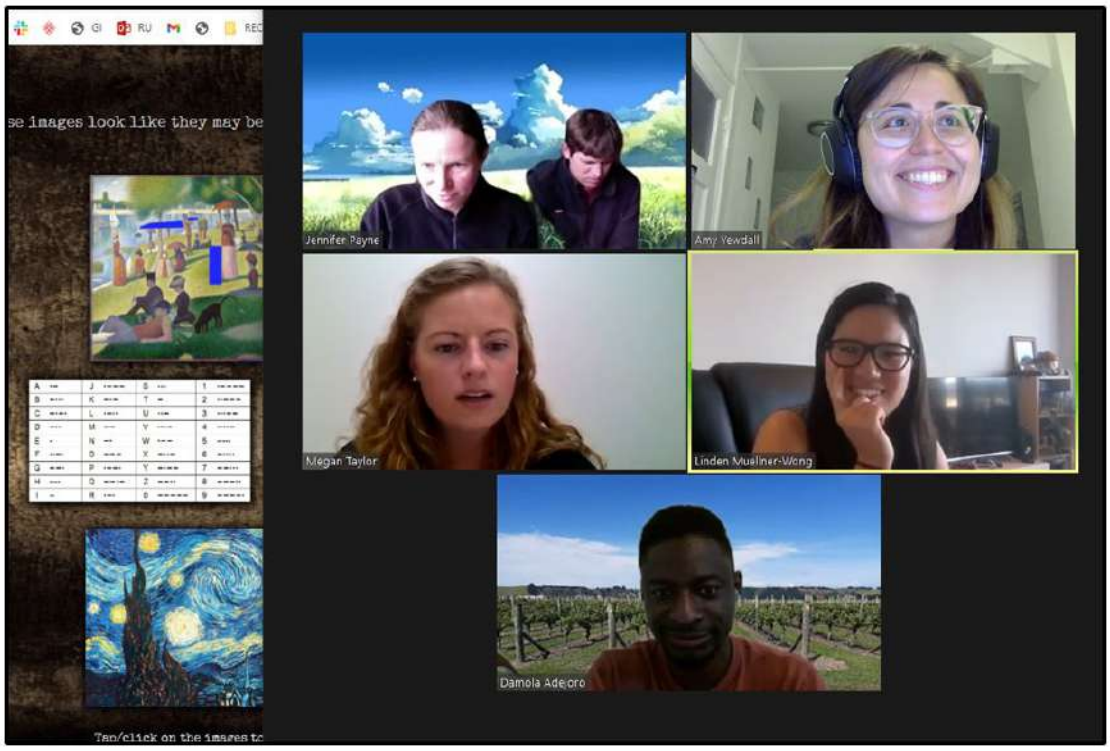
## Snapshots of the 2021 FAOBMB-IUBMB YSP

**The traditional YSP group photograph, re-imagined for 2021:**


*(Courtesy of Tatiana Soares da Costa, via Twitter)*

## Snapshots of the 2021 FAOBMB-IUBMB YSP

**The intense focus required to win The Online Breakout Challenge:**




*(Courtesy of Amy Yewdall, via Twitter)*

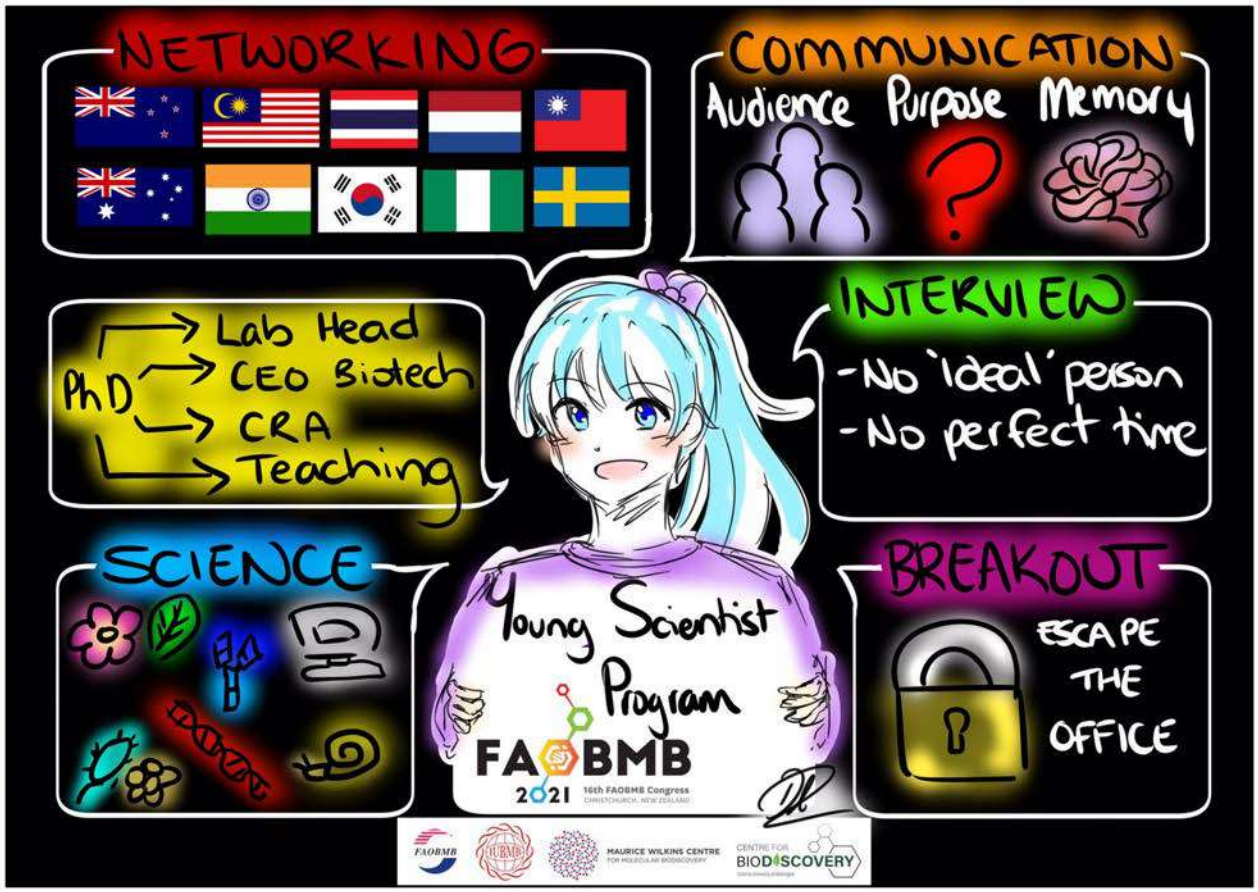
Thank you very much for the fellowship and I am truly grateful for the opportunity to be part of the YSP! It's been the most interactive and engaging virtual programme I have ever attended and the lively discussion even during the breaks says it all. Really enjoyed the YSP and have had a wonderful and memorable time just like all the other awardees. *- Annie Chai, Cancer Research Malaysia (via email)*

The YSP was a fantastic way to connect with other early career researchers, especially in light of the pandemic which has massively impacted our ability to network. An online format could easily have fallen flat; that it did not was a real testament to those involved both participating and organising. Engagement was lively and I enjoyed several 'offline' discussions between sessions. Likewise, the diversity of topics spanning research, communication and career navigation was invaluable. Thanks for the opportunity to participate.
*- Will Kelton, University of Waikato, New Zealand (via email)*

The Young Scientist Program was a fun and insightful experience for me. We had fantastic and varied talks from all the attendees, and the workshops enriched our perspective on careers within and outside of academia. The online platform enabled my attendance from the Netherlands. My favorite part was undoubtedly connecting with the Australasian biochemistry community and forming new friendships throughout the program. Definitely an experience worth staying up for!
*- Amy Yewdall, Radboud University, Netherlands (via email)*

I had my doubts about the Zoom format at first, but like @BashiriLab said, it was probably one of the most positive Zoom experiences I've had. It was wonderful!
*- Linden Muellner-Wong, University of Melbourne, Australia (via Twitter)*

Awesome weekend at the FAOBMB YSP! Got to meet lots of amazing people and learnt so many new things! Thank you again to all the organisers, sponsors, invited speakers and awardees!




*- Deborah Yung, University of Otago, New Zealand (via Twitter)*

# 16th Congress of the Federation of Asian and Oceanian Biochemists and Molecular Biologists

22nd - 25th November 2021

Report by Wayne Patrick, Congress Chair (New Zealand)

In 2017, the New Zealand Society for Biochemistry and Molecular Biology (NZSBMB) bid to host the 16th FAOBMB Congress. Our vision was to showcase the diversity and excellence of the molecular life sciences, in New Zealand and beyond. To attain critical mass, NZSBMB partnered in the bid with the New Zealand Microbiological Society, the New Zealand Society of Plant Biologists, the Australian Society of Biochemistry and Molecular Biology, and the Australian Society for Microbiology. The result was an ambitious plan to welcome the FAOBMB and IUBMB communities to Christchurch under the Congress tagline: Molecules | Life | Diversity.

Fast-forward four years and a small thing named SARS-CoV-2 caused us to rip up Plan A…and Plan B…and Plan C…

By the time the Congress arrived, New Zealand's borders were closed and regional lockdowns meant that even the local delegates were unable to gather in person. Instead, we took on the challenge of delivering the entire Congress online using the OnAir conferencing platform (Figure 1). While many of us missed face-to-face interactions, the platform allowed us to interact, network and consume a vast smorgasbord of science in new ways.

The Congress attracted 801 delegates from 29 countries: Australia; Bangladesh; Canada; Chile; China (including Hong Kong); India; Indonesia; Iran; Iraq; Israel; Japan; Malaysia; Myanmar; Nepal; Netherlands; New Zealand; Nigeria; Pakistan; Philippines; Poland; Saudi Arabia; Singapore; South Korea; Sri Lanka; Taiwan; Thailand; UK; USA; and Zimbabwe. A highlight of the virtual format was that delegates could join us from anywhere in the world, without having to pay for airfares!


**Figure 1. A snapshot of the virtual Congress platform. There was science, everywhere you looked.**

In total, there were 5,582 minutes (over 93 hours) of science content. This included 15 plenary lectures, 50 parallel sessions featuring 259 oral presentations, and also 270 e-posters, 181 of which were accompanied by 2-minute lightning talks (uploaded by the presenter in addition to their poster PDF). The endowed plenaries and major award winners are summarised in the table below.

| Lectureship or Prize | Speaker | Title |
|---|---|---|
| Jisnuson Svasti Lecture & NZSBMB Award for Research Excellence | Prof Julia Horsfield *University of Otago, New Zealand* | Why signalling pathways are altered by cohesin deficiency |
| Osamu Hayaishi Lecture | Prof Ron Milo *Weizmann Institute of Science, Israel* | Conversion of *E. coli* to generate all biomass carbon from $CO_2$ |
| FAOBMB Lecture | Prof Steven Lindow *University of California Berkeley, USA* | Understanding microbial life on leaves |
| Kunio Yagi Lecture | Prof Rommie Amaro *University of California San Diego, USA* | Computational microscopy of SARS-CoV-2 *in situ* |
| Takashi Murachi Memorial Lecture | Prof Paul Young *University of Queensland, Australia* | Needleless delivery of vaccines to the skin using the High Density-Microarray Patch (HD-MAP) |
| FAOBMB Award for Research Excellence (2020) | Prof Masayuki Yamamoto *Tohoku University, Japan* | Discovery of the KEAP1-NRF2 pathway |
| FAOBMB Award for Research Excellence (2021) | Prof Ricky Johnstone *University of Melbourne, Australia* | Targeting transcriptional CDKs in cancer |
| FAOBMB Young Scientist Award (Female) | Dr Sakowan Kuhaudomlarp *Mahidol University, Thailand* | Identification and development of new glycomimetics inhibitors targeting a lectin from *Pseudomonas aeruginosa* |
| FAOBMB Young Scientist Award (Male) | Dr Stanley Cheng Xie *University of Melbourne, Australia* | The proteasome—an interesting and promising antimalarial drug target |
| ASBMB Lemberg Medal Lecture | Prof Merlin Crossley *University of New South Wales, Australia* | Using CRISPR to understand and treat inherited blood disorders |
| NZ Microbiological Society Orator | Prof Steve Flint *Massey University, New Zealand* | A big job in a small world—from veterinary to food microbiology, industry to academia |

While the plenaries and award lectures give a taste of all the cutting-edge research that was on offer, there was much, much more. The Congress handbook and separate book of poster abstracts both remain available on the Congress website (https://www.faobmb2021.org/).

Overall we strived for a strong balance of gender, career stage and geographic spread in the programme. The gender equality statistics are summarised below.

| | Male | Female |
|---|---|---|
| Invited plenary speakers | 6 (60%) | 4 (40%) |
| Premier award winners* | 4 (80%) | 1 (20%) |
| Parallel session speakers | 124 (48%) | 135 (52%) |
| Session chairs | 30 (42%) | 41 (58%) |

*Awarded by FAOBMB (x2); NZSBMB; ASBMB; NZMS

A highlight of the programme was the FAOBMB-IUBMB Education Symposium, 'Virtual Reality in Life Science Education'. This began with a plenary lecture from Prof Adrian Mulholland (University of Bristol, UK) who walked us from his own research into the exciting world of using virtual reality for immersive molecular dynamics simulations. It was followed by two consecutive sessions on the use of VR for teaching the molecular world to everyone from children to undergraduates. The final session in the Symposium was topics selected from abstracts, with a heavy emphasis on tips for keeping students engaged during the tribulations of the pandemic. One session gave participants with VR headsets the chance to explore protein structures using the 3-D modelling app, Nanome. In my case, it was mind-blowing to climb inside the voltage-gated potassium channel alongside delegates from Australia, Malaysia and across the dining table (Figure 2).

**Figure 2. Abigail Sucsy and Wayne Patrick using virtual reality to explore the atomic details of the voltage-gated potassium channel, sharing the experience in real time with delegates from Australia and Malaysia.**

All content, including the live Q&A sessions, was recorded so that it was available on-demand. This was another benefit for delegates in different time zones. Indeed, the content is still available for registered delegates to view—which is great for me, because my duties as Chair meant I missed some great sessions that I can now binge!

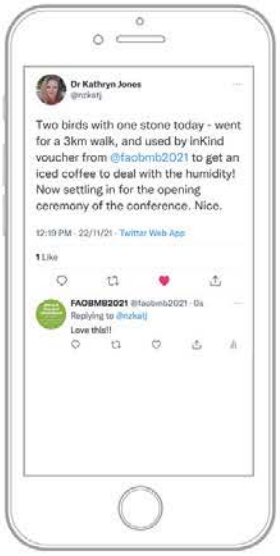
Away from the scientific programme, the virtual Welcome Reception proved a hit. In this, delegates were placed randomly into four-person video chats for 5 minutes—before the deck was shuffled, and you were randomly assigned three new people to meet. We also offered delegates the chance to purchase a native New Zealand tree during registration. The lack of air travel kept the carbon footprint of the Congress to a minimum; nevertheless, we were very proud that delegates purchased 108 trees via the Trees That Count initiative.

In addition to FAOBMB and IUBMB, the Congress was very generously supported by an amazing group of sponsors and exhibitors, who stuck with us as we pivoted from an in-person event, to hybrid, to online. The full list is available on the Congress website (https://www.faobmb2021.org/sponsors).

Putting together the Congress took a huge amount of effort by a large number of people. I am particularly grateful to the Programme Chair, A/Prof Jane Allison; the Poster Chair, Dr Daniel Pletzer; the Education Symposium Chair, Dr Sarah Kessans; and the Co-Chairs of the Young Scientist Programme, Drs Tatiana Soares da Costa and Ghader Bashiri (see below for a separate report on the YSP). We were also extremely fortunate to have two Professional Conference Organisers, Arna Wahl Davies and Nerida Ramsay from Composition Limited, who went so far above-and-beyond expectations that it is impossible to thank them enough.

Overall, it is fair to say that the 16th FAOBMB Congress did not turn out the way we imagined it would, back in 2017. Designing and delivering an all-online Congress has been an exhausting, head-spinning, but ultimately fulfilling, rollercoaster ride.


16th FAOBMB Congress


Dr Kathryn Jones
@nzkatj
Two birds with one stone today - went for a 3km walk, and used by inKind voucher from @faobmb2021 to get an iced coffee to deal with the humidity! Now settling in for the opening ceremony of the conference. Nice.
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Replying to @nzkatj
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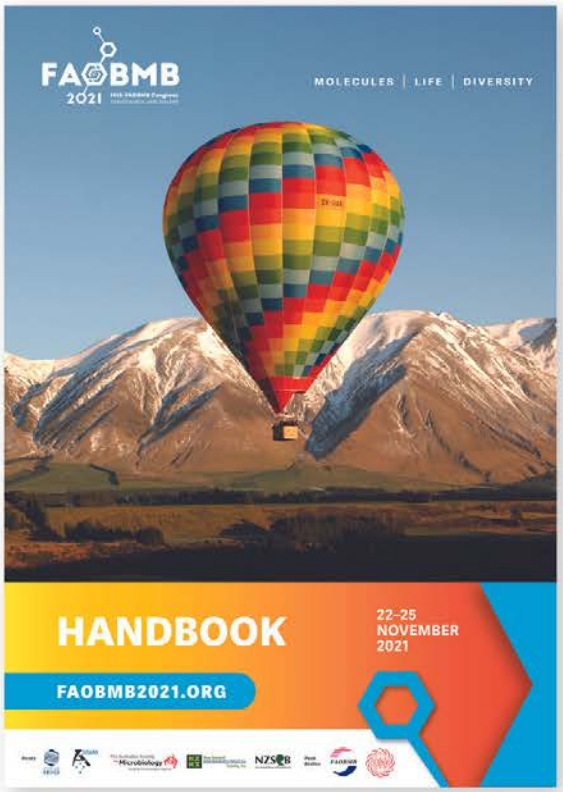
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Welcome


DAY 1
MONDAY 22 NOVEMBER


PLENARY SESSION
Prof Julia Horsfield
University of Otago, NZ
customscience
Why signalling pathways are altered by cohesin deficiency
JISNUSON SVASTI LECTURE | NZSBMB AWARD FOR RESEARCH EXCELLENCE
CHAIR: Dr Monica Gerth, President, NZSBMB
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# Congratulations to
# PROFESSOR JOAN GUINOVART


We are delighted to announce that Professor Joan Guinovart from IRB Barcelona is to receive the IUBMB Distinguished Service Award in recognition of the 21 years of outstanding service to the IUBMB. The IUBMB Distinguished Service Award gives special recognition to biochemists and molecular biologists who have made a major contribution to the activities of the IUBMB. We are especially grateful for his dedication, commitment, and leadership during his tenure in the crucial positions as Treasurer, President-Elect, President, and Past President. We look forward to celebrating this award at the joint meeting of the 25th IUBMB Congress, 46th FEBS Congress, and 15th PABMB Congress in Lisbon, Portugal from July 9-14, 2022.

# Congratulations to

## IUBMB Jubilee Lectures


Dr. Hailing Jin from the University of California-Riverside, USA presented the IUBMB Jubilee Lecture at the virtual XLIV ANNUAL MEETING Chilean Society for Biochemistry and Molecular Biology 2021 held on October 26, 2021 on *"Cross-kingdom small RNA trafficking between plant hosts and fungal pathogens".* She is honored for her outstanding contributions to understanding the molecular mechanisms of plant immunity and pathogen virulence.


Dr. Hao Wu from Boston Children's Hospital, USA who will be presenting the IUBMB Jubilee Lecture at the 47th Lorne Conference on Protein Structure and Function (hybrid) on *"Inflammasomes – the next frontier"*. She is honored for her outstanding contributions to understanding the molecular mechanisms of cell death.

# Congratulations to

## IUBMB Fellowship Awardees


# WOOD WHELAN WEDNESDAY

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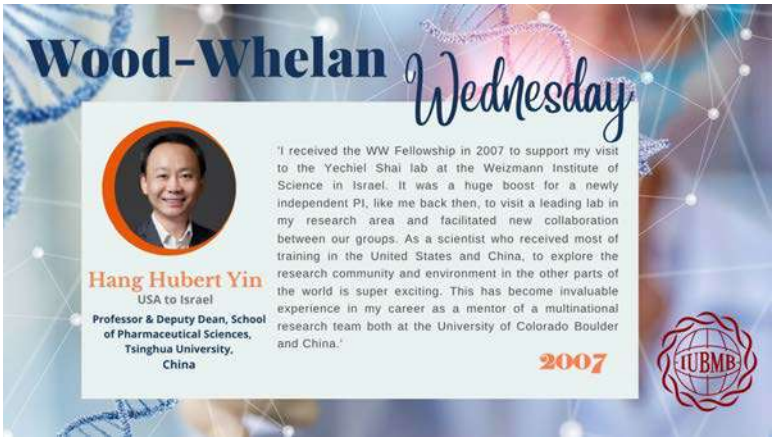





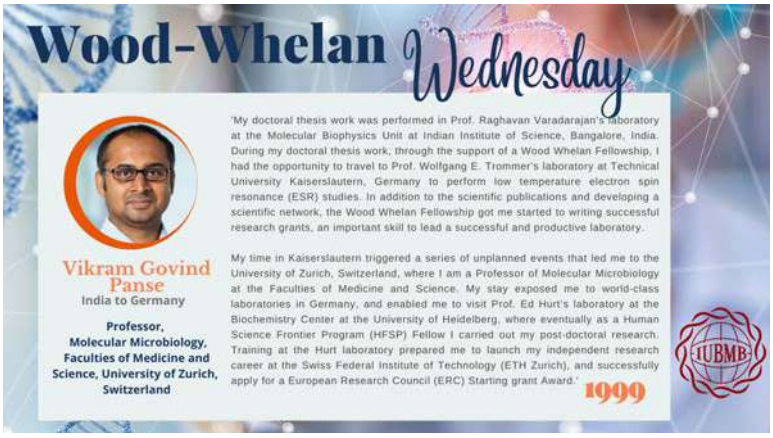


The opportunity to visit a lab in a different country could transform your *career* and change your *life!*

# Congratulations

# WILEY- BIOFACTORS YOUNG INVESTIGATOR AWARD


Yalda Rahbar Saadat is the winner of the Wiley-IUBMB BioFactors Young Investigator Award in commendation of an outstanding original study reporting a novel interesting approach to the treatment of steroids resistance.

The study has been published in the paper “Glucocorticoid receptors and their upstream epigenetic regulators in steroid-resistant nephrotic syndrome in adults” authored by Yalda Rahbar Saadat, Seyyedeh Mina Hejazian, Ziba Nariman-Saleh-Fam, Milad Bastami, Arash Poursheikhani, Mohammadali M. Shoja, Mohammadreza Ardalan, Sepideh Zununi Vahed, First published on 08 October 2020 https://doi.org/10.1002/biof.1680.

Yalda has recently received her Ph.D. from Tabriz University of Medical Sciences (2021). Her primary research interests lie in the area of cancer, with particular emphasis on targeting vital signaling pathways employing probiotics, postbiotics and nutraceuticals. Pursuing her interest in molecular and cell biology, she is currently interested in the molecular basis of renal diseases in order to develop new therapeutic approaches. She is the author/coauthor of more than 30 papers in peer-reviewed international journals and more than 10 international/national conference contributions.

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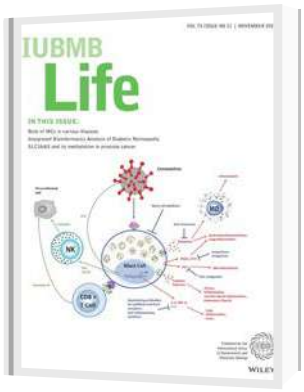
# IUBMB JOURNAL HIGHLIGHTS

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*Thank you for contributing to this success. Share your paper with your network and spread the word about your achievement!*

***Follow the IUBMB Life account on Twitter @IUBMB_Life for the journal's latest news and updates.***

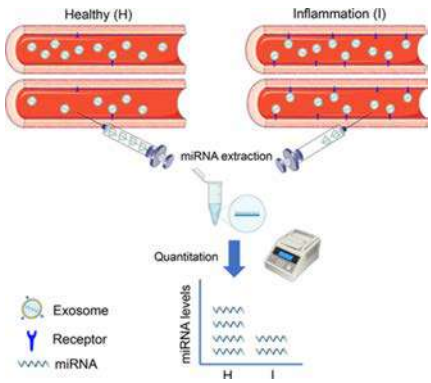
## New Issue: Volume 73, Issue 11

### Variability in the levels of exosomal miRNAs among human subjects could be explained by differential interactions of exosomes with the endothelium

**Kyriacos Felekkis, Myrtani Pieri, Christos Papaneophytou**

First published: 14 November 2021

Exosomes are 30–100 nm endosome-derived membrane vesicles, that contain specific RNA transcripts including mRNAs, and microRNAs (miRNAs) and have been implicated in cell-to-cell communication. Exosomal miRNAs in blood circulation have been attracting major interest as potential diagnostic and prognostic biomarkers in a variety of diseases including stroke, cancer, and inflammatory disorders. Despite the progress made in the utilization of circulating exosomal miRNAs as biomarkers for various human diseases and conditions, there are still difficulties in functionally utilizing such methods in the clinic due to the high variability observed among subjects. Attempts to use miRNA signatures have improved but have not eliminated the problem. Additionally, standardized laboratory practices may partially reduce variability but there is still an unknown biological factor that hinders the proper use of miRNAs as biomarkers. We hypothesize that this variability might be partially attributed to a differential interaction among circulating exosomes carrying those miRNAs with endothelial surface molecules that themselves may vary among individuals due to secondary conditions, for example, inflammation status. This differential interaction could potentially add variability to the level of the examined miRNA that is not directly attributed to the primary condition under study.



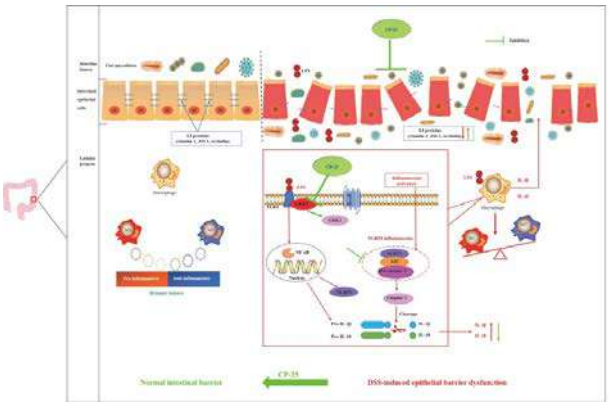
# IUBMB JOURNAL HIGHLIGHTS

## CP-25 exerts therapeutic effects in mice with dextran sodium sulfate-induced colitis by inhibiting GRK2 translocation to downregulate the TLR4-NF-κB-NLRP3 inflammasome signaling pathway in macrophages

**Ying Li, Meng-Ya Jiang, Jing-Yu Chen, Zhou-Wei Xu, Jia-Wei Zhang, Tao Li, Ling-Ling Zhang, Wei Wei**

First published: 30 September 2021

Deficiency of G protein-coupled receptor kinase 2 (GRK2) was found to protect mice from dextran sulfate sodium (DSS)-induced colitis. Paeoniflorin-6′-O-benzene sulfonate (CP-25) has been shown to exert anti-inflammatory immune regulatory effects in animal models of inflammatory autoimmune disease. This study aimed to investigate the of GRK2 in the pathogenesis of ulcerative colitis (UC) and its effects on macrophage polarization, macrophage subtype regulation of intestinal barrier function, and therapeutic effects of CP-25 in mice with DSS-induced colitis. We found imbalanced macrophage polarization, intestinal barrier dysfunction, and abnormal activation of GRK2 and TLR4-NF-κB-NLRP3 inflammasome signaling pathway in the colonic mucosa of patients with UC. CP-25, restored the damaged intestinal barrier function by inhibiting the transmembrane region of GRK2 in macrophages stimulated by lipopolysaccharides. CP-25 exerted therapeutic effects by ameliorating clinical manifestation, regulating macrophage polarization, and restoring abnormally activated TLR4-NF-κB-NLRP3 inflammasome signaling pathway by inhibiting GRK2. These data suggest the pathogenesis of UC may be related to the imbalance of macrophage polarization, which leads to abnormal activation of TLR4-NF-κB-NLRP3 inflammasome signaling pathway mediated by GRK2 and destruction of the intestinal mucosal barrier. CP-25 confers therapeutic effects on colitis by inhibiting GRK2 translocation to induce the downregulation of TLR4-NF-κB-NLRP3 inflammasome signaling in macrophages.

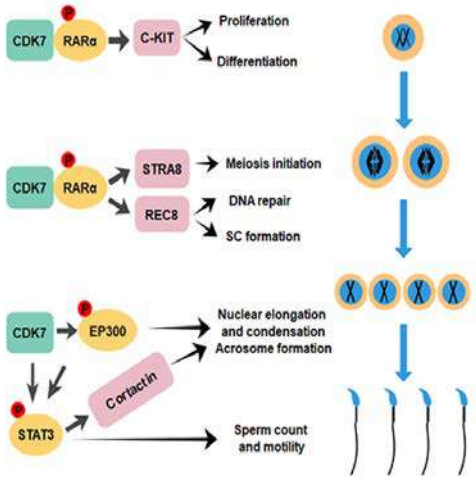


## Cyclin-dependent kinase 7 is essential for spermatogenesis by regulating retinoic acid signaling pathways and the STAT3 molecular pathway

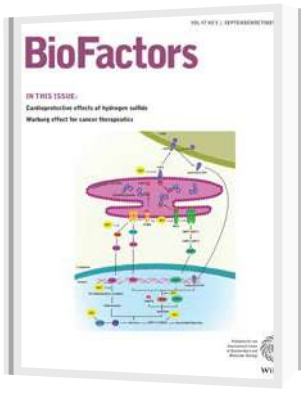
**Xu Chen, Yan Li, Haiqian Dai, Hao Zhang, Danyang Wan, Xinli Zhou, Chenghao Situ, Hui Zhu**

First published: 30 October 2021

Spermatogenesis is a complex process that requires precise regulation. Phosphorylation plays a role in spermatogenesis by regulating protein structure and activity. This study focused on cyclin-dependent kinase 7 (CDK7) and explored its function and molecular mechanisms in spermatogenesis in vitro in a cell line and in vivo in a mouse model. Inhibition of CDK7 activity affected spermatogonia proliferation and differentiation, and we found that CDK7 regulates retinoic acid (RA)-mediated c-KIT expression to play a role in spermatogonia. Then, we demonstrated that inhibition of CDK7 affected meiosis initiation, DNA repair, and synaptonemal complex formation in meiosis progression, and CDK7 played this role by regulating RA-mediated STRA8 and REC8 signaling pathways. Moreover, inhibition of CDK7 impacted spermatid differentiation and resulted in decreased counts, decreased motility, and increased head deformity of sperm. We demonstrated that CDK7 affects germ cell apoptosis and sperm motility by activating STAT3 and that STAT3 further regulates Cortactin expression to influence the nuclear elongation, chromatin condensation, and acrosome formation of sperm. Additionally, EP300 was identified as another potential target phosphorylated by CDK7 that participates in chromatin condensation. Our results demonstrated the important role of CDK7 in all key aspects of spermatogenesis, potentially providing an effective target for clinical diagnosis and pathogenesis.



# IUBMB JOURNAL HIGHLIGHTS

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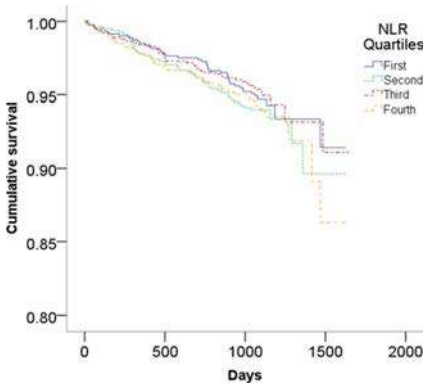
*Thank you for contributing to this success. Share your paper with your network and spread the word about your achievement!*




## New Special Issue: Volume 47, Issue 5

**Neutrophil to lymphocyte ratio is not related to carotid atherosclerosis progression and cardiovascular events in the primary prevention of cardiovascular disease: Results from the IMPROVE study**

**Massimo R. Mannarino, Vanessa Bianconi, Bruna Gigante, Rona J. Strawbridge, Kai Savonen, Sudhir Kurl, Philippe Giral, Andries Smit, Per Eriksson, Elena Tremoli, Fabrizio Veglia, Damiano Baldassarre, Matteo Pirro, IMPROVE study group**

First published: 11 November 2021

Inflammation is a component of the pathogenesis of atherosclerosis and is associated with an increased risk of atherosclerotic cardiovascular disease (ASCVD). The neutrophil to lymphocyte ratio (NLR) is a possible inflammation metric for the detection of ASCVD risk, although results of prospective studies are highly inconsistent on this topic. We investigated the cross-sectional relationship between NLR and carotid intima-media thickness (cIMT) in subjects at moderate-to-high ASCVD risk. The prospective association between NLR, cIMT progression, and incident vascular events (VEs) was also explored. In 3341 subjects from the IMT-Progression as Predictors of VEs (IMPROVE) study, we analyzed the association between NLR, cIMT, and its 15-month progression. The association between NLR and incident VEs was also investigated. NLR was positively associated with cross-sectional measures of cIMT, but not with cIMT progression. The association between NLR and cross-sectional cIMT measures was abolished when adjusted for confounders. No association was found between NRL and incident VEs. Similarly, there were no significant differences in the hazard ratios (HRs) of VEs across NLR quartiles. NLR was neither associated with the presence and progression of carotid atherosclerosis, nor with the risk of VEs. Our findings do not support the role of NLR as a predictor of the risk of atherosclerosis progression and ASCVD events in subjects at moderate-to-high ASCVD risk, in primary prevention. However, the usefulness of NLR for patients at a different level of ASCVD risk cannot be inferred from this study.

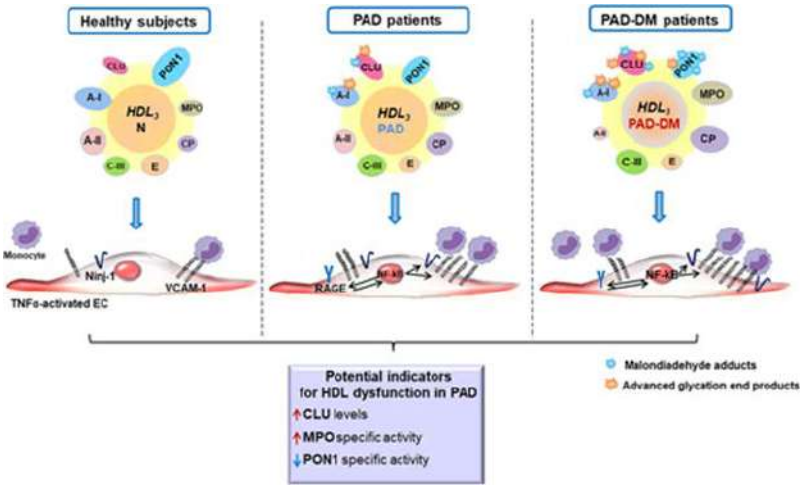
# IUBMB JOURNAL HIGHLIGHTS

## Clusterin, paraoxonase 1, and myeloperoxidase alterations induce high-density lipoproteins dysfunction and contribute to peripheral artery disease; aggravation by type 2 diabetes mellitus

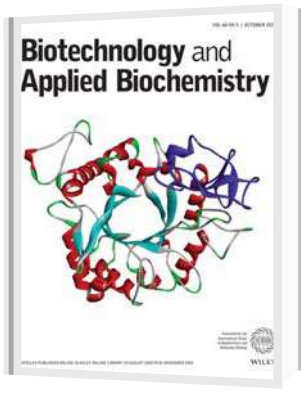
**Gabriela M. Sanda, Laura Toma, Teodora Barbalata, Oriana E. Moraru, Loredan S. Niculescu, Anca V. Sima, Camelia S. Stancu**

First published: 06 November 2021

Peripheral artery disease (PAD) is an atherosclerotic disorder affecting arteries of the lower limbs, the major risk factors including dyslipidemia and diabetes mellitus (DM). We aimed to identify alterations of the proteins in high-density lipoproteins (HDL) associated with HDL dysfunction in PAD patients. HDL2 and HDL3 were isolated from plasma of PAD patients with/without DM (PAD-DM/PAD) and healthy subjects (N). Apolipoprotein AI (ApoAI), ApoAII, ApoCIII, clusterin (CLU), paraoxonase 1 (PON1), myeloperoxidase (MPO), and ceruloplasmin (CP) were measured in HDL2/HDL3 and plasma. Oxidation and glycation of the analyzed proteins were assessed as malondialdehyde-protein adducts (MDA) and advanced glycation end-products (AGE), respectively. The anti-inflammatory effect of HDL3 was estimated as its potential to reduce monocyte adhesion to tumor necrosis factor α-activated endothelial cells. We show that in PAD patients compared to N subjects: (i) HDL2 presented increased levels of MDA-PON1, AGE-PON1, AGE-ApoAI, ApoAII, ApoCIII, and CP levels, and decreased PON1 levels; (ii) HDL3 had increased levels of MDA- and AGE-CLU and -ApoAI, MDA-PON1, ApoCIII, CLU, MPO, CP, and reduced PON1 levels. All these alterations were exacerbated by DM. These changes were more pronounced in HDL3, which had reduced anti-inflammatory potential in PAD and became pro-inflammatory in PAD-DM. In PAD patients' plasma, CLU levels and MPO specific activity increased, while PON1 specific activity decreased. In conclusion, HDL function is altered in PAD patients due to multiple modifications of associated proteins that are aggravated by DM. Plasma CLU, MPO, and PON1 could constitute indicators of HDL dysfunction and contribute to risk stratification in PAD patients.



# IUBMB JOURNAL HIGHLIGHTS




*We are pleased to announce that your contributions have helped Biotechnology and Applied Biochemistry achieve an* ***increased Impact Factor in 2020 of 2.431 from 1.638 in 2019****. This means that the journal is now ranked 229 out of 297 in the category of Biochemistry & Molecular Biology and 110 out of 159 in the category of Biotechnology & Applied Microbiology, and has a 5-year Impact Factor of 2.124.*

*Thank you for contributing to this success. Share your paper with your network and spread the word about your achievement!*

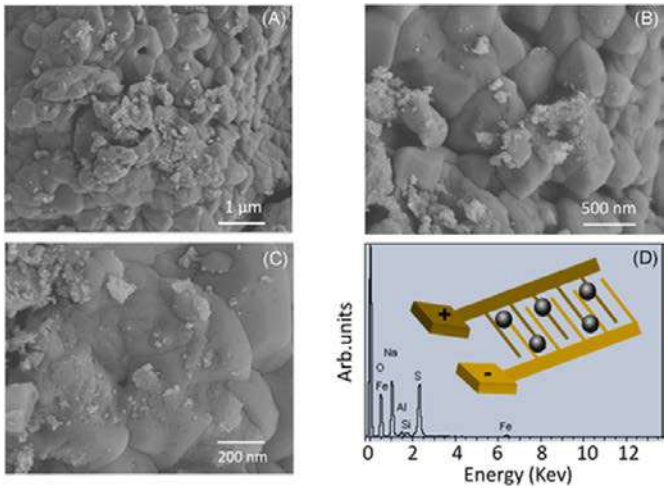
## New Issue: Volume 68, Issue 5

**Identifying mineral decrement with bone injury by quantifying osteocalcin on current-volt sensor**

**Huanjie Bi, Peimin Bian, Subash C. B. Gopinath, Kasi Marimuthu, Genbing Lv, XinHua Yin**

First published: 08 October 2021

Osteoporosis, a bone disease is caused by the deterioration of bone and shows an enhanced risk of bone fracture and decreasing bone mineral density. Unfortunately, the available radiological techniques are expensive, and have disadvantages such as radiation intake, need a specialist to handle the instrument, and so forth. This research is focused to develop a point-of-care system to identify osteocalcin on current-volt sensor, which helps to diagnose the bone metabolism and prognostics. Antiosteocalcin antibody was attached on the electrode through the silane-modified iron material. The antibody-immobilized sensing surface was utilized to identify the level of osteocalcin and the detection limit of 100 pg/ml reached on linear concentrations of 0.01–3000 ng/ml. Calculations were made by triplicates (n = 3; 3δ) on the determination coefficient of y = 0.2637x–0.6012; R2 = 0.9319. Further, control proteins failed to bind with immobilized antibody, confirmed by the specific osteocalcin detection. This research is to identify the osteoporosis biomarker and to help determine the conditions with osteoporosis.



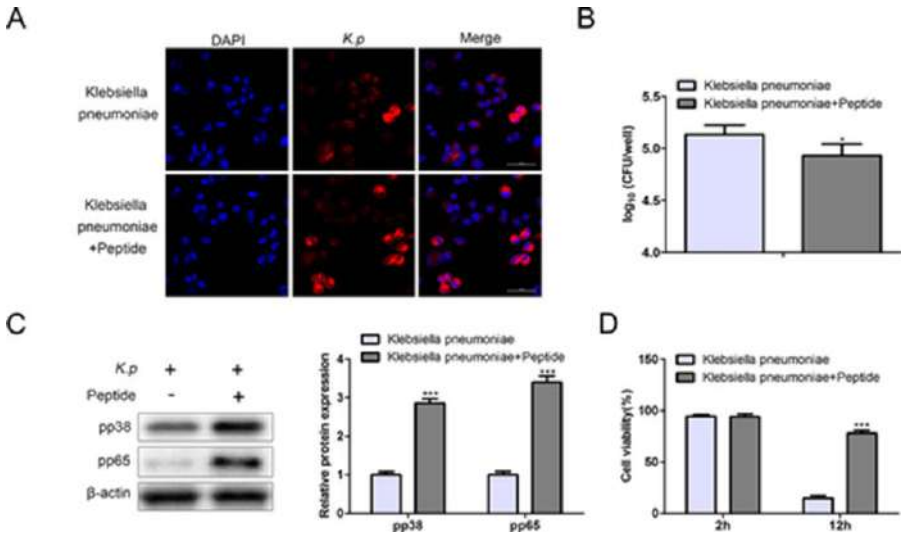
# IUBMB JOURNAL HIGHLIGHTS

## Human neutrophil peptide 1 promotes immune sterilization in vivo by reducing the virulence of multidrug-resistant Klebsiella pneumoniae and increasing the ability of macrophages

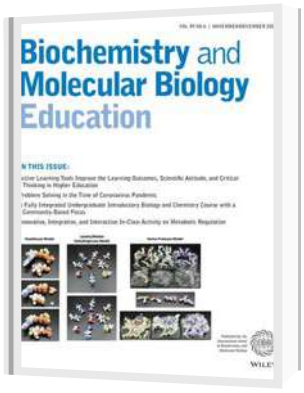
**Hui-Yun Wang, Xiao-chun Chen, Zhi-han Yan, Fan Tu, Tian He, Subash C. B. Gopinath, Xiao-hong Rui, Fu-tao Cao**

First published: 19 October 2021

By studying the expression in patients and cell modeling in vitro, antimicrobial peptides for Klebsiella were screened. Killing curve and membrane permeability experiments are used to study the antibacterial effect of antimicrobial peptides in vitro. Cytotoxicity-related indicators including lipopolysaccharide (LPS), capsule polysaccharide (CPS), and outer membrane protein expression were measured. Intranasal inoculation of pneumoconiosis was used to construct a mouse infection model, and the survival rate and cytokine expression level were tested. Human neutrophil peptide 1 (HNP-1) showed a significant antibacterial effect, which improved the permeability of the outer membrane of K. pneumoniae. Moreover, HNP-1 decreased LPS, CPS content, and outer membrane proteins. K. pneumoniae infection decreased antimicrobial peptide, oxidative stress, and autophagy-related genes, while HNP-1 increased these genes. After coculture with macrophages, the endocytosis of macrophages is enhanced and the bacterial load is greater in the K. pneumoniae + peptide group. Besides, higher levels of pp38 and pp65 in the K. pneumoniae + peptide group. HNP-1 rescued the cytotoxicity induced by K. pneumoniae. The survival rate is significantly improved after K. pneumoniae is treated by HNP-1. All cytokines in the peptide group were significantly higher. HNP-1 promotes immune sterilization by reducing the virulence of multidrug-resistant K. pneumoniae and increasing the ability of macrophages.



# IUBMB JOURNAL HIGHLIGHTS




*We are pleased to announce that your contributions have helped Biochemistry and Molecular Biology Education achieve an increased Impact Factor in 2020 of 1.160 from 0.924 in 2019. This means that the journal is now ranked 282 out of 297 in the category of Biochemistry & Molecular Biology and 35 out of 44 in the category of Education, Scientific Disciplines, and has a 5-year Impact Factor of 1.431.*

*Thank you for contributing to this success. Share your paper with your network and spread the word about your achievement!*


## New Issue: Volume 49, Issue 6

**Active learning tools improve the learning outcomes, scientific attitude, and critical thinking in higher education: Experiences in an online course during the COVID-19 pandemic**

**Izadora Volpato Rossi, Jordana Dinorá de Lima, Bruna Sabatke, Maria Alice Ferreira Nunes, Graciela Evans Ramirez, Marcel Ivan Ramirez**

First published: 15 October 2021

Active teaching methodologies have been placed as a hope for changing education at different levels, transiting from passive lecture-centered to student-centered learning. With the health measures of social distance, the COVID-19 pandemic forced a strong shift to remote education. With the challenge of delivering quality education through a computer screen, we validated and applied an online course model using active teaching tools for higher education. We incorporated published active-learning strategies into an online construct, with problem-based inquiry and design of inquiry research projects to serve as our core active learning tool. The gains related to students' science learning experiences and their attitudes toward science were assessed by applying questionnaires before, during, and after the course. The course counted on the participation of 83 students, most of them (60.8%) from postgraduate students. Our results show that engagement provided by active learning methods can improve performance both in hard and soft skills. Students' participation seems to be more relevant when activities require the interaction of information, prediction, and reasoning, such as open-ended questions and design of research projects. Therefore, our data show that, in pandemic, active learning tools benefit students and improve their critical thinking and their motivation and positive positioning in science.

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

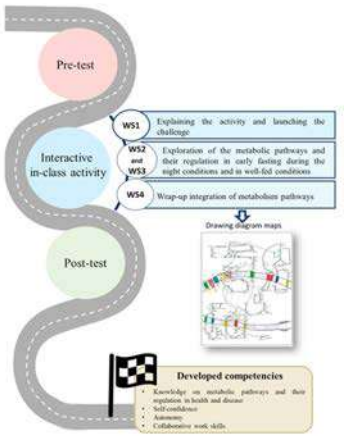
# IUBMB JOURNAL HIGHLIGHTS

## Innovative, integrative, and interactive in-class activity on metabolic regulation: Evaluating educational impacts

**Fernanda Marques, Luísa Pinto, Maria Manuel Azevedo, Belém Sampaio-Marques, Anabela C. Areias, Ana Salgueira, Manuel Joao Costa, Fernando Rodrigues, Paula Ludovico**

First published: 18 August 2021

Medical students tend to have difficulties in developing a holistic view of metabolic pathway and hormone regulation. To address this issue, an interactive activity was implemented for first-year medical students at the School of Medicine, University of Minho, Portugal. Students' previous knowledge on metabolic pathways was evaluated by a pre-test followed by an interactive activity. In the supervised activity, students were challenged to elaborate a diagrammatic representation regarding enzymes, co-factors, and hormonal metabolic regulation in early fasting during the night, as well as in well-fed conditions. The activity was concluded with a post-test to determine the students' learning gains and a few days later students were evaluated by a final exam. Afterwards, students evaluated the activity by filling a questionnaire. Results from four different cohorts showed that the activity resulted in significant learning gains, particularly favoring students who have less prior knowledge. The comparison between the pre-test and the final exam also revealed significant learning gains for low achievers students. On the questionnaires, the majority of the students rated the activity as good or very good. Students agreed that this activity promotes: (a) reactivation of previous knowledge; (b) a better understanding of the interconnections between the metabolic pathways; (c) the application of learned concepts in real scenarios; and (d) sharing knowledge with peers. This study describes an active, unpretentious, and easily implemented activity available for early medical and biochemical curricula.

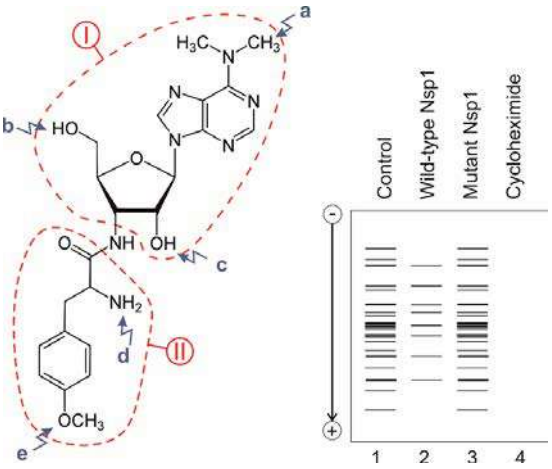



## Problem solving in the time of coronavirus pandemic

**Judit Bátor, József Szeberényi**

First published: 02 September 2021

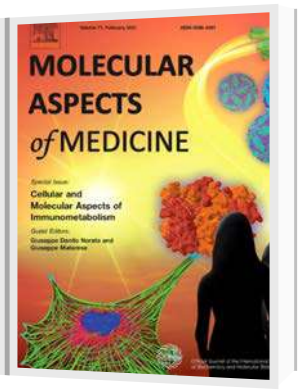
Problem solving, multiple-choice question-based educational tools have been used for decades in molecular cell biology courses at the University of Pécs Medical School, Pécs, Hungary. A set of these tests was published in Biochemistry and Molecular Biology Education between 2002 and 2015. Such tests using an experimental approach help students to understand how living cells function. Besides being tools of education, they can be used for examination purposes as well to assess higher levels of intellectual skills (interpretation and problem solving) acquired by the students. The test presented in this paper is based on parts of an original publication in which the authors described seminal observations on the function of a viral protein in the infection process of SARS-CoV-2. The test is aimed at helping the students to understand the methods used in the experiments, to analyze the data and to draw conclusions from them regarding certain aspects of the mechanism of coronavirus infection.



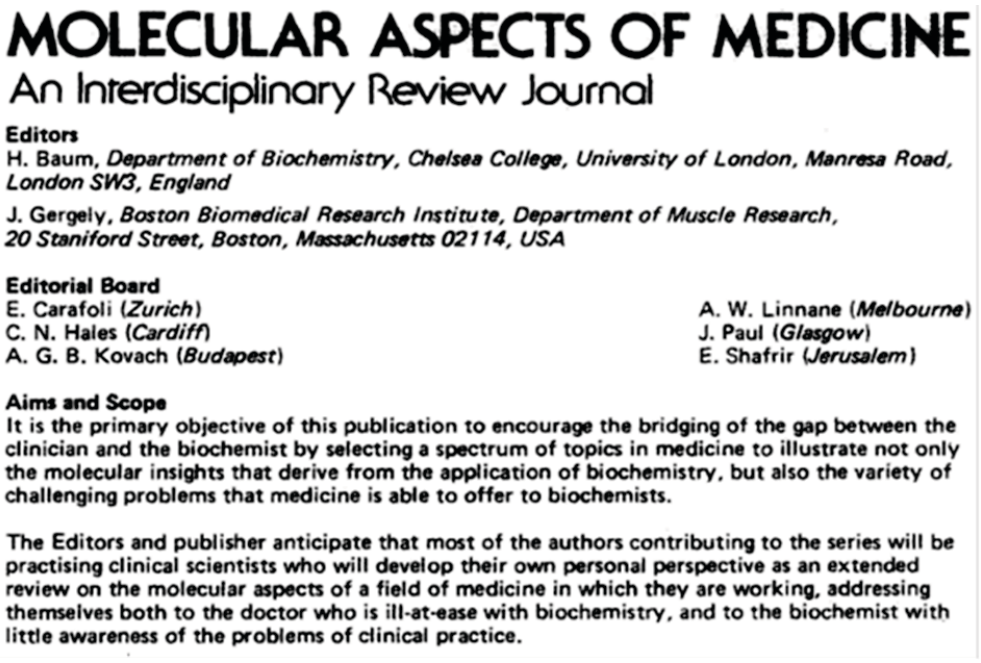
# IUBMB JOURNAL HIGHLIGHTS

## Molecular Aspects of Medicine: a look at the past with an eye to the future

By Angelo Azzi, Editor-in-Chief, Molecular Aspects of Medicine, Tufts University, Boston, USA




Harold Baum, first Editor-in-Chief of *Molecular Aspects of Medicine*, on the occasion of the publication of the first issue of the journal (Molecular Aspects of Medicine Volume 1, Issue 1, Pages 1 – 2, 1976) wrote in his editorial: "The editors and publishers hope that this new review series will achieve a two-fold purpose. It will, on one hand, bring development in the field of molecular and cellular biology to those engaged in the practice and teaching of clinical medicine. Some articles in this series will, therefore, cover theoretical advances as well as important technical developments based on fundamental discoveries. Conversely, other articles will be written from the point of view of the clinician, focusing on certain aspects of a disease, or a group of diseases, with a view to engaging the attention of his colleagues in the basic sciences. This, one hopes, will generate new developments in the field of underlying biochemical and biological phenomena, which in turn will lead to a better understanding, and eventual solution of clinical problems. The editors will attempt to maintain the highest scholarly standards in these publications. However, since the contributions in this series are aimed at an audience whose members have a variety of backgrounds, scholarly excellence must not impede communication across interdisciplinary boundaries."



MOLECULAR ASPECTS OF MEDICINE

An Interdisciplinary Review Journal

**Editors**

H. Baum, *Department of Biochemistry, Chelsea College, University of London, Manresa Road, London SW3, England*

J. Gergely, *Boston Biomedical Research Institute, Department of Muscle Research, 20 Staniford Street, Boston, Massachusetts 02114, USA*

**Editorial Board**

E. Carafoli (*Zurich*)
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**Aims and Scope**

It is the primary objective of this publication to encourage the bridging of the gap between the clinician and the biochemist by selecting a spectrum of topics in medicine to illustrate not only the molecular insights that derive from the application of biochemistry, but also the variety of challenging problems that medicine is able to offer to biochemists.

The Editors and publisher anticipate that most of the authors contributing to the series will be practising clinical scientists who will develop their own personal perspective as an extended review on the molecular aspects of a field of medicine in which they are working, addressing themselves both to the doctor who is ill-at-ease with biochemistry, and to the biochemist with little awareness of the problems of clinical practice.

# IUBMB JOURNAL HIGHLIGHTS

## Molecular Aspects of Medicine: a look at the past with an eye to the future

By Angelo Azzi, Editor-in-Chief, Molecular Aspects of Medicine, Tufts University, Boston, USA

Shortly after the publication of the first issue of *Molecular Aspects of Medicine*, R. Colin Hughes of the National Institute for Medical Research in London, wrote a review about Molecular Aspects of Medicine in the journal Biochemical Education (April 1976 Vol. 4, 1976). He wrote: “The Editors state that it is the objective of this publication to 'encourage the bridging of the gap between the clinician and the biochemist' and continue that they expect that 'authors contributing to the series will be practicing clinical scientists' who will be 'addressing themselves both to the doctor who is ill at ease with biochemistry and to the biochemist with little awareness of the problems of clinical practice'. With the striking advances in technology and of our understanding of fundamental biochemical processes on the one hand and of surgical and medical techniques on the other, this gap is widening at a dangerous rate. Despite the proliferation of new journals, the editors are therefore to be congratulated upon producing a Journal which is devoted to improving communication between scientist and scientist and between scientist and clinician and at the same time attempting 'to maintain the highest scholarly standards in these publications'. The first articles were on Radioimmunoassay and Reproductive Endocrinology and the upcoming titles were on Haemoglobin in Medicine, Oedema, Protein Synthesis in Disease, The Biochemical Basis of Shock, Molecular Aspects of Anaesthesia, Antibodies, Microbes and Man, and Non-Shivering Thermogenesis in the New-born. These were cutting edge topics half a century ago”.

Molecular Aspects of Medicine has changed, in the meantime its publisher, its graphical aspect and its impact on the scientific community.

# IUBMB JOURNAL HIGHLIGHTS

## Molecular Aspects of Medicine: a look at the past with an eye to the future

By Angelo Azzi, Editor-in-Chief, Molecular Aspects of Medicine, Tufts University, Boston, USA

Has the content of Molecular Aspects of Medicine remained faithful to the original promises? At a first glance, in half a century science has dramatically changed and new focus has been given to molecular and cellular aspects. In the following paragraphs some of the scientific progresses captured by Molecular Aspects of Medicine will be shortly described.

Totally new concepts have emerged such as that of Inflammasome (Jianbin Ruan, December 2020, Volume 76). Still in terms of inflammation, also the pro-resolving mediators have been recently discovered (The Physiology and Pharmacology of Specialized Pro-Resolving Mediators, Jesmond Dalli, December 2017, Volume 58, and The Atlas of Inflammation Resolution (AIR) August 2020, Volume 74). Needless to say, the old subject of inflammation has been developed not only in its mechanistic knowledge, but also has been taken into medicine, being recognized to be at the basis of acute and chronic diseases.

Similarly, the discovery of lysosomes by Christian De Duve has progressed into a totally new field, that of autophagy with multiple facets and important connections to diseases (forthcoming special issue Autophagy and Disease, guest edited by Patricia Boya, December 2021).

What was cancer and chemotherapy half a century ago, has become a highly sophisticated field, where cancer-specific targets have been discovered and utilized for novel, efficient therapies. (Implications of cancer stem/progenitor cell concepts in molecular oncology and novel targeted therapies, Murielle Mimeault, Surinder K. Batra, October 2014, Volume 39).

Half a century ago, focus was given to coding DNA and the huge portion of non-coding DNA was considered junk. [Orgel LE, Crick FH (April 1980): Selfish DNA: the ultimate parasite. Nature. 284 (5757): 604–7.]. Only more recently, the non-coding DNA and RNA have been found to provide giant regulatory functions, essential in physiology and pathology (Non-coding RNAs and DNAs in health and disease, George Calin, Linda Fabris, December 2019, Volume 70).

Associated to this extremely important subject is that of epigenetics, pointing to the unique value of modifications of heritable phenotype by changes that do not involve alterations in the DNA sequence (Epigenetics, Sang Woon Choi, Simonetta Friso, July 2013, Volume 34, Issue 4 and the forthcoming special issue on Epigenetics and Disease, guest edited by Joachim Janowski).

# IUBMB JOURNAL HIGHLIGHTS

## Molecular Aspects of Medicine: a look at the past with an eye to the future

By Angelo Azzi, Editor-in-Chief, Molecular Aspects of Medicine, Tufts University, Boston, USA

In the field of immunology, important discoveries have been recently made, in understanding the link between metabolism and immune response (Cellular and Molecular Aspects of Immunometabolism, Giuseppe Danilo Norata, Giuseppe Matarese, February 2021, Volume 77) and in the understanding of the role of Innate Lymphoid Cells, Francesco Annunziato, Laura Maggi, Angela Santoni, Volume 80, August 2021.

In this short overview of the cutting-edge themes that have been recently covered by Molecular Aspects of Medicine some technological aspects cannot be ignored, such as The emerging field of single-cell analysis, Mikael Kubista, Anders Stahlberg, Jacqueline Dreyer-Lamm, February 2018, Volume 59 and the Liquid biopsy analysis in cancer diagnostics, Anders Stahlberg, Mikael Kubista, Daniel Andersson, April 2020, Volume 72.

After this short analysis, it appears indeed that Molecular Aspects of Medicine has been able to catch at least a portion of the rapid and profound changes that are taking place in the biomedical field. Such an achievement has been possible through the great help provided by an excellent Publisher and an exceptional board of editors that deserve my warmest thanks: P. Ascenzi, G.A. Calin, S.W. Choi, T. Finkel, A. B.F. Gurib-Fakim, G.L. King, M. Kubista, A. Lichtenstein, S. N. Meydani, C. Montecucco, P. Oteiza , G. Poli, R. Ricciarelli , C.N. Serhan, L. Sobrevia, J. Speakman, and N. Taniguchi.

# IUBMB LIFE JOURNAL DEADLINES

## Special Issues - Open Call for Papers


### Extracellular Matrix: The Dynamic Structural and Functional Network in Health and Disease

GUEST EDITORS: Nikos Karamanos (Univ. of Patras), Sylvie Ricard-Blum (Univ. of Lyon), Dimitris Kletsas (NCSR Demokritos, Athens)

Manuscripts should be submitted by **28 February 2022**
*Expected issue publication will be summer 2022*

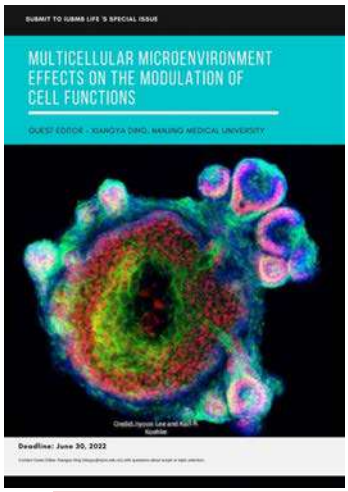
We invite investigators to contribute original research articles that address the ECM as a key player in health and disease, in cell functional properties and behaviour, in disease diagnosis and pharmacological targeting/treatment approaches, as well as in bioengineering and biotechnology. Themes related to development, evolution, tumour biology, therapeutics, omics and aging are also welcomed. Research approaches could address either ECM networks or macromolecules such as collagens, proteoglycans, glycosaminoglycans, integrins, cell-matrix receptors, matrix-degrading and modifying enzymes and matrix-related proteins/glycoproteins. Critical reviews in areas not recently covered are also welcomed upon invitation or approval of proposals by the guest editors.


### Cancer drug resistance: molecular mechanisms, and therapeutic Implications

GUEST EDITORS: Mandeep Kaur, (University of the Witwatersrand)

Manuscripts should be submitted by **28 February 2022**
*Expected issue publication will be summer 2022*

The proposed special topic will be dedicated to compiling a collection of articles focusing on exploring different aspects of cancer drug resistance in in vitro, in vivo, cancer stem cells and 3D cultures models. The topic would also solicit submissions on latest therapeutic developments in this area of research and ways to reverse drug resistance in cancer cells. The types of articles can be review articles, original research (basic research or translational studies), and clinically relevant biomarkers for monitoring the therapeutic response of patients to drugs etc.




### Multicellular Microenvironment Effects on the Modulation of Cell Functions

GUEST EDITOR: Xiangya Ding, (Nanjing Medical University)

Manuscripts should be submitted by **30 June 2022**
*Expected issue publication will be November 2022*

We invite investigators to contribute original research articles, as well as review articles that address the multicellular microenvironment, using basic and translational experimental models. Suggested potential topics include but are not limited to the following: Characterization of multicellular microenvironment, applications for cell-microenvironment strategies in pathological conditions, tumour microenvironment and its implications for cancer, the role of immune microenvironment in diseases, therapeutic strategy based on multicellular microenvironment etc.

# IUBMB JOURNAL DEADLINES


The International Union of Biochemistry and Molecular Biology (IUBMB) seeks a new Editor-in-Chief for ***Biotechnology and Applied Biochemistry***. Published since 1979, *Biotechnology and Applied Biochemistry* is dedicated to the rapid publication of discoveries in the life sciences that impact and advance biotechnology. The editor will consider papers for publication based on their potential impact on the field, and their compatibility with journal scope. The journal seeks contributions to the fields of synthetic biology, systems biology, metabolic engineering, bioengineering, biomaterials, biosensing, and nano-biotechnology, and how they can be applied to medical and industrial biotechnology.

The successful candidate will be recognized as a leading member of the biochemistry and molecular biology community. They will have an outstanding publication record; an extensive, global network; an appreciation for the diverse fields within the journal's scope; and will represent the diversity within the IUBMB global community.

The successful candidate will have an outstanding opportunity to further develop the journal over a maximum three 3- year terms in the role. They must demonstrate a clear vision for its future growth and position in the publishing landscape. The appointee will bring extensive experience in peer review and/or editorial roles, high ethical professional standards, innovation, enthusiasm, strong leadership, and organizational and communication skills to the journal.

The main functions within this role are: strategic and practical development of the journal, defining a vision for the content; defining content and commissioning papers for regular and special issues; maintaining editorial standards; providing strong and inspiring leadership to the journal's editorial board; appointing new board members to grow the journal; promoting the journal; managing the publication, and working closely with IUBMB and the publisher (Wiley). This important leadership role will require a significant time commitment on a weekly basis and will be recompensed accordingly. Associate Editors are appointed to limited terms by the Editors-in-Chief to handle some functions, subject to approval by the IUBMB Executive Committee. The Editor-in-Chief of *Biotechnology and Applied Biochemistry* will receive an annual honorarium and is supported by professional editorial office assistance.

Applications should include the following

1) A full CV, including details of peer review and/or editorial roles and the applicant's publication record
2) A brief statement describing your vision for *Biotechnology and Applied Biochemistry*
3) A cover letter outlining your suitability for the Editor-in-Chief role
4) Two reference Letters

Please send any queries relating to this appointment and applications, in confidence, to: Assoc. Prof. James Murphy (*jamesm@wehi.edu.au*), Chair of the IUBMB Publications Committee. **Application deadline extended to January 31, 2022.**

***IUBMB upholds the principles of equity, diversity and inclusion.***

# IUBMB JOURNAL DEADLINES


The International Union of Biochemistry and Molecular Biology (IUBMB) seeks a new Editor-in-Chief for ***BioFactors***, a journal devoted to the rapid publication of discoveries and reviews describing the structures, functions, identification and interactions of macromolecules and metabolites. *BioFactors* encourages the submission of studies that use biochemistry, biophysics, cell and molecular biology and/or cell signaling approaches.

The successful candidate will be a leading member of the biochemistry and molecular biology community. They will have an outstanding publication record; extensive experience in peer review and/or editorial roles; an extensive, global network; an appreciation of diverse methodologies and biological systems within the journal's scope; and will represent the diversity within the IUBMB global community.

The successful candidate will have an outstanding opportunity to further develop the journal over a maximum three 3-year terms in the role. They must demonstrate a clear vision for its future growth and position in the publishing landscape. The appointee will bring extensive experience in peer review and/or editorial roles, high ethical professional standards, innovation, enthusiasm, strong leadership, and organizational and communication skills to the journal.

The appointed Editor-in-Chief will be responsible for: the vision, strategy and practical development of the journal; defining content and commissioning papers for regular and special issues; maintaining editorial standards; providing strong and inspiring leadership to the journal's editorial board; appointing new board members to grow the journal; promoting the journal; and working closely with IUBMB and the publisher (Wiley) to manage publication. This important leadership role will require a significant time commitment and will be recompensed accordingly. Associate Editors are appointed to limited terms by the Editors-in-Chief to handle some functions, subject to approval by the IUBMB Executive Committee. The Editor-in-Chief of *BioFactors* will receive an annual honorarium and is supported by professional editorial office assistance.

Applications should include the following

1) A full CV, including details of peer review and/or editorial roles and the applicant's publication record
2) A brief statement describing your vision for *BioFactors*
3) A cover letter outlining your suitability for the Editor-in-Chief role
4) Two reference Letters

Please send any queries relating to this appointment and applications, in confidence, to: Assoc. Prof. James Murphy (*jamesm@wehi.edu.au*), Chair of the IUBMB Publications Committee. **Application deadline extended to March 31, 2022.** The Publications and Executive Committees of IUBMB will make the final selection. The appointed candidate would commence as Editor-in-Chief on January 1, 2023.

***IUBMB upholds the principles of equity, diversity and inclusion.***

# UPCOMING IUBMB DEADLINES


The PROLAB program allows Latin American 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.


Wood-Whelan Research Fellowships supports up to 4 months in a lab and up to a maximum of US $4,000 for travel expenses.

Mid-Career Research Fellowships support up to 2 months in a lab and up to a maximum of US $5,000 for travel expenses.

Tang Education Fellowships supports educators visiting another institution to either advise/teach or learn up to 2 months and up to a maximum of US $4,000 for travel expenses.

# UPCOMING IUBMB DEADLINES


The IUBMB Travel Fellowships are designed to support travel to meetings for trainees attend meetings in the IUBMB region.


Meeting you'd like to attend from anywhere in the world? In response to the pandemic, we have collaborated with MilliporeSigma to offer Virtual Meeting Fellowships with **OPEN DEADLINES**

# UPCOMING IUBMB DEADLINES


**Funding for Educational Activities changed to allow funding for online (virtual) activities**

The deadline for funding for Educational Activities is April 1st 2022 and includes funding for both face-to-face and online (virtual) workshops, meetings or symposiums.


IUBMB Advanced Schools support training of grad students and postdocs on specific topics in molecular biosciences. One more way we support training the next generation.

# UPCOMING IUBMB DEADLINES

IUBMB Focused Meetings, up to three each year, should cover “cutting edge science” of clear relevance to Biochemistry and Molecular Biology. Additionally, organizers of an IUBMB Focus Meeting are invited to edit a Special Issue in one of IUBMB Journals.

The proposals for 2023 IUBMB Focused Meetings have to be presented on June 1st, 2022.



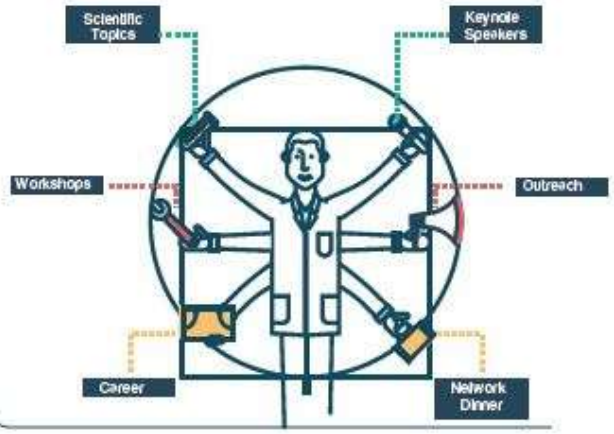
IUBMB Jubiliee Lecture Awards recognize outstanding contributions in biochemistry and molecular biology. Nominate your Plenary Speaker (in person or virtual).

# UPCOMING IUBMB DEADLINES

## FEBS-IUBMB-ENABLE 2023 and 2024 Conferences
## Open call for host institutions
## (Europe and beyond)

### The conference

- Organized by and for PhD students and postdocs from the molecular life science disciplines
- 3 day conference including scientific symposium, career day, workshops and outreach activities
- 4 founding European institutes originally funded by EU
- Continued funding by main sponsors (FEBS and IUBMB) for additional four years (2022-2025)




### Join us in the organization !

- Be our fifth institutional hosting partner
- Host the European 2023 conference in a FEBS Constituent Society country - deadline 31 January 2022
- Host the 2024 conference in a IUBMB Adhering or Associate Adhering Body - deadline 31 March 2022
- Young researchers interested: Involve and discuss it with your student/postdoc association and contact your institution for support in the application!
- Institutions interested: Get your student/postdoc association committed and make the application!
- Read about eligibility requirements and how to apply at our call for institute webpage


Read more about the FEBS-IUBMB-ENABLE conference at our homepage

# 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 a research institution) to host the November 2023 conference in a country with a FEBS Constituent Society, and any country with an IUBMB Adhering or Associate Adhering Body (except those allowed in 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.

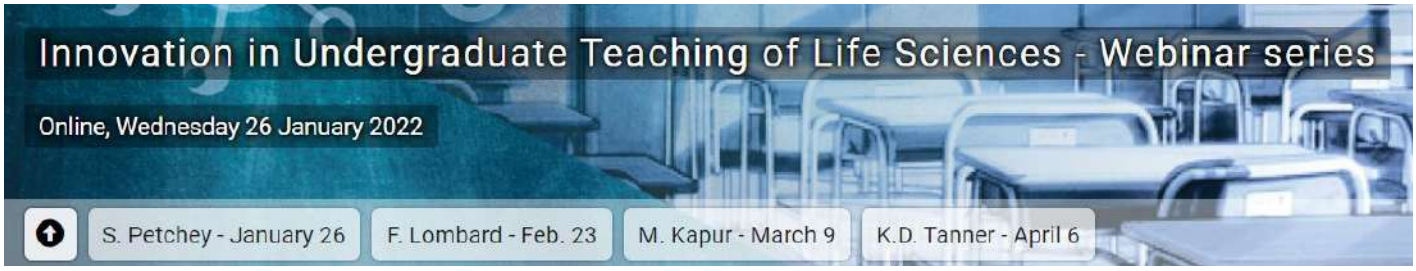
**Guidelines and application forms for host institutions:**

Application Guidelines | 2023 & 2024 Application Form and Budget Form

**Deadline for applications:**

- The 2023 event will be held in a country with a FEBS Constituent Society; apply by **31 January 2022**
- The 2024 event is open to any country with an IUBMB Adhering or Associate Adhering Body, except those allowed in 2023; apply by **31 March 2022**

# UPCOMING MEETINGS 2022




**NEXT WEBINAR SERIES PRESENTS:**

- **January 26** (17.30): **Sarah Petchey** (Universität Zürich, CH);
  *The pedagogically-trained teaching assistant: an under-recognized change agent in the improvement of university teaching.*

- **February 23** (17.30): **François Lombard** (Université de Genève, CH);
  *Does the order of your slides matter? Measuring progressive organization of conceptual understanding during learning - implications for education.*

- **March 9** (17.30): **Manu Kapur** (ETH Zürich, Switzerland);
  *Productive failure.*

- **April 6** (17.30): **Kimberly D. Tanner** (San Francisco State University, San Francisco, CA, USA);
  *title to be announced*

**Registration is free**, for LS2 members and non-members. There is no need to register for each webinar, **registration is for the entire series**. **The Zoom link will be sent to registered participants around 48h before each online seminar.**

*Only registered participants will receive the Zoom link of the webinars and the links to the recorded webinars.*


Registration

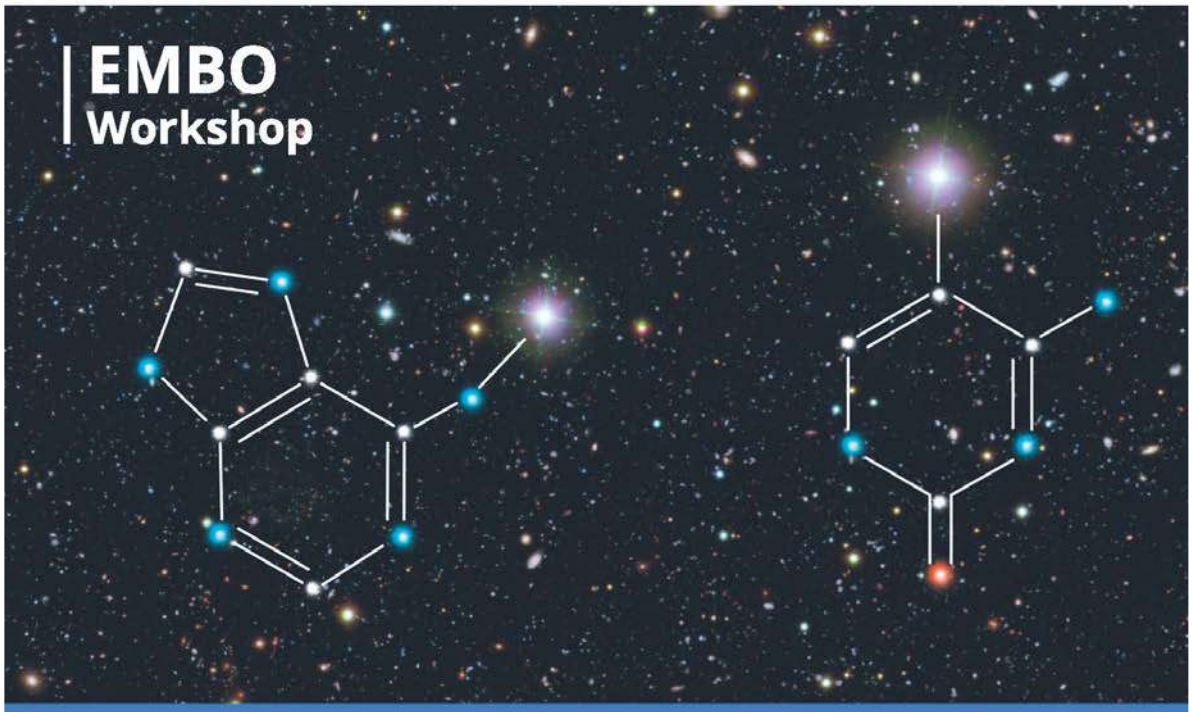
We're excited to invite you to the 47th Lorne Conference on Protein Structure and Function, taking place February 6-10, 2022.

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*.

# UPCOMING MEETINGS 2022

EMBO EMBL




## The epitranscriptome

**KEYNOTE SPEAKER**

**Chuan He**
The University of Chicago, USA

**SPEAKERS**

**Cristian Bellodi**
Lund University, Sweden

**Janusz Bujnicki**
International Institute of Molecular and Cell Biology, Poland

**Victoria Cowling**
University of Dundee, UK

**Michaela Frye**
German Cancer Research Centre (DKFZ), Germany

**Wendy Gilbert**
Yale University, USA

**Richard Gregory**
Boston Children's Hospital, USA

**Samie Jaffrey**
Weill Cornell Medicine, USA

**Stefanie Kellner-Kaiser**
Goethe University Frankfurt, Germany

**V. Narry Kim**
Seoul National University, South Korea

**Kamil Kranc**
Barts Cancer Institute, Queen Mary University of London, UK

**Yunsun Nam**
The University of Texas Southwestern Medical Center, USA

**Shalini Oberdoerffer**
National Cancer Institute, USA

**Ramesh Pillai**
University of Geneva, Switzerland

**Schraga Schwartz**
Weizmann Institute of Science, Israel

**Štěpánka Vaňáčová**
CEITEC, Czech Republic

**ORGANISERS**

**Michaela Frye**
German Cancer Research Centre (DKFZ), Germany

**V. Narry Kim**
Seoul National University, South Korea

**Dónal O'Carroll**
MRC Centre for Regenerative Medicine, UK

**9 – 11 Feb 2022**
Virtual Conference

**ONLINE REGISTRATION ONLY**
s.embl.org/etc22-01

**ABSTRACT SUBMISSION DEADLINE**
10 January 2022

**REGISTRATION DEADLINE**
2 February 2022

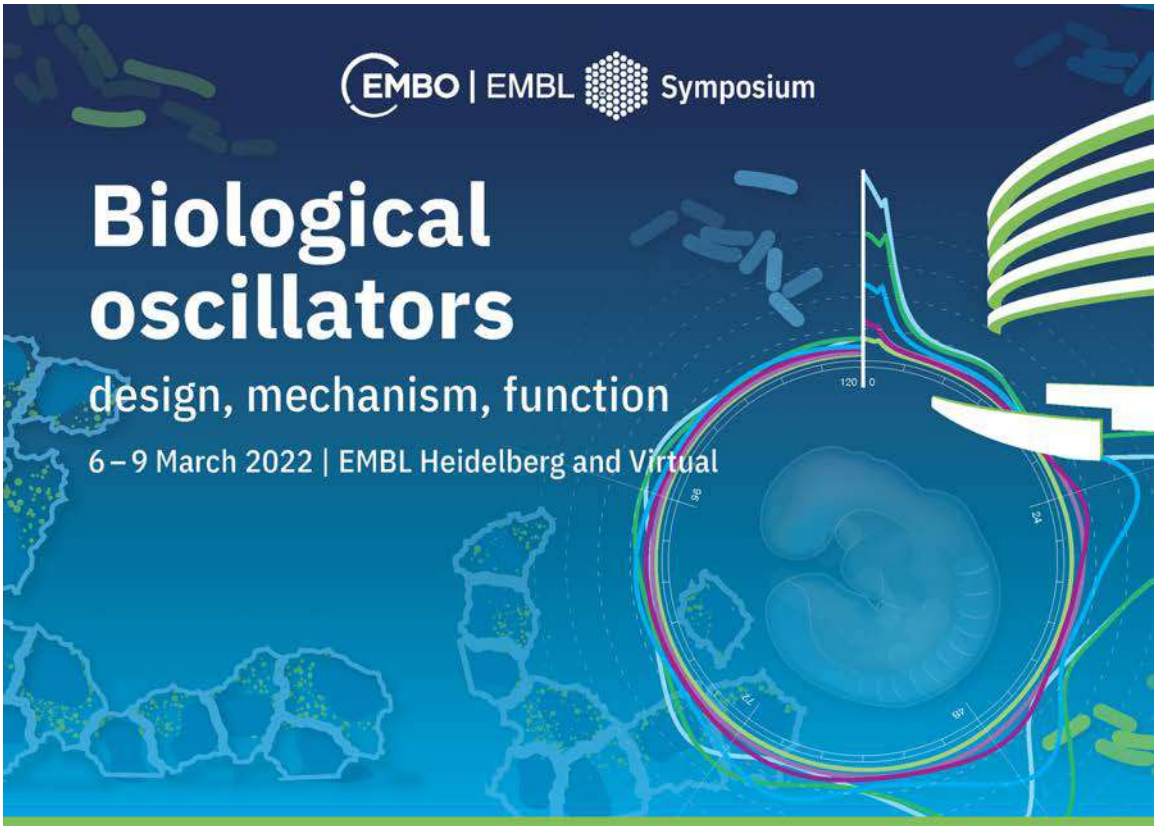
**CONTACT**
European Molecular Biology Laboratory
events@embl.de

#EMBOEpitrans



Co-funded by the EMBL Corporate Partnership Programme
www.embl.org

# UPCOMING MEETINGS 2022




KEYNOTE SPEAKERS

**Leon Glass**
McGill University, Canada

**Eve Marder**
Brandeis University, USA

SPEAKERS

**Laura Colgin**
The University of Texas at Austin, USA

**James E. Ferrell**
Stanford University School of Medicine, USA

**Charlotte Förster**
University of Würzburg, Germany

**Jordi Garcia-Ojalvo**
Pompeu Fabra University, Spain

**Albert Goldbeter**
Université Libre de Bruxelles, Belgium

**Susan S. Golden**
University of California San Diego, USA

**Ryoichiro Kageyama**
RIKEN Center for Brain Science, Japan

**István Z. Kiss**
Saint Louis University, USA

**Noga Kronfeld-Schor**
Tel Aviv University, Israel

**Francis Albert Lévi**
Faculty of Medicine, Paris-Saclay University, France

**Felix Naef**
Swiss Federal Institute of Technology Lausanne, Switzerland

**Nancy Papalopulu**
University of Manchester, UK

**Olivier Pourquié**
Harvard University, USA

**Frances K. Skinner**
University Health Network, Canada

**Takashi Yoshimura**
Nagoya University, Japan

PRE-SYMPOSIUM WORKSHOP INSTRUCTORS

**Bharath Ananthasubramaniam**
Institute for Theoretical Biology - Humboldt University Berlin

**Hanspeter Herzel**
Institute for Theoretical Biology - Humboldt University Berlin

**Christoph Schmal**
Institute for Theoretical Biology - Humboldt University Berlin

**Marta Del Olmo**
Institute for Theoretical Biology - Humboldt University Berlin

Abstract Submission Deadline
17 December 2021

Registration Deadline
12 January 2022

ORGANISERS

**Alexander Aulehla**
EMBL Heidelberg, Germany

**Hanspeter Herzel**
Institute for Theoretical Biology - Humboldt University Berlin, Germany

**Eve Marder**
Brandeis University, USA

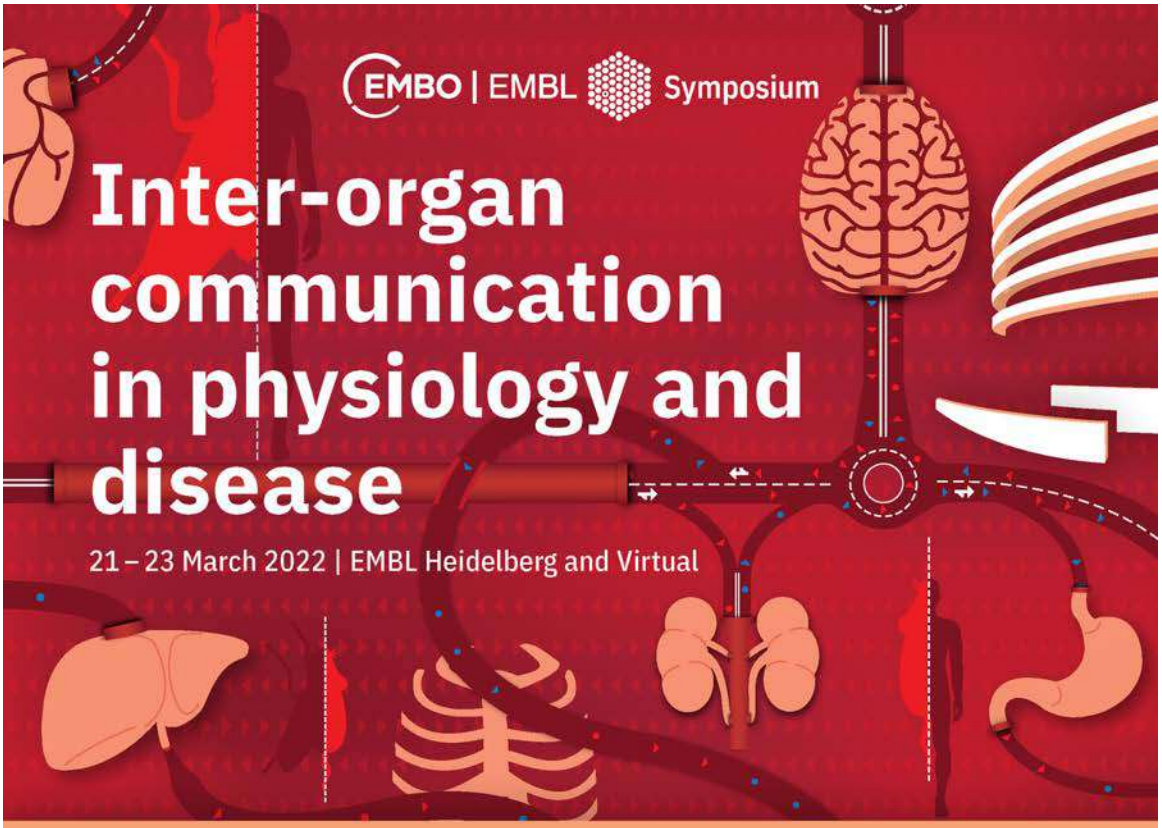
**Ueli Schibler**
University of Geneva, Switzerland

Additional speakers will be selected from abstracts.

s.embl.org/ees22-01

#EESBioOsc
CONTACT events@embl.de

# UPCOMING MEETINGS 2022




KEYNOTE SPEAKER

Ruslan Medzhitov
Yale School of Medicine, USA

SPEAKERS

Ivan De Araujo
Icahn School of Medicine at Mount Sinai, USA

Ralph DeBerardinis
UT Southwestern Medical Center, USA

Ana Domingos
University of Oxford, UK

Iqbal Hamza
University of Maryland, USA

Shingo Kajimura
Harvard Medical School and Beth Israel Deaconess Medical Center, USA

Gerard Karsenty
Columbia University, USA

Stavroula Kousteni
Columbia University, USA

Pierre Leopold
Institut Curie, France

Dan Littman
New York University, USA

Irene Miguel-Aliaga
MRC London Institute of Medical Sciences and Imperial College London, UK

Gilles Mithieux
INSERM, France

Asya Rolls
Technion - Israel Institute of Technology, Israel

Miguel Soares
Instituto Gulbenkian de Ciência, Portugal

Lisa Stowers
Scripps Research, USA

Filip Swirski
Massachusetts General Hospital and Harvard Medical School, USA

Henrique Veiga-Fernandes
Champalimaud Foundation, Portugal

Abstract Submission Deadline
10 January 2022

Registration Deadline
26 January 2022

ORGANISERS

Gerard Karsenty
Columbia University, USA

Irene Miguel-Aliaga
MRC London Institute of Medical Sciences and Imperial College London, UK

Miguel Soares
Instituto Gulbenkian de Ciência, Portugal

Additional speakers will be selected from abstracts.

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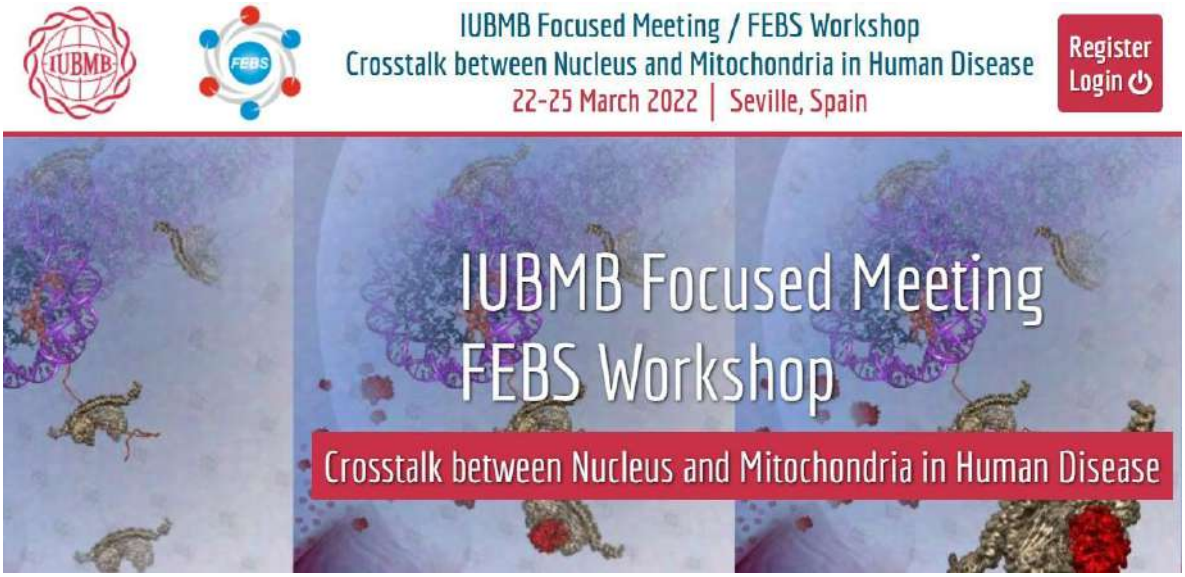
# UPCOMING MEETINGS 2022




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).


The meeting will feature symposia on:

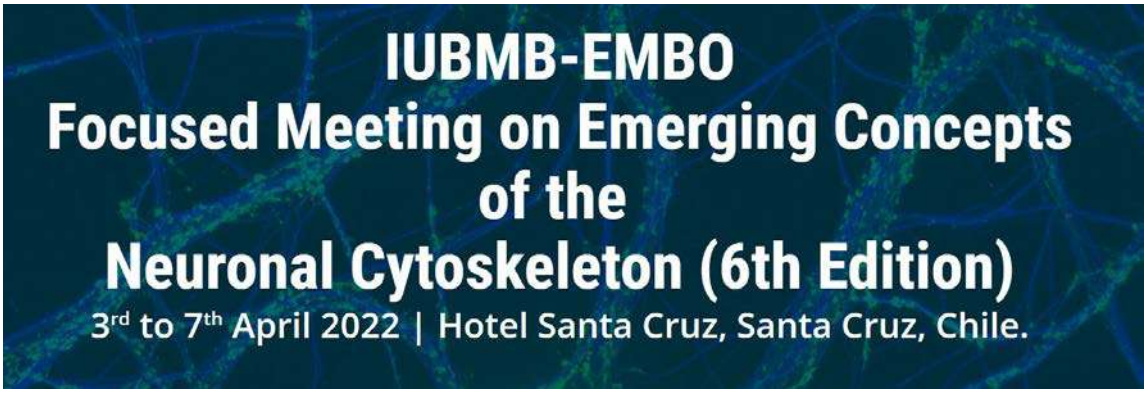
- Education and professional development
- Enzymology
- Glycobiology
- Membranes/Lipids
- Metabolism
- Protein machines and disorder
- Quality control in organelles
- RNA/DNA
- Signaling
- Tackling adversity: tales of the epigenome

The 2022 ASBMB Annual Meeting, held in conjunction with Experimental Biology, will take place in person April 2–5 in Philadelphia. Experience four days of immersive and insightful exchange among life scientists from around the world.

**DEC 15**: Last-Chance Abstract Submissions Open | **JAN 27**: Abstract Last-Chance Abstract Submission Deadline

**FEB 7**: Early registration ends | **FEB 8**: Advance registration begins | **MAR 18**: Advance registration ends | **MAR 19**: Advance registration begins

# UPCOMING MEETINGS 2022



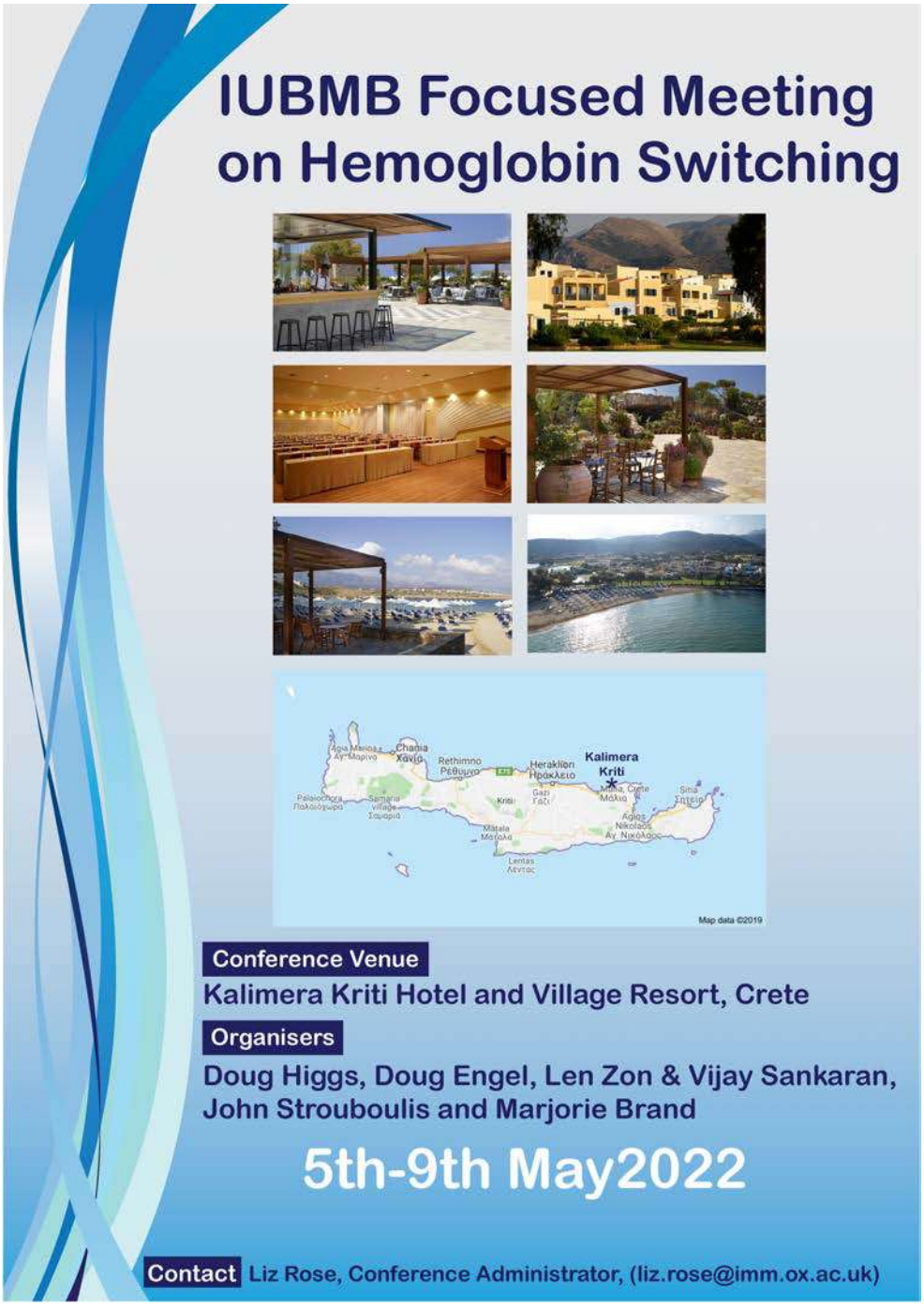

The IUBMB-EMBO Focused Meeting on Emerging Concepts of the Neuronal Cytoskeleton is the sixth edition of a long-running workshop intended to expose students and fellows to cutting edge research in the neuronal cytoskeleton field, and to help them forge closer ties with the international community that would lead to future opportunities.

**DEC 15:** Registration Opens | **FEB 15:** Registration Deadline


The 2nd FEBS Workshop Ageing & Regeneration will bring together experts working at the forefront of science in both ageing research and regenerative medicine / stem cell biology.

online poster | **JAN 26:** Applications & Registration Deadline | Maximum number of participants: 100

# UPCOMING MEETINGS 2022




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

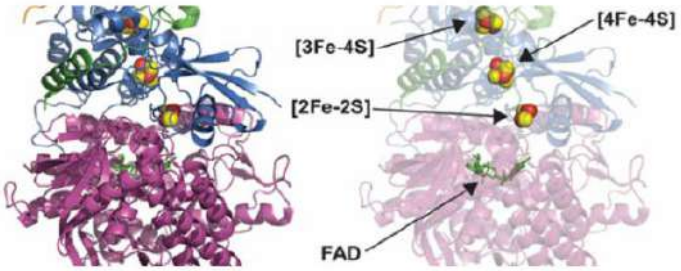
**MAR 18:** Early Registration Deadline Abstract Submission Deadline
**MAR 21:** Written Cancellation Deadline (for a full refund)
**MAR 31:** Registration Deadline
**APR 1:** Abstract Submission Deadline

# UPCOMING MEETINGS 2022

## IUBMB ADVANCED SCHOOL

**COFACTOR ASSEMBLY, TRANSPORT AND INSERTION**

**Novel insights into their relevance to human health and well-being**




*Save the date!*

***Postponed from 2021** to* **May 16-20, 2022**

**Spetses Island, Greece**

Meeting Link


Online Poster | Meeting Link

**MAR 7:** Registration Deadline & Abstract Submission Deadline | **APR 4:** Chosen participants will be notified | **ARR 4:** Payment Deadline

# UPCOMING MEETINGS 2022

The 2022 IUBMB–FEBS–PABMB Young Scientists' Forum (YSF 2022) meeting will bring together around 120 selected young researchers in biochemistry and molecular biology, who will be supported to attend by grants from FEBS, IUBMB and PABMB. The participants will be able to present and discuss their research and benefit from other activities at the YSF, before moving on to also experience the IUBMB–FEBS–PABMB Congress in Lisbon. The YSF will be held in Vimeiro, Portugal, an hour's drive north from Lisbon.



online poster | YSF Keynote Speakers | YSF Career Speakers

**DEC 15:** YSF Application Deadline | **FEB 10:** Notifications of YSF award winners

# UPCOMING MEETINGS 2022


The 25th IUBMB Congress, the 46th FEBS Congress and the 15th PABMB Congress will be held in Lisbon, Portugal from 9 -14, July, 2022. *The Biochemistry Global Summit* will take place at Lisboa Congress Centre, located in the historical area of Belém, by the Tagus River.

The program of the Congress will cover the latest discoveries in biomolecular sciences and is a great opportunity to interact with scientists from all over the world.


online poster

**FEB 20:** SPB Application Deadline
**MAR 10:** Congress Abstract Submission Deadline
**MAR 10:** FEBS & IUBMB Bursaries Application Deadline
**MAR 10:** Early Registration Deadline

# UPCOMING MEETINGS 2022


***Postponed from 2021**** | Meeting Link

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online poster | Meeting Link

**FEB 1:** Applications Open
**MAR 15:** Applications Deadline


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online poster | Meeting Link

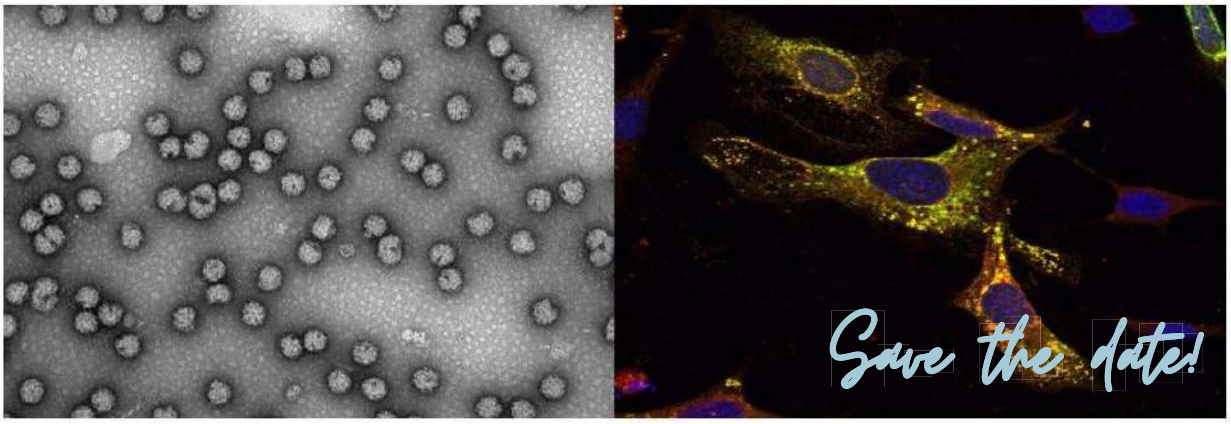
**JAN 1:** Applications Open
**MAY 30:** Youth Travel Fund Grants Deadline
**AUG 30:** Applications and Registration Deadline

# UPCOMING MEETINGS 2022

## IUBMB Focused Meeting on Biochemistry & Molecular Biology of RNA Viruses

23rd November, 2021-26th November, 2021

Venue: Regional Centre for Biotechnology, Faridabad




Meeting Link

***Meeting Postponed*** **to November 15-18, 2022**


Press release by IRB Barcelona


ENABLE Milan Conference 2021

# UPCOMING MEETING 2023


***Meeting Postponed***
**to 2023**

## Miami Winter Symposium 2022
## Molecular Neuroscience: Focus on Sensory Disorders

January 31 – February 2, 2022 | Hyatt Regency Miami, FL, USA

As the global situation regarding Coronavirus remains uncertain and putting the safety of participants and speakers above all else, we have made the difficult decision to postpone the Miami Winter Symposium: Molecular Neuroscience: Focus on Sensory Disorders until 2023.

We will be announcing the new dates soon: Please sign-up to the mailing list to receive information when available

Meeting Link

# UPCOMING MEETING 2024

ASBMB AUSTRALIAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY


We are thrilled to announce that Melbourne will host the 26th Congress of International Union of Biochemistry and Molecular Biology (IUBMB) from 22-26 September 2024. We look forward to seeing you there!

# ANNOUNCEMENT

## Thank you for the many years


# ANNOUNCEMENT

## Congratulations to Dr. Aditya Sadhanala

As you may know, the IUBMB has rejoined the International Science Council (ISC) on December 17, 2020. As a member of ISC, our members of the Adhering Body were invited to nominate individuals or groups of individuals who contribute to the promotion of science as a global public good for the ISC Awards Programme 2021 in the category of Early Career Scientist Award.

The ***Early Career Scientist Award*** is for exceptional contribution to science and international scientific collaboration by early career researchers (six awards: one award to a scientist from each of (i) Africa, (ii) Asia, (iii) Australia and Oceania, (iv) Europe, (v) North America, and (vi) South America and the Caribbean).

On behalf of ISC and IUBMB, we are pleased to announce the recipient of the 2021 Early Career Scientist Award (Asia) went to Dr. Aditya Sadhanala, an Assistant Professor at the Indian Institute of Science.

Aditya Sadhanala received an original art piece ***'Brilliant Radiance'*** by scientific photographer Karl Gaff who specializes in microscopy art.

Learn more on the ISC 2021 awardees.

# ANNOUNCEMENT

## BIOSECURITY GUIDELINE

### The Tianjin Biosecurity Guidelines for Codes of Conduct for Scientists

The Johns Hopkins Bloomberg School of Public Health, Center for Health Security, the InterAcademy Partnership and the Tianjin University Center for Biosafety Research and Strategy prepared the *"Tianjin Biosecurity Guidelines for Codes of Conduct for Scientists"*. These guidelines have been presented and discussed at several workshops.

The guidelines emphasize the importance of mitigating risks associated with advanced life science research and technology and are high-level principles that serve as a reference for a broad range of stakeholders to develop or amend national- or institutional-level codes of conduct, practices, protocols, or regulations. Inspired by the Hague Ethical Guidelines that were developed by the Organisation for the Prohibition of Chemical Weapons, the Tianjin Biosecurity Guidelines emerged from foundational work by China and Pakistan in 2015, and were further developed collaboratively by InterAcademy Partnership leaders, Tianjin University's Centre for Biosafety Research and Strategy, and Johns Hopkins University's Center for Health Security, with input from scientists from 20 geographically diverse countries.

We hope that these guidelines will be useful to our members and that they will serve as a starting point for institutional discussions.

# ANNOUNCEMENT


IUBMB has partnered with the European Molecular Biology Laboratory (EMBL) as a media partner. EMBL is Europe's leading life sciences laboratory, conduct world-class excellent biological research, provide training for students and scientists, and provide state-of-the-art technologies for a wide range of scientific and experimental services.

All the virtual courses provide hands on training and live interaction with world leading experts. A number of fee waivers are also provided (further information is available on Practical Information pages of respective courses).

# ANNOUNCEMENT

THE ROYAL SOCIETY PUBLISHING

## Collaboration in the COVID era

We all know that times are strange right now. For those who are missing conference travel, and the opportunity to discuss your work and build collaborations with other research groups, we would like to suggest a replacement project: why not edit a theme issue of *Philosophical Transactions B*?

Each issue is carefully planned out, so is more like a book than a standard collection of related papers. The broad scope means that you are not restricted in terms of subject area, and you can be inventive with different article types. As Guest Editor, you will have the opportunity to build your network and gain editorial experience, with a high-profile Editorial Board and experienced staff to help you at every step of the way.

Find out more by visiting our website or downloading our flyer. Then, if interested, please contact the Commissioning Editor, Helen Eaton, with your ideas.

For more information, please contact Felicity Davie at:

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# IUBMB Programs and Benefits of Membership

## Vision. Enhancing pedagogy and discipline-based knowledge in biochemistry and molecular biology through international collaboration.

The IUBMB is committed to improving education in biochemistry and molecular biology at all levels. The IUBMB Committee on Education and Training provides sponsorship for a range of activities which contribute to this goal. The Committee considers applications from all IUBMB Adhering Bodies and Associated Adhering Bodies. When an activity is to take place at a meeting of one of the Regional Organizations (FAOBMB, FASBMB, FEBS and PABMB), it is often appropriate for the application to be made through that organization.

In addition to funding activities which are organized through these organizations, the Committee on Education and Training takes a lead in organizing specific IUBMB Education Workshops around themes which are seen to be of strategic importance for BMB education. Prior advice about these initiatives and their outcomes will be widely disseminated through this website and through IUBMB social media channels.

Providing opportunities for the next generation of biochemists and molecular biologists is a primary mission of the IUBMB. In addition to specific Education initiatives described below, the IUBMB supports trainees through Research Fellowships such as the Wood-Whelan and Mid-Career Fellowships, and by providing funds to Focused Meetings to be used for travel awards to trainees.

**IUBMB Programs.** The wide range of programs available to scientists resident in IUBMB member countries, include:

**Congresses.** are held triennially in countries that are members of the Union and have a record of being outstanding and memorable scientific events for the world community of biochemists and molecular biologists.

**Focused Meetings.** replaced Conferences and Symposia in 2017. Up to 3 per year will be sponsored to a maximum of US$30,000 each.

**Young Scientists' Programs.** are competitive awards covering travel, accommodation and meals for participation in the YSP held in conjunction with Congresses and Focused Meetings.

**Advanced Schools.** provide advanced training of PhD students and young postdoctoral fellows in the field of biochemistry, molecular biology and cell biology. This competitive funding covers support for the school related to travel, accommodation and meals for successful applicants.

**Educational Activities.** The IUBMB is involved in a broad range of educational programs. The Union holds or sponsors symposia on education at regional biochemical meetings around the world.

It also cooperates with the editors of the journal Biochemistry and Molecular Biology Education in identifying timely topics for presentation at symposia and workshops.

**Tang Education Fellowships.** The IUBMB Tang Education Fellowships provide opportunities for the development of both biochemistry and molecular biology educational programs and educators with the specific aims of: increasing expertise and capability in biochemistry and molecular biology education, supporting engaged educators, promoting change/innovation in approaches to education, improving student learning experiences, outcomes, and engagement with biochemistry and molecular biology, building an evidence base on which to make future recommendations on biochemistry and molecular biology education and supporting biochemistry and molecular biology education in developing countries.

**Wood-Whelan Research Fellowships.** are competitive awards covering travel, incidental costs and living expenses for visits of 1-4 months to other laboratories in the IUBMB region for the purpose of carrying out experiments that require special techniques or for other forms of scientific collaboration or advanced training.

**Mid-Career Research Fellowships.** were established in response to an increased demand for further training of mid-career biochemists in the Developing World. These are short-term Fellowships (1-2 months), covering travel and incidental costs to a maximum of US$5,000, to enable researchers to work in an established laboratory to learn state-of-the-art techniques that are not readily available in their own countries.

**PROLAB Fellowships.** This collaboration between the IUBMB, PABMB, and ASBMB allows Latin American graduate students and postdoctoral fellows to spend short stays (1-6 months) in the laboratory of a scientist affiliated with ASBMB, in order to develop part of his/her thesis research work.

**Travel Fellowships.** are available for young scientists in or from developing countries who wish to attend the Miami Winter Symposium.

**MilliporeSigma Virtual Meeting Fellowships.** This collaboration between IUBMB and MilliporeSigma provides support to trainees to attend virtual meetings in the IUBMB region.

**Trans-Continental Youth Travel Fellowships.** This collaborative activity between the IUBMB and the Federation of European Biochemical Societies (FEBS) provides trans-continental Youth Travel Fellowships to FEBS Advanced Courses and is financed by IUBMB.

# IUBMB Programs and Benefits of Membership

## Vision. Enhancing pedagogy and discipline-based knowledge in biochemistry and molecular biology through international collaboration.

**Plenary and Jubilee Lectures.** At IUBMB Congresses, several endowed lectures feature prominently in the program: IUBMB, Osamu Hayaishi, Chester Beattie, IUBMB Life, Feodor Lynen, Severo Ochoa, EC Slater and Edward Wood Lectures. In addition, IUBMB Jubilee and Special Letures are intended as Plenary Lectures at scientific meetings, in particular of the smaller Adhering Bodies or Associate Adhering Bodies for which the budget would normally allow only for local speakers.

**FEBS-IUBMB Events.** This collaboration between IUBMB and FEBS provides financial support for invited speakers at FEBS Advanced Lecture Courses, FEBS Workshops and FEBS Special Meetings. Up to 10 invited speakers are supported per annum (up to US$2,000 each) from outside Europe.

**IUBMB Publications.** Trends in Biochemical Sciences, IUBMB Life, Biochemistry and Molecular Biology Education (BAMBEd), Biotechnology and Applied Biochemistry, Molecular Aspects of Medicine, BioFactors. In addition, the following books/pamphlets are produced by IUBMB: Wiley-IUBMB Book Series, Standards for Doctoral Degrees in the Molecular Biosciences, and Metabolic Pathways Maps and Animated Maps (Animaps) prepared by the late Don Nicholson, University of Leeds.

**Biochemical Nomenclature.** The International Union of Pure and Applied Chemistry (IUPAC) and the IUBMB have established the IUPAC-IUBMB Joint Commission on Biochemical Nomenclature (JCBN) and the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology (NC-IUBMB).

In order to maintain and enhance these programs, IUBMB depends on the financial support of its Adhering Bodies. It is important to note that the annual dues have not been increased for many years. Rather, the Executive Committee has preferred to pursue additional sources of income. Publications represent the major source of income for IUBMB but, with the rapid changes occurring in the publication business, particularly with the advent of open access publishing, maintenance of this income at current levels is challenging. The Executive Committee is continuously working hard to develop alternative funding sources, but the Union is still very dependent on the support of its Adhering Bodies.

Adhering Body status in the IUBMB is an investment rather than an expense. The direct financial benefits from membership in the IUBMB surpass the actual cost, and there are many other associated non-monetary benefits. Finally, it is also important to note that IUBMB is an international organization that, in addition to providing opportunities to all member countries, emphasizes programs that support young scientists, particularly from developing countries. The Union's philosophy has always been that rich countries can afford to contribute more than poorer countries to this end. Of course, situations change over time and one of the roles of the Executive Committee is to keep track of such changes and, for example, encourage emerging economies to contribute in proportion to their capacity, and to recruit new members to the Union. The IUBMB is strongly committed to diversity and opposes any type of discrimination.

More details about the extensive list of IUBMB programs can be found on the Union's website: www.iubmb.org

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# IUBMB EXECUTIVE COMMITTEE

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**(from left to right)** Ilona Concha Grabinger, Alexandra Newton, Zengyi Chang, Dario Alessi, Charysse Austria *(Secretariat)*, M. Iqbl Parker, Francesco Bonomi, Loredano Pollegioni *(elected Treasurer)*, Andrew H.-J. Wang, Yang Mooi Lim