



IUBMB NEWS

Issue 6

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President's Message

I have taken over the presidency of IUBMB from Dr. Joan Guinovart in June 2018 during the IUBMB Congress in Seoul, South Korea. During the congress, representatives of the Adhering Bodies also elected several new Executive Committee members during the General Assembly. We are pleased to welcome our new President-Elect Dr. Alexandra Newton, Member for Congresses and Focused Meetings Dr. Ilona Concha Grabinger (succeeding Dr. Stathis Gonos), General Secretary Dr. Jim Davie (succeeding Dr. Michael Walsh) and Member for Publications Dr. Zengyi Chang (succeeding Dr. Avadhesh Suroliya). I am grateful to all past and present EC members for their unselfish and voluntary service to IUBMB for many years. It is fair to say that without

their dedicated services, IUBMB would not have today's high reputation around the world. Dr. Walsh will end his outstanding service over the past 9 years. He will be missed.

We will continue the worthy goals of education in molecular biosciences set forth by the EC previously. We will support Education Workshops held in different regional BMB meetings like FEBS Congresses and FAOBMB Conferences/Congresses. The FEBS Congress in Jerusalem in 2017, Prague in 2018 and Krakow in 2019 all include sessions to emphasize the importance of education. Similarly there will be an education symposium in Manila and an education session in the FAOBMB/MSBMB Conference in Kuala Lumpur, both in 2019. Here I would like to point out that Research Integrity is an aspect in education which we intend to stress in many IUBMB activities.

There have been important changes recently in the organization of IUBMB meetings. While we will continue the triennial Congress (with the next one in Lisbon, Portugal in 2021), we have replaced the annual Conference with Focused Meetings, which will be held three times a year. We encourage those who are interested in holding Focused Meetings to look up our website at www.iubmb.org to find out how to apply for support.

A significant development associated with the Focused Meetings is that we encourage the meeting organizers to consider in advance publishing a special journal issue on the meeting topic. These special issues may be published in IUBMB journals including *IUBMB Life*, *Biofactors* and *Biotechnology & Applied Biochemistry*, subject to the regular rigorous review standards of these journals. We are working closely with the Editors-in-Chief of the journals and the Wiley publisher to implement this program. Our former Chair of Congresses and Focused Meetings, Dr. Stathis Gonos, will be serving as Special Issues Associate Editor to coordinate this new initiative.

A number of other new initiatives are being planned. We have received funding support from the Tang Prize Foundation (Taiwan) for education purposes. A new special symposium supported by the TPF fund is being planned, which will be

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organized by junior scientists including postdocs in a way similar to the annual ENABLE meeting mentioned in the last IUBMB Newsletter. Travel fellowships will be provided. We will formally announce this early next year.

I should add that TPF also provides speaker support through the participation of TPF laureates in IUBMB meetings. Dr. Feng Zhang from MIT was invited as a TPF Lecturer in the 2017 FEBS Congress in Jerusalem and Dr. Tasuku Honjo from Kyoto University was invited in the 2018 IUBMB Congress in Seoul. Both lectures were extremely successful attracting over 2000 attendees in each event. I should add that Dr. Honjo received this year's Nobel Prize for Physiology or Medicine. Congratulations to Dr. Honjo!

IUBMB continues its close collaboration with its regional federations. IUBMB and FEBS signed an MOU regarding the mutual support in holding respective congresses, such as support for named lectures like IUBMB Lecture in FEBS Congress and FEBS Lecture in IUBMB Congress.

Choices of career path are difficult issues facing young scientist nowadays. As research funding dwindles in the academic arena around the world, it is tough for scientists to get faculty positions and promotion is becoming more challenging. It is unreasonable for so many young faculty to have to wait until age 40 or even older to get their first research grant. How to solve this problem is an urgent issue. Without the vibrancy and enthusiasm of the young generation, our field will wither eventually. Should we train them with new skills such as entrepreneurship? Those are on our mind to tackle.

IUBMB is in a good position to extend our influence in the life science areas. It may be possible for us to collaborate with new global partners such as UNESCO. We will seek those new opportunities and make IUBMB more valuable to our Adhering Body members and our society. I look forward to working with our IUBMB friends!

Andrew H.-J. Wang, PhD
President, IUBMB

Translocases (EC 7): A new EC Class

Prepared by Keith Tipton
August 2018

Six enzyme classes have been recognized since the first Enzyme classification and nomenclature list was first approved by the International Union of Biochemistry in 1961. These were based on the type of reaction catalysed: Oxidoreductases (EC 1), Transferases (EC 2), Hydrolases (EC 3), Lyases (EC 4), Isomerases (EC 5) and Ligases (EC 6). However, it has become apparent that none of these could describe the important group of enzymes that catalyse the movement of ions or molecules across membranes or their separation within membranes. Several of these involve the hydrolysis of ATP and had been previously classified as ATPases (EC 3.6.3.-), although the hydrolytic reaction is not their primary function.

These enzymes have now been classified under a new EC class of translocases (EC 7). The reactions catalysed are designated as transfers from 'side 1' to 'side 2' because the designations 'in' and 'out' (or 'cis' and 'trans'), which had been used previously, lack clarity and can be ambiguous. The comments associated with each entry then describe the specific translocations catalysed.

The subclasses designate the types of ion or molecule translocated:

EC 7.1 contains enzymes catalysing the translocation of hydrons (hydron being the general name for H⁺ in its natural abundance),

EC 7.2 contains those catalysing the translocation of inorganic cations and their chelates,

EC 7.3 contains those catalysing the translocation of

inorganic anions,

EC 7.4 contains those catalysing the translocation of amino acids and peptides,

EC 7.5 contains those catalysing the translocation of carbohydrates and their derivatives,

EC 7.6 contains those catalysing the translocation of other compounds.

The sub-subclasses concern the reaction that provided the driving force for the translocation, where these are relevant:

EC 7.x.1 translocations linked to oxidoreductase reactions,

EC 7.x.2 translocations linked to the hydrolysis of a nucleoside triphosphate,

EC 7.x.3 translocations linked to the hydrolysis of a diphosphate,

EC 7.x.4 translocations linked to a decarboxylation reaction.

Exchange transporters that are not dependent on enzyme-catalysed reactions, such as the exchange of ions across membranes, are not included and pores that change conformation between open and closed states in response to phosphorylation or some other catalysed reaction are classified under EC 5.6 (Macromolecular conformational isomerases).

(We are grateful to Dr Amanda Mackie (Macquarie University) for her advice on the content of this EC class)



Federation of African Societies of Biochemistry and Molecular Biology (FASBMB)

by *Khalid Fares, President of FASBMB*

It is widely accepted that Africa's hope for radical breakthroughs lies in the creation and exploitation of an indigenous science and technology (S&T) infrastructure that could provide a motive force for the exploitation of the continent's rich heritage for sustainable development. The problems facing the continent in areas such as food production, loss of biodiversity, human and animal diseases all call for scientific solutions. One important element that could be instrumental in achieving such an objective is the adoption of strategies that incorporate science into all development programmes. The subjects of biochemistry and molecular biology play a pivotal role in fields such as agriculture, medicine, conservation of biodiversity.

The Federation of African Societies of Biochemistry and Molecular Biology (FASBMB), founded in 1996 in Nairobi, is a regional organization of the International Union of Biochemistry and Molecular Biology (IUBMB). Sixteen African countries are members. The Executive Committee is composed by biochemists belonging to five countries: Morocco, South Africa, Zimbabwe, Nigeria and Cameroun. It aims to bring together African biochemists/molecular biologists through their national associations and to find solutions to the problem of diminishing research and training resources. Indeed the aims are:

- to develop networks of collaborative research in biochemistry and molecular biology among institutions in Africa and other institutions in the rest of the world,
- to disseminate information on biochemistry and molecular biology among its members both within and outside the African continent,
- to organize workshops, symposia and conferences in order to promote the knowledge of biochemistry and molecular biology among its members,
- to contribute towards capacity building in the fields of biochemistry and molecular biology by organizing short courses; identifying funding opportunities for postgraduate training; and assisting African institutions in developing curricula for the teaching of biochemistry and molecular biology,
- to establish and maintain contacts with organizations with similar objectives, such as Federation of European Biochemical Societies (FEBS), Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB), Pan American Association of Biochemistry and Molecular Biology (PAABMB).

Since its creation, FASBMB has organized congresses and meetings in South Africa, Morocco, Nigeria, Kenya, Zimbabwe. All these events contribute to the exchange of ideas and the promotion of research in Africa.

FASBMB has also given the possibility to many researchers and students to attend advanced schools in South Africa and meetings or congresses in other African countries as well as outside Africa. FASBMB is also informing its members regularly through its web site (www.fasbmb.org.za) about congresses, fellowships and other activities around the world. Through IUBMB Education Committee, FASBMB is encouraging national societies to organise what we call Education Day. One such event was organized and held in 2009 in Marrakech, Morocco.

IUBMB Focused Meeting on GATA Transcription Factors

May 28-June 1, 2018; Crete, Greece
www.gata2018.org

by John Strouboulis

The six-member family of GATA transcription factors fulfills essential and evolutionarily conserved functions in the development and differentiation of diverse cell lineages, tissues and organs and has been increasingly implicated in disease pathogenesis in man. The study of GATA factors in the last 30 years has spawned a small but very vibrant and highly interactive community of researchers from around the world, who have held regular meetings since 1997 to discuss developments and new challenges in the field. The IUBMB Focused Meeting on GATA Transcription Factors that was held in Crete between May 28 and June 1 this year, was in fact the sixth such meeting to be organized and was long overdue as the last meeting was held back in 2010.

The Organizing Committee also included John Crispino (Northwestern University, USA), Doug Engel (University of Michigan, USA), Mona Nemer (University of Ottawa, Canada), Roger Patient (University of Oxford, UK) and Masayuki Yamamoto (Tohoku University, Japan). With the generous funding provided by IUBMB and its flagship journal *IUBMB Life*, the GATA Meeting attracted close to 80 researchers from around the world for four days of intense scientific interactions in the beautiful and tranquil setting of the Kalimera Kriti resort near the fishing village of Sisi on the island of Crete. Approximately 63% of the participants hailed from Europe and Israel, 27% from North America and 10% from Japan and Australia, making this a truly international meeting. Almost half of the participants were junior scientists, i.e. graduate students and postdocs. Travel awards funded by *IUBMB Life* and the Company of Biologists supported more than 10 of the junior scientists to attend the meeting and present their work.

The scientific program of the meeting included sessions on GATA factors in invertebrate development, transcriptional regulation, organ development, hematopoiesis and development of the immune system and, for the first time, GATA transcription factors in plants were also represented at the meeting. In addition, the increasing appreciation of the involvement of GATA factors in disease pathogenesis necessitated the dedication of an entire day of the program (Day 4) to discussing GATA factors and human disease. In total, the scientific program included 29 talks by invited speakers, 21 talks selected from the submitted abstracts and 32 poster presentations organised in two sessions. Keynote Lectures were delivered by Professor Masayuki Yamamoto of Tohoku University, Japan and by Professor Roger Patient of the University of Oxford, both of whom are among the 'founding fathers' of the GATA factor research community and have served on the organizing committees of all GATA Meetings to-date. Professor Yamamoto provided an overview of his work over the last three

decades on GATA factor-mediated transcriptional regulation in hematopoiesis and deregulation in hematological disease and on the dissection of the finely balanced mechanisms regulating GATA factor expression in hematopoiesis. Professor Patient discussed the unique as well as redundant functions of GATA transcription factors in hematopoiesis and in cardiac development in zebrafish.

In addition to the scientific presentations, the IUBMB Focused Meeting on GATA Transcription Factors included talks on Science Policy and Women in Science. The EMBO-sponsored Lecture on Science Policy was delivered by Professor Mona Nemer of the University of Ottawa, who also serves as the Chief Scientific Advisor to the Canadian Prime Minister. Professor Nemer discussed the challenges faced in incorporating scientists' views in the public policy decision-making and legislative processes and the ways through which scientists can become involved in public policy and advocacy in making an impact. The Women in Science Lecture was given by Professor Elaine Dzierzak of the University of Edinburgh who gave a personal account of different aspects for a successful career (and life) for women in science, based on her experience working and living across two continents. The meeting was rounded off with a very pleasant excursion to a local Cretan winery and a guided tour of the vineyards and local grape varieties, followed by wine tasting and dinner to the sounds of Cretan traditional music and folk dances.

Overall, this was a very successful meeting which brought the GATA community together again after a long eight years and served as a forum for an up-to-date overview of how GATA factors function in physiology, developmental biology, cell biology, molecular biology and human pathophysiology. It was also an opportunity to further nurture and reinforce connections between long-time established workers in the field, to forge new collaborations and to welcome and introduce a younger generation to this exciting and still rapidly developing field of research.

An important development compared to previous meetings was the greater and more active participation of clinicians in the meeting, pointing towards a more translational path for GATA factor research in the years (and meetings) to come. All participants enthusiastically agreed to renew their 'rendezvous' with GATA Transcription Factors in three years' time, hopefully with the generous support again of IUBMB. Many thanks also go from all the participants to Effie Paggeiou and Katerina Dionyssopoulou for the excellent organizational and administrative support they provided for the meeting.

See you all again in 2021!



Scenes from the GATA Factor Meeting in Crete

2020 Biochemical Society Awards now open

THE
BIOCHEMICAL
SOCIETY
AWARDS 2020

NOMINATIONS OPEN
DEADLINE 31 JANUARY 2019
Biochemistry.org/Awards

Nominations have now opened for the 2020 Biochemical Society Awards - the field's most prestigious awards that recognize established researchers as well as scientists in the early stages of their career.

Nominations are welcomed from across the UK and overseas until 6pm (GMT) on Thursday 31 January 2019 ([add to your calendar](#)).

Now in their 58th year, the Society will present 12 awards in 2020, recognizing excellence and achievement in both specific and general fields of science.

This year's results will be announced in April 2019.

All of our award prize and medal lectureships carry prize money and all award winners will be invited to submit an article to a Society-owned publication.

24th IUBMB-15th FAOBMB Congress



Phillip Nagley and Paul Gleeson report on the 24th International Congress of Biochemistry and Molecular Biology held in Seoul, Korea

General aspects of the Congress

The 24th IUBMB–15th FAOBMB Congress was held in Seoul, Korea, 4–8 June 2018. The meeting was held in COEX, the very well-appointed Convention and Exhibition Centre located in the Gangnam area, which is an upmarket business and residential district across the Han River from the city centre of Seoul.



Bronze sculpture of crossed wrists from the Gangnam Style dance by Psy in the eastern square of COEX in Gangnam District. The sculpture plays the song when a person stands underneath.

The theme of the Congress was Integrating Science for Bio-Health Innovation and attracted more than 3,500 registrants from 55 countries. This included about 500 people who participated in the Seoul Bio Forum.



Changing of the Guard at Deoksugung Palace.

The Congress was organised into a program of 13 plenary talks, commencing at the opening session on the afternoon of 4 June. On most days, there were five parallel sessions of symposia each morning and then twice during each afternoon.

The plenary speakers at the IUBMB–FAOBMB Congress in Seoul maintained the outstandingly high standards that one expects at an International Congress of Biochemistry and Molecular Biology. The quality of the speakers and the breadth of the topic areas that they covered are shown in the following list:

Tang Prize Lecture: Tasuku Honjo (Japan)
Cancer immunotherapy by PD-1 blockade

Osamu Hayaishi Lecture (FAOBMB): Vilhelm Bohr (USA)
Nuclear to mitochondrial DNA damage signaling in neurodegeneration and aging

FEBS Lecture: Angela Nieto (Spain)
Cell plasticity in development and disease

Chester Beatty Lecture: Feng Shao (China)
Pyroptosis: from innate immunity to cancer

Kunio Yagi Lecture (FAOBMB): Toren Finkel (USA)
Mitochondria, metabolism and aging

IUBMB Lecture: Y Narry Kim (Korea)
MicroRNA regulation

FAOBMB Lecture: Jin-Soo Kim (Korea)
CRISPR genome editing

Takashi Murachi Memorial Lecture: Brenda Schulman (Germany)

Posing a contortionist E3 ligase (anaphase-promoting complex/cyclosome) for stepwise regulation of cell division

FAOBMB Research Excellence Award Lecture: Nieng Yan (China/USA)

How is electrical signal generated? Structural and mechanistic investigations of Na_v channels

Biochemistry Society International Award Lecture: Job Dekker (USA)

Folding, unfolding and refolding of genomes

EC Slater Lecture: Craig Thompson (USA)

Exploiting the metabolic dependencies of cancer cells

Kunio Yagi Lecture (IUBMB): Aaron Ciechanover (Israel)
The ubiquitin proteolytic system from basic mechanisms through human diseases and onto drug development

Osamu Hayaishi Lecture (IUBMB): John Hardy (UK)
Genomic analysis of late onset neurodegenerative diseases

There were many other top quality international speakers in the 47 symposia of this Congress, which

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collectively covered various topics in biochemistry and molecular biology, with applications to biotechnology and medicine.

FAOBMB Special Lecture Symposium

In the afternoon of 5 June, a special session was held that included FAOBMB Lectures held only at the triennial Congress. The Ramachandran Lecture, supported by the Society of Biological Chemists (India), was delivered by Professor Manju Bansal, who spoke on the role of DNA structural variability in promoter function. Professor Bansal treasured that she was one of the last students of the famous GN Ramachandran.

This session also included the lectures given by the two winners (male and female) of the FAOBMB Young Scientist Award for 2018. Dr Varodom Charoensawan (Thailand) spoke about his systems biology approaches to investigate the epigenetic landscape of nucleosome and transcription factors. Dr Tatiana Soares da Costa (Australia) described her recent work on counteracting drug resistance in bacteria by the multi-targeted inhibition of an essential bacterial enzyme, dihydrodipicolinate synthase (DHDPS) that is involved in the biosynthesis of both the cell wall and lysine.



FAOBMB Executive Committee. From left: Gracia Fe B Yu (Education Chair), Piamsook Pongsawadsi (Treasurer), Kiyoshi Fukui (Past-President), Zengyi Chang (President), Sheila Nathan (Secretary General) and Paul Gleeson (Fellowships Chair).

Education Symposia and other events

The Congress featured two Workshops on Education, each embedded in the program as a full Symposium. At the first IUBMB Education Workshop, three speakers made presentations on biochemistry teaching and learning in their respective countries: Joon Kim (Korea), Gracia Fe Yu (Philippines) and Janet Macaulay (Australia). This was followed by general discussion involving breakout groups. The second IUBMB Education Workshop, organised by local Korean educators, dealt with education and training in technical areas including the following: protein structure prediction and refinement (Chaok Seok); network-based analysis of omics data (Sun Kim); deep learning for bioinformatics and health

Nieng Yan receives the FAOBMB Award for Research Excellence. She is the first female scientist to receive this award.



informatics (Sungroh Yoon); and bioinformatics for microbiome studies (Byung-Yong Kim).

There was a further Symposium entitled 'Challenges and opportunities in translation of academic research'. Presenters dealt with challenges and opportunities in the commercialisation of academic science (Juan Carlos Lopez, Mexico) and a *Nature Biotechnology* editor's view on the academia-industry interface (Andrew Marshall, USA).

Another specialised Symposium, sponsored by the Korean Center for Gendered Innovations in Science and Technology Research (GISTeR), was entitled 'Gendered innovations in biomedical research and publication'. This session dealt with various aspects of gender and how it may be a factor in biomedical research at cellular, organismal and broader levels.

Lunchtime symposia took place each day presented by commercial organisations, covering topics on technical and publication matters.



FAOBMB Special Lecture Symposium, from left: Sheila Nathan (Secretary General), Varodom Charoensawan (Young Scientist Award), Manju Bansal (Ramachandran Lecturer), Tatiana Soares da Costa (Young Scientist Award) and Zengyi Chang (President).

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*Gardens
of the
Bongeunsa
Temple in
Seoul.*

The Seoul Bio Forum was held on the afternoon of 6 June, as a science outreach session for the public under the theme Super Human, the Coming Future. This was organised by Professor Hyunsook Lee (Seoul National University), together with the moderator, Yang-Gu Kang, a science reporter. Three scientists, Dr Sid Chung (Korea University), Dr Daeshik Kim (KAIST) and Dr Kyu-Jin Cho (Seoul National University), presented their work in TED-style format. The subsequent Q&A and panel discussion included the philosopher Dr Jaein Kim. The audience was pre-registered and at capacity of 500 people. Some were undergraduate and postgraduate students, but most were non-scientists interested in public talks on science. The Forum was supported by KAOS foundation, a non-profit foundation for science outreach in Korea.

Poster sessions

Poster sessions, timetabled on each of the three middle days of the Congress, were very active, successful events. There were about 900 posters presented in a dedicated section of the Exhibition Hall, adjacent to the Trade Display. The posters were organised under a total of 14 themes and topic areas to help showcase the wide breadth of science being presented.

Young Scientist Program

The main congress was preceded by a Young Scientist Program, comprising 45 selected young scientists, of whom seven were from Korea and 38 from overseas; all of the latter received assistance to participate in the form of international Travel Fellowships. There was also a novel class of participants, YSP observers (31 attended), many of whom were unsuccessful applicants for YSP

Fellowships but for whom funds were provided to attend the YSP as such. With 18 faculty (senior scientists) plus six student helpers, there was a total of 100 at the YSP event. The YSP was held at Yonsei University, Seoul, 2–4 June.

Social events and official functions

The great strength of the Congress was the wonderful opportunity to meet old friends and new colleagues in a relaxed atmosphere, at the same time being able to appreciate the outstanding science presentations. The location of the Congress in the Gangnam area provided lots of dining opportunities for a quick lunch in the extensive COEX mall below the Convention Centre or a relaxed dinner in many of the Korean restaurants in the adjoining streets. The very peaceful Bongeunsa Temple adjacent to the COEX complex provided opportunity for quiet reflection. Participants enjoyed the sights and sounds of Seoul, including the several palaces at various locations around the city area, very accessible by the extensive Metro system.

One highlight of the social program was the Congress Gala Dinner, held at the Grand InterContinental Parnas Hotel, with excellent dining and entertaining musical presentations.

The Closing Ceremony included presentations on upcoming IUBMB events: 27th FAOBMB Conference in Kuala Lumpur, Malaysia, 19–22 August 2019 [supported by IUBMB] and the 25th IUBMB Congress in Lisbon, Portugal, 30 June–5 July 2021. The award of the 26th IUBMB-17th FAOBMB Congress to Melbourne, Australia, in 2024 was announced.

IUBMB General Assembly

The 24th Ordinary General Assembly of IUBMB took place on 6 June. Phillip and Paul were appointed by the Australian Academy of Science as Adhering Body to IUBMB, on the recommendation of ASBMB Council, to represent Australia at this formal triennial business meeting of IUBMB.



From left: Angela Nieto (FEBS Lecturer), Phillip Nagley (Australia) and Sheila Nathan (Malaysia).

24th IUBMB-15th FAOBMB Congress



President of IUBMB Congress 2018, Uhtaek Oh.



IUBMB President, Andrew Wang.



IUBMB President Elect, Alexandra Newton.



IUBMB Incoming General Secretary, Jim Davie.



Promotion of the next IUBMB-supported Conference to be held in Kuala Lumpur, Malaysia in 2019. Anthony Ho Siong Hock (left) and Yang-Mooi Lim.



IUBMB Past-President Joan Guinovart (left) with Juan Carlos Slebe (Chile).



Miguel Castanho (Portugal) and Ilona Concha-Grabinger (Chile).



IUBMB General Secretary, Mike Walsh, with wife, Mary.

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FAOBMB dinner. Clockwise from centre front: Yang-Mooi Lim (Malaysia), Phillip Nagley (Australia), Terry Piva (Australia), Tuangporn Suthiphongchai (Thailand), Yau-Huei Wei (Taipei, China), M Wahid Akhtar (Pakistan), Robyn Freedman (Australia) and Piamsook Pongsawasdi (Thailand).



Panelists at the Seoul Bio Forum. From left: Daeshik Lim, Yang-Gu Kang (moderator and co-organiser), Hyunsook Lee (co-organiser), Kyu-Jin Cho, Jaein Kim (philosopher) and Sid Seok Chung.

This report, written by Phillip Nagley and Paul Gleeson, was published in the August 2018 issue of the *Australian Biochemist* and is reproduced with their permission.

A Meeting of Young Scientists in the Harmonious City of Seoul



Australian delegates at the YSP. Clockwise from top left: Lai Yue Chan (University of Queensland), Tatiana Soares da Costa (La Trobe University), Anna Konopka (Macquarie University), Hamideh Shahheydari (Macquarie University), Belal Shohayeb (University of Queensland), Neil Robertson (UNSW) and Ngee Kiat Chua (UNSW).

We are each very grateful to have been awarded a Young Scientist Program (YSP) Fellowship to attend the YSP that preceded the 24th IUBMB and 15th FAOBMB Congress in Seoul, South Korea. The YSP was organised by a superb local team of 15 and was held at the prestigious Yonsei University. Notably, the YSP attracted early career researchers from 20 different countries and, without a doubt, enhanced the experience for the Congress that followed. A total of 45 YSP Fellowship winners were announced, of which seven were from four Australian universities. During the YSP, each participant was given a chance to present their work as an oral and a poster presentation, increasing their visibility throughout the two days. There were six themes for the presentations that covered a vast range of disciplines.

At the end of the first day, the organisers hosted an incredible buffet dinner consisting of Korean dishes and international cuisine for all attendees. It was convenient that the organisers seated participants at tables based on our research theme. This provided an opportunity to interact with others of similar research interests. Furthermore, participants were paired and stayed with a roommate in the provided guesthouse at Yonsei Sangnam Institute of Management during the YSP, helping us to build closer relationships. We were also graced by the

presence of the famous Korean singer, Yoon Jong-shin, who happened to be performing at a festival within the university, just five minutes away from our guesthouse. Being in such a comfortable environment helped to build a tight community.

Across the two days, we were fortunate enough to have four incredible invited speakers. Professor Andrew Wang, IUBMB President-Elect, spoke about basic and translational research. Professor Jin-Soo Kim from Seoul National University is internationally recognised in the field of genome editing. Assistant Professor Hyun Woo Park gave us his fresh perspective on starting his own laboratory in South Korea, after recently returning from his postdoctoral experience at the University of California San Diego. Dr Eun-Mi Hur from Calgene in the US presented on her experience working in the immunotherapy pharmaceutical industry. These topics were very engaging as they are relevant to the young scientists who wish to advance their career in science.

All YSP participants gave highly motivational oral presentations and their experience showed through their ability to engage with the audience. The poster sessions established strong networks, which we would not normally be able to easily acquire in big scientific meetings. It was a proud moment when two representatives from Australia, Tatiana Soares da Costa (La Trobe University) and Ngee Kiat (Jake) Chua (University of New South Wales), were awarded prizes for best oral and poster presentations in their respective themes. Throughout the YSP, aside from networking efforts between YSP Fellowship winners, many were able to interact with senior scientists who were attending as the organising committee and/or chairs for the sessions. The continuous conversations between the diverse attendees (both culturally and by career stages) were beneficial for young scientists in terms of increasing visibility, getting new inspiration and making the most out of their time at the YSP. The YSP nurtured the development of all attendees and allowed many genuine connections to be established.



YSP participants visit the Gyeongbokgung Palace in Seoul.

This report, written by Ngee Kiat Chua and Tatiana Soares da Costa, was published in the August 2018 issue of the Australian Biochemist and is reproduced with their permission.



Scenes from the Seoul Congress





Aaron Ciechanover delivering the Kunio Yagi Lecture



Feng Shao delivering the Chester Beatty Lecture



Craig Thompson (EC Slater Lecture) receiving the IUBMB medal and certificate from IUBMB President Joan Guinovart



John Hardy (Osamu Hayaishi Lecture) receiving the IUBMB medal and certificate from IUBMB Past-President Greg Petsko



V. Narry Kim (IUBMB Lecture) receiving the IUBMB medal and certificate from IUBMB Treasurer Francesco Bonomi



Scenes from the Seoul Congress





Congress President Uhtaek Oh speaking with Rosa and Joan Guinovart



24th IUBMB Congress Young Scientists Program

**by Prof. Joon Kim,
Korea University
Chair of IUBMB 2018 YSP
Korean Delegate to IUBMB**



The 24th IUBMB Congress was held in Seoul, Korea along with the 15th FAOBMB and KSBMB, on 4-8 June 2018. The venue was COEX Convention Center located in the heart of the Gangnam District, south of the Han River of Seoul. The theme of the Congress was “Integrating Science for Bio-Health Innovation” and more than 3,500 scientists from 55 countries participated in the Congress.

The Young Scientist Program of IUBMB 2018 was held before the main congress from June 2-4 at Yonsei University, one of Korea’s prestigious schools, located at the northern part of Seoul. The venue was the International Conference Hall of the main library and Sangnam Guest House on the campus was used for lodging. Two young scientists shared one room. Forty-five young and lucky scientists were selected from 21 countries all over the world including Africa and Latin America after high competition. Seven were from Korea and 38 from overseas; all of the latter received full support in the form of International Travel Fellowships which included air fares, room and board, and registration fees for the YSP and main Congress. There was also a group of 31 participants, called YSP observers, supported by additional funds. Eighteen professors (senior scientists) and six graduate student helpers made YSP total participants as 100.

Professor Joon Kim from Korea University, Seoul, Korea, Chair of IUBMB 2018 YSP initiated the program with an opening address, followed by congratulatory remarks from Prof. Uhtaek Oh, President of KSBMB and President of IUBMB Congress 2018, and Prof. Andrew Wang, President of IUBMB.

During the YSP, each awardee had a chance to present their data in oral and poster formats. On the first and second day, 4 invited speakers gave talks, two each day. Professor Andrew Wang spoke about his research on

structural biology after congratulatory remarks. Professor Jin-Soo Kim from Seoul National University, an expert on genome editing, gave a fascinating talk on this topic and its application to industry. On the second day, Assistant Professor Hyun Woo Park from Yonsei University gave a talk on how he established his own laboratory as a junior faculty member. Dr. Eun-Mi Hur from Calgene in the US talked about her experience in immunotherapy while working in a pharmaceutical company.

For young scientists, there were six themes to cover a whole range of disciplines: cancer biology, chemical biology, cell biology, development & neuroscience, disease models and protein structure & function. All the participants gave very highly motivated oral presentations with good quality science representing their countries and very enthusiastic discussions followed. During coffee breaks, the poster sessions were held and these sessions gave the participants time for intimate discussions which are normally impossible in big meetings. This could be the most beneficial point to establish strong human and scientific networks for IUBMB YSP participants.

At the end of the first day, the local organizing committee hosted a banquet in the form of a dinner buffet consisting of Korean dishes and international side dishes for all the participants. On purpose, the organizers and participants with similar research interests were seated at the same table to discuss experiences of science and life in general.

The second day also had a similar format except for an award ceremony for the 6 best speakers and 6 best posters in their respective themes at the end of day with congratulatory and closing remarks from Chairman Joon Kim by saying “Everybody is a winner because they were all awarded YSP Fellowships.” Then dinner followed.

On the morning of the third day, young scientists visited Kyungbokgung Palace, one of the five existing palaces of Chosun Dynasty which lasted for 500 years before the Republic of Korea was established. Then they attended the main venue in the afternoon by buses. That was the official conclusion of YSP IUBMB 2018 and the start of the main IUBMB 2018 Congress. On behalf of the organizing committee of YSP 2018, we hope all the YSP scientists cherish the memories and insights that have blossomed not only in science but also of Korea, and wonderful interactions; friendship shared.



Young Scientist Program Travel Fellows – IUBMB Seoul 2018

NAME	COUNTRY
Khatereh KHORSANDI	Iran
Maria Karmella APAYA	Taiwan
Narongchai AUTSAVAPROM-PORN	Thailand
Azhar RASUL	Pakistan
Tania SULTANA	Bangladesh
Simab KANWAL	Pakistan
Sajib CHAKRABORTY	Bangladesh
Aminu MOHAMMED	Nigeria
Mohammed Auwal IBRAHIM	South Africa
Amira KHALAF (NABIL)	Egypt
Taek-Chin CHEONG	USA
Johant LAKEY BEITIA	Panama
Juwon PARK	USA
Sanjeev RAGHUWANSHI	India
Rohini KARUNAKARAN	Malaysia
Varodom CHAROENSAWAN**	Thailand
Wei XU	China
Nor Effa SYAZULI ZULKAFI	Malaysia
Siew Kit NG	Malaysia
Awais ALTAF	Pakistan
YongLiang JIANG	China
Vivek KUMAR	India
Wan Mohd Aizat bin WAN	Malaysia
Shih-Ming LIN	Taiwan

NAME	COUNTRY
Yueh CHO	Taiwan
Oksana RATUSHNA	Ukraine
Deepak Balaji THIMIRI GOVINDA RAJ	Norway
Vasilina SERGEEVA	Russian
Grace FREKE	United Kingdom
Jovan PEŠOVIĆ	Serbia
Mahmoud FASSAD	United Kingdom
Alejandra GUERRA CASTELLANO	Spain
Tatiana Pereira SOARES DA COSTA**	Australia
Hamideh SHAHHEYDARI	Australia
Belal SHOHAYEB	Australia
Anna KONOPKA	Australia
Lai Yue CHAN	Australia
Neil ROBERTSON	Australia
Ngee Kiat (Jake) CHUA	Australia
Eunjeong KIM	Republic of Korea
Seok-Jun KIM	Republic of Korea
Eunmi KIM	Republic of Korea
Yong-hee CHO	Republic of Korea
Yongjoong KIM	Republic of Korea
Byung-Hoon LEE	Republic of Korea
Soyeon AHN	Republic of Korea

** Young Scientist Awardees

PROLAB Awardees 2018

The long-term objective of this program, Promoting Research Opportunities for Latin American Biochemists (PROLAB), is to foster cooperation between the Pan-American Association for Biochemistry and Molecular Biology (PABMB), the International Union of Biochemistry and Molecular Biology (IUBMB) and the American Society for Biochemistry and Molecular Biology (ASBMB) that would benefit their members, trainees and science. More information about PROLAB can be found at <http://www.asbmb.org/pabmb>.

NAME	HOME COUNTRY	PROJECT TITLE	HOST LABORATORY
María Fernanda Aguilar	Argentina	Glycosylation on the Fc domain of an antibody-like molecule anti-hIFN- α 2b scFv-Fc: influence on their affinities and neutralizing activities when producing in distinct mammalian cells	Arturo Casadevall, Johns Hopkins Bloomberg School of Public Health, USA
Guilherme Braga de Freitas	Brazil	Peripheral irisin as a possible mediator of neuroprotective actions of physical exercise in Alzheimer's disease	Marco A.M. Prado, University of Western Ontario, Canada
Guillermo Eastman	Uruguay	Translation at a genome wide level, by ribosome profiling, in primary neuron cultures from Alzheimer's disease models	George S. Bloom, University of Virginia, USA
Carolina Fabbri	Argentina	Unveiling how the presence of β -lactams is sensed by certain membrane proteins	Juan A. Hermoso, Consejo Superior de Investigaciones Científicas (CSIC), Spain
Mercedes Maria Garrido	Argentina	Elucidating structure-activity relationships in a critical cellulose enzyme family	Gregg Beckham, National Bioenergy Center, NREL, USA
Laura Emilce Navas	Argentina	Characterization of thermophilic bacterial laccases for biomass valorization	Lindsay D. Eltis, University of British Columbia, Canada
Fernando Ogata	Brazil	Disruption of the thioredoxin and glutathione redox systems in hepatocytes leads to modified heparin sulfate proteoglycan expression	Vivien J. Coulson-Thomas, University of Houston, USA
Diego Rene Quiroga Roger	Chile	Mechanical strain and catalysis in adenylate kinase: determining the forces ruling these events	Susan Marqusee, University of California, Berkeley, USA
Luciana Sampieri	Argentina	Regulation of the secretory pathway during neuronal differentiation: Participation of the transcription factor CREB3L2	Juan S. Bonifacino, National Institute of Child Health and Human Development (NICHD), Cell Biology and Neurobiology Branch (CBNB), USA

Congratulations to Zohra Dhouafli (first author of the paper “1,2,4-trihydroxynaphthalene-2-O- β -D-glucopyranoside delays amyloid- β_{42} aggregation and reduces amyloid cytotoxicity” *BioFactors* 44: 272-280, 2018) and Haroon Kalam (first author of the paper entitled “Alternate splicing of transcripts upon *Mycobacterium tuberculosis* infection impacts the expression of functional protein domains” *IUBMB Life* 70: 845-854, 2018), respective winners of the Wiley-BioFactors and Wiley-IUBMB Life Prizes for 2018.

Wiley-BioFactors Young Investigator Prize 2018

Ms Zohra Dhouafli is a research fellow at the laboratory of aromatic and medicinal plants at the Center of Biotechnology, Ecopark of Borj Cédria, Tunisia. Recently, she received her PhD (2018) in biological sciences from the faculty of science of Tunis, Tunisia under the guidance of Dr. El Akrem Hayouni and Pr Moufida Saidani Tounsi. During her doctoral research, she studied the effect of natural phenolic compounds on amyloid aggregation and their associated toxicity. Those investigations were conducted in collaboration with national (Laboratory of Heterocyclic Chemistry, Team: medicinal chemistry and natural products, Faculty of Science of Monastir and Laboratory of Chemistry, Chott Meriem Agronomical Institute, Sousse) and international laboratories from Italy (Department of Biomedical, Experimental and Clinical Sciences ‘Mario Serio’, University of Florence), France (Institute of Chemistry of Environments and Materials of Poitiers) and USA (Mitchell Center for Alzheimer’s disease and related Brain disorders, University of Texas Medical School at Houston). She is currently interested in the production on a large scale (using Centrifuge Partition Chromatography and preparative chromatography) of bioactive molecules with a high inhibitory effect on amyloid aggregation. Furthermore, she is interested in exploring the effect of bioactive compounds extracted from *Lawsonia inermis* on amyloid aggregation during Alzheimer disease *in vivo*.



Wiley-IUBMB Life Young Investigator Award 2018

Haroon Kalam is currently a postdoctoral research fellow in Infectious Disease and Microbiome Program at Broad Institute of MIT and Harvard University. He received his PhD in Cellular Immunology Program of International Centre of Genetic Engineering and Biotechnology (ICGEB), New Delhi, India. His doctoral study under guidance of Dr. Dhiraj Kumar, reported *Mycobacterium tuberculosis* (Mtb) infection induced reprogramming of host post-transcriptional regulation like alternate splicing and alternate polyadenylation. His study provided a new locus of intervention by Mtb and an attractive alternative to explore novel drug targets against Mtb. He is currently exploring the heterogeneity in host’s protein domain expression and its consequences upon Mtb infection.



IUBMB Advanced School on Nutrition, Metabolism and Aging Held in Serbia for the First Time

In recognition of the recent admission of the Serbian Society for Molecular Biology (MolBioS) as an Adhering Body of the IUBMB and fulfilling the mission of worldwide promotion of biochemistry and molecular biology, the IUBMB Executive Committee recently decided to aid MolBioS in organizing the 2018 IUBMB Advanced School "Nutrition, Metabolism and Aging". The school took place in Petnica Science Center, positioned in the picturesque and serene hills of western Serbia. The school was held from October 15-19 in the Conference room and modern Biological and Computational laboratories of the Petnica Science Center. Ample supplies of coffee and tea, as well as rich and delicious meals were provided by the amiable and capable staff of Petnica Science Center restaurant. Free time was not only used for animated discussions at coffee breaks and during meals, but also for field trips to the mysterious Petnica cave and the lovely town of Valjevo, situated nearby. A number of recreational activities, including a much enjoyed yoga class, volleyball and badminton were practiced as well.

The school was organized with the energetic and efficient support of all the members of the school's Organizing and Technical Committees, presided by Dr. Ana Đorđević and Dr. Danijela Vojnović Milutinović (Department of Biochemistry, Institute for Biological Research "Siniša Stanković", University of Belgrade, Serbia), respectively. High quality of poster sessions and students' presentations was warranted by the experts of the Scientific Committee chaired by Prof. Gordana Matić (Faculty of Biology, University of Belgrade, Serbia, president of MolBioS).

The formal components of the school included a well-balanced assembly of lectures by a number of the most eminent experts in the relevant fields of interest, workshops and round tables on applicative methods and career opportunities and decisions, as well as a total of four hours dedicated to the students, including poster sessions and skillfully presented flash presentations.

The introductory day of our school was reserved for the welcome speeches, given by Prof. Andrew H.-J. Wang, president of the IUBMB and Prof. Gordana Matić, president of MolBioS, and two plenary lectures. The first, delivered by Prof. Joan J. Guinovart (Institute for Research in Biomedicine, and CIBERDEM, Barcelona, Spain), concerned the corpora amylacea and brain glycogen in aging, while the second by Dr. Efsthios Gonos, Director of the National Hellenic Research Foundation, Athens, Greece, regarded proteasome involvement in aging.

The remaining days comprised three sessions covering relevant scientific aspects of nutrition, metabolism and aging, and communicating physiological significance, pathophysiological aspects and molecular mechanisms of a

number of morbidities including the metabolic syndrome, obesity, diabetes, gut microbiota dysbiosis, cell senescence, frailty and dysfunction in aging, as well as neurodegenerative diseases. The sessions featured intriguing and informative lectures by Prof. Luc Tappy (Department of Physiology, University of Lausanne, Switzerland), Prof. Juan Carlos Laguna Egea (School of Pharmacy and Food Sciences, IBUB, and CIBERObn, Barcelona, Spain), Prof. Ilaria Bellantuono (Academic Unit of Bone Biology, University of Sheffield, UK), Prof. Edwin R. Sanchez (Department of Physiology and Pharmacology, University of Toledo, Ohio, USA), Tomaz Jurkowski, Junior Professor of Biochemistry at the University of Stuttgart, Germany, Dr. Marija Herholz (CECAD Research Center, University of Cologne, Köln, Germany), Prof. Susan Howlett (Department of Pharmacology, Dalhousie University, Nova Scotia, Canada), Dr. Aleksandra Mladenović-Đorđević (Department of Neurobiology, Institute for Biological Research "Siniša Stanković", University of Belgrade, Serbia), Prof. Ewa Sikora (Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland), and Prof. Angelo Azzi (Jean Meyer USDA Human Research Center on Aging, Tufts University, Boston, USA).

The organizers would like to express particular gratitude to Dr. Renata Jurkowska (Biomed X Innovation Center, Heidelberg, Germany), Prof. Tomaz Jurkowski, Dr. Ivan Vujković-Cvijin (National Institute of Allergy and Infectious Disease, Bethesda, USA), Dr. Melita Vidaković (Department of Molecular Biology, Institute for Biological Research Siniša Stanković, University of Belgrade, Serbia), Dr. Aleksandra Stanković and Dr. Ivan Jovanović ("Vinča" Institute for Nuclear Sciences, University of Belgrade, Serbia) and Dr. Marija Schwitlich (Institute for Molecular Genetics and Genetic Engineering, University of Belgrade, Serbia) for their inspiring, valuable and applicable workshops and round tables.

Geographical and gender balance among both invited speakers and attendees of the school was satisfying, with the total of 54 participants (14 male and 40 female); 89% from Europe, 9% from North America, 1% from South America and 1% from Africa. The program included a total of 18 lectures and workshops by invited speakers and 20 student and young scientist posters, with 10 flash presentations. The organizers provided the attendees with 10 travel grants and 10 fellowships, as well as with the awards for the best poster and the best oral presentation.

Finally, the organizers feel that the main goal of the 2018 IUBMB Advanced School on Nutrition, Metabolism and Aging - to provide means and environment for the rise of new ideas, research interests and collaborations - has been fulfilled owing to the enthusiastic involvement of all participants. Congratulations to everyone including Petnica Science Center staff who worked tirelessly to make all participants feel welcome and setting the bar high for next time!

With hopes of turning this school into a regular event,

Kind regards,

Dr. Ana Đorđević
President of the Organizing Committee
Department of Biochemistry,
Institute for Biological Research “Siniša Stanković”,
University of Belgrade, Serbia



Participants in the 2018 IUBMB Advanced School “Nutrition, Metabolism and Aging” in “Gaussian distribution” on Jaque’s stairs in Petnica Science Center. We were very honored by the presence of Prof. Andrew H.-J. Wang, president of the IUBMB.



Scenes from the Serbian Advanced School





Take home messages



Last day "dispersion"



We are excited to highlight new research from the [IUBMB Journals](#): *IUBMB Life*, *BioFactors*, *Biotechnology and Applied Biochemistry*, and *Biochemistry and Molecular Biology Education*.

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[Crystal structure of phospholipase \$A_2\$ in complex with 1-naphthaleneacetic acid](#)

[Kalarickal V. Dilpee, Chandran Remya, Ignatus Tintu, Pradeep K. Mandal, Ponnuraj Karthe,](#)

[Madathilkovilakathu Haridas, Chittalakkottu Sadasivan](#)

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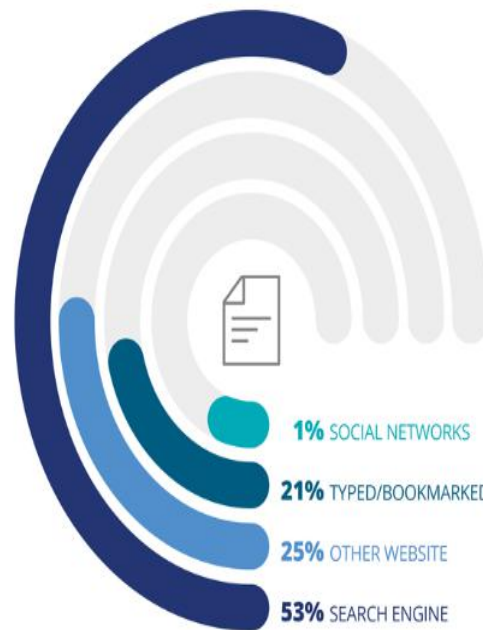
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IUBMB Meetings 2019

Miami Winter Symposium 2019 - Evolving Concepts in HIV & Emerging Viral Infections

Miami, Florida, USA, January 27-30, 2019
<http://www.miamiwintersymposium.com>

IUBMB Focused Meeting: The 7th Mediterranean Neuroscience Conference

Marrakech, Morocco, June 23-27, 2019
<https://neurosciencemedite.wixsite.com/mns-2019>

27th FAOBMB Conference & 44th MSBMB Conference: Biomolecules, Networks & Systems

Kuala Lumpur, Malaysia, August 19-22, 2019
www.faobmbkl2019.com

IUBMB Advanced School: The New Microbiology

Spetses Hotel, Spetses, Greece, September 4-12, 2019
Contact: Prof. Pascale Cossart (pascale.cossart@pasteur.fr)

IUBMB Focused Meeting: Inhibitors of Protein Kinases. Kinase Inhibitors in Target Biology and Disease

Warsaw, Poland, Sept. 14-18, 2019
Contact: Prof. Jaroslaw Poznanski (jarek@ibb.waw.pl)

IUBMB Focused Meeting: Tissue Homeostasis in Health and Disease - The 2019 Champalimaud Symposium

Lisbon, Portugal, Oct. 8-11, 2019
Contact: Dr. Henrique Veiga-Fernandes (preaward.osp@research.fchampalimaud.org)



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Myron Cohen, University of North Carolina, USA

Shane Crotty, La Jolla Institute for Allergy & Immunology, USA

Ronald Desrosiers, University of Miami Miller School of Medicine, USA

Michael Farzan, Scripps Research Institute, USA

Anthony Fauci, National Institute of Allergy and Infectious Diseases, USA

Robert Gallo, University of Maryland School of Medicine, USA

Mathias Gesteira, University of Alberta, Canada

Barton Haynes, Duke University, USA

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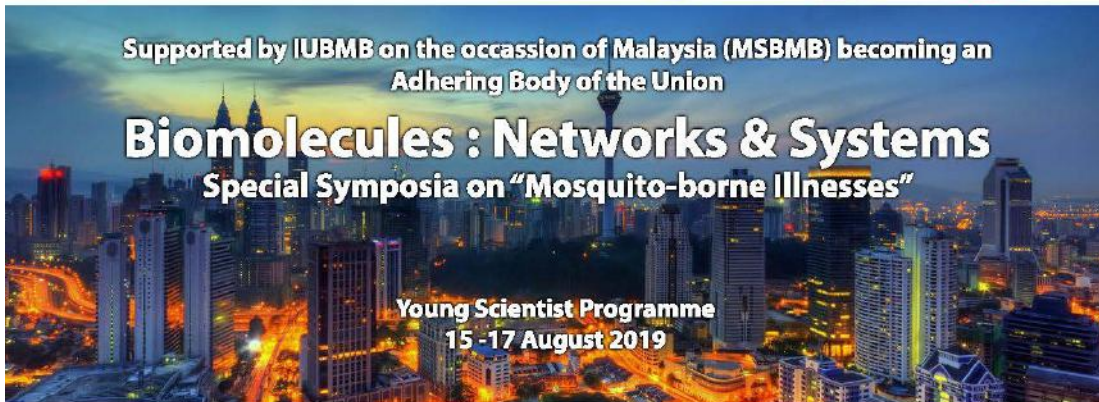
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Inquiries: iubmb2019.ysp@gmail.com
Closing date for Applications: January 31, 2019

IUBMB Programs and Benefits of Membership

IUBMB provides a wide range of programs available to scientists resident in IUBMB member countries, including:

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

Focused Meetings replaced Conferences and Symposia in 2017. Up to 3 per year will be sponsored to a maximum of US\$60,000 each.

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

Advanced Schools provide advanced training of PhD students and young postdoctoral fellows in the field of biochemistry, molecular biology and cell biology. These competitive awards cover travel, accommodation and meals for successful applicants.

Educational Activities. The IUBMB is involved in a broad range of educational programs. The Union distributes biochemistry textbooks and review journals without charge to scientists and teachers in developing areas, and 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.

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

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

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 Lectures. At IUBMB Congresses, several endowed lectures feature prominently in the program: IUBMB, Osamu Hayaishi, Chester Beattie, IUBMB Life, Feodor Lynen, Severo Ochoa, EC Slater and Edward Wood Lectures. In addition, IUBMB Jubilee and Special Lectures are intended as Plenary Lectures at

scientific meetings, in particular of the smaller Adhering Bodies or Associate Adhering Bodies for which the budget would normally allow only for local speakers.

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

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

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

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

Adhering Body status in the IUBMB is an investment rather than an expense. The direct financial benefits from membership in the IUBMB surpass the actual cost, and there are many other associated non-monetary benefits.

Finally, it is also important to note that IUBMB is an international organization that, in addition to providing opportunities to all member countries, emphasizes programs that support young scientists, particularly from developing countries. The Union's philosophy has always been that rich countries can afford to contribute more than poorer countries to this end. Of course, situations change over time and one of the roles of the Executive Committee is to keep track of such changes and, for example, encourage emerging economies to contribute in proportion to their capacity, and to recruit new members to the Union.

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

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