

A special issue of *IUBMB Life* celebrating the 50th anniversary of FAOBMB (1972–2022)

We are delighted to have been invited to edit a special issue of *IUBMB Life* to celebrate the 50th anniversary of FAOBMB (the Federation of Asian and Oceanian Biochemists and Molecular Biologists), which was founded in 1972. At the foundation, the Federation consisted of only three national biochemical societies and has now grown to incorporate 20 Biochemical and Molecular Biology Societies within the Asian and Oceanic regions.

The decision to organize a special issue for *IUBMB Life* was made at the Executive Committee meeting of FAOBMB on March 1st, 2019, in Shenzhen, China. We are very pleased that this has now come to fruition!

The FAOBMB, via members from national societies, enhances and celebrates research achievements from within our region, supports young talented scientists and educationists, and promotes Congresses, Conferences and Symposia, including programs for young scientists. The organization exemplifies the ability of scientists, from many different countries and backgrounds, to work together for the common good.

This special issue starts with an article on the history of FAOBMB. This highly informative article is written by Prof. Phillip Nagley (Secretary-General of FAOBMB, 2012–2017; Archivist of FAOBMB, 2018), Prof. Jisnuson Svasti (President of FAOBMB, 1990–1992) and Prof. Akira Kikuchi (the current President of FAOBMB).¹ As you will see from reading the history, Profs. Nagley and Svasti participated in much of the early history of FAOBMB, and are very knowledgeable on the foundation and growth of the Federation over the past 50 years.

Also included in this article, as Appendix 1, are the reflections from some past office bearers (mainly Presidents and Secretary-generals). Their recollections on the FAOBMB are also indispensable, not only for an appreciation of the past 50 years but also to further enhance the goals of FAOBMB as we move forward into the next phase of this successful organization.

We are confident that this well-researched article on the history of FAOBMB, which includes the individuals from many countries who volunteered and worked

tirelessly to promote the foundation, will be an important reference in the future.

This special issue also included eight review articles contributed by colleagues from the FAOBMB region.^{2–9} Pore forming bacterial toxins are important virulence factors of Gram-positive bacteria, and Michael Parker and colleagues (Bio21 Institute, University of Melbourne, Australia) review the assembly of the soluble monomeric proteins into a complex ring-shaped pore within cholesterol rich membrane bilayers. Recent advances of the structural features of human glucose and human monocarboxylate transporters are reviewed by Nieng Yan and colleagues (formerly at Tsinghua University, China, currently Princeton University, USA), and the structure/functional relationships of these transporters are discussed within physiological settings and their role in hyperproliferation and metabolic reprogramming of cancer cells.

Masaaki Komatsu (Juntendo University, Japan) reviews the role of p62 in selective autophagic degradation and antioxidant stress response, highlighting the history of p62 research and the biochemistry and membrane biology of the pathways associated with p62 functions. Masayuki Yamamoto (Tohoku University, Japan) and colleagues have reviewed the regulation of the KEAP1-NRF2 pathway, the downstream gene products that provide pro-survival responses, and the consequences of hyperactivation of this pathway in promoting tumorigenesis and resistance to anti-cancer treatments. Tatiana Soares da Costa (University of Adelaide, Australia) has reviewed the pathway for the biosynthesis of UDP-N-acetylglucosamine, an essential component for the synthesis of bacterial peptidoglycan, the structural features of the individual enzymes, and current attempts to identify inhibitors for each enzyme for the development of novel antibiotics.

The reviews include aspects of coronavirus infection. SARS-COV-2 entry into cells requires not only interaction of the viral spike protein with ACE2 but also additional interactions with host cell surface molecules, and here Sakonwan Kuhadomlarp (Mahidol University, Thailand) and Anne Imberty (University Grenoble,

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France) discuss the role of glycans as host attachment factors of SARS-COV-2 and the potential of exploiting this information on the development of glyco-based inhibitors. Lahiru Gangoda (University of Melbourne and Walter and Eliza Hall Institute of Medical Research, Australia) and colleagues have reviewed the role of extracellular vesicles in disease and provided an example of the relevance of extracellular vesicles in the pathological progression of ocular diseases arising from dysfunctional mitochondria and the potential of extracellular vesicles to monitor disease and for use as drug delivery vehicles. And finally, Varodom Charoensawan (Mahidol University, Thailand) and colleagues have reviewed the main concepts of machine learning and illustrated the application of machine learning approaches with a number of biological examples, with a particular focus on transcriptomics.

We would like to remind the readers that *IUBMB Life* has published similar special issues in the past, focusing on biochemistry and molecular biology research in the FAOBMB region. For example, a special issue was published in June 2009 in celebration of the 21st IUBMB and 12th FAOBMB International Congress of Biochemistry and Molecular Biology held in Shanghai, China, August 2–7, 2009.

From the review articles included in this and other special issues, as well as many other articles published in regular issues, we hope readers of *IUBMB Life* will appreciate the dynamic research undergoing in the FAOBMB region. The quality and breath of science from basic discoveries in molecular sciences to their translation across a range of medical and agricultural industries by our colleagues within the FAOBMB region is very impressive, and with the support of such organizations as FAOBMB, it will enhance even greater contributions in both biochemistry and molecular biology research and education in the years to come.

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