

ISSUE NO. 15 • JUNE 2023



Image: Cryo-EM structure of the RING Ubiquitin E3 ligase domains of BRCA1 and BARD1 in complex with the ubiquitinconjugating E2, UbcH5, and a mono-nucleosome.

Credits: Solved by Sam Witus and colleagues in the lab of Rachel Klevit. PDB 7JVZ. Witus, S.R., et al., (2021) Nat Struct Mol Biol 28: 268-277.



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Message from the President



Alexandra Newton

Dear Friends of IUBMB,

From the Greek roots β to (life) and $\chi\eta\mu\epsilon\alpha$ (chemistry), biochemistry is the *chemistry of life*. Despite more and more advances in understanding the molecular mechanisms of life, this word has fallen out of vogue. In fact, we often are asked by trainees whether they can apply for our fellowships because they aren't certain their research is 'biochemistry and molecular biology'. So I take the opportunity to clarify that the IUBMB supports broadly anything in the molecular biosciences – structural biology,

bioinformatics computational biology, genetics and genomics, immunology, virology, cancer biology, glycobiology, plant biology, metabolomics, neuroscience, and the plethora of other fields in which the molecules of life are studied. All these fields of study are integral to understanding the chemistry of life, the foundation for understanding how to treat disease. The rapid development of the COVID-19 vaccines is a shining example of research in the molecular biosciences. And this is what the IUBMB is passionate about enabling. Our initiatives provide support and opportunities to the next generation of researchers and educators who will continue to advance knowledge in the chemistry of life.

I've been highlighting our new Africa Initiative in the last few Newsletters. This March saw the launch of the inaugural **P**romoting **R**esearch **O**pportunities in **Bio**chemistry in **Africa – PROBio-Africa**. Modeled after PROLAB (**P**romoting **R**esearch **O**pportunities for Latin **A**merican **B**iochemists), held in collaboration with the American Society of Biochemistry and Molecular Biology (ASBMB) and the Pan American Society of Biochemistry and Molecular Biology (ASBMB) and the Pan American Society of Biochemistry and Molecular Biology (PABMB), PROBio-Africa provides support for 10 trainees from Africa to spend up to six months in a lab in Europe. It is a collaborative initiative with the Federation of European Biochemical Societies (FEBS) and the Federation of African Societies of Biochemistry and Molecular Biology (FASBMB). We are grateful to the dozens of contacts in Africa who educated us on what it is like to be a trainee in Africa, advised us on how to disseminate information to trainees, and helped us establish a network of investigators to advise on this initiative. If your lab would consider hosting a PhD student or postdoctoral fellow from Africa for a short research stay, please fill out our <u>Africa Host Lab</u> form. Stay tuned as we announce the inaugural class of PROBio-Africa Fellows this summer!

Additionally in March, we attended the annual meeting of our member society, the American Society of Biochemistry and Molecular Biology (ASBMB), DiscoverBMB, in Seattle, USA. Our Executive Committee assembled from all over the world (Australia, Canada, Chile, China (virtually), Italy, Malaysia, Scotland, South Africa, and the USA) for an intense day discussing our meetings, journals, funding, fellowships, education,

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and new initiatives. Dario Alessi (President elect) and I had a brain-storming dinner with ASBMB President Ann Stock discussing potential collaborations, including the possibility of expanding PROBio-Africa to North America. Ann Stock, co-incidentally, defended her PhD in the lab of renowned biochemist Dan Koshland one month before I began my postdoctoral research in his lab – Koshland is surely smiling down at us from the heavens as his two trainees collaborate on leading biochemistry initiatives on the global stage.

IUBMB participated in two events at Discover BMB. First, out Trainee Initiative, led by Chair Elyse Fischer (USA) and members Bri Bibel (also our Trainee Ambassador, USA), Hannah Pletcher (USA), Zainab Rafat (India), and Victoria Patten (South Africa), presented a lively and engaging workshop entitled Empowering trainees: A roundtable with the IUBMB Trainee Initiative. We are so proud of their accomplishments, passion, and dedication and thank them for everything they do for the IUBMB and for trainees around the world. Our Trainee Initiative was also quite a force at the IUBMB Booth at DiscoverBMB. Thank you Elyse, Bri, Hannah, Zainab, and Victoria. Trainees are our future!

Our second event at DiscoverBMB was a special ASBMB-IUBMB Symposium entitled Tribute to Eddy Fischer: Reversible Phosphorylation. This symposium celebrated the extraordinary life and contributions of Edmond Henri Fischer - Eddy to his friends and colleagues - whose life spanned an entire century (April 6, 1920 – August 27, 2021) and was by the discovery of reversible protein marked phosphorylation. For this, he and his friend and collaborator Edwin G. Krebs shared the Nobel Prize in Physiology or Medicine in 1992. Eddy was a remarkable person, who was not only an extraordinary biochemist, but a gifted pianist, a polyglot, a pilot, and a connoisseur of music, history, and art. Eddy did all his Nobel research in Seattle at the University of Washington. The Eddy Fischer Endowed Chair of Biochemistry, Rachel Klevit, presented the IUBMB Plenary lecture on her outstanding research on protein ubiguitylation, replete with advice for our trainees.



Coinciding with the symposium, an IUBMB Life Special Issue dedicated to Eddy Fischer was released. This issue is a gem, with articles containing both science and personal reflections from former trainees, friends, and leading experts in protein phosphorylation – and a hard copy is available to order <u>here</u>. The issue includes an article by Eddy Fischer's granddaughter, Élyse Fischer, our inaugural Whelan Young Investigator Awardee for her outstanding thesis work on the molecular mechanism by which the protein Mad1 is targeted to kinetochores via a phosphorylation mechanism.

Plans are well underway for our 16th Congress, held in collaboration with FAOBMB and ComBio, which will take place in Melbourne, Australia in September 2024. The meeting, IUBMB-FAOBMB-ComBio Biomolecular Horizons 2024, has a rich and diverse program on the theme of Discover, Create, Innovate, with themes spanning the molecular level to climate change. We are very much looking forward to the exciting science and making new friends! I would like to note that we are accepting nominations for the second triennial <u>Whelan</u> <u>Young Investigator Award</u>, with a deadline of Sept 1. This award recognizes emerging talent in biochemistry and molecular biology (see first paragraph above!) so, for PIs reading this, we welcome your nominations of outstanding PhD students or postdoctoral fellows. The awardee will present a talk at the Young Scientists Program (YSP) preceding the Congress and will be invited to write an article on their work for IUBMB Life. We look forward to seeing many of you in Melbourne!

I end by reminding you that IUBMB is a nonprofit organization run by professors who volunteer their time to help support and promote biochemistry discovery, enrichment, and education around the globe. Our growing initiatives require us to secure new funding and while we are exploring obtaining support from companies or philanthropists, especially to help Africa, you can also help with a charitable donation to the IUBMB on our <u>donation platform</u> – note that 100% of your funds go directly to our programs. Please help us help the world.

These are exciting times for the molecular biosciences and the IUBMB is committed to facilitating discovery and scholarship, with many new initiatives, new collaborations, and new opportunities. I look forward to continuing to work with my friends and colleagues on the IUBMB leadership team, our partners in other societies, and our trainees to provide opportunities to promote biochemistry and molecular biology around the globe. And as always, I welcome suggestions from the global community of biochemists and molecular biologists – the molecular bioscientists - on how the IUBMB can better serve you.

Sincerely,

Alexandra Newton, PhD President, IUBMB

IUBMB TRAINEE INITIATIVE



Marta Orlowska FAOBMB



Victoria Patten FASBMB



Patrick Penndorf FEBS



Hannah Pletcher PABMB

A message from each of our regional leaders

"As the regional leader for Asia and Oceania on the IUBMB Trainee Initiative (TI) Leadership Committee, it is my aim to create and support equal opportunities for Asian countries and bridge the ocean between Oceania and other continents in scientific knowledge and networking. We are planning to organize events, which will enhance confidence, promote different scientific fields and shed a light on obtaining international recognition and opportunities. I am certain that with our initiative's encouragement, knowledge and international support network, there is much that we can achieve."

"As the leader of the African region on the IUBMB Trainee Initiative (TI) Leadership Committee, my hope is that we strive to make a difference in the accessibility and availability of learning, especially throughout Africa. Our IUBMB TI is an extraordinary platform for emerging researchers to network and foster a love and appreciation for biochemistry and molecular biology. We aim to encourage our followers to continue to explore the unknown through research and collaborations, and through our global online events we endeavor to showcase, promote and celebrate international talent and expertise in biological research. I am encouraged by the hope that we can inspire the next generation of young scientists to enter into STEM fields with excitement and without hesitation."

"The IUBMB TI is a magnificent organization that gives young, passionate scientists a platform to make their innovative ideas a reality. Truly from scientists, for scientists. Our focus in the FEBS section is to connect with various research associations and initiatives not only within Europe but worldwide. We want to reach an even wider audience of young scientists and leverage the knowledge of all of us. More specifically, we aim to show how interdisciplinary communication can improve our understanding of science and engage people with sustainable practices to reduce their environmental footprint in their research. Being allowed to work with such an excellent group of members to share what we have learned is truly exhilarating."

"As the regional leader for the PABMB Region of the IUBMB Trainee Initiative (TI) Leadership Committee, it is my hope to unite trainees in our region and internationally by providing opportunities to grow scientifically and professionally. Access to resources and connections is vital for engaging in science, and we hope to improve that access for trainees in our region and beyond. With the passionate members of the IUBMB TI Leadership Committee, we will host events to supply a platform for discussions of scientific research, allow experts to instruct trainees on skills useful in and outside the laboratory, and interact with trainees to support them the best we can. Together, training scientists will truly have an impact on each other and the world."

IUBMB TRAINEE INITIATIVE ASBMB DISCOVER BMB CONFERENCE

25-28 March 2023 • Seattle Convention Center • Seattle, Washington, USA



Representatives from each of the regional societies of the IUBMB TI met up in Seattle, WA, in March of 2023. They hosted a special interest group targeted at trainees attending the ASBMB Discover BMB conference.



Empowering trainees: A roundtable with the IUBMB Trainee Initiative

Organizers

Élyse S. Fischer, The IUBMB Trainee Initiative and Monod Bio Brianna Bibel, University of California, San Francisco, and the IUBMB Trainee Initiative

Learn about the International Union of Biochemistry and Molecular Biology's Trainee Initiative, a program that aims to bring together scientists around the world through initiatives and events covering educational, technical and professional development.

At this interest group session, we will foster international community-building among trainees and introduce them to our initiative, including events, resources, social networks and an online forum for trainees. A roundtable discussion will offer guidance and advice on key topics of interest to trainees. There will also be an opportunity for trainees to provide feedback on how the initiative can better support them.

This is an opportunity for trainees to meet, network and initiate lasting friendships.

IUBMB TRAINEE INITIATIVE

ASBMB DISCOVER BMB CONFERENCE

25-28 March 2023 • Seattle Convention Center • Seattle, Washington, USA

Below are some photos and statements from those who attended.



IUBMB TRAINEE INITIATIVE ASBMB DISCOVER BMB CONFERENCE

25-28 March 2023 • Seattle Convention Center • Seattle, Washington, USA

"It was a huge joy to attend DiscoverBMB 2023 and to organize our event for young scientists. I especially enjoyed learning about all the different career paths young scientists have taken to then converge to the same conference where we can share a common passion for science and research."

- Élyse Fischer, Chair





"The DiscoverBMB conference was a really wonderful experience and an incredible opportunity to meet and network with like-minded researchers. I was especially thrilled to finally be able to meet other members of the IUBMB TI in person as well as members of the Executive Committee. The conference itself hosted a large variety of research topics and it was very exciting to attend talks on cutting edge research and hear from leaders in the field. It often felt surreal to be sitting in the same room as big names frequently listed on research papers and I appreciated everyone's willingness to engage and discuss even the smallest aspects of their research. The poster sessions were also really great to get a small glimpse of the many different focus areas as well as to meet and network with peers of the same level of research. It was a privilege to attend the DiscoverBMB conference and I am very grateful for the opportunity afforded to me by the IUBMB." - Victoria Patten, FASBMB Leader

"One of my favorite parts of DiscoverBMB was interacting with attendees at our booth! At the IUBMB & IUBMB Trainee Initiative booth, we got to discuss the trainee initiative, share resources, network, and work on the famous amino acids puzzle with people from around the world. It was then great to see people again throughout the conference!"

- Hannah Pletcher, PABMB Leader



IUBMB TRAINEE INITIATIVE ASBMB DISCOVER BMB CONFERENCE

25-28 March 2023 • Seattle Convention Center • Seattle, Washington, USA



"At our special interest group session, we got to have small group discussions with trainees on things they have found most difficult, most helpful, and most rewarding about being a training scientist. We all learned from one another as we shared advice, and we organizers came away with ideas for how we can best further our Initiative's mission. It was a phenomenal experience and I am so grateful to the great trainees who attended - and of course to the IUBMB for the opportunity to help organize and attend the event! It was also fantastic to finally meet Élyse, Hannah, Zainab, and Victoria - as well as members of the IUBMB Executive Committee - in person!"

- Bri Bibel, PABMB Representative & IUBMB Trainee Ambassador

"Our time at the IUBMB booth was inspiring as we met fellow Asian and middle eastern researchers and discussed strategies for increasing outreach to Asian trainees. There was just something magical about seeing people from all over the world gathered at the Seattle Convention Center to discuss one mutual interest - BIOCHEMISTRY & MOLECULAR BIOLOGY. It was a great honor to represent the FAOBMB region at DiscoverBMB all the way from India. I was thrilled to meet my IUBMB Trainee Initiative colleagues - Élyse, Bri, Hannah, and Victoria, as well as the IUBMB Executive Committee in person for the first time!"

- Zainab Rafat, FAOBMB Representative



IUBMB TRAINEE INITIATIVE An Update on the IUBMB TI Quarterly Events

Explain it to me like I'm 5

~ Élyse Fischer, Nefeli Boni-Kazantzidou, Michaela Jovanović & Patrick Penndorf ~

The last event organized by the FEBS region centered around science communication, called "*Explain it to me like I'm 5: Widening the Scope of Science Communication*". The event took place on January 24th and aimed to educate the audience on the importance of scientists communicating with the public and each other. One of the speakers, Dr. Mark Roberts from Oxford, shared his experience with public engagement and provided valuable tips for less experienced researchers on how to start and what to consider before diving in. The second speaker, Dr. Julius Wesche, who runs the science communication accelerator, shared practical tips on how to engage the audience and communicate effectively. The event even touched on using current language AI models in science communication. After a



lively Q&A session, it was clear to everyone that science communication is not only important, but it can also be fun since it allows you to share a bit of yourself! Watch the recording <u>here</u>.

Influencing Science Policy

~ Oswald Y. Djihinto, Tatenda Murigo & Victoria Patten ~



On the 20th April the African team of the IUBMB Trainee Initiative hosted a very informative online webinar on the importance of scientific research on influencing government policy. Dr Heide Hackmann of Future Africa at the University of Pretoria gave an enthralling talk on *"Research for Impact: The role of Science Policy"*, and Professor Lizette Koekemoer, a researcher at the University of The Witwatersrand, spoke about the symbolic relationship between research and decision-making with a fascinating case study taken from her own research. The webinar highlighted how scientific knowledge generated at universities should be shared beyond academic circles to advance science in policy making, and how policy makers should strengthen their capacity to make informed decisions upon outputs

scientific research in order to efficiently respond **tono**cal communities' needs. It is often necessary to break down the barrier between researchers doing the science and policy makers making the decisions. We hope the webinar provided some necessary insight into the importance of this relationship and we strongly encourage anyone who missed it to have a listen to the recording posted on the IUBMB website. Watch the recording <u>here</u>.

IUBMB TRAINEE INITIATIVE An Update on the IUBMB TI Quarterly Events

Marketing Yourself for Careers in Academia & Industry

~ Hannah Pletcher, Bri Bibel, Cathy Cozma & Sunnie Kong ~

The next IUBMB Trainee Initiative Event is titled "<u>Marketing Yourself for Careers in</u> <u>Academia & Industry!</u>" First, we will be hearing from Dr. Arjun Raj about his career path and practical advice for finding your next position in academia. Specifically, he will be sharing some do's and don'ts for finding a postdoctoral position. Second, we will be hearing from Dr. Kyle Hess about his career path and advice for transitioning into industry. This **FREE webinar** will take place on **Thursday**, **June 29th at 11 am Pacific Time**, and it will also be recorded. Please be sure to register using this <u>link</u>.





* click on photo to play video

IUBMB TRAINEE INITIATIVE Announcing New Committee Members



Cathy Cozma PABMB



Mihaela Jovanović FEBS



Naveen Vankadari FAOBMB



Jessie Wong Ling Ai FAOBMB

The PABMB committee was recently joined by Cathy Cozma, who will help our committee have more representation and involvement in Canada. Cathy Cozma is an MSc student in the Interdisciplinary Oncology Program at BC Cancer Research Center in Vancouver. Her work focuses on finding druggable DNA damage proteins in Dr. Peter Stirling's lab. As an IUBMB trainee, she hopes to improve accessibility to science education for all and increase trainee engagement in various professional development initiatives world-wide.

The FEBS committee was joined by Mihaela Jovanović. Mihaela graduated medical biochemistry in 2022 and is currently working at the Clinical Department of Laboratory Diagnostics at University Hospital Dubrava, Zagreb. She also collaborates with the Centre for Research and Knowledge Transfer in Biotechnology working with analytical biochemistry techniques such as HPLC. Her goal is to combine her two passions: clinical and research laboratory work to promote modern personalized medicine. She is passionate about bringing the clinic to scientists and vice versa and hopes to inspire young biochemists to be imaginative as researchers and practical as clinicians.

The FAOBMB committee was also recently joined by Dr. Naveen Vankadari. Naveen is a Research Fellow at the University of Melbourne, Australia, specializing in biochemistry, structural and molecular cell biology. With a PhD from Academia Sinica, Taiwan, and post-doctoral experience at Monash University, Australia, he brings a wealth of knowledge. Dr. Naveen also has industry experience as an R&D scientist at MerckMillpore. His current research focuses on viral and bacterial infections, exploring their impact on human immunity ranging from bench to the bedside. He is excited to be part of the new IUBMB Initiative in the FAOBMB team, Naveen is dedicated to supporting and empowering trainees and researchers, fostering collaboration with earlycareer scientists worldwide, and promoting inclusive activities in the scientific community.

The FAOBMB committee was recently joined by Jessie Wong Ling Ai. Jessie is a PhD Candidate in Duke-NUS Medical School, Singapore, where her research focuses on lipid metabolism in breast cancer metastasis under the supervision of Prof. Ong Sin Tiong. With prior experience in mentoring science undergraduates and entrepreneurship, her goal is to help form a network to help scientific trainees to connect, explore opportunities, and to achieve their goals through the IUBMB Trainee Initiative.

IUBMB TRAINEE INITIATIVE

"After months of Zoom meetings, I finally got to meet a fellow trainee member of IUBMB TI!

Last March 2023, I traveled to Brisbane, Australia for an international scientific conference when I realized that Marta Orlowska of QIMR, one of the FAOBMB trainee representatives for IUBMB TI, lives in the city. I told her that I'm in Brisbane, and she was so excited to meet me in person!

One pleasant evening, we decided to have dinner at Uh-Oh Spaghetti-O's, one of the hippest place in Brisbane. We talked about our PhD journey, our plans once we graduate (Marta's going to be done with her PhD! Congratulations in advance!), and of course our future plans for IUBMB TI. We also took a photo together to commemorate our first in-person meet-up!

When I shared it with IUBMB TI, everyone was so happy (and a little bit envious!) that we got to meet. Here's to hoping for more opportunities not only for the TI but also our fellow trainees to connect and interact!"

- Ryan C.V. Lintao, FAOBMB Representative



"When I received a message from Ryan that he is in Brisbane I could not miss the opportunity to meet with him. It was great to meet someone who I have been working with for few months online, now in person. By meeting Ryan I feel like I know him better and it is easier to communicate. I wish that I can meet more IUBMB TI members in the future as I believe it would strengthen our bonds and make us all work more efficiently together. And that we will have more opportunities as TI to meet other young scientists and be able to inspire them."

- Marta Orlowska, FAOBMB Leader

Your favorite monthly newsletter

January 2023 - FEBS



Hello everyone and Welcome in 2023!

Let's start together into another fruitful year for the IUBMB TI! Really glad to see you again. Today we will hear from NefeliBoni-Kazantzidou a member of the FEBS region and, additionally get some insights into Greek culture ;)

> Who Nefeli is

I am born in Greece

I do my PhD in Proteomics

My hobby, playing the Piano

I Love to learn languages

I studied Chemistry and afterwards, I did my Master's in Molecular Biomedicine in Athens. Although I was always very interested in Biochemistry and my Master thesis was focused on Molecular Biology, at the end, I found a strong love for Proteomics.

Currently, I study a model of lung cancer which is caused by a mutation in the EGFR gene. We use mostly cell culture systems to investigate pathways involved in drug resistance in these carcinoid cells using mass-spectrometry.

Since you are from Greece, what should we see when going there? I would advise to visiting Rhodes - it is a big island, thus, there you can find everything, from beaches to a medieval town - your opportunity to dive into Greek culture. In terms of food, try Souvlaki! In fact, street food is what you should go for, and be assured it is not as expensive as around here in Liverpool.

Nefeli, since you are currently living in the UK, I have to ask, how is it going with science regarding the Brexit?

Actually, we are allowed to wait quite a bit after ordering anything for the lab. The same counts for packages I want to exchange with my family in Greece. The other issue I see is that PhD stipends for students are not too high, hence, they might be a bit low on money at the moment (especially given the high study fees).



I remember very vividly that not too long after we founded the IUBMB TI, we were organizing the event with David Baker (code name Fold IT who doesn't remember ;) I really enjoyed designing the posters.

Still, during the event everything was quite stressful, especially taking care of the Q&A. However, that is a great opportunity to learn how to handle lots of information at once and bundle two or three questions into one.



In my opinion, we should identify the needs of trainees. We should find out, where the gaps are! Which resources are trainees all around the world missing? Just think about doing research on a budget, that is something limiting for many scientists. However, differences in the research-environment are great around the world. We are there to offer support and fill these gaps. Let's give all of them a voice!



What I am looking forward to in the near future, is our FEBS-FAOBMB project about science communication. Actually, I have once been volunteering for the Greek science festival (scico.gr) for 6 months. Making students aware that science communication is not an ivory tower, and that exchange (even amongst disciplines) is something really important.



Let me (the author) sneak in: What Nefeli points to there is very much true! Communicating science is as much a question of how to reach the public as well as other researchers. Just think about the times when you have to convince your PI to go for a project you are passionate about. To share an amazing source to learn how to pursue your journey in science communication is in fact the Science Communication Accelerator Podcast by our next speaker Julius Wesche.

> Our Future

Having a look in our future, I would love to see that we have an online framework to guide people to resources they need. Also, it would be amazing if we could establish a funding scheme for students (which we maybe finance by sponsored events)

Your favorite monthly newsletter

February 2023 - FAOBMB



Great to see you again!

Today we will hear from Ryan – and let me tell you, he saw a lot of the world. So, lets dive into our conversation and stay tuned for a very interesting tip from Ryan that might promote your scientific thinking ;)



> Who Ryan is

I am from the Philippines

I pursue my PhD in Texas Already a medical doctor

Proficient in the "classics" of sciencel



In my research, I am creating an organ-on-a-chip model of the intrauterine environment. More specifically, I am modeling the immune environment in the maternal-fetal interface. Why? Because many animal models do not accurately reflect human pregnancy due to differences in anatomy and physiology. Often, pregnancy is an exclusion criterion for many studies, thus, we have a lack of valuable data although we need it.

Probably, Texas is like you expect it to be. Texas is a very hot and humid place just like the Philippines, while Texans are nice, open, and upbeat people. Bonus, our lab is near the beach!

Ryan, tell me, what have you been doing apart from studying? Any experience with volunteering before the IUBMB TI?

For sure! In the Philippines, I established a career assistance program for scientists at my university. In my mind, young students are often not sufficiently prepared for what is coming. We are educated about "science" but not about the real-life aspects of it. To help young students, we organized events that taught them how to write a CV or how to apply. Also, we hosted some career fairs to really promote opportunities young researchers have.

Let me ask

Ryan, what is more difficult, an MD or a PhD?" Honestly, I cannot tell you. To have an MD is super helpful since you see how far your research can help patients. And that is what people who offer grants often want to hear. Basically, the MD gives you a very broad knowledge, whereas the PhD provides the depth. They are both difficult, the MD is more physically exhausting since you might see your patients die but the constant struggle with negative results makes the PhD psychologically really challenging.



I would love to see more ways for someone to contribute to the activities of the IUBMB TI. I know many people who would be happy to contribute. To my mind, it would be amazing to give everyone the possibility to suggest projects, bring in ideas, or organize something they are passionate about. In this way, we could open up the IUBMB to all our followers and fans. In that sense we would become even more democratic, I guess.

!!! Networking

Especially younger scientists often miss out on great networking opportunities. We need to improve how to socialize and talk to fellow scientists. As an example, when you talk to a PI, do not be afraid, rather ask questions. Indeed, it will be appreciated. Thus, after a talk or presentation, hit them up. I think this is something we should also communicate to undergraduates because they often feel too shy.



I like to read original works by scientists. We all know about the greats such as "The Origin of Species" but we have no clue what is actually written in there. To my mind, it can be very inspiring to read such works. By the same token, "A Brief History of Time" is another book I can recommend. You will notice that the content is actually somewhat different from what you have been taught, not to mention that many interesting ideas are simply not mentioned anywhere.

> An inspiring thought

What I realized during my readings is that we are often used to think in the "Method, Result, Discussion" framework. However, we should see how creative and human the scientific method can be. How one actually arrives at certain hypotheses, how single findings fit into the bigger picture. That includes to embrace how theories are constructs which are created by the sum of single ideas and findings.

Your favorite monthly newsletter

MARCH 2023 - FASBMB



And here we go again!

Today we will get to know Victoria – we had a very enjoyable meeting, and she shared some more insights about what research in Africa looks like. Also, on the backside a little but delicious surprise waits for you ;)



> Who Victoria is

I am born in South Africa

 I just handed in my PhD thesis Former patisserie chef The new region leader for FASBMB

My family has its roots in the UK, but I grew up in Port Elizabeth. In South Africa, it is typical to do a three-year undergraduate followed by an honours for a year before a two-year masters. I started studying Biochemistry in my home town, and then completed my honours and masters in medical physiology at Stellenbosch University.

I finished my PhD thesis already and now I am (excitingly) waiting for my gradings. I studied genetic aberrations in esophageal cancer at the University of Cape Town. We had some patient samples and searched for the mutations which might underlie this cancer.

After my bachelors, I studied to be a patisserie chef. I had had enough of science at the time, and I wanted to try something else. Therefore, I decided to make some fancy birthday and wedding cakes! It was super interesting and if I had more time (and money) now, I would definitely bake more often still.

If you investigated mutations in patient samples, then you probably have been coding? Tell me a bit about your Bioinformatics journey!

Uff, it was quite a change of field for me. Although it was exciting to learn about Bioinformatics, in the beginning, it was very frustrating since starting a PhD you normally have a solid background in the field but I had never done coding or genetics before. Therefore, I learned some Python basics and bash scripting, and the skills I needed for my research. As I was then able to handle my data properly, I didn't need to rely on others to do the analyses for me. That was indeed a big help and a great learning experience.

Focusing Tradition

South Africa has 11 official languages. In schools, you can learn the African language specific to your region, as well as Afrikaans which is derived from Dutch. You can also learn French in high school, but this is not one of the official languages. English is probably the main spoken language across the country. Currently, there is a big push for people to learn more tribal languages. I'm from a region where Xhosa is the spoken tribal language.



An idea for you

Personally, I would advise every researcher to learn Bioinformatics asap. I did so relatively late in my career, but I discovered such an interesting world, it is amazing. In my mind, everybody should learn computer science from school age on! Interdisciplinary research is especially connected to Bioinformatics. It enables so many new possibilities and perspectives on findings. For everyone who cannot take a course, start with free programs such as codecademy.

3

Feeling Culture

The part of Africa I am living in is very westernized. I had no idea that Africa overall would be so different from other parts of the modern world when I was young. However, it is. Africa is very split, probably also because of the steep language barriers. Unfortunately, in research, you often feel two steps behind the rest of the world. Whether you need a machine to be repaired in Germany or you are waiting for sequencing results from the UK, it sometimes takes months to years. But even so, you feel like you're doing cutting-edge research!



It gives me goosebumps to meet people from all over the world within the IUBMB TI. It excites me that since we are in similar career stages we talk the same language. In my research in Africa, I often felt isolated, thus, the IUBMB TI really gave me a new place to connect and engage! I wish I have had something like that also in my undergraduates, it is so motivating.

> Spreading the feeling

Especially during our early years, we have little exposure to what a life in science can be. People often get demotivated in their current lab. I think having a channel to share motivating posts, stories and quotes would be so helpful to many. We could really engage with our audience and show each and everyone that they are not alone, but we all share the same passion and the same struggles!



An impression from

Victoria's patisserie arts



Your favorite monthly newsletter

APRIL 2023 - PABMB



Hello and welcome everyone!

This time, we hear from Sunnie Kong who will introduce us to the biology and chemistry that works without oxygen! Above that, we will see that it is worth to stand up for your well-being.



> Who Sunnie is





I grew up in Vancouver, Canada. Later, I went to Boston to do a combined Bachelor-Masters program. The undergraduate was focused on Biochemistry & Molecular Biology, whereas the Masters on Biotechnology. Apart from that, I did some summer research at the University of British Columbia working on natural product synthesis.



In my PhD, I try to understand obligatory anerobic enzymatic pathways. The ultimate goal is to "translate" or copy them into E.coli. Therefore, I work with bacteria that are able to fix CO2 to drive their metabolism without using oxygen at all.

Let me tell you, at the University of California we went on a strike for better pay. Like 50,000 people signed the proposal. When we were on the streets, everyone from Canada I knew, actually joined! It was like "if you want us to stay here, then treat us properly". In the end we got the raise! However, there are still plenty of things to fight for … health care, maternal leave rights etc...

You work under anaerobic conditions – that means you are allowed to use these fancy "hoods" right? (they are called glove boxes as I learned)

That is true, most of my second year I spend fixing ours since it is about 50 years old... In fact, I went old-school, using a bunch of tubes and a nozzle that expels nitrogen on the bacteria. You should see the old practices! Since people needed both their hands for operating the set-up, they held the pipet in their mouths :D I, of course, don't do that – I rather use the glove box in the other labs.

🖁 A colorful hobby

Most of my time I spend figuring out an enzymatic complex with a di-Nickel-Cofactor. Those are pretty rare in nature. However, I really like painting. Sometimes I simply do not know what to paint. Therefore, I got involved in contributing to a magazine for post-docs and grad students in Berkeley. I designed some graphics for them which show what people are working on or what kind of research they are doing. That is really neat as an outreach activity and to share some science.



An idea for you

Oxygen is a really great electron acceptor. Thus, under anaerobic conditions, very interesting alternatives evolved. Do you know how many pathways happen in cells although they are energetically unfavorable? There is a <u>super fascinating graphic</u> showing the different metabolic pathways in cells – everything that is not a blue line, shows you another that actually works without oxygen.



At the beginning of my PhD, I had to teach some classes. For one, I did non-major chemistry for people from various backgrounds. Some of them asked questions I wouldn't ever have thought about explaining. It really showed how many angles on a certain topic you can have. I think at the end it is key to take every student from the level they can understand. The advanced students will work a bit more independently while you take the time for the others.



I would wish for the IUBMB TI to reach each and every corner of the globe. Although we are a global initiative, we are only a handful of people representing a handful of regions. Therefore, we should not only extend our network but also think about maintaining it. We could create a list to collect all the people who once were part of our leadership committee to always be able to reach out.

> Connecting through science

I have the feeling that as biochemists we are often cut off from environmental research. Regarding the underlying problem, I think it is important that people have their minds open to appreciate basic science because this is what connects us. Just think about studying drug interactions vs wastewater treatment – at first, they do not seem related at all, but both have to do with enzymatic reactions. Especially reading from journals that are not exactly focused on your area is a great way to get inspired by other fields.

Your favorite monthly newsletter

MAY 2023 - FEBS



Good to see you again!

Today, we will get to know Mihaela Jovanović. We will hear about her love of the sea and also how seeing the bigger picture will help you in many situations throughout your career. Without further ado:

> Who Mihaela is

Grew up in A country with more than 1000 islands! Croatia

tutors' biology and chemistry

Soon looking for a PhD position



After school, I studied medical biochemistry in our capital Zagreb. Having graduated, I moved on to a one-year internship at the Clinical Department of Laboratory Diagnostics of Dubrava University Hospital. In my PhD, I would prefer a connection to personalized medicine, or diagnostic use cases.



Lately, I have been working with thyroid hormones. More specifically, I focused on the quantification of T3 and T4 in desiccated thyroid powder using different types of HPLC based methods. That is important because these kinds of powder are becoming more popular for therapy.



Don't forget about the basics! At one point I thought, that I will never graduate because the HPLC approach we used was not working at all. It was until I remembered the very basics from one of my first university courses: hormones in the blood are bound to proteins... Doing some extra steps removing the proteins made my analysis go smoothly!

Mihaela, you mentioned that the contact to patients gave you quite some new angles on your research - tell me more

Patients are often scared and although hypothyroidism is not deadly under the right treatment, people are confused because they do not understand what exactly is going on. I realized that it is not only the science that matters but for example also whether people know why and when to take their medicine - the aspect of adhesion to a treatment was one thing I would not have thought about when searching for new drugs and therapies.

Change perspectives

To me, almost every field can be enjoyable. I am guite able to adapt to the topic I work on. How? Find the diversity in your topic because it enables you to look at the bigger picture. From there you will see all the aspects your research might have a connection to. One of those will mean something to you. In other words, not the entire topic has to be interesting, but just some aspects you can focus on.



I really like a YouTube channel called Andrey K. There, you can find nice explanations for topics ranging from medicine, molecular biology, biochemistry, physics to chemistry. Its great when you are starting to study something or want a guick recap. (Indeed, with currently 2015 videos, you have guite something to watch! On point and well delivered videos, something to check out for sure.)

Shake it off

When moving from one of the smaller cities to our capital you really feel how everything is more hectic and the workaholic mentality in people's attitudes. That can become quite stressful at times. In my free time, I join dance classes. A great way to escape everyday stress and blow off some steam. Also, I love to be around the sea. Hanging out there gives me something, the sea really became part of my identity.



My vision for the IUBMB TI is to be as interdisciplinary as possible. Therefore, I love the idea of launching events about this topic. Connecting one discipline to another gives you the possibility to truly understand research. For example, involving Clinicians and people that work within diagnostic would enable us to connect researchwith diagnostic or therapeutic applications.

> Don't worry, reach out

I think, discoveries are not only made in the lab but in conferences and seminars, interacting with colleagues, sharing knowledge and ideas. Hence, it is essential to learn science communication early on in your career. Also, if you are afraid to talk to let's say a Professor, just remember that the things setting you apart are knowledge and a position. Get out of your head - when you go to a dance class, you wouldn't mind talking to someone who can tell you many interesting things either. And most of the time, they will feel good too, because it is an appreciation of their work when you ask them about it!

Your favorite monthly newsletter

JUNE 2023 - FAOBMB



Welcome back, yet again!

This time we will get to know Marta Orlowska! She will share her experiences from her journey through quite various research fields. We will also address the mental aspects of research, especially within yourPhD. And now it is time you make up your own mind:



> Who Marta is



A travel junkie, interested in new cultures Loves to discover new food and cook herself



Although I am born in Poland, I moved to the UK for my studies. There, I did my Bachelors in Microbiology & Biotechnology and my Honors. Afterwards I moved to Brisbane for my PhD, especially since the Brexit was endangering funding for many labs.



In my PhD,I indeed worked on multiple topics. I started focusing on how circadian rhythms might affect pathologies such as heart attacks. However, due to some limitations of the model system, I switched over to characterizing how hormones and metabolites might influence these diseases.

Yes, I have been working in many research areas. Apart from my studies, I additionally spend some time working on microfluidics in Adelaide. To my mind, fields like chemistry, biology, or physics are similar enough that one can transfer skills pretty well. Of course, other things like your way of thinking creatively vs focused have to adapt.

Marta, you have seen many fields and research topics, have you had the impression that the attitude and mindset of people differed?

Oh well, I would say so. That certainly also depends on the person and the lab but overall, in different fields the people got different preferences. Talking about posters: while Biologists love color – chemists like boxed, clean, neat, and white backgrounds. Better not to try the wrong design :D. Similarly, people with an engineering background are more likely to think first and then do, while Chemists are much more into trying things out right away.



I always chased skills instead of topics. I knew I could assemble them to work on the final project I would have in mind. Regarding your research, your supervisor will play an essential role in motivating and guiding you. I would advise you to follow your results instead of your plan – chase what seems to be cool and unexpected. In contrast to the master thesis, in your PhD you have enough time to stumble upon snippets and put them together!



An idea for you

There are so many fascinating and inspiring methods published these days! Just have a look at <u>wildDISCO</u> (here the <u>pre-print</u> and <u>Twitter</u>). They use 3D imaging of solvent- cleared organs to actually label an entire mouse with normal antibodies. At the end you have fluorescent signals from the entire body. Or maybe you are more interested in <u>microscopy-like tissue analysis involving</u> more than 30 <u>antibodies</u>?



I am sometimes like a chewing cow, chewing on what is in my mind. I take thoughts and then ponder on them for quite a while. That is certainly very helpful for scientific questions, but less helpful for the emotional stuff. Lingering for so long with these emotions and doubts can be really dragging. Having some distance to yourself is sometimes much easier and can help you quite a lot to get thought the rough times of a PhD.



To my mind, meeting in person would be great, to say the least. We could find out more about one another, foster the flow of ideas, and collaborate to leverage all of our skills. I really think that when you have met in person you are more likely to just drop a message to one another. Also, having a section on our website where our audience can submit ideas could be very useful.

> A crucial challenge

The PhD makes you or breaks you. Either you enjoy how science is done these daysstaying in academia or you leave for the industry. At some point, you might become somewhat numb to only focus on your lab-work. That can be pretty helpful to getthrough these phases where nothing works out. The PhD can be a lonely journey from time to time. Very few people can help you since they have their own projects.

I think Marta is completely right about that. However, I feel that this kind of numbness poses a vicious risk for many students. Communicating this common menace is asessential as making people aware that it is their choice what to endure and how to do so. PAGE 120

The JCBN and NC-IUBMB annual meeting

The IUBMB-IUPAC Joint Commission on Biochemical Nomenclature (JCBN) and the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology (NC-IUBMB) held their annual meeting on May 10-11 in Kilkenny, Ireland, the first meeting since 2019. The two committees were created by IUB (the International Union of Biochemistry, now IUBMB) and IUPAC (the International Union of Pure and Applied Chemistry) in 1977, replacing a previous nomenclature committee that was discontinued.

While the JCBN and NC-IUBMB inevitably overlap to a certain degree, they were designed with different terms of reference. JCBN is jointly responsible to both International Unions and deals with matters of biochemical nomenclature that have importance in both biochemistry and chemistry (e.g. carbohydrate nomenclature), while NC-IUBMB is responsible only to IUBMB and deals with matters of biochemical nomenclature that are more remote from the interests of chemists (e.g. enzymes). The main project of the NC-IUBMB is the <u>Enzyme Commission (EC)</u>. For more information about the committees, see <u>https://iupac.qmul.ac.uk/jcbn</u>/.

Members attending the meeting included Gerard Moss (Chairman); Ron Caspi (Secretary); Kristian Axelsen; Ture Damhus; Andrew McDonald; Ida Schomburg, and Keith Tipton. Also present were Zengyi Chang (IUBMB Executive Committee Member for Publications), Julia Hauenstein (BRENDA database), and Antje Jäde (BRENDA database).

The JCBN and NC-IUBMB is in the process of recruiting new members. We welcome recommendations of qualified experts. For this matter, please contact Professor Zengyi Chang (<u>changzy@pku.edu.cn</u>) IUBMB Executive Committee Member for Publications.



A group photo of the members attending the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology (NC-IUBMB), on May 10-11, 2023 in Kilkenny, Ireland.

Kenema-STEM Philanthropy Network: A "Community-Model" to Create the Next Generation of Physician Scientists in Africa



Francis Amara

In 2017, the Kenema STEM Philanthropy Network (Kenema-STEM Philanthropy Network | Facebook) was organized and launched by a small group of African professionals and entrepreneurs from the diaspora. These Africans are indigenes from Kenema, Sierra Leone in West Africa. The Network embarked on a unique journey to realize a simple vision: create the next generation of physician scientists in Africa from a cohort of Grade 1 (one) primary school pupils, commonly known as STEM buddies. The Network provides human resources and financial support with other expertise to achieve its vision. The goals of the Network are to provide effective teaching and mentorship in after-school STEM and language arts programs to the STEM buddies for them to attain academic

excellence. The STEM buddies were recruited from both private and public schools in 2017. To date, we have slightly more girls than boys as STEM buddies, who are now in Class 5.

We can achieve our vision because of the changes and opportunities in information technology, online and virtual teaching. In fact, the Network has adequate resources in digital technology to bring knowledge and skills in STEM disciplines to schools in Kenema, Sierra Leone.

The Network is growing very fast to include many educators, scientists, healthcare professionals, entrepreneurs, engineers, and architects to maintain sustainable support for our programs, without relying on external funding and expertise. Since 2017, the Network has not applied for, or accepted, any external funding. The Network relies on philanthropy from its supporters, which can be in terms of in-kind service, expertise in needed areas, and monetary donations. We are interested in knowledge and skills transferability. We do accept teachers and university students who are willing to come on their own accord to Kenema, Sierra Leone, to teach. We believe that creating a cadre of physician scientists for Kenema should be a challenge that can be easily won, since we are like-minded professionals who are ready to determine the destiny of healthcare for our people. All our programs are free! In essence, the Network is in position to educate a group of primary school pupils to become physician scientists without any financial burden placed on them. In the future, we will be interested in university lecturers to provide in-kind teaching services to the Biomedical Institute and Medical school via online and virtual learning platforms.

Kenema-STEM Philanthropy Network: A "Community-Model" to Create the Next Generation of Physician Scientists in Africa

Our model to achieve our vision is divided into three phases:

Phase 1: The STEM Education Centre

The STEM Education Centre building with facilities for science laboratories was completed in 2020. This Centre will continue to provide the best teaching and hands-on activities for the STEM buddies from Grade 1 to senior secondary school. The Centre offers several after-school courses, ranging from biological sciences, robotics, physics, chemistry, mathematics, and language arts. All the courses and activities are aligned with the National Curriculum for Basic and Senior Secondary Schools.



STEM Education Centre Building-Exterior



STEM Education Centre-Interior: A Class 5 Tutorial group

We have successfully achieved the first phase. Currently, we now have 120 primary school pupils completing class 5, who have benefited from the STEM Education Centre. They will continue to gain new knowledge and skills in STEM subjects until they enter secondary school and sit university entrance examinations. Some of the recent courses and activities offered at the STEM Centre cover areas in physics (electricity and electrical circuits), biology (immune systems), and chemistry (atoms and molecules). We make use of technology and computers in our teaching and experiments to actively engage the STEM buddies. We provide them with the opportunities to see how STEM is practiced in real life. For example, most recently, they visited the labs at the Government Hospital, Kenema.

Kenema-STEM Philanthropy Network: A "Community-Model" to Create the Next Generation of Physician Scientists in Africa



Professor Amara Teaching: Functions of the immune system



Class 5-Biology: Digital microscopy



Class 5-Physics: Electricity and electrical circuits



Class 5-Chemistry: Atoms and molecules

Kenema-STEM Philanthropy Network: A "Community-Model" to Create the Next Generation of Physician Scientists in Africa

Phase 2: Build a Biomedical Institute

To accommodate those students from the STEM Education Centre who are interested in pursuing undergraduate degrees in biomedical sciences. Construction of the biomedical institute will start in 2026 and to be completed in 2029. The STEM buddies, who are now in Class 5, are expected to enter the biomedical institute in September 2030.

Phase 3. Build a Medical School

Building a medical school which will admit successful students after completing their undergraduate degrees at the Biomedical Institute and to pursue the combined Doctor of Medicine (MD) and MSc/PhD degree. This medical school will only accept those students who have completed their undergraduate degrees at the Biomedical Institute. Construction of the medical school will commence in 2027 to be completed in 2031. The STEM buddies, who are now in Class 5, are expected to enter medical school in September 2034.

If we are determined to achieve our vision and have successfully completed the first phase, why not another group of similarly educated African professionals from the diaspora? What is there to stop them?



The Biomedical Institute and Medical School: **Building plan**

BRIANNA BIBEL IUBMB Trainee Ambassador



Bri Bibel

This update is bittersweet; bitter because it's my last update as IUBMB Trainee Ambassador, but sweet because of *why* it's my last... I'm excited to say that I'm almost no longer a trainee! (Well, at least officially - you never truly stop training!) In July, I'm starting as a Visiting Professor at Saint Mary's College of California (SMC). I will be teaching undergraduate biochemistry (lecture and lab) for both biology and biochemistry majors. And I'm soooo excited! SMC is my alma mater and, since the day I left, it's been my dream to return as a professor! I want to use part of this update space to thank the IUBMB - especially President Alexandra Newton - for their constant support and encouragement. Thanks to them, I have built confidence, built cross-continent connections, gone to great conferences, and been able to (hopefully) help a larger

audience. I truly believe that biochemistry should be accessible to everyone - no matter where they live, how rich they are, etc. - and this is a sentiment at the core of IUBMB's philosophy as well.

Although I'm stepping back as Trainee Ambassador, I'm not stepping back from the IUBMB! Instead, I look forward to continuing to work closely with the IUBMB to further their mission as "Ambassador for Trainees." In this role, I will be, among other things, helping the burgeoning IUBMB Trainee Initiative we started together however I can (shoutout to all my great colleagues on the leadership committee!). And working do serve as a sort of liaison between the world of trainees and the world of faculty.

I will be giving monthly Bri-fings, so stay tuned for some content on transitioning to teaching at a PUI (primarily undergraduate institution)! As for past content, over the last few months I covered a range of topics in my Bri-fings from the bench including: avoiding burnout, what to expect at science conferences, how scientists talk about tiny things, and the difference between genetic knock-down and knock-out. You can find links to them - and all of my past Bri-fings <u>here</u>.



I also had the privilege of attending the DiscoverBMB conference and co-hosting a workshop - you can learn more about that in Trainee Initiative update.

Thank you Alexandra, Charysse Austria (Secretariat), Ilona Concha Grabinger (Member for Congresses and Focused Meetings), the IUBMB Trainee Initiative leadership committee, and the rest of the IUBMB! It's been an absolute honor working with you as student and trainee ambassador! And I look forward to our continued collaboration.



Miami Winter Symposium

Report by Ilona Concha Grabinger, IUBMB Executive Committee Member for Congresses and Focused Meetings (Chile)

The Miami Winter Symposiums have been running for 55 years, a consistent success because of the spectacular awardees, speakers, and attendees that make the three-day meeting superb. The Miami Winter Symposium 2023 was an exclusive opportunity for scientists and researchers to broaden their horizons in an area of cutting-edge molecular neuroscience with a specific reference to sensory disorders within the senses: hearing, vision, smell, taste, and pain/itch/touch.





IUBMB Executive Committee Member for Congresses and Focused Meetings, Dr. Ilona Concha Grabinger, participated in the Opening Remarks presenting IUBMB and its activities.

IUBMB co-sponsored the meeting supporting 16 trainees with travel fellowships. The awardees were from Argentina, India, Iran/USA, Moldavia, and Morocco.









Miami Winter Symposium

IUBMB also awarded Dr. Robert Margolskee from Monell Chemical Senses Center, USA, with a distinction for his outstanding contributions toward elucidating the molecular mechanisms of taste transduction.



Photo 1. Valeria Castagna from the Institute of Pharmacology, Argentina, receiving a poster award titled "Acoustic trauma during the critical period of development alters the correct maturation of the auditory system" from Drs. Sylvia Daunert and Claes Wahlestedt, Conference Chairs, University of Miami Miller School of Medicine, USA.

Photo 2. Drs. Sylvia Dauner (Conference Chair, University of Miami Miller School of Medicine, USA), and Ilona Concha Grabinger (IUBMB Executive Committee member for Congresses and Focused Meetings).



Photo 1



Photo 2

Report by Stephanie Gupton, Co-Chair of the Organizing Committee (University of North Carolina at Chapel Hill, USA) and Laura McCormick (Gupton Lab, Meeting Attendee)

Committee Co-Chairs:

Carlos Wilson (University Institute of Biomedical Sciences of Córdoba, Argentina), Christophe Leterrier (Aix-Marseille Université, France), Christian González (Universidad de Chile, Chile)

As summer ended in Chile's Colchagua Valley, over one hundred researchers from seventeen countries gathered in Santa Cruz for the sixth edition of the Focused Meeting on the Emerging Concepts of the Neuronal Cytoskeleton on March 26th-30th, 2023. The meeting was supported by the International Union of Biochemistry and Molecular Biology (IUBMB) and EMBO, as well as the International Society for Neurochemistry, the International Brain Research Organization, the Sociedad de Bioquímica y Biologíca Molecular de Chile, Nikon, and Genentech.

First organized in 2011, this meeting series was founded by Christian González (Universidad de Chile, Chile) to promote the research of South American scholars and strengthen the international neuronal cytoskeleton community. The biennial conference is now the leading venue to share research on cytoskeleton structure and dynamics in neurons and glia. Furthermore, this series is an outstanding place for trainees to be welcomed into the field and network with new colleagues.

This year's program was also organized by Stephanie Gupton (University of North Carolina at Chapel Hill, USA), Carlos Wilson (University Institute of Biomedical Sciences of Córdoba, Argentina), and Christophe Leterrier (Aix-Marseille Université, France). As the 2021 meeting was not held due to COVID-19, the excitement for this year was unmistakable.

Following their arrival in Colchagua, meeting attendees were welcomed at the picturesque Hotel Santa Cruz. The spacious grounds of the hotel provided both the lodging and venue for the meeting. In their free time, attendees also enjoyed the expansive history museum connected to the hotel.

The meeting kicked off with a session on neuronal polarity, followed by Erika Holzbaur's (University of Pennsylvania, USA) keynote lecture. Her talk highlighted the beautiful live-cell microscopy of her research group as they identified the components required for the transport and maturation of neuronal autophagosomes. Holzbaur finished her presentation with new, unpublished work on mitochondrial dynamics and trafficking.



Keynote speaker Dr. Erika Holzbaur presents her work on neuronal trafficking

March 26th-30th 2023

Over the next three days, the latest research advances in the neuronal cytoskeleton were broken down into seven additional scientific sessions:

- Trafficking
- Synapses
- Signaling and local translation
- Dendrites
- New actin structures
- Non-neuronal cells

Axons

In sum, thirty invited talks (**Table 1**) were complemented by eleven short talks selected from the abstracts. Seventyfour posters were also presented across two energetic three-hour sessions. The Company of Biologists sponsored poster prizes for three trainees.

These awardees were:

- Nahir Guadalupe Gazal (Nicolás Unsain Lab, Instituto Ferreyra-CONICET Córdoba, Argentina): Characterizing the nanoscale organization of the actin/spectrin membrane-associated periodic skeleton in rodent nerves using 3D-storm microscopy
- Malina K. Iwanski (Lukas Kapitein Lab, Utrecht University, Netherlands): A tale of two polarities: changes in microtubule polarity during the establishment of neuronal polarity
- Allison Melton (Matthew Rasband Lab, Baylor College of Medicine, USA): Elucidating the function of axon initial segment microtubules in vivo



Poster prize awardees (from left): Allison Melton, Nahir Guadalupe Gazal, and Malina Iwanski

Moving forward, the community looks forward to the seventh edition of the conference in March/April 2025. Furthermore, a new organizing committee was formed, consisting of Tomás Falzone (Universidad de Buenos Aires, Argentina), Monica Sousa (University of Porto, Portugal), and Kassandra Ori-McKenney (University of California, Davis, USA).

Name	Affiliation	Title
Avital Rodal	Brandeis University, USA	Dynamics and regulation of the presynaptic actin cytoskeleton by periactive zone machinery
Daniel Suter	Purdue University, USA	Neuronal NADPH oxidase is required for neurite regeneration
Erika Holzbaur	University of Pennsylvania, USA	Organelle-specific mechanisms regulating the axonal dynamics of autophagosomes and mitochondria
Felipe Opazo	University Medical Center Göttingen, Germany	Tailored probes for the study of molecular neurophysiology
Fernanda Ledda	IIBBA-CONICET, Argentina	Ligand-induced trans-synaptic adhesion in hippocampal plasticity and connectivity
Francisca Bronfman	Universidad Andrés Bello, Chile	Contribution of dynein-dependent transport of BDNF signaling endosomes to neuronal plasticity
Frank Bradke	German Center for Neurodegenerative Diseases, Germany	Cytoskeletal Mechanisms of Axon Growth and Regeneration
Frederic Meunier	University of Queensland, Australia	Tau nanoscale biomolecular condensates at the synapse
Gary Brouhard	McGill University, Canada	Doublecortin contributes to neuronal migration through suppression of neurite branching and modification of the tubulin code
Ginny Farias	Utrecht University, The Netherlands	Interactions between the ER and the cytoskeleton in neuronal polarity
Helge Ewers	Free University Berlin, Germany	Actin rings as ubiquitous diffusion barriers in the neuronal lineage
Juan Bonifacino	National Institutes of Health, USA	Mechanisms of axon degeneration in lysosome-transport disorders
Kang Shen	Stanford University, USA	How neuronal microtubule arrays are polarized and maintained in C. elegans neurons
Kassandra Ori-McKenney	University of California, Davis, USA	Investigating the mechanism of tau pathoconversion using an injury model
Kristy Welshhans	University of South Carolina, USA	Local translation of β -actin mRNA at adhesions and its role in axon guidance

Table 1. List of Invited Speakers and Talk Titles

Name	Affiliation	Title
Linda van Aelst	Cold Spring Harbor Laboratory, USA	Shedding light on chandelier cell development and connectivity
Lukas Kapitein	Utrecht University, The Netherlands	Unraveling the organization, dynamics and structure of stable microtubules
Marina Mikhaylova	Humboldt-Universität zu Berlin, Germany	Synaptic control of organelle localization: focus on the ER
Mathew Rasband	Baylor College of Medicine, USA	Neuronal ankyrin and spectrin cytoskeletons
Melissa Rolls	Penn State University, USA	Mechanisms that maintain microtubule polarity and dynamics in dendrites
Monica Sousa	University of Porto, Portugal	Tension-driven axon growth triggers developmental stage- specific adaptations of the axonal cytoskeleton and membrane
Nicolás Unsain	Instituto Ferreyra-CONICET Córdoba, Argentina	Studying the organization of βII-spectrin within the actin/spectrin membrane-associated periodic skeleton of axons in vivo with nanometer resolution
Paul Jenkins	University of Michigan Medical School, USA	Life beyond the AIS: ankyrin-dependent scaffolding of Nav1.2 in neocortical dendrites
Pirta Hotulainen	Minerva Foundation Institute for Medical Research, Finland	From "invisible" to visible actin structures
Rejji Kuruvilla	Johns Hopkins University, USA	Transcytosis-mediated anterograde transport of TrkA receptors is necessary for sympathetic neuron development and function
Shernaz Bamji	University of British Columbia, Canada	Regulation of synapse plasticity by palmitoylating enzymes
Subhojit Roy	University of California, San Diego, USA	Biogenesis and Trafficking of Endocytic and Cytoskeletal proteins
Tatyana Svitkina	University of Pennsylvania, USA	APC-dependent microtubule-actin cooperation in neuronal growth cones
Tom Blanpied	University of Maryland School of Medicine, USA	Conserved and variant aspects of synaptic nanodomain architecture
Tomás Falzone	Universidad de Buenos Aires, CONICET, Argentina	Human neuronal models to identify cell-intrinsic modulators of axonal polarization and transport



The conference hall filled with attendees during the opening remarks



Organizers of the 6th Edition (clockwise from top left): Carlos Wilson, Christophe Leterrier, Stephanie Gupton, Christian González



Group photo of trainees attending the 6th Edition of the IUBMB Focused Meeting on the Emerging Concepts of the Neuronal Cytoskeleton



IUBMB Focused Meeting on Aminoacyl-tRNA Synthetases: the 13th International Symposium on Aminoacyl-tRNA Synthetases (AARS2023)

June 4 - June 9, 2023



Report by Ilka Heinemann & Patrick O'Donoghue (The University of Western Ontario, Canada)

Organizing Committee:

Co-chairs: Ilka U. Heinemann & Patrick O'Donoghue (The University of Western Ontario). International Advisory board: Haissi Cui (University of Toronto), Tamara Hendrickson (Wayne State University), Jiqiang Ling (University of Maryland College Park), Lluís Ribas de Pouplana (ICREA/IRB Barcelona), Herve Roy (University of Florida)

The IUBMB Focused Meeting on Aminoacyl-tRNA Synthetases (AARS2023) was also the 13th International Symposium on Aminoacyl-tRNA Synthetases (AARSs), a meeting with a >30-year history dating back to the first AARS meeting (NATO Workshop on AARSs), which was held in Autrans, France in 1990. While the meeting is normally held every 2 years, the last AARS meeting was in 2019 in Hangzhou, China. Following an unexpected hiatus because of the COVID-19 pandemic, we were delighted at last to re-unite with our research community and so glad to meet many new students and researchers in our field and welcome the AARS meeting to Canada for the first time.



Figure 1. AARS2023 group photo at the Hessenland Inn & Schatz Winery, St. Joseph, Ontario

Attendees at AARS2023 included 130 researchers, drug developers and patients that traveled from countries all over the world, including France, South Korea, USA, Canada, Germany, Israel, Japan, and China (Fig. 1). The keynote speakers included founders of the field and first-time attendees of the AARS meeting (Fig. 2). Talks were given by keynote and invited speakers (21 talks) as well as primary investigator and student talks selected from abstracts (23 talks). A lively poster presentation session generated great opportunities for our trainees and spurred new collaborations. We had strong representation from trainees as 47% of the attendees were undergraduate, graduate students, or postdoctoral researchers. We achieved a roughly equal gender balance as 51% of attendees and 46% of speakers were female.

The AARS meetings are unique for their integration of different subjects as AARS-centered research spans many disciplines. These include cell biology and biochemistry (Fig. 2A), molecular evolution (Fig. 2B), synthetic biology (Fig. 2D), neuroscience, biomedical research, drug design, microbiology, and metabolism. Talks centering on tRNA biology and therapeutics featured prominently, as did studies which explored mRNA stability, modification, and processing regulated by AARSs. The meeting featured a strong integration of the medical community and biotech enterprises originating from the AARS field. A highlight in the program was our patient panel discussion (Fig. 3C), which was led by our colleague Dr. Victoria Siu (University of Western Ontario), and featured patients and family members of patients with mutations in AARS genes that causes disease, including Usher Syndrome 3B, NARS1 disease and Charcot-Marie-Tooth disease. These diseases are debilitating and lethal, yet there is no cure. Providing hope and inspiration to our whole community, we heard



IUBMB Focused Meeting on Aminoacyl-tRNA Synthetases: the 13th International Symposium on Aminoacyl-tRNA Synthetases (AARS2023)

June 4 - June 9, 2023



about progress on a clinical trial led by Dr. Siu and her colleague Dr. Leslie Nangle at aTyr Pharma, that is showing promise in treating Usher Syndrome with amino acid supplementation. Other speakers, including Keynote Zoya Ignatova (**Fig. 2C**), talked about the use of therapeutic tRNA molecules to cure disease, including Charcot- Marie-Tooth disease. The following day, we heard about the challenges and promises of tackling rare diseases, including AARS diseases, from a distinguished panel of experts from the pharmaceutical industry (**Fig. 3D**). Results from clinical trials were presented, showcasing the striking medical advances that can be gathered from our improved understanding of aaRS, tRNAs, and their metabolism.



Figure 2. Keynote lectures at AARS2023. (A) Dr. Nahum Sonenberg (McGill University) provided the first keynote lecture on Sunday, June 4, 2023. (B) Dr. Paul Schimmel (Scripps Research) focused his keynote lecture on the early evolution of the AARSs and the genetic code. (C) Dr. Zoya Ignatova (University of Hamburg) provided an engaging and stimulating keynote lecture focused on applications of therapeutic tRNAs. (D) Dr. Dieter Söll (Yale University) provided an exciting keynote lecture on applications of AARSs in synthetic biology. He is pictured here with a former trainee, member of the AARS2023 international advisory board, and speaker at AARS2023, Dr. Jiqiang Lanny Ling (University of Maryland).

We were grateful to receive strong positive feedback from our attendees. The consensus was that AARS2023 was a great conference that was scientifically stimulating and personally inspiring. Our colleagues enjoyed the tranquil and beautiful natural setting of the meeting venue on the shores of Lake Huron. Many attendees were glad for ample time set aside for open discussions, networking, and socializing. Feedback from several of our high-profile speakers included *"this meeting set a new standard"* and *"you inspired me to reduce my administrative load and refocus on active research"*. We are all looking forward to meeting again at the next AARS meeting in 2025 in Dubrovnik, Croatia (Fig. 4). In summary, AARS2023 was a wonderful week of science, with a special focus on advances in synthetic biology and medicine that inspired our whole field spurring each of us towards new collaborations, new ideas, new innovations, and new therapeutic approaches that have the potential to generate novel biotechnology and treat many human diseases.



Figure 3. Scenes from AARS2023. (A) Lead organizer, Ilka Heinemann (University of Western Ontario, right) is pictured at the registration booth with our super team of student organizers. (B) Students and professors chatting on the beach during our excursion to Pinery Provincial Park in Grand Bend, Ontario. (C) Dr. Victoria Siu (University of Western Ontario) led a patient panel discussion, including members of our local Amish community with children with HARS disease as well as patients and patient relatives from Argentina and the US with AARS mutations that cause disease. (D) Industry panel focused on development of drugs for AARS diseases as well as the use of AARSs and tRNA as therapeutic molecules for a wide range of diseases. Participants from right to left include Dr. Sunghoon Kim (Professor at Yonsei University and Director of BioCon: a target factory, Seoul, Korea), Dr. Suchul Jang (hC Biosciences, Cambridge, MA, USA), Dr. Paul Finn (Oxford Drug Design, Cambridge, UK), and Dr. Leslie Nangle (CEO, aTyr Pharma, San Diego, CA, USA).

Figure 4. AARS2025. Dr. Ita Gruic–Solvj, (University of Zagreb), pictured with Dr. Michael Ibba (Chapman University) and Dr. Ilka Heinemann (University of WesternOntario), where Ita announced the next meeting, AARS2025 in Dubrovnik, Croatia.




25-26 May 2023 • The Hive • Manchester, UK

Report by Daniel R. Dries, Chair, Fellowships Committee (USA)

The Biochemical Society, jointly with FEBS and in association with IUBMB, held a two-day conference in Manchester, England, at the end of May titled "<u>Evolving</u> <u>molecular bioscience education</u>." Sessions focused on building more inclusive and more engaging learning environments, student assessment, and building communities of practice that help sustain instructors, staff, and students. Each session concluded with small-table discussions where attendees could extend conversations with each of the session's speakers. Moreover, the Biochemical Society, FEBS, and IUBMB



– along with LearnSci, who sponsored the event – also had time throughout the meeting to share with attendees the wonderful opportunities each of their organizations brought to the biosciences classroom and instructional laboratories.

Scientific Program: Day One

The conference kicked off with a keynote by Dr. Barry Ryan (Technological University Dublin, Ireland), who used his own professional development as a case study in the adoption of evidence-based practices, from the classroom to whole programs and back into the classroom. Dr. Ryan's talk brilliantly transitioned into the first session, titled "Practical solutions for improving inclusivity and accessibility of bioscience education." Dr. Helen Watson (University of Plymouth, UK) kicked off the session by discussing the new Subject Benchmark Statement for Biosciences by the Quality Assurance Agency for Higher Education (QAA), paying particular attention to benchmarks that identify the need for inclusive learning environments. Dr. Carl Larsen (University of Liverpool, UK) next spoke about student-faculty partnerships in co-curricular activities to build more equitable learning spaces. Dr. Jacqueline Nairn (University of St. Andrews, UK) closed out the session using directed evolution as a metaphor for the exclusionary structural barriers institutions impose and which result in – by design – selection for a particular type of student. Dr. Nairn also shared with the audience a staff guide assembled by the University of St. Andrews on decolonizing teaching in biology.



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Following a lunch, Dr. Dan Dries (Juniata College, USA) kicked off the afternoon session titled "Evaluating, understanding, and promoting student engagement." Dan shared how authentic inquiry instructional laboratories can facilitate students' adoption of a science identity through the framework of the Self-Determination Theory of motivation. Dr. Elliott Stollar (University of Liverpool) next shared a program to develop the cognitive, psychomotor, and affective skills of teaching laboratory demonstrators/teaching assistants. Dr. Janet Horrocks (Abertay University Dundee, UK) closed the session by

discussing a micro-credentialing program to facilitate students' transition to college and their sense of belonging. Focusing on academic and career outcomes, the program features two foundational modules, with students free to select additional modules most relevant to him/her/them.

Day One of the conference closed with flash talks selected from poster abstracts, followed by a poster session and a buffet dinner. Flash talks for Day One included Dr. Nigel Page (Kingston University London, UK), who discussed intentionally building in a peer support network for the development of students' professional development in psychosocial skills; Dr. Kate Hammond (University of Liverpool, UK), who brought to the audience an awareness of the challenges that students with autism face in practical laboratories; and Dr. Renee Vancraenenbroeck (University College London, UK), who shared a third-year immersive research project in which students develop a hypothesis, propose and complete an experimental approach, and present their work, all within a growth mindset to encourage belonging, autonomy, and authentic inquiry and exploration.

Scientific Program: Day Two

Day Two began with a session titled, "Novel approaches to student assessment," led off by a talk from Dr. Stephen Rutherford (University of Cardiff, UK). Dr. Rutherford presented Erasmus+-sponsored work to engage students in reflective self- and peer-assessment using the Enhancing Equity, Agency, and Transparency in Assessment (EAT) framework. Next, Dr. Daniel Zahra (University of Plymouth, UK) challenged attendees to reconsider the ways in which



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instructors evaluate student performance, offering several different models for doing so. In particular, Dr. Zahra encouraged attendees to think of assessment not as looking for poorly performing students, but rather looking for poor assessments that do not allow students to demonstrate knowledge. The morning then session closed with an open discussion in small groups about the use of artificial intelligence in the classroom. Session Chair Helen Watson framed the discussion around AI as an inevitable tool with which instructors must learn to work; this set a positive tone for the discussion, allowing conversations to be constructive and productive.





Following tea, three more attendees presented flash talks on their work. First, Dr. Suzanne Ruddy (University College London, UK) contrasted the approach and behaviors of students in two very different first-year learning environments: one, a traditional lecture with high-stakes assessments; and the other, an exploratory active-learning classroom with zero mark but affirmation through peer recognition. Dr. James Connorton (University of Surrey, UK) then shared his experience running a remote collaborative online international learning (COIL) program in biochemistry between the University of Surrey and CEU San Pablo Madrid in which students from both institutions work in teams on a project-based learning activity on human disease. Dr. Timothy Pullen (Kings College London, UK) concluded the flash talks with a timely discussion of how to authentically assess students' abilities to write computer code

when students have access to generative artificial intelligence. A second highly interactive poster session was then held over the lunch break.



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The last session of the conference was titled, "Thriving, not just surviving: communities of practice for the development of teaching, considering both staff and students." Dr. Jim O'Mahony (Munster Technological University, Ireland) shared how his institution developed and sustained 50 learning communities since 2019, including identifying barriers to participation. Learning communities including both disciplinary and cross-disciplinary interests, such as active learning, entrepreneurship, and equity, diversity, and inclusion. Dr. Lu Mello (University of Liverpool, UK) complemented this discussion by talking about how "scholarship" is defined (often it is not), evaluated, evidenced, and supported, especially with respect to junior faculty. The day ended with Kate Hammond (University of Liverpool, UK) being awarded a prize for the best poster (sponsored by FEBS OpenBio) for her work in bringing an increased awareness to how students with autism experience practical laboratories.



IUBMB would like to commend all of the organizers on an incredibly successful biosciences education conference. In particular, IUBMB wishes to thank Dr. Helen Watson, Dr. Lu Mello, Dr. Ferhan Sağin, and Dr. Dan Dries for organizing the conference. IUBMB also wishes to thank the Biochemical Society for inviting IUBMB as a partner and FEBS for the partnership in producing such a wonderful and sorely needed education conference. And finally, IUBMB wishes to thank all the staff both at the Biochemical Society and at the host venue for all their energy and work to producing a seamless meeting.

Co-organizers Lu Mello (Biochemical Society), Dan Dries (IUBMB), and Helen Watson (Biochemical Society). Not pictured: Ferhan Sağin (FEBS).

IUBMB offers a variety of mechanisms for supporting the professional development of educators in biochemistry and molecular biology. To learn more, please visit <u>iubmb.org</u> to find out more about the <u>IUBMB Educational Activities</u> and the <u>IUBMB Tang Education Fellowships</u>.



IUBMB Jubilee Lectures



Congratulations to Professor Lewis C. Cantley from Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA, USA, who will be presenting the IUBMB Jubilee Lecture at the <u>Understanding</u> <u>Cancer Metabolism: Exploring Tumor Heterogeneity to Advance Cancer Therapy</u> from June 29-30, 2023 on "Linking protein kinases to phosphorylation sites that control cell growth, cell death and cell survival". He is honored for his seminal discoveries in signaling and metabolism.



Congratulations to Professor Pamela Silver from Harvard Medical School, Boston, MA, USA, who will be presenting the IUBMB Jubilee Award Lecture at the <u>IUBMB-FAOBMB-ComBio Biomolecular Horizons 2024</u> <u>Congress</u> in Melbourne, Australia from September 22-26, 2024 on "Designing Biology for Health and Sustainability". She is honored for her outstanding contributions to synthetic biology.





Congratulations to Professor Faith Osier from the Imperial College London, UK, who presented the IUBMB Plenary Lecture at the <u>48th Lorne Conference</u> on Protein Structure and Function (Loren Proteins 2023) on "IgG Fceffector function guided vaccine design for P. falciparum malaria".

Congratulations to Professor Rachel E Klevit from the University of Washington, USA, who presented the IUBMB Plenary Lecture in Tribute to Eddy Fischer: Reversible Phosphorylation at the <u>ASBMB DiscoverBMB</u> <u>2023 Annual Meeting</u> on "Ubiquitylation: Phosphorylation, only bigger?"



66th Annual CSMB Meeting: Metabolic Regulation of Cell Signalling Congratulations

> MARKUS RALSER IUBMB PLENARY LECTURE

May 30 - June 2, 202 Ottawa, ON, Canada

"Functional Proteomics for understanding gene function, and to study basic principles of protein expression dynamics" Congratulations to Professor Dr. Markus Ralser from the Charité – Universitätsmedizin Berlin, DE, who presented the IUBMB Plenary Lecture at the <u>66th Annual CSMB</u> <u>Meeting: Metabolic Regulation of Cell</u> <u>Signalling</u> on "Functional Proteomics for understanding gene function, and to study basic principles of protein expression dynamics"



IUBMB FELLOWSHIP AWARDEES April 2023



The IUBMB Fellowship Committee is pleased to announce that we have awarded eight <u>Wood-Whelan</u> <u>Fellowships</u> from the November 2022-April 2023 applicant pool. Established in honor of past IUB/IUBMB Executives, the Wood-Whelan Fellowships support the travel of young trainees for up to four months to acquire the training and skills necessary to complete a critical feature of their research project. Preference is given to new collaborations, particularly those that bring knowledge, skills, and access back to the home laboratory. Similarly, the <u>Early-Career Research Fellowship</u> supports the travel of earlycareer researchers in biochemistry and molecular biology for up to two months. The current submission cycle for both the Wood-Whelan and Early-Career Research Fellowships closes October 1, 2023. For more information on these and other fellowships – including travel and education fellowships – please visit the Fellowship Programs on our website. To support this program, please consider visiting the <u>IUBMB Charity and Donations</u> webpage.



IUBMB FELLOWSHIP AWARDEES



The IUBMB-MWS Travel Fellows were awarded to travel and attend the <u>2023 Miami Winter</u> <u>Symposium on 'Molecular Neuroscience: Focus on Sensory Disorders'</u> and present their research.



IUBMB FELLOWSHIP AWARDEES



Since 2012, 103 biochemists have received travel awards.

Congratulations to the jointly-funded PROLAB awardees between the Pan-American Association for Biochemistry and Molecular Biology (<u>PABMB</u>), the International Union of Biochemistry and Molecular Biology (<u>IUBMB</u>), and the American Society for Biochemistry and Molecular Biology (<u>ASBMB</u>). The 10 young scientists will use the awards to conduct research in academic laboratories in the United States and Canada.

This year's PROLAB travel grants are going to doctoral students, postdoctoral fellowships and early-career scientists from Argentina, Chile, Mexico, Uruguay, and Spain. View article <u>here</u>.

María Vanesa Amarelle Larrosa, Uruguay Andrea Celeste Arismendi Sosa, Argentina Viviana Andrea Cavieres Risco, Chile Andrés Di Paolo, Uruguay María Victoria Gutierrez, Argentina Susana Guzmán Puyol, Spain Coral Martínez Martínez, Mexico Camila Oses Oliveto, Argentina Maria Julia Pimentel Solá, Argentina Victoria Rozés–Salvador, Argentina

"The Benefits of a Tang Fellowship"

Report by Paul A. Craig, Recipient of the 2019 IUBMB Tang Education Fellowship Professor of Biochemistry, School of Chemistry & Materials Science, Rochester Institute of Technology, USA



Paul A. Craig

As a professor at the Rochester Institute of Technology, I have used technology and visualization to teach chemistry and biochemistry courses for 30 years. My background is in enzymology and I started my teaching career with the audacious claim that I planned "to teach biochemistry using computers." I have had the pleasure of seeing many different computational tools for biochemistry education and research emerge throughout my career – the latest is virtual reality. While I was attending the IUBMB Education Conference 2019/46th PSBMB Annual Convention in Manila, I had the opportunity to hear Dr. Philip Poronnik from the University of Sydney present about Virtual Reality and was fascinated. We had several excellent

conversations during the conference and started to talk about working together. Then I learned that applications for the Tang Fellowship program were due two days after the conference, so I wrote an application on the plane trip from Manila to JFK in New York City (14 hours non-stop on the excellent Philippines Airline), obtained signatures from my Dean and waited. I heard of the award some months later and started planning my trip to Sydney, but unfortunately was delayed for a couple years by the pandemic. Fortunately for me, the society was willing to extend the timeline for the fellowship, so we traveled to Sydney to work with Dr. Philip Poronnik on the use of Virtual Reality in Biochemistry & Molecular Biology education from January 16 – February 2, 2023. It was a very productive time of learning and relationship building. Here are a few thoughts about our time together.

Research

As we described in the Tang Fellowship proposal, we had three goals for our project, which are described in some detail here.

1. To gain a deep understanding of the software and hardware associated with VR.

Several members of Phil's lab demonstrated the use of software tools to create VR resources for teaching and learning. I began learning the pipeline, which involves creating a molecular model in PyMOL or VMD, importing it in the prescribed format into Blender (<u>https://www.blender.org/</u>) for manipulation and animation, then transferring it, again in the prescribed format, into Unity (<u>https://www.unity.org/</u>) where it can be "gamified" and converted to use in VR.

I also learned that there is a steep learning curve VR development. Fortunately, there are excellent resources on the software sites and on YouTube and I will be pursuing those.

2. To identify prime opportunities for incorporating VR into the BMB lab and lecture curriculum;

Following our initial discussions, I was asked to identify models of the insulin receptor that would be suitable for implementation in their VR museum. This seemingly simple task was complicated by the fact that (a) there are many insulin receptor structures in the Protein Data Bank and (b) none of them are complete. I was finally able to identify and export an insulin receptor model to Phil's team based on PDB entry 6SOF. We were able to create a model in Blender with all of the receptor subunits and all of the insulins in which we demonstrated a path for assembly of the receptor. I plan to continue this approach with other protein/ligand and enzyme/inhibitor complexes that would be suitable for addition to the VR museum. Structures such as these have the potential to be added to a class project where students identify protein/ligand structures involved in health and disease, then use the software (VMD/PyMOL \longrightarrow Blender \longrightarrow Unity) to construct and deploy annotated models and animations into the VR museum.

To facilitate this process, it will be important to develop detailed instructions for creating structural models for virtual reality applications. An overview of the path consists of multiple sequential steps shown below. A detailed expansion of these steps would be useful to the BMB education community and would be submitted as a manuscript to *Biochemistry & Molecular Biology Education*. It may also be of interest for a workshop at an upcoming IUBMB Education conference.

- a. Identify a biological process (e.g., digestion, circulation, signal transduction).
- b. Select a structure or series of structures that center around that specific biological process.
- c. Import the structures into VMD or PyMOL and use colors, representations and perspectives to communicate the function of the structure.
- d. Export the models in a format that is suitable for Blender.
- e. Use Blender to create animations with the molecules. The animations could feature assembly/disassembly or a sequence of steps that are known or speculated to occur in a biological process.
- f. Create a narrative to accompany the models and animations.
- g. Incorporate all of the models, animations and narratives into Blender and then into Unity.
- 3. To develop tools for assessing student learning gains with VR in the BMB curriculum.

We were unable to make progress on point 3, but we hope to pursue conversations with our colleagues in BioMolViz (<u>https://biomolviz.org/</u>) to perform the essential task of designing assessments of student learning with these new tools

Presentation

During the third week I was invited to present a seminar, "Educational Research a Work in Progress: An Undergraduate Lab-Based Course," which was based in large part on my presentation at the IUBMB Education Conference 2019/46th PSBMB Annual Convention in Manila.Twelve faculty members and graduate students attended the seminar and it led to a number of fruitful discussions across multiple disciplines: biochemistry, chemistry, physiology and medicine that focused on developing effective educational research approaches as they implement new approaches and technologies in their classrooms.

Publication

It is our hope that this collaboration will result in a publication in Biochemistry & Molecular Biology Education about the use of VR in life science education.

Personal Experience

This was a very rich personal and professional experience. I had the opportunity to work with colleagues from a different culture and continent who share a common goal – excellence in education. It was an opportunity to build relationships in a way that is not possible even with the very best virtual communication tools. I also had the opportunity to experience some unique aspects of Australian culture: cricket, kangaroos, the Great Barrier Reef, and some excellent local beverages. Phil Poronnik was a great host, both professionally (as described above) and personally (including a personalized tour of Sydney when he picked us up at the airport on our arrival, at a cricket match, on Australia day, and walking around the city). I realized when I checked my phone that I never took any group photos with Phil and his team, so I have attached a photo with my wife, Elsa. She and I had a particularly lovely time visiting the Blue Mountains west of Sydney on a sunny Saturday. It was a very rewarding time and I will encourage my colleagues to pursue this opportunity.



"IUBMB Wood Whelan Scholarship: A Prestigious Opportunity Worth Exploring"

Report by Qurat ul Ain, Recipient of the 2016 IUBMB Wood-Whelan Research Fellowship Postdoctoral Scientist Department of Pathology, University of California San Francisco, USA



Qurat-ul-Ain

I opened my eyes in the lap of an educated woman. During almost 40 years of her life, my mother was a school principal and pursued a career towards the growth of education in Pakistan, where I spent my early childhood among highly educated people. My professional, social, and academic career started at the age of eight when I delivered my first lecture for the student class of my mother's school; that was indeed not planned, practiced, nor previously organized. This lecture surprised my mother and triggered her interest in exploring my hidden qualities in the field of education. Later, I completed my secondary education from the Pilot Secondary School, and my higher secondary education from the Government Women's College, in Karachi, Pakistan. Throughout my secondary and higher secondary education, I found

myself lost in fascinating subjects of biology and achieved the highest marks. Because of this, I wanted to become a medical doctor, but unfortunately, I was unsuccessful. So, I have patiently awaited the opportunity to become a scientist and to use my professional, academic, and social skills for drug discovery and its development. Therefore, I was inclined to accept admission to the School of Pharmacy at the University of Karachi, Pakistan, where I completed my bachelor's degree.

During my studies, I developed some basic knowledge and skills on drugs and their discovery process that got more refined in the Abbott Pharmaceutical Laboratories Private Limited. During my training as a Quality Assurance Pharmacist, my everyday natural curiosity and determination pulled me towards the field of drug research. To accomplish that, I joined as an intern at the Neurosciences Laboratory of the Dr. Panjwani Center for Molecular Medicine and Drug Research (PCMD) and the International Center for Chemical and Biological Sciences (ICCBS), located at the University of Karachi, Pakistan. During one year of my stay, I acquired some preliminary research training on the patch clamp instrument and worked on Parkinson's disease. I also had an opportunity to meet and exchange ideas with the wife of the first Pakistani Nobel laureate scientist (Professor Abdus Salam), Professor Dame Louise Napier Johnson, as well as with an atomic scientist of Pakistan, Dr. Abdul Qadeer Khan. They both have been role models for me and have strengthened my way of thinking to pursue my career as a scientist. In 2010, I started my doctoral studies in the same institution, and I was honored to be a student of Professor Dr. M. Igbal Choudhary, the institutional Director who was nationally and internationally recognized as an extraordinarily productive scientist in the field of drug discovery, and who later became another role model for me. Dr. Choudhary's supervision indeed opened a new path toward successful drug discovery. I carried out preliminary work of my Ph.D. thesis under his kind supervision. During this time, I was continuously trained and equipped with an understanding of several subjects by various well-recognized scientists, enabling me to gain indepth knowledge of cancer biology and other related fields.

Throughout this period, I presented my preliminary research work at various international and national conferences in the form of lectures and posters. During a scientific talk at the 7th International Conference on Oxidative Stress in Skin Medicine & Biology, organized by the University of Athens at Andros Island in Greece, my excellent scientific and intellectual skills in drug discovery were evident to Professor Dr. Med. Karin Scharffetter-Kochanek. She later invited me to join her lab in the Department of Dermatology and Allergic Diseases at the University of Ulm, Germany, to complete the molecular biology part of my doctoral thesis. This was accomplished through the help of the IUBMB Wood-Whelan Fellowship. I felt lucky to have achieved this prestigious award, as this fellowship opened new doors of unhindered success for me, enabling me to acquire the knowledge, skills, and expertise of [DD(1] many cutting-edge, molecular biology techniques from Professor Dr. med. Karin Scharffetter-Kochanek lab. The training I received helped me to decipher biological activities and molecular mechanisms of anti-cancer action of small molecules in the continuation of discovery and development of anti-cancer therapeutics. This enabled me to understand cancer biology and the underpinning of molecular pathways of cancer progression, which eventually assisted me to complete my Ph.D. degree in molecular medicine in 2019.

Afterward, I published my findings in the peer-reviewed journal Molecules (<u>https://doi.org/10.3390/molecules27041172</u>) and won several prestigious national and international travel awards, including the Society of Free Radical Europe (SFRR-E) Travel Award (2017) to present my work at the OCC World Congress in Berlin, Germany; and an Elsevier Travel Award (2018) to present my Ph.D. work at the Miami Winter Symposium, USA. I have also been able to present my research as scientific lectures or posters at international conferences in France (2017), Greece (2021), and Serbia (2021) and at various international conferences in Pakistan, organized by the ICCBS (2017-2022).

In addition, I was able to disseminate knowledge of these techniques by simultaneously serving as an Assistant Professor of Biochemistry and Pharmaceutical Chemistry (Department of Pharmaceutical Chemistry, Faculty of Pharmacy 2020-2022), and as a Visiting Assistant Professor for Molecular Biology Genetics & Biochemistry (Department of Physical Therapy, Faculty of Health & Sciences 2020-2022) to graduate students of Hamdard University, Karachi, Pakistan. Interestingly, as a Postdoctoral Scientist in the Department of Pathology at the University of California, San Francisco under the supervision of Dr. Matt. D. Stachler, I [DD(2] made pioneering contributions to the development of technology for the detection of cancer. This technology – GeoMax Digital Spatial Profiling Technology – integrated my acquired skills and expertise in fluorescence confocal microscopy and immunohistochemistry for the discovery of biomarkers at high-risk esophageal adenocarcinoma patients. The work was conducted with a team of scientists from the Laboratory of Cell analysis, Genome Core UCSF Medical Center and Nanostrings. As a result, millions of cancer patients from around the globe would benefit from these methods in detecting cancer early and drastically increasing their chance of survival or identifying their risk via genetic markers.

In closing, I would like to encourage new researchers by sharing that nothing is more expensive than availing a prestigious opportunity that not only can open for you doors of unhindered success but indirectly help millions of people around the world.



2023 WILEY- BIOFACTORS YOUNG INVESTIGATOR AWARD



Patricia Recio-López is the winner of the Wiley-BioFactors Young Investigator Award for an outstanding study on developing siRNAs for in vivo silencing of the apolipoprotein CIII with metabolic improvements against obesity-induced disorders. Her interview can found <u>here</u>.

The study has been published in the paper "<u>Treatment of the metabolic syndrome by siRNA targeting</u> <u>apolipoprotein CIII</u>", authored by Patricia Recio-López, Ismael Valladolid-Acebes, Philipp Hadwiger, Markus Hossbach, Monika Krampert, Carla Prata, Per-Olof Berggren, Lisa Juntti-Berggren, First published on 30 August 2022.

Patricia Recio López did her bachelor in biology and specialized in sanitary biology at Complutense University of Madrid, Spain. After that, she did her master in biomedicine at the same university and performed her master's thesis "Effects of a dual glucacon-GLP1 receptor agonist in the activation of brown adipose tissue in obese mice" at Biomedical Research Institute "Alberto Sols" in Madrid.

Then, she decided to go abroad to do an ERASMUS + Practices at Karolinska Institutet, Stockholm, Sweden, where she decided to continue her development and started her PhD studies in which she is now studying the role of apolipoprotein CIII in the pathophysiology of diabetes mellitus.

A NEW EDITOR-IN-CHIEF for Biochemistry and Molecular Biology Education (BAMBEd)

Welcome Marilee Benore

Editor-in-Chief Biochemistry and Molecular Biology Education

"As part of the IUBMB journals, we have the capacity to reach, share and learn from the worldwide network of educators. We publish and share pedagogical research, best practices, ethics, and emerging techniques; we also envision an expanded readership with a broader reach."



We welcome Professor Marilee Benore as the incoming Editor-in-Chief of *BAMBEd*. Professor Benore is based at the University of Michigan-Dearborn, where she has been working at the interface of biochemistry research and biochemical education for 30 years. This intersection has enabled Professor Benore to develop innovative teaching methods, build and contribute to a community for biochemistry pedagogy, as well as make important contributions to the field through publications in the area. Professor Benore has been a longstanding member of the *BAMBEd* editorial board and brings a wealth of experience and expertise in the field to the Editor-in-Chief position.

We are grateful to Professor Phillip Ortiz, who has led *BAMBEd* for the past 9 years. Professor Ortiz has augmented the standing *BAMBEd* as the pre-eminent journal in the field of biochemistry and molecular biology education, including by providing crucial resources and perspectives for peers in the field to navigate the difficult times of teaching in a pandemic. We thank Professor Ortiz for his leadership and ensuring *BAMBEd*'s standing as the leading journal in the field.

"I am honored to become the next Editor-in-Chief of the journal **Biochemistry and Molecular Biology Education**. Being a member of the education community, including publishing in BAMBEd, has been one of the most rewarding, cooperative and stimulating aspects of my career. Under the stewardship of the IUBMB, and the excellent work of current and former editors Phillip Ortiz, Don Voet and Judy Voet, BAMBEd has become the premiere educational journal in biochemistry, molecular biology and bio-technology. As part of the IUBMB journals, we have the capacity to reach, share and learn from the worldwide network of educators. We publish and share pedagogical research, best practices, ethics, and emerging techniques; we also envision an expanded readership with a broader reach. Both our authors and our readers ensure that the future of teaching and learning science will have significant impact, creating good scientists and knowledgeable citizens."

IUBMB JOURNALS



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Wiley has also signed similar agreements with universities in <u>Germany</u>, <u>the Netherlands</u>, <u>Austria</u>, <u>Norway</u>, <u>Hungary</u>, <u>Finland</u>, <u>Sweden</u>, and with the US-based <u>OhioLink</u> And <u>VIVA</u>.

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<u>New Issue:</u> <u>Volume 75, Issue 7</u>

Follow the IUBMB Life account on Twitter <u>@IUBMB Life</u> for the journal's latest news and updates.



Liraglutide ameliorates hepatic steatosis via retinoic acid receptor-related orphan receptor <u>α-mediated autophagy pathway</u>

Xiaoqian Yu, Xiaoqi Bian, Hongmei Zhang, Shanshan Yang, Daxin Cui, Zhiguang Su *Xiaoqian Yu and Xiaoqi Bian contributed equally to this work.

First published: 13 June 2023

Liraglutide, an analog of human glucagon-like peptide-1 (GLP-1), has been found to improve hepatic steatosis in clinical practice. However, the underlying mechanism remains to be fully defined. Increasing evidence suggests that retinoic acid receptor-related orphan receptor α (ROR α) is involved in hepatic lipid accumulation. In the current study, we investigated whether the ameliorating impact of liraglutide on lipid-induced hepatic steatosis is dependent on RORa activity and examined the underlying mechanisms. Cre-loxP-mediated, liver-specific Rora knockout (Rora LKO) mice, and littermate controls with a Rora^{loxp/loxp} genotype were established. The effects of liraglutide on lipid accumulation were evaluated in mice challenged with a high-fat diet (HFD) for 12 weeks. Moreover, mouse AML12 hepatocytes expressing small interfering RNA (siRNA) of Rora were exposed to palmitic acid to explore the pharmacological mechanism of liraglutide. The results showed that liraglutide treatment significantly alleviated HFD-induced liver steatosis, marked by reduced liver weight and triglyceride accumulation, improved glucose tolerance and serum levels of lipid profiles and aminotransferase. Consistently, liraglutide also ameliorated lipid deposits in a steatotic hepatocyte model in vitro. In addition, liraglutide treatment reversed the HFD-induced downregulation of Rora expression and autophagic activity in mouse liver tissues. However, the beneficial effect of liraglutide on hepatic steatosis was not observed in Rora LKO mice. Mechanistically, the ablation of $Ror\alpha$ in hepatocytes diminished liraglutide-induced autophagosome formation and the fusion of autophagosomes and lysosomes, resulting in weakened autophagic flux activation. Thus, our findings suggest that RORa is essential for the beneficial impact of liraglutide on lipid deposition in hepatocytes and regulates autophagic activity in the underlying mechanism.

<u>Mesenchymal stem cells (MSCs) and MSC-derived exosomes in animal models</u> of central nervous system diseases: Targeting the NLRP3 inflammasome

Shahrzad Nazari, Seyed Mahmoud Pourmand, Elahe Motevaseli, Gholamreza Hassanzadeh

First published: 06 June 2023

The NLRP3 (NOD-, LRR-, and pyrin domain-containing protein 3) inflammasome is a multimeric protein complex that is engaged in the innate immune system and plays a vital role in inflammatory reactions. Activation of the NLRP3 inflammasome and subsequent release of proinflammatory cytokines can be triggered by microbial infection or cellular injury. The NLRP3 inflammasome has been implicated in the pathogenesis of many disorders affecting the central nervous system (CNS), ranging from stroke, traumatic brain injury, and spinal cord injury to Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, and depression. Furthermore, emerging evidence has suggested that mesenchymal stem cells (MSCs) and their exosomes may modulate NLRP3 inflammasome activation in a way that might be promising for the therapeutic management of CNS diseases. In the present review, particular focus is placed on highlighting and discussing recent scientific evidence regarding the regulatory effects of MSC-based therapies on the NLRP3 inflammasome activation and their potential to counteract proinflammatory responses and pyroptotic cell death in the CNS, thereby achieving neuroprotective impacts and improvement in behavioral impairments.



Adipose tissue-derived mesenchymal stem cells ameliorate cognitive impairment in Alzheimer's disease rat model: <u>Emerging role of SIRT1</u>

Mohamed Nabil, Dina H. Kassem, Azza A. Ali, Hala O. El-Mesallamy

*Mohamed Nabil and Dina H. Kassem contributed equally to this study and are co-first authors.

First published: 15 June 2023

Alzheimer's disease (AD) is complex form of а neurodegenerative dementia. Growing body of evidence supports the cardinal role of sirtuin1 (SIRT1) in neurodegeneration and AD development. Recently, adipose tissue-derived mesenchymal stem cells (Ad-MSCs) have made their mark for a wide array of regenerative medicine applications, including neurodegenerative disorders. Therefore, the present study aimed to investigate the therapeutic potential of Ad-MSCs in AD rat model, and to explore the possible implication of SIRT1. Ad-MSCs were isolated from rat epididymal fat pads and properly characterized. Aluminum chloride was used to induce AD in rats, and afterward, a group of AD-induced rats received a single dose of Ad-MSCs (2 × 10 cell, I.V per rat). One month after Ad-MSCs transplantation, behavioral tests were done, brain tissues were collected, then histopathological and biochemical assessments were performed. Amyloid beta and SIRT1 levels were determined by enzyme-linked immunosorbent assay. Whereas expression levels of neprilysin, BCL2 associated X protein, Bcell lymphoma-2, interleukin-1ß, interleukin-6, and nerve growth factor in hippocampus and frontal cortex brain tissues were assessed using reverse transcriptase quantitative polymerase chain reaction. Our data demonstrated that transplantation of Ad-MSCs alleviated cognitive impairment in AD rats. Additionally, they exhibited anti-amyloidogenic, antiapoptotic, anti-inflammatory, as well as neurogenic effects. Furthermore, Ad-MSCs were found to possibly mediate their therapeutic effects, at least partially, via modulating both central and systemic SIRT1 levels. Hence, the current study portrays Ad-MSCs as an effective therapeutic approach for AD management and opens the door for future investigations to further elucidate the role of SIRT1 and its interrelated molecular mediators in AD.



<u>New Issue:</u> <u>Volume 49, Issue 3</u>

Follow the BioFactors account on Twitter <u>@WileyBiomedical</u> for the journal's latest news and updates.







<u>New Issue:</u> Volume 70, Issue 3

Follow the BioFactors account on Twitter <u>@WileyBiomedical</u> for the journal's latest news and updates.



Trends on Chlamydomonas reinhardtii growth regimes and bioproducts

Jassiara da Silva Pessoa, Caroline Frere Martiniuc de Oliveira, Jesús Pascual Mena-Chalco, João Carlos Monteiro de Carvalho, Livia Seno Ferreira-Camargo

First published: 15 June 2023

The green microalga Chlamydomonas reinhardtii is a model microorganism for several areas of study. Among the different microalgae species, it presents advantageous characteristics, such as genomes completely sequenced and well-established techniques for genetic transformation. Despite that, C. reinhardtii production is still not easily commercially viable, especially due to the low biomass yield. So far there are no reports of scientometric study focusing only on C. reinhardtii biomass production process. Considering the need for culture optimization, a scientometric research was conducted to analyze the papers that investigated the growth regimes effects in C. reinhardtii cultivation. The search resulted in 130 papers indexed on Web of Science and Scopus platforms from 1969 to December 2022. The quantitative analysis indicated that the photoautotrophic regime was the most employed in the papers. However, when comparing the three growth regimes, the mixotrophic one led to the highest production of biomass, lipids, and heterologous protein. The production of bioproducts was considered the main objective of most of the papers and, among them, biomass was the most frequently investigated. The highest biomass production reported among the papers was 40 g L⁻¹ in the heterotrophic growth of a transgenic strain. Other culture conditions were also crucial for C. reinhardtii growth, for instance, temperature and cultivation process.



<u>New Issue:</u> Volume 51, Issue 3

Follow the Biochemistry and Molecular Biology Education account on Twitter <u>@BAMBEdu</u> for the journal's latest news and updates.



A home-based approach to demonstrate column and thin layer chromatography during the COVID-19 pandemic

Meran Keshawa Ediriweera, Dilusha Fernando, Tharanga Thoradeniya, Dilanthi Hewa Warawitagei, Kithmini Siridewa

First published: 14 June 2023

The COVID-19 pandemic caused several educational challenges. Conducting laboratory experiments was an uphill task during the pandemic. Here, we developed a low-cost and reliable home-based experimental setup to teach column and thin layer chromatography (TLC) using silica gel granules available at home. Powdered silica gel, prepared by grinding silica gel granules, was used as the stationary phase. Isopropyl alcohol, purchased from a pharmacy, was diluted with water and used as the mobile phase. A food coloring was chromatographically separated using the designed column. Moreover, TLC plates were prepared using powdered silica gel and a drop of food coloring was separated on TLC plates using the same mobile phase. In the article, we show our experiences by providing methods used to implement this experimental setup. We assume that this experimental setup will be helpful for other universities, research institutes and schools to develop online laboratory curricula to demonstrate basic chromatography techniques required for subjects such as chemistry, biochemistry and biology.

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Impact Factor 16.337 / CiteScore 23.6*

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> ASPECTS of MOLECULAR MEDICINE

The first articles of Aspects of Molecular Medicine are online!

We are delighted to announce that the first articles of *Aspects of Molecular Medicine*—IUBMB's new gold open access journal—are online and free to read, download, and share. We hope you enjoy reading these first articles!



Aspects of Molecular Medicine Special Issue: Old Viruses, New Problems Edited by: Dr. Alberta Azzi Access here >

Aspects of Molecular Medicine welcomes your submissions

Led by Angelo Azzi, MD, PhD, the esteemed Editor-in-Chief of *Molecular Aspects of Medicine* (Impact Factor: 16.337, CiteScore: 23.8), *Aspects of Molecular Medicine* has a mission to provide a clinical foundation for basic scientists and a rationalization of disease for the clinician.

If you have enjoyed reading our first articles and would like to submit your work to *Aspects of Molecular Medicine*, **submit by September 30, 2023, to take advantage of a publication fee waiver**. The Article Publishing Charge (APC) of USD 2650, excluding taxes, will be waived, for all articles accepted for publication after peer review by this date.

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Aspects of Molecular Medicine is inviting applications to its Editorial Board and we particularly welcome early career researchers who are interested in gaining experience in an editorial board role. To submit your application, send your CV and motivation to *Aspects of Molecular Medicine* Editor-in-Chief Angelo Azzi, MD, PhD at <u>Angelo Azzi@tufts.edu</u>.

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Are you a young researcher willing to review but you are not receiving invitations? *Aspects of Molecular Medicine* invites you to become an *Aspects of Molecular Medicine* "Interested Reviewer". This doesn't only make you easily visible to our editors but will also showcase your interest in reviewing and being an active part of the community *Aspects of Molecular Medicine Medicine* serves.

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Visit our journal homepage to enjoy free access to Aspects of Molecular Medicine articles and submit your paper.

Molecular Aspects of Medicine and it's Impact Factor: Que Sera, Sera

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

The time for publication of the journal's impact factor will come soon. However, as every year these days (but also occasionally before) the impact factor of Molecular Aspects of Medicine is calculated by databases such as Scopus (Elsevier) or Web of Science (Clarivate). In general, the results of the calculations correspond rather closely to the official impact factor. This bibliometric parameter has been and is criticized, but most authors still prefer to publish in journals with a high impact factor. In this sense, the rather high impact factor achieved by Molecular Aspects of Medicine (16.337) has attracted many proposals for article's publication. The impact factor forecast (the real one will be released this year), counting 2022 citations to articles published in 2020 and 2021, indicates a substantial decline (10.6). In the history of Molecular Aspects of Medicine, there has been only one instance where the steady annual increase in impact factor has suffered a sudden decline. It is obviously one of the main concerns of the editor to analyze the decline in the citations of the journal.

The following six issues have been published in 2020: Mitochondria: New Developments in Pathophysiology (edited by Alicia Kowaltowski and Marcus Oliveira); Liquid Biopsy Analysis in Cancer Diagnostics (edited by Anders Ståhlberg, Mikael Kubista and Daniel Andersson); Haptoglobin: from Hemoglobin Scavenging to Human Health (edited by Paolo Ascenzi and Alessandra diMasi); The Atlas of Inflammation Resolution (AIR) (edited by Charles N. Serhan et al.); Iron in Health and Diseases (edited by Guenter Weiss and Manfred Nairz); and Inflammasome (edited by Jianbin Ruan).

In 2021 the six issues have been: Cellular and Molecular Aspects of Immunometabolism (edited by Giuseppe Danilo Norata and Giuseppe Matarese); Nuclear Receptors: from Physiology to Physiopathology (edited by David Volle); Pathophysiological Significance of Glycans and Glycosylation (edited by Naoyuki Taniguchi and Morten Anderson); Innate Lymphoid Cells (edited by Francesco Annunziato, Laura Maggi and Angela Santoni); Biology of Infections (edited by Sudhanshu Vrati); and Autophagy and Disease (edited by Patricia Boya).

Analysis of the citations of the individual published articles indicates that every single issue had at least one highly cited article, demonstrating the interest generated by the topic. These articles were usually general overviews, while many other articles in the issue, focusing on more detailed aspects of the same topic, had fewer citations or even, in rare cases, none at all. The lesson to be learned from this analysis is that an issue should consist of fewer general articles rather than more specialized ones. Meanwhile, the journal's viability should be inferred from the 5-year impact factor, which calculates the average of accidental declines in the bibliometric parameter.

Molecular Aspects of Medicine and it's Impact Factor: Que Sera, Sera

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

Articles already published in 2022 appear to have substantially more citations in general. They were: Delivery to Tissues (edited by Sylvia Daunert, Sapna Deo and Shanta Dhar); Hemoglobin and Myoglobin in Their Reactions with Ligands (edited by Paolo Ascenzi, Andrea Bellelli and Massimo Coletta); Molecular Aspects of Asthma (edited by Mario Cazzola); Impact of Post-Translational Modification on the Genesis and Progression of Diseases (edited by Joachim Jankowski); Molecular Aspects of the Exposome and Metabolic Diseases (edited by Luis Sobrevia); Proteases in Health and Disease (edited by Boris Turk).

And we are already in 2023 with the following issues already available online: Bioactives and Human Health (edited by Cesar Fraga and Patricia Oteiza); Siglecs in Health and Disease (edited by Shoib Siddiza) and Personalized Medicine (edited by Christopher Hopkins). To complete the six annual issues to be published this year, we have in the pipeline Organ Fibrosis (edited by Maurizio Parola and Massimo Pinzani); Human Mycoses (edited by Matteo Bassetti and Antonio Vena); and Tumor Vaccines In Cancer Prevention (edited by Federica Cavallo and Pierluigi Lollini). In 2024 Molecular Aspects of Medicine will reach volume 100 with an issue on Nuclei Acid Therapeutics (edited by George Calin). It will be preceded by an issue on Glaucoma (edited by Massimiliano Coletta, Francesco Oddone, and Diego Sbardella); an issue on Aging (edited by Pepe Viña); an issue on Anthracyclines and Cancer (edited by Gianni Colotti); an issue on Molecular Diagnostics (edited by Mikael Kubista and Anders Ståhlberg); and an issue on Protein Misfolding (edited by Stefano Gianni, Maurizio Brunori, and Paolo Ascenzi).

A closing sentence is necessary at this point: The journal was always on time thanks to the efficiency of the authors, editors, and publisher. We sought out important topics for planned issues and guest editors known for their scientific merits and their organization. The future will tell if some topics were a little too cutting edge to be cited in a short time. As for the touch of gray of the unexpected probable decrease in impact factor... que sera sera, whatever will be will be.

UPCOMING IUBMB DEADLINES IUBMB Congresses

19-23 September 2027 2030 IUBMB CONGRESS CALL FOR APPLICATIONS 27th IUBMB Congress APPLICATION SUBMISSION: AUGUST 15 Congresses provide unique occasions for expert review of international advances at the cutting edge of biochemistry and molecular biology, and are held triennially in countries that are members of the Union. 2022 - 25th IUBMB Congress, Lisbon, Portugal 2024 - 26th IUBMB Congress, Melbourne, Australia 2027 - 27th IUBMB Congress, Cape Town, South Africa SOUTH AFR 2030 soliciting applications an inspiring place to mee

<u>The IUBMB Congress</u> is a prestigious event held every three years in countries that are members of the Union that brings together experts, researchers, and scholars from around the world to exchange knowledge, present groundbreaking research, and foster collaborations.

The IUBMB Congress offers a unique platform to showcase the latest breakthroughs in biochemistry and molecular biology, explore emerging research areas, and engage in meaningful discussions that shape the future of the discipline. This will be an extraordinary opportunity to demonstrate the leadership and commitment to advancing scientific knowledge in the global scientific community.

Organizing an extraordinary IUBMB Congress will leave a lasting impact on the scientific community.

The call for the applications to the IUBMB Congress in 2030 has been extended to August 15, 2023

UPCOMING IUBMB DEADLINES



The <u>IUBMB MilliporeSigma ENABLE-Africa Fellowships</u> will fund up to five fellowships for trainees from any country in Africa to attend the FEBS-IUBMB-ENABLE 2023 Conference on '<u>THE EMERGING CHALLENGE</u>: <u>Environmental impacts on human health</u>'. hosted by the University of Cologne, Germany.

Deadline: July 31, 2023



The <u>Whelan Young Investigator Award</u> honors the exemplary contributions of the late Bill Whelan to promoting biochemistry - he co-founded FEBS & PABMB, led the IUBMB, founded TIBS, and provided opportunities to young scientists e.g. through the Wood-Whelan Research Fellowships.

Deadline: September 1, 2023



The <u>IUBMB Relocation Support for Displaced Trainees</u> has no deadline submission.



- <u>Wood-Whelan Research Fellowships</u> supports up to 4 months in a lab and up to a maximum of US \$4,000 for travel expenses.
- <u>Mid-Career (now "Early-Career") Research</u> <u>Fellowships</u> support up to 2 months in a lab and up to a maximum of US \$5,000 for travel expenses.
- <u>Tang Education Fellowships</u> 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.

Deadlines: October 1, 2023



<u>Travel Fellowships</u> are designed to support travel to meetings for trainees in the IUBMB region. No deadline submission.

UPCOMING IUBMB DEADLINES

IUBMB Educational Activities

The IUBMB is committed to improving education in biochemistry and molecular biology at all levels.

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

The deadline for funding for <u>Educational Activities</u> is October 1st and includes funding for both face-to-face and online (virtual) workshops, meetings or symposiums.



<u>IUBMB Advanced Schools</u> support training of grad students and postdocs on specific topics in molecular biosciences. One more way we support training the next generation. The deadline to submit applications is October 1st.

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

UPCOMING IUBMB DEADLINES



Organizing a meeting? Consider nominating the Plenary Lecturer for the <u>IUBMB</u> <u>Jubilee Award</u>. Our most prestigious honor recognizes a senior investigator who has made transformational findings in the fields of biochemistry & molecular biology.



Organizing a meeting? IUBMB provides support of a plenary lecturer who has made outstanding contributions in biochemistry and molecular biology. Learn more <u>here</u>.

UPCOMING IUBMB MEETINGS 2023

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SAVE THE DATE:

SEPTEMBER 19 - 22, 2023

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ORGANIZING COMMITTE:

ciimar

About the Conference

Extreme environments are hostile to most life as we know it. Only a small selection of species have adapted to survive and thrive in some of the most extreme conditions on our planet. Research on extremophiles has traditionally been focused on prokaryotes, but this focus has been repeatedly challenged by the discovery of various fungi as part of the extreme microbiome. Despite their much more complex cell structure, fungi approach, and in some cases surpass, the stress tolerance of bacteria and archaea. Today, it is clear that fungi represent an integral part of microbial communities in ecological niches that were previously considered either abiotic or exclusively populated by prokaryotes.

Therefore, the first **IUBMB Focused Meeting on Extremophilic fungi** will be held from **19-22 September 2023 in Ljubljana, Slovenia**. This meeting could not have been organized without the generous support from IUBMB, that we gratefully acknowledge.

The preliminary program, together with invited speakers, is presented on the web site of the meeting. Part of the programme is focused on biodiversity, phylogeny and adaptations of fungi populating different extreme environments, such as cold and hot rocks, hypersaline and other low water activity environments, polar and alpine environments, environments characterized by ionising radiation, acidity and astrobiology. Other topics are black yeasts, both extremotolerant and opportunistic pathogens, fungal dispersal, molecular tools for studying extremophilic fungi, omics, biotechnology and bioremediation.

The deadline for early bird registration is 15th July 2023.

We hope that the congress will bring together many world-renowned experts, young scientists, and students who explore the diversity, adaptations, and potential applications of extremophilic fungi. Hopefully this first-time event will help usher mycology in the next era of extreme mycology and become a traditional event in the years to come.

Chair of the organizing committee: Nina Gunde - Cimerman

Twitter handle: @extremefungi Hashtag: #funextremophiles

UPCOMING IUBMB MEETINGS 2023



FEBS & SPB Education workshop jointly organized by IUBMB & UAveiro & UMinho



About the Conference

On behalf of the Scientific Committee, we are glad to invite you to participate in the <u>Symposium on</u> <u>Pedagogical Innovation in Biosciences (SPIB 2023) -</u> <u>How to Engage Students in our Practices?</u>, which will be held from the **12 - 13 of October, 2023, in Aveiro, Portugal**.

SPIB2023 aims to promote discussion on Pedagogical Innovation in Biosciences, particularly in fostering student participation in the learning process and acquiring essential skills for the current job market.

Posters and oral communications on aspects of molecular life sciences education are warmly invited and a Poster Prize will be awarded during the event.

We look forward to welcoming you to SPIB2023 and engaging in fruitful discussions that will shape the future of biosciences education.

SPIB 2023 welcomes the submission of abstracts for original contributors.

Abstract submission deadline: 15th July 2023 Registration deadline: 8th September 2023

We hope you can join us at this event. Organizing Committee

UPCOMING IUBMB MEETINGS 2023

IUBMB Focused Meeting on Integrative Omics of Nuclear Functions

October 15 - 20, 2023 Avra Imperial Hotel Crete, Greece

nuclearomics2023.org

Registration deadline: August 31 2023

o Speakers

Genevieve Almouzni. Institut Curie. France Naama Barkai.Weizmann Institute of Science. Israel Tuncay Baubec, Utrecht University, Netherlands Pedro Beltrao. ETH Zurich. Switzerland Wendy Bickmore. University of Edinburgh. UK Marcus Buschbeck. Josep Carreras Leukaemia Research Institute. Spain Maria Colomé-Tatché. Ludwig Maximilian University. Germany Gordon Hager. NCI, National Institutes of Health. USA Petra Hajkova. MRC London Institute of Medical Sciences. UK Jop Kind. Hubrecht Institute. Netherlands Nils Krietenstein. University of Copenhagen. Denmark Hitoshi Kurumizaka. Univeristy of Tokyo. Japan Georg Kustatscher. University of Edinburgh. UK Andreas Ladurner. Ludwig Maximilian University. Germany Melike Lakadamyali. University of Pennsylvania. USA Tineke Lenstra. Netherlands Cancer Institute. Netherlands Kathryn Lilley. University of Cambridge. UK Alejandra Loyola. Fundación Ciencia & Vida. Chile Musa Mhlanga. Radboud University Nijmegen. Netherlands Gaëlle Legube. Centre de Biologie Integrative. France Alexey Nesvizhskii. University of Michigan. USA. Ana Pombo, Max-Delbrück Centre for Molecular Medicine, Germany Simone Sidoli. Albert Einstein College of Medicine. USA Nikolai Slavov. Northeastern University. USA Nathaniel Snyder. Temple University. USA Evi Soutoglou. University of Sussex. UK Jussi Taipale. University of Cambridge. UK Kathryn Wellen. University of Pennsylvania, USA

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Michiel Vermeulen | Netherlands Radboud University Nijmegen

Sessions

- 1. Chromatin Modifications
- 2. Nuclear Architecture
- 3. Structural Proteomics
- 4. Multi-omics Data Integration
- 5. Quantitative approaches to Transcription 6. High-resolution Imaging of the Nucleus
- 7. Chromatin & Metabolism
- 7. Chromatin & Metabolism
- 8. Single Cell Genomics & Proteomics
- 9. DNA Replication & Repair
- 10. Spatial & Interaction Proteomics

Keynote Speakers

Company of Biologists Keynote Lecture: Genevieve Almouzni EMBO Keynote Lecture: Ana Pombo EMBO YIP Lecture: Tuncay Baubec EMBO YIP Lecture: Tineke Lenstra

JUNE 2023 • ISSUE 15

UPCOMING IUBMB MEETINGS 2023



November 23, 2023 in Bangkok, Thailand | Meeting Link

JUNE 2023 • ISSUE 15

UPCOMING IUBMB MEETINGS 2023



We are happy to invite you for the 2nd FEBS-IUBMB-ENABLE conference, '<u>THE EMERGING</u> CHALLENGE: Environmental impacts on human health'.

Our goal for this year is to inspire young researchers to focus on the importance of the environment united with the progress of biomedical research and its relevance in the progress of society.

The <u>scientific programme</u> will cover a broad range of topics, from epigenetics, complex diseases and model systems to big data and modeling. In the authentic FEBS-IUBMB-ENABLE spirit, we plan on touching upon multidisciplinary research projects and integrative approaches.

Cologne is a green city, constantly working towards improvement, which makes Cologne one of the European hotspots for promoting more conscious and sustainable development. The green initiatives of Cologne nicely bridge with the opportunity of sharing this knowledge to the novel international generation of investigators who will lead the scientific world in the future.

This year, #enablegoesgreen!

Early bird registration & travel grant application deadline: 31st July 2023 Late registration period: 1st August - 15th October 2023

UPCOMING MEETINGS 2023



JUNE 28: Event @ 6:00 pm to 8:00 pm CEST <u>Registration</u> | <u>Meeting link</u>



Featuring IUBMB Jubilee Award Lecturer: Lewis C. Cantley Meeting link



Featuring IUBMB Lecturer: Enrique Cadenas Meeting link



JUL 4: Virtual Registration deadline Online poster | Meeting link

Epigenomics, Nuclear Receptors and Disease

10th Spetses Summer School



JUL 11: Virtual Registration deadline Online poster | Meeting link

Featuring IUBMB Lecturer: Anna L. Gloyn
Online_poster | Meeting_link



FEBS Advanced Lecture Course ALC23-001

August 27-September 01, 2023

Eckardt Treuter, Susanne Mandrup, Inés Pineda Torra, Nicolas Venteclei

Island of Spetses (Greece)
UPCOMING MEETINGS 2023



Featuring IUBMB Plenary Lecturer: Antonio Vidal-Puig <u>Meeting link</u>



JUL 27: On-site Registration | AUG 29: Virtual Registration Online poster | Meeting link



Eukaryotic Gene Regulation & Functional Genomics



Featuring IUBMB Plenary Lecturer: Rachel Green JUNE 30: Abstract deadline | JUL 13: Registration deadline <u>Meeting link</u> JUL 21: Abstract submission AUG 23: On-site Registration | SEP 27: Virtual Registration

Online poster | Meeting link

Seeing is believing:

processes of life 4 – 7 October 2023

EMBL Heidelberg and Virtual

imaging the molecular

EMBO | EMBL Symposium

The non-coding

11-14 October 2023

EMBL Heidelberg and Virtual

genome

UPCOMING MEETINGS 2023



EMBO | EMBL 🌅 Symposium

Organoids: modelling organ development and disease in 3D culture

18 – 21 October 2023 EMBL Heidelberg and Virtual

 JUL 19: Abstract submission

 AUG 30: On-site Registration

 Online poster

 Meeting link

JUL 26: Abstract submission SEP 6: On-site Registration | OCT 11: Virtual Registration Online poster | Meeting link



AUG 8: Abstract submission SEP 13: On-site Registration | OCT 18: Virtual Registration Online poster | Meeting link



 AUG 16: Abstract submission

 SEP 27: On-site Registration
 | NOV 1: Virtual Registration

 Online_poster
 | Meeting link



AUG 23: Abstract submission OCT 4: On-site Registration | NOV 8: Virtual Registration Online poster | Meeting link



SEP 5: Abstract submission OCT 17: On-site Registration | NOV 21: Virtual Registration Online poster | Meeting link

UPCOMING MEETINGS 2023



AUG 1: Abstract/Proceedings Submission | SEP 15: Early Registration | Scientific Program | Meeting Link

JUNE 2023 • ISSUE 15

UPCOMING MEETING 2024



www.bmh2024.com 22-26 SEPTEMBER 2024 MELBOURNE AUSTRALIA



Planning is well underway towards developing a comprehensive and innovative scientific program at the Congress offering plenary and keynote sessions, symposia, workshops and poster presentations. There will be a dedicated Young Scientists Program that will precede the Congress.

The overarching theme: <u>Biomolecular Horizons 2024: Discover, Create, Innovate</u> will be examined across the key themes:

- Cell, Developmental and Stem Cell Biology
- Biotechnology and Synthetic Biology
- Microbial World
- Cell Signalling and Metabolism
- Genomics, Gene Regulation and Epigenetics
- Bioinformatics, Computational Biology and 'Omics
- Structural Biology and Biophysics
- Molecular Basis of Disease
- Molecular Physiology
- Indigenous Health
- Education
- Career Development

ANNOUNCEMENT



Special Issue: Volume 13, Supplement 1

FEBS-IUBMB-ENABLE 1st International Molecular Biosciences PhD and Postdoc Conference, 16-18 November 2022, The Institute of Biomedicine of Seville, Spain

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The FEBS-IUBMB-ENABLE 1st International Molecular Biosciences PhD and Postdoc Conference was held at the Institute of Biomedicine of Seville in Spain, from 16–18th November 2022. Following the theme "The perfect tandem: How technology expands the frontiers of biomedicine", the conference gathered 300 participants from all over the globe and included a Scientific Symposium, a Career Day, and outreach activities.

ANNOUNCEMENT



Reflections on Biochemistry In Honour of Severo Ochoa Hidden gem: collection of 47 essays by some of the most influential biochemists of all time, including 10 Nobel Laureates, in honour of Spanish biochemist Severo Ochoa (past IUBMB President 1961-1967), complete with cover art by fellow Spaniard, the great Salvador Dali. An e-book is available to order <u>here</u>.

D-AMINO ACIDS INTERNATIONAL RESEARCH CENTER info@d-aminoacids.com

NEWSLETTER 02/2023 edited by Loredano Pollegioni



If you are interested in D-amino acids or you have news concerning the D-amino acids field to announce, sign up at info@d-aminoacids.com to receive the bimonthly Newsletter on D-amino acids edited by Loredano Pollegioni.

More info on the D-AMINO ACIDS INTERNATIONAL RESEARCH CENTER at <u>https://www.d-aminoacids.com/</u>

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. One per year will be sponsored to a maximum of US \$60,000.

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 education and supporting 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 (now "Early-Career) Research Fellowships. were established in response to an increased demand for further training of mid-career biochemists in the Developing World. These are shortterm 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 meetings in the IUBMB region.

MilliporeSigma ENABLE-Africa Fellowships. This collaboration between IUBMB and MilliporeSigma provides support to African trainees to attend the FEBS-IUBMB-ENABLE Conference.

Relocation Support for Displaced Trainees. This programme was established to allow IUBMB to respond rapidly to any natural disasters and acts of war that results in loss of infrastructure and resources at universities and research institutions. This program provides financial support of up to three months for trainees to relocate to a new host lab to continue their research.

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PROBio-Africa Fellowships. This collaboration between the FASBMB, IUBMB, and FEBS allows African postdoctoral fellows and new researchers to spend short stays (1-6 months) in the laboratory of a scientist affiliated with FEBS to carry out experiments that require special techniques and expertise or to facilitate other forms of scientific collaboration or advanced training.

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.

Plenary and Jubilee Award Lectures. At IUBMB Congresses, several endowed lectures feature prominently in the program: IUBMB Jubilee Award and Plenary Lectures are intended as important 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 (TIBS), IUBMB Life, BioFactors, Biochemistry and Molecular Biology Education (BAMBEd), Biotechnology and Applied Biochemistry, Molecular Aspects of Medicine, Aspects of Medicine. 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.

Social Media Links









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(from left to right) Loredano Pollegioni, James Murphy (Chair of Publications Committee), Charysse Austria (Secretariat), M. Iqbal Parker, Alexandra Newton, Dario Alessi, Ilona Concha Grabinger, Yang Mooi Lim, Daniel Dries (Chair of Fellowships Committee). Absent: Andrew H.-J. Wang and Zengyi Chang