16th FAOBMB Congress

FAOBMB

Terrence Piva reports on the fully online FAOBMB Congress hosted in Christchurch, New Zealand and the virtual FAOBMB Council meeting.

As a result of the COVID-19 pandemic, the 16th FAOBMB Congress was held online. This Congress incorporated the annual meetings of the New Zealand Society for Biochemistry and Molecular Biology (NZSBMB), Australian Society for Biochemistry and Molecular Biology (ASBMB), New Zealand Microbiological Society (NZMS) and New Zealand Society of Plant Biologists (NZSPB). Initially, this meeting was scheduled to be held from 22–25 November 2021 in Christchurch, New Zealand, as a face-to-face meeting, but due to travel restrictions imposed by the New Zealand Government, it was scheduled in mid-2021 to be a hybrid meeting with New Zealand residents in attendance and all other participants online. However, a COVID outbreak in Auckland resulted in internal travel restrictions in New Zealand and a decision was made in October to hold the Congress as a fully online meeting. Sincere thanks must be given to the Local Organising Committee chaired by Wayne Patrick (NZSBMB) along with the Professional Conference Organisers, Arna Wahl Davies and Nerida Ramsay from Composition Limited, for running this Congress online so efficiently. In conjunction with the FAOBMB Congress, the Young Scientist Programme was held online from 19–21 November 2021 (see report on page 20).

The theme of the meeting was Molecules, Life, Diversity. The Congress was very successful and attracted over 740 delegates as well as 58 sponsors/exhibitors from 28 countries. The Congress web portal allowed registrants to view all sessions in real time, as well as move easily between the online presentations. Registrants were also able to view posters and meet the presenters online in the relevant time slots, meet the exhibitors as well as be part of the online welcome reception on Day 1. The Congress ran extremely well in the online format for presenters and participants.

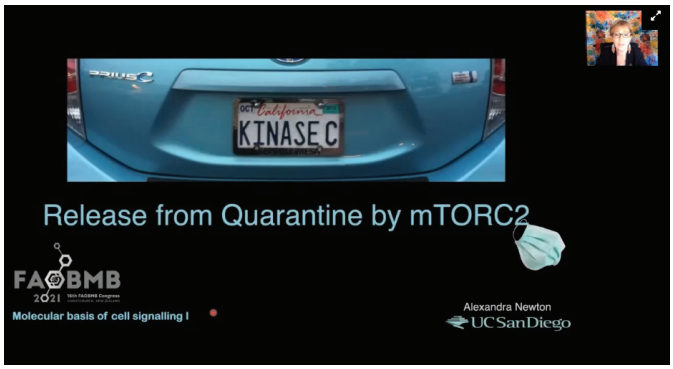
The Local Organising Committee assembled an excellent program of 15 plenary and nine award lectures, and three Education Symposia. There were a further 50 symposia sessions covering broad aspects of molecular sciences including cell signalling, proteomics, microbiology, immunology, bioinformatics, cell biology, plant biology, virology, metabolism and enzymes. These sessions were populated by 57 invited speakers (including various award winners) and 195 speakers who were selected from abstracts. There were 300 posters delivered online at different times during the day. There were five to six concurrent sessions held in the mornings, while 11 to 12 sessions ran in the afternoons of the meeting. The first day of the Congress concluded with the online welcome reception and a poster session.

Congress Chair, Wayne Patrick.

Registrants were able to switch online rooms to view the presentations, which apart from the Plenary lectures were pre-recorded before the Congress. Presentations given by the Plenary lecturers were delivered live online. Registrants can access the presentations online for 30 days after the Congress.

There were five Australian plenary speakers: Ricky Johnstone (2021 FAOBMB Award for Research Excellence), Paul Young (Takashi Murachi Memorial Lecture), Merlin Crossley (ASBMB Lemberg Medal Lecture), Adrian Davin and Victoria Korolik.

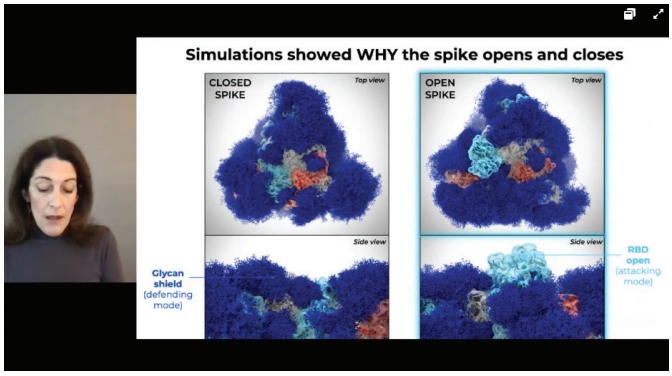
Following the Opening Ceremony, including the welcome delivered by Wayne Patrick (Congress Chair) and Akira Kikuchi (President FAOBMB), Julia Horsfield (NZSBMB Award for Research Excellence winner) delivered the Jisnuson Svasti Lecture. Her talk was on the effect cohesin mutations have on cell signalling pathways in cancer cells. Her talk set



Alexandra Newton's symposium talk on PKC.

the scene as a great start to the online meeting. Immediately following this lecture, the first of the nine parallel sessions were run. We were treated to a great presentation from the IUBMB President, Alexandra Newton (USA), on protein kinase C (PKC) in the first of the cell signalling sessions. Newton detailed the interactions between mTORC2 and PKC and how the former assists in activating the latter. This talk generated much interest from the audience and was one of the standout presentations at the Congress.

Both the 2020 and 2021 winners of the FAOBMB Awards for Research Excellence, Masayuki Yamamoto (Japan) and Ricky Johnstone, delivered their award lectures. The FAOBMB Award for Research Excellence is given annually to a distinguished biochemist or molecular biologist for work carried out in the FAOBMB region. Yamamoto's presentation was held over from the cancelled 28th FAOBMB Conference in 2020. He spoke about the interaction between KEAP1 and NRF2 and the role they play in the cell's response to environmental stressors. KEAP1 acts a sensor for external stresses while NRF2 is a transcription factor, which plays a key role in the induction of cellular defence enzymes. Johnstone's presentation was delivered on the last day of the Congress. His lecture was on the role played by the transcriptional CDKs (CDK7-9,11–13) in driving POLII transcription in cancer cells, and how the disruption of which can be used as therapeutic strategies to treat certain cancers. These lectures were amongst the highlights of the Congress.



Rommie Amaro delivered the Kunio Yagi Lecture.

Paul Gleeson chaired the FAOBMB Awards session, which included presentations by the 2021 Young Scientist Award winners Sakonwan Kuhaudomlarp (Thailand) and Stanley Cheng Xie (Australia), as well as this year's Ramachandran Lecture by Valakunja Nagaraja (India). Kuhaudomlarp spoke on the development of glycomimetics inhibitors to prevent binding of *P. aeruginosa* to host cells via LecA lectins. Xie spoke of his work on identifying amino-amide boronates that target proteasome active sites and how these studies have assisted in furthering our understanding of the proteasomal system of *P. falciparum* and in the design of specific inhibitors thereof. Nagaraja discussed the effect epigenetic changes, as well as modifying the topology of the genome, had on mycobacterial survival.

Ricky Johnstone was presented the FAOBMB Award for Research Excellence 2021 by Paul Gleeson (in Melbourne).

Masayuki Yamamoto (in Sendai, Japan) was virtually presented the Award for Research Excellence 2020 by FAOBMB President, Akira Kikuchi, as part of an online meeting of the Japanese Biochemical Society.

The most outstanding Plenary was the Kunio Yagi Lecture delivered by Rommie Amaro (USA), which was on computational microscopy studies of the interaction of the COVID-19 spike protein binding to the cell membrane and the protection afforded by its glycan shield. The videos shown in this presentation depicted the movement of the glycan shield that helps make the spike protein virtually invisible to the

Stanley Cheng Xie was presented the FAOBMB Young Scientist Award (Male) 2021 by Paul Gleeson (in Melbourne).

Sakonwan Kuhaudomlarp was presented the FAOBMB Young Scientist Award (Female) 2021 by Jisnuson Svasti (in Bangkok, Thailand).

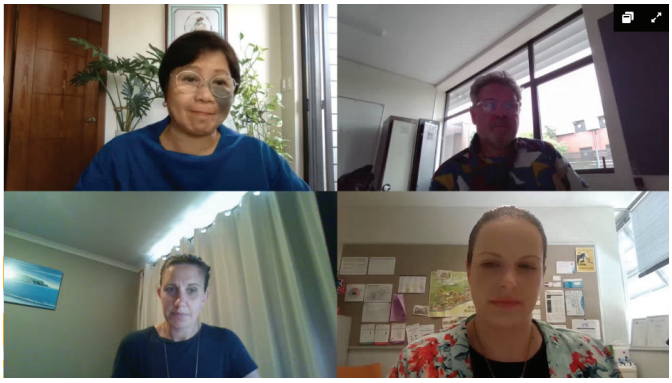
immune system until it is exposed to bind the target ACE2 receptor. Other glycans play a crucial role in the binding of the spike protein to the cell surface. The last part of the lecture covered studies under way on how COVID viruses are able to survive in aerosols encased in lung fluid, a key aspect of their transmission between humans.

This year there were three FAOBMB Education Symposia all chaired by Sarah Kessans (NZSBMB), which were devoted to the use of virtual reality (VR) in education. The first two sessions looked at using VR to help teach undergraduates about proteomics and to school students about forest pathogens. The third session dealt with VR more broadly in teaching, and examined different aspects of online teaching to enhance laboratory skills. The sessions generated questions from the virtual audience on how these technologies can be used to help students learn aspects of biochemistry online. Gareth Denyer (Australia), in his two talks, was one of the most inspiring educational presenters.

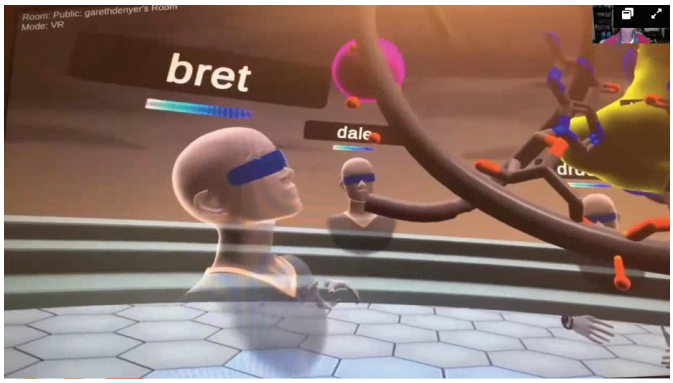
Merlin Crossley's ASBMB Lemberg Medal lecture was on the transcriptional regulation of globin genes, in particular, the use of CRISPR to edit gene sequences, which could help in overcoming a number of erythrocyte disorders. This was a thought-provoking lecture and very well delivered. Other ASBMB awardees delivered lectures at the Congress: Erinna Lee (Shimadzu Research Medal), Lois Balmer (SDR Scientific Education Award), Antonio Calabrese (Boomerang Award) and Lahiru Gangoda (Eppendorf Edman ECR Award).

Paul Young gave the Takashi Murachi Memorial Lecture on the delivery of vaccines using a high-density microarray patch, to replace the conventional use of syringes. He detailed how the patches are constructed and demonstrated their effectiveness in eliciting immunity at the dermal layer. The last part of his talk was on his team's new vaccine, Hexapro, which contains the SARS-Cov-2 spike protein. The ongoing lab trials have yielded very positive results.

A number of microbiological plenary talks were delivered at the Congress, including: microbial evolution (Adrian Davin), microbial ecosystems on plant leaves (Stephen Lindow, USA, FAOBMB Lecture), overcoming microbiological contamination of foods (Steve Flint NZMS Orator Lecture) and inducing bacteria to fix atmospheric carbon (Ron Milo, Israel). Other plenary talks were on chromatin organisation during the cell cycle (Gerd Blobel, USA), use of



The third Education Symposium, chaired by Grace Yu (Philippines; top left), with three of the speakers.



Gareth Denyer spoke about virtual reality in education.

genomics to track the spread of COVID-19 in New Zealand (Jemma Geoghegan, New Zealand), and the role played by chemosensors in *C. jejuni* biology (Victoria Korolik, Australia).

Presentation Prize Winners

FAOBMB Poster Prizes
Annie Wai Yeeng Chai (Malaysia)
Simab Kanwal (Thailand)
Jennifer Jaeun Lee (South Korea)
Junyeop Lee (South Korea)
Madushika Perera (Sri Lanka)

IUBMB Poster Prizes
Markus Brent Arevalo (Philippines)
Dhiman Chakravarty (India)
Afeez Ishola (Taiwan)
Madinat Hassan (Nigeria)
Kai Xin Ooi (Malaysia)

ASBMB Poster Prizes
Christopher Batho
Hudson Coates
Emily Mackie
Catia Pierotti
Pramod Subedi

NZSBMB Poster Prizes
Claudia Allan
Grace Borichevsky
Laura Dillon
Josh Scadden
Heather Shearer

American Society for Microbiology Poster Prizes
Hannah Klaus (New Zealand)
Arrafy Rahman (New Zealand)

NZMS Student Speaker Awards
Mareike Erdmann (first place)
Giselle Wong (second place)
Kelsey McKenzie (third place)

FAOBMB Council meeting

The FAOBMB Council meeting was held via Zoom on 8 November 2021, with Australian participants Terry Piva as the ASBMB delegate, Paul Gleeson as Chair of Fellowships Committee and Phillip Nagley as the FAOBMB Archivist. The meeting was attended by delegates from 19 of the 21 constituent member societies/countries, along with the six members of the Executive Committee. The Council meeting was chaired by the FAOBMB President, Akira Kikuchi (Japan) and the Secretary-General, Sheila Nathan (Malaysia). In his President's report, Kikuchi discussed the effect COVID-19 has had on FAOBMB's activities, especially the cancellation of the 2020 FAOBMB Conference in Colombo, Sri Lanka. He thanked the organisers for the 2021 Congress. He also mentioned: the role FAOBMB may play in the region in the post-COVID era; strengthening FAOBMB's interactions with IUBMB; and the role that biochemistry and molecular biology should play in overcoming issues that affect our region. The FAOBMB President Elect is Joon Kim (South Korea), who will take office in 2022, and will become President from 2023–2025. Elections held in 2020 had led to three Executive members extending their terms of office from 2021–2023: Sheila Nathan (Secretary-General), Grace Yu (Education Chair) and Paul Gleeson (Fellowship Chair).

FAOBMB President, Akira Kikuchi.

Reports on the previous FAOBMB Council Meeting (August 2020) and the FAOBMB Executive Committee Meeting (June 2021) were tabled. There were discussions on the Council's finances, as well as reports from the Education Committee, Fellowships Committee, IUBMB matters, as well as discussions on the FAOBMB Awards. Reports were also tabled for the 16th FAOBMB Congress (2021), 29th FAOBMB Conference in Shenzhen (2022), 17th FAOBMB–26th IUBMB Congress in Melbourne (2024) and 30th FAOBMB Conference in Bangkok (2023). There were two bids from South Korea and Hong Kong to host the 31st FAOBMB Conference in 2025. Following a vote, Busan, South Korea, was chosen as the venue for this meeting, hosted by KSBMB. Extensive revision of the FAOBMB's Standing Orders were agreed to by the delegates, specifically concerning Congresses and Conferences, and Fellowships.

The next FAOBMB Conference will be held in Shenzhen, China from 19–22 October 2022. This Conference will celebrate the 50th anniversary of the foundation of FAOBMB. Everyone hopes that this will be a face-to-face meeting, but contingencies will be in place for online options.

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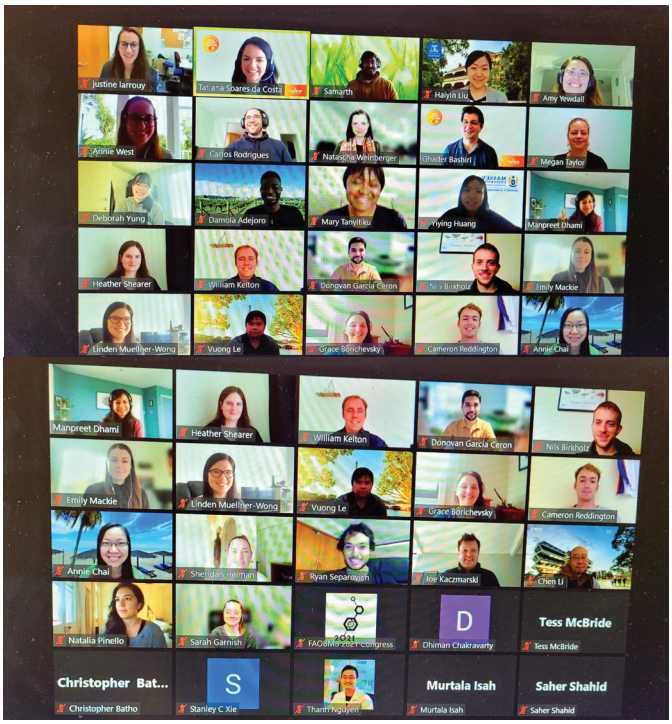
2021 FAOBMB Young Scientist Programme

The COVID-19 pandemic has completely changed the world and the way we live. The FAOBMB Young Scientist Programme (YSP) 2021 was scheduled to take place in the beautiful South Island of New Zealand from 19–21 November, prior to the 16th FAOBMB Congress. Unfortunately, as with most other events since the pandemic began, the YSP had to be held virtually. In spite of the challenges, the YSP organisers, especially the Chairs, Tatiana Soares da Costa and Ghader Bashiri, successfully made the event as interesting and engaging as in-person meetings. Over 50 young scientists participated in the YSP, including attendees from Asia, Africa and Europe, despite different time zones. I attended the YSP as a recipient of one of the two 2021 FAOBMB Young Scientist Awards.



YSP participants on Zoom.

Following the welcome address by the Chairs, the first invited speaker was Peter Mace, an Associate Professor at the University of Otago. Peter shared his inspiring journey from a PhD student at Otago, followed by two postdoctoral fellowships in the US and eventually became a lab head back at Otago. In addition to an example of a successful academic career, the organisers also invited scientists who pursued careers outside academic research. Michael Baker is the current CEO of an ASX listed company, Arovella Therapeutics. Michael completed an MBA after his PhD degree and a few years of postdoctoral research. The biggest lesson from his experience is "never stop learning." The skills we acquired from a PhD degree are also useful for non-academic careers. Krish Jayatilleke started to work as a clinical research associate immediately after completing his PhD. He coordinates a number of clinical trials across Australia. Their stories were insightful for those interested in pursuing alternative career paths.

There were five YSP sessions that covered a wide range of research topics, including molecular and structural biology, microbiology, immunology, plant biochemistry, drug discovery and computational biology. Every attendee was given a chance to present their work and share new ideas. The extensive discussion after each session by fellow young scientists clearly demonstrated the interest and enthusiasm we had for each other's work.

The event provided a great platform for exchanging scientific experiences, which might lead to fruitful collaborations in the future. This is particularly important given the networking opportunities we have lost because of the pandemic. I even got to know colleagues who work in the same building as me for the first time through the YSP. What strange times we live in! Workshops on science communication and interview preparation were certainly the highlights of the event. As young scientists, we often have difficulties in conveying scientific concepts to the general public. The workshops showed us to the keys to reach broader audiences.

The YSP provided a precious opportunity for us to keep connected with colleagues. Workshops and talks from the guest speakers are immensely helpful for us to identify and build our career paths. I would undoubtedly recommend this programme to students and early career scientists.

Stanley Cheng Xie, Bio21 Molecular Science and Biotechnology Institute, University of Melbourne

Australian 2021 YSP Awardees

Naveen Vankadari (Monash University), Sarah Garnish (WEHI), Haiyin Liu (University of Melbourne), Pramod Subedi (La Trobe University), Natalia Pinello (University of Sydney), Joe Kaczmarski (Australian National University), Laura Ciacchi (Monash University), Jia Jia Lim (Monash University), Jennifer Payne (Monash University), Linden Muellner Wong (University of Melbourne), Carlos Rodrigues (University of Melbourne), Donovan Garcia (La Trobe University), Emily Mackie (La Trobe University), Christopher Batho (QIMR Berghofer Medical Research Institute), Sheridan Helman (QIMR Berghofer Medical Research Institute), Natascha Weinberger (Western Sydney University), Chen Li (Monash University), Thanh Nguyen (Monash University), Fuyi Li (University of Melbourne), Praveena Thirunavukkarasu (Monash University), Ryan Separovich (UNSW)

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