

PROGRAM AND ABSTRACTS

The 5th Asia Pacific Protein Association Conference and The 12th International Symposium of the Protein Society of Thailand

July 11-14, 2017

The Tide Resort, Bangsaen, Thailand

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**The 5th Asia Pacific Protein Association Conference and the
12th International Symposium of the Protein Society of Thailand**
organized to commemorate
*The 60th Birthday Anniversary of
Professor Dr. H.R.H. Princess Chulabhorn*

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the 12th International Symposium of the Protein Society of Thailand
July 11-14, 2017**

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Welcome Message

From the President of the Protein Society of Thailand

As President of the Protein Society of Thailand, I am very pleased to welcome you all to the 5th Asia Pacific Protein Association/ 12th Protein Society of Thailand Joint Conference.

The Protein Society of Thailand (PST) developed from an informal gathering of protein researchers in 2006 to promote networking among protein scientists. The society became officially registered in 2010 to strengthen capability in protein research in Thailand, exchange expertise and new technologies among members, initiate novel activities in protein research, and publicize knowledge of protein science to the scientific community. As part of its mission to interact with organizations promoting protein research, PST joined the Asia Oceania Human Proteome Organization (AOHUPO) and the Asian Pacific Protein Association (APPA). The annual symposium of the Protein Society of Thailand has now become an important event for protein researchers and students to exchange their knowledge, experience and expertise with senior researchers, invited speakers and renowned scientists. Important goals of our meetings include encouraging young protein scientists and promoting linkages between the academic community and the private sector.

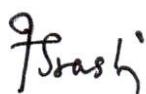
Having hosted the 7th AOHUPO/ 9th PST Conference in 2014, PST is now honored to host the 5th APPA/12th PST Conference in 2017. This year's conference is a very special occasion, since it also celebrates the auspicious occasion of 60th Birthday Anniversary of Professor Dr. H.R.H. Princess Chulabhorn, who founded the Chulabhorn Research Institute to make use of science and technology to improve the quality of life of the people, according to the wishes of His Late Majesty King Bhumibol Adulyadej. More recently, two additional institutions have been established, namely the Chulabhorn Graduate Institute and the Chulabhorn Hospital, which now form the Chulabhorn Royal Academy. The Protein Society of Thailand is honored to pay tribute to Her Royal Highness for her life-long pioneering roles in environmental and biomedical sciences, which have greatly improved the lives of the Thai people.

The Protein Society of Thailand greatly appreciates the opportunity given by APPA to host this conference. We are grateful to the Chulabhorn Research Institute for co-hosting the meeting, and wish to thank Burapha University for acting as local hosts. We are very grateful to international organizations for their support, namely the Protein Society and the European Molecular Biology Organization, which exemplifies the importance of international cooperation. The society would also like to thank several local agencies, who have generously provided support, namely Chulalongkorn University, the Thailand Research Fund, Mahidol University, Synchrotron Light Research Institute, as well as Thailand Convention and Exhibition Bureau. We also appreciate the support of several companies, who have sponsored lunches and rented out exhibition booths. It is always important that academia and industry work together to help stimulate research, and we appreciate the continued cooperation with many companies for several years.

I wish to thank the members of the Organizing Committee, who have worked so hard, often under difficult circumstances, to arrange this meeting. For the Protein Society of Thailand,

this is the first time we have arranged a conference outside Bangkok. This makes it all the more difficult, even with the excellent help of our colleagues at Burapha University. On the other hand, it allows us have the theme of “Proteins on the Beach”. Then on a personal note, I also appreciate the thoughtfulness of my friends and colleagues, who have geared some activities in recognition of my 70th birthday.

Lastly, I would like to thank all plenary and invited speakers who have kindly accepted to speak in this symposium, as well as all oral and poster presenters who submitted abstracts of their work. Most of all I would like to thank all participants for attending this 5th APPA/12th PST Conference. I hope that you will find this meeting interesting and beneficial, and also enjoy the pleasant atmosphere of this seaside location.



Emeritus Professor M.R. Jisnuson Svasti
President, Protein Society of Thailand
Honorary Chair, 5th APPA/12th PST Conference

June 6, 2017

Welcome Message

From the APPA/PST 2017 Organizing Committee Chair

On behalf of the Organizing Committee of the joint 5th Asia Pacific Protein Association Conference and 12th International Symposium of the Protein Society of Thailand, I would like to welcome all of the participants and introduce interested parties to this meeting. The meeting is hosted by the Protein Society of Thailand, the Chulabhorn Research Institute and Burapha University Faculty of Science in honor of Professor Dr. Her Royal Highness Princess Chulabhorn's 60th birthday on July 4th, 2017. The conference, covering 4 days from the 11th to 14th of July, 2017, includes 7 plenary lectures, 43 invited lectures, and 25 selected orals, in addition to a over 120 poster presentations, as described in the abstracts in this book.

The Asia Pacific Protein Association (APPA) grew out of the Pacific Rim International Conference on Protein Structure (PRICPS), which was first held in Yokohama, Japan in 2004. After that outstanding meeting, the organizers endeavored to continue in its tradition to organize the 2nd PRICPS in Cairns, Australia in 2008 in conjunction with the Asia Oceania Human Proteome Organization (AOHuPO) Congress. At that meeting, participants from the various Asia Pacific countries that were represented invited to join an organizational meeting, resulting in the formation of the Asia Pacific Protein Association, with the major goal to organize future meetings based on protein structure and function in the Asia Pacific region. This resulted in the organization of the 3rd Asia Pacific Protein Association Conference in Shanghai, China in 2011, and the 4th Asia Pacific Protein Association Conference in Jeju, Korea in 2014. The current meeting represents the 5th in this series, and shares to goal of bringing top protein scientists from the Asia Pacific region and the rest of the world together to learn of cutting edge protein science and build interaction and collaboration.

The Protein Society of Thailand was organized with similar goals to the APPA on a local level, at a time when meetings focused on protein research were rare in Thailand. The research group of Professor M.R. Jisnuson Svasti, funded by the Thailand Research Fund and Mahidol University to build capability and collaboration in studies of protein structure and function in Thailand, joined with researchers throughout Thailand to form the Protein Research Network. This network evolved into the Protein Society of Thailand. The PST filled the void in protein research meetings in Thailand by organizing an annual meeting with international style and breadth. International invited speakers are included, in addition to outstanding senior scientists and promising young researchers, who present their work in English for international accessibility. These annual conferences were eventually designated the International Symposia of the Protein Society of Thailand, with the current meeting being the 12th annual meeting in this series. In addition to organizing these meetings, the PST has provided young scientists with fellowships to attend meetings outside Thailand and provided a conduit for companies and academic researchers to work together to develop new protein technologies and capabilities in Thailand. The current conference continues this effort and includes presentations by students who have received travel awards among the selected orals.

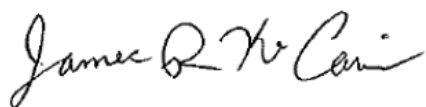
The Chulabhorn Research Institute in helping to host the 5th APPA/12th PST conference continues its tradition of support for the activities of the Protein Society of Thailand and development of biomedical sciences in general, which reflects the interests and contributions of Professor Dr. H.R.H. Princess Chulabhorn, president of the CRI. As such, it is appropriate to use this conference as part of the commemoration of the many contributions that Professor Dr. H.R.H. Princess Chulabhorn has made to the development of chemical and biomedical research in Thailand on the occasion of her 60th birthday in the week preceding the conference. Although HRH Princess Chulabhorn's many activities and accomplishments in developing science and many international awards are too numerous to describe here, her efforts have clearly benefited the Thai people and she continues to support many causes to improve the health of the people and scientific development. Thus, the organizers have joined with CRI in commemorating her 60th birthday through this 5th APPA/ 12th PST conference, include an exhibit describing her activities.

In addition to CRI, Burapha University Faculty of Science has joined in hosting the 5th APPA/12th PST conference and provided copious logistical support and advice, in addition to organizing the Young Scientists Program (YSP) held in the days preceding the conference. This YSP will give young researchers the chance to learn from advanced researchers, like Pimchai Chaiyen, Richard Simpson, Gavin Reid and Somchart Maenpuen, as well as to present their own work and get to know each other and the staff. The YSP also serves as part of the commemoration of the 20th anniversary of the establishment of the Department of Biochemistry at the Faculty of Science, Burapha University, with the Biochemistry Department members playing major roles in the organization of both the YSP and the main conference. Indeed Assist. Prof. Dr. Ekaruth Srisook, the Dean of the Faculty of Science, has served as the Co-chairman of the Organizing Committee and has facilitated many of the organizational activities. As such, the meeting could not have been arranged without the efforts of the Burapha University faculty and staff, and they deserve our gratitude.

In addition to the YSP, other special activities in the 5th APPA/ 12th PST conference include sponsored workshops organized by the Integrated Computational and Systems Biology Center of Mahidol University during the parallel sessions of July 12th and Synchrotron Protein Research Workshop sessions sponsored by the Synchrotron Light Research Institute, Public Company Limited, Thailand on July 13th, 2017. The ICBS workshop "Finding New Frontiers in Biology using Systems Biology Approaches" allows computational protein scientists and systems biology researchers to interact in a less formal setting, hopefully to build collaborations and friendships. In the Synchrotron Protein Research Workshop, the first session focusses on the facilities available for protein research in Thailand at the SLRI, while the second session focusses on research facilities at the National Synchrotron Radiation Research Center (NSRRC) in Taiwan, and the SPring-8 synchrotron in Japan, along with related facilities at the Institute for Protein Research at Osaka University. Additionally, the latest efforts of the Protein Databank, Japan (PDBJ) will be highlighted. These sessions are meant to familiarize Asia Pacific protein scientists with some of the facilities available to them and how they can use them.

In addition to the 60th birthday of Professor Dr. H.R.H. Princess Chulabhorn, 2017 marks the 70th year of Professor Dr. M.R. Jisnuson Svasti, the founding and current president of the Protein Society of Thailand. Professor Svasti's long standing commitment has been an inspiration to generations of protein scientists, and his tireless efforts to develop the Protein Society of Thailand have made it a thriving organization, which is constantly producing outstanding events like the current conference. As such, we have dedicated the penultimate session of the meeting to recognition of the outstanding science that has developed from his mentorship of former students and younger colleagues in the Faculty of Science, Mahidol University and at Chulabhorn Research Institute. Finally, the qualities of pursuing outstanding science while contributing to the protein research community, properties most clearly exemplified by Prof. Svasti himself, are recognized in a new award, the Protein Scientist of Thailand Award, sponsored by Professor Svasti, which will be recognized in the Jisnuson Svasti 70 years session. Thus, this session, along with the ICBS workshop, which is also dedicated to Professor Svasti's birthday, will celebrate the continuing efforts to develop protein science in Thailand and Asia.

In summary, we believe that we have developed an outstanding program as described in this book, including plenary talks by 2009 Chemistry Nobel Laureate Thomas Steitz, Madan Babu, Jisnuson Svasti, So Iwata, Ruiming Xu, Akhilesh Pandey and Carol Post, along with a host of 43 internationally and nationally renowned invited speakers. Twenty-five outstanding abstracts were chosen for oral presentations from a total of 150 submitted abstracts, so both the orals and poster sessions will add significant scientific value and interest to the meeting. We hope that the participants will enjoy the posters and visit the surrounding exhibit put together by our corporate and institutional sponsors, to learn of new products and technological developments. We sincerely hope and believe that all participants will gain significant benefits from this opportunity to learn and interact to establish collaborations and drive protein science in the Asia Pacific region to higher and higher levels.



James R. Ketudat Cairns
Organizing Committee Chair
5th APPA/12th PST Conference

June 6, 2017

Welcome Message

From the APPA/PST 2017 Co-Organizing Committee Chair

Welcome message from Dean, Faculty of Science, Burapha University. The 12th International Symposium of the Protein Society of Thailand and the 5th Asia-Pacific Protein Association Conference, July 11 – 14, 2017 at the Tide Resort Hotel, Chon Buri, Thailand.

Dear participants,

It is a great pleasure and honor to extend my warm welcome to attend the 5th Asia-Pacific Protein Association Conference and the 12th International Symposium of the Protein Society of Thailand, to be held in honor of Professor Dr. Her Royal Highness Princess Chulabhorn on the occasion of her 60th birthday, to be held July 11 – 14, 2017, at the Tide Resort Hotel.

The conferences will be held jointly with the Young Scientist Program to celebrate the 20th Anniversary of Department of Biochemistry, to be held July 9 – 11, 2017 at our Central Laboratory Building, Faculty of Science, Burapha University.

This program will provide more opportunities to meet and interact with leading protein scientists from around the world. This promises to be an exciting opportunity for you to discuss their current research, related research interests and, importantly to probe their thoughts on the future of protein science in Asia and abroad. It promises to be a stimulating opportunity that you should not miss.

The 5th Asia-Pacific Protein Association Conference and the 12th International Symposium of the Protein Society of Thailand along with the Young Scientists Program will also afford you the chance to visit Burapha University, the largest university in Eastern Thailand and one that I am proud to report, is still rapidly growing. Burapha University is located directly on one of the most popular sandy beaches along the Gulf of Thailand and is available to Thai and foreign visitors for recreational breaks throughout these conferences. This setting also allows everyone to enjoy with the beautiful sunsets at the beach while dining on fresh and delicious seafood in Thai-style cuisine.

Thank you for your participation. We hope you will enjoy and participate in fruitful discussions as well to expand collegial collaborations and friendship in this honorable event.



Ekaruth Srisook
Co-Organizing Committee Chair
5th APPA/12th PST Conference

June 20, 2017

Welcome Message

From the Past-President of Asia Pacific Protein Association (APPA)

Welcome to the 5th Asia Pacific Protein Association (APPA) Conference!

The triennial APPA Conference series was first held in Yokohama, Japan (April 14-18, 2004), then in Cairns, Australia (June 22-26, 2008), then in Shanghai, China (May 6-9, 2011) and then in Jeju, Korea (May 17-20, 2014) before this one, the 5th APPA conference (also the 12th International Symposium of the Protein Society of Thailand) to be held in Bangsaen, Thailand (July 11-14, 2017). The 5th APPA Conference is hosted by the Protein Society of Thailand and co-hosted by the Chulabhorn Research Institute and jointly organized by Burapha University. I would like to thank Professors Jisnuson Svasti (Mahidol University) and James Ketudat-Cairns (Suranaree University of Technology) for their great effort in organizing this conference.

The first steering committee meeting for officially establishing APPA was held in Osaka University on July 14th, 2010. That meeting was chaired by Yuji Goto (Japan), and attended by Kunihiro Kuwajima (then president of the Protein Science Society of Japan), Haruki Nakamoto (Japan), Fumio Arisaka (Japan), Raymond Norton (Australia), Kyou-Hoon Han (Korea), Yong Kee Kang (Korea), Ch Mohan Rao (India), James Ketudat-Cairns (Thailand), Zengyi Chang (China), Ruby Chen (Chinese Taipei) and Daniel Raleigh (then president of the Protein Society, based in the USA). At that meeting, Prof. Yuji Goto was elected as the first president of APPA and served for a one-year term, before I served as its second president (2011-2014) and Prof. Young Kee Kang served as its third president (2014-2017).

After the steering committee meeting, the council meetings of APPA were then successively held in Shanghai, China (May 5th, 2011), Shanghai, China (January 19, 2013), Jeju, Korea (May 18th, 2014), Canberra, Australia (November 15th, 2015), Osaka, Japan (June 6th, 2016).

As an organization, APPA was established “to promote protein research and education among Asia Pacific nations and regions”.

For an organization of currently 13 constituent members (Australia, China, Chinese Taipei, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, Vietnam), and of 7 years of history, each of its scientific conferences is a key event for promoting research and education in protein science in our area. I am sure that this meeting in Thailand will become another highly memorable event for us all!

The next APPA Conference will be held in Japan in 2020 as a joint one with the Protein Society. We are looking forward to that joint event.

As the ancient Chinese philosopher and educator Confucius once said about 2500 years ago, "what a joy it is to have friends coming from afar! " I hope you will take home not only new knowledge about the protein molecules, but also new or renewed friendship. In scientific research, collaboration, especially when it is interdisciplinary, can be very productive. I hope

the APPA conferences can provide such opportunities for us to find new collaboration partners.

Enjoy the 5th APPA Conference at the Tide Resort, Bangsaen, Thailand!

A handwritten signature in black ink, appearing to read 'Z. Chang', with a stylized flourish at the end.

Zengyi Chang, Ph.D.
Professor of Biochemistry and Molecular Biology,
Director, Center for Protein Science,
Peking University, Beijing, China.

Past-President, Asia Pacific Protein Association (APPA)

June 19, 2017

Committee

NATIONAL ORGANIZING COMMITTEE:

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Ekaruth Srisook	(Co-Chairperson)
Chantragan Srisomsap	(Treasurer)
Voraratt Champattanachai	(Secretary)
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Sakulrat Mankhong
Sopa Ninted

Jutamas Pantab
Wasinee Pongprayoon
Niramol Punbusayakul
Nuntipak Rattanapan
Samart Sai-Ut
Poravee Santiarphon
Wipada Siritanyong
Sineenart Srimongkol
Chatthai Thaiprayoon
Kullanist Thanormjit
Titiporn Tongyen

APPA/PST 2017 JOINT CONFERENCE									
JULY 9-11, 2017 (SUN-TUE) Burapha University		JULY 12, 2017 (WED) Pacific 1-2 Pacific 3-4 Caspian		JULY 13, 2017 (THU) Pacific 1-2 Pacific 3-4 Caspian		JULY 14, 2017 (FRI) Pacific 1-2 Pacific 3-4 Caspian			
8:30	[July 9, 15:00 - July 11, 14:00] Young Scientist Program (selected participants) Venue: Faculty of Science, Burapha University	Registration and Poster Setup [7:30-8:30]	Registration [8:00-8:30]	Registration [8:00-8:30]	Registration [8:00-8:30]	Registration [8:00-8:30]	Caspian		
9:00		Parallel 1: Bioinformatics, Computational and System Biology [8:30-10:00]	Parallel 2: Proteomics & Omics [8:30-10:00]	Parallel 7: Protein Drug Targets [8:30-10:00]	Parallel 8: Proteins in Microorganisms [8:30-10:00]	Parallel 13: Proteins and Nucleic Acids [8:30-10:00]	Parallel 14: Molecular Enzymology [8:30-10:00]	Caspian	
9:30									
10:00									
10:30		[10:00-11:00] Odd Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)	[10:00-11:00] Odd Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)	[10:00-11:00] Odd Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)	[10:00-11:00] Odd Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)	[10:00-11:00] Odd Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)			
11:00		Plenary 2 (PST Keynote): M.R. Jinsunon Svasti [11:00-11:45]	Plenary 4: So Iwata [11:00-11:45]	Plenary 4: So Iwata [11:00-11:45]	Plenary 15: Protein Interactions, Dynamics & Signalling [10:40-11:55]	Plenary 16: Enzymes & Selected Oral Presentations [10:40-11:55]	Plenary 17: Selected Oral Presentations [10:40-11:55]		
11:30		Plenary 3 (EMBO Keynote): Madan Babu [11:45-12:30]	Plenary 5: Ruiming Xu [11:45-12:30]	Plenary 5: Ruiming Xu [11:45-12:30]					
12:00		[12:40-13:20] Luncheon Lecture: Bo-Rad	[12:40-13:20] Luncheon Lecture: GE	[12:40-13:20] Luncheon Lecture: GE					
12:30	JULY 11, 2017 (TUE) Pacific 1-4								
13:00		[13:20-18:00] Systems Biology and Computational Biology Workshop	[13:30-17:20] SLRI Synchrotron Protein Science Workshop	[13:30-17:20] SLRI Synchrotron Protein Science Workshop					
13:30		Parallel 3: Proteins in Diseases, Folding & Dynamics [13:45-15:00]	Parallel 4: Protein Engineering & Application [13:45-15:00]	Parallel 9: Biomarkers and Drug Discovery [13:40-15:10]	Parallel 10: Proteins in Plants [13:40-15:10]				
14:00	[10:00-16:30] Registration (in front of Pacific 1-4)								
14:30									
15:00	Poster Setup/Exhibits Open (Caribbean & Andaman Rooms)	[15:00-16:00] Even Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)	[15:10-16:00] Even Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)	[15:10-16:00] Even Posters, Coffee Break & Exhibits (Caribbean & Andaman Rooms)					
15:30		Parallel 5: Proteins in Diseases (Virus and Antibodies) [16:00-17:20]	Parallel 6: APPA Presidents' Forum [16:00-17:20]	Parallel 11: New Techniques & Protein Studies [16:00-17:20]	Parallel 12: Proteins in Disease (Cancer) [16:00-17:20]				
16:00									
16:30									
17:00	[17:00-17:45] Opening Ceremony								
17:30									
18:00	[17:45 - 18:30] Plenary 1 (Nobel Lecture): Thomas Stetiz								
18:30									
19:00	[19:00-21:00] Opening Reception	[19:00-21:00] Invited Lecturers, APPA Council, and Organizing Committee Dinner	[19:00-21:00] Banquet (Pacific Grand Ballroom, on-site ticket available)	[19:00-21:00] Banquet (Pacific Grand Ballroom, on-site ticket available)					

Scientific Program

Tuesday, July 11, 2017

- 10:00-16:30 Registration (**in front of Pacific 1-4**)
 Exhibition Open, Poster Set up and Coffee/Tea break
 (**Caribbean and Andaman Rooms**)
- 17:00-17:45 Opening Ceremony: (**Pacific 1-4**)

Plenary: (Pacific 1-4)

17:45-18:30

Chair: M.R. Jisnuson Svasti

**PL-1 The structure and function of the ribosome complexes with various
 protein factors and antibiotics**

Thomas Steitz (Nobel Lecture)

Yale University, USA

- 18:30-19:00 Break for room preparation
- 19:00-21:00 Opening Reception

Scientific Program

Wednesday, July 12, 2017

07:30 – 8:30 Registration and Poster Set up (all posters)

Parallel Sessions:

Parallel Session 1: Bioinformatics, Computational and Systems Biology (Pacific 1-2)

Chairs: Ping-Chiang Lyu & Surapong Pinitglang

- | | | |
|------------|------------|--|
| 8:30-8:55 | S-1 | Molecular dynamics simulations of molecular rotary motors
Mitsunori Ikeguchi
Yokohama University, Japan |
| 8:55-9:20 | S-2 | Protein structure prediction/determination by global optimization
Jooyoung Lee
Korea Institute of Advanced Study, Korea |
| 9:20-9:45 | S-3 | Physical biochemistry studies of amyloid
Damien Hall
Australian National University, Osaka University, Australia/Japan |
| 9:45-10:00 | O-1 | Genome-wide characterization of HSF1 and H2A.Z interplay and its role in regulating temperature transcriptomes in Arabidopsis
Varodom Charoensawan
Mahidol University, Thailand |

Parallel Session 2: Proteomics & Omics (Pacific 3-4)

Chairs: Ching Ming (Maxey) Chung & Chantragan Srisomsap

- | | | |
|------------|------------|--|
| 8:30-8:55 | S-4 | Proteogenomic profiling of secreted colon cancer extracellular vesicle subtypes: functional insights
Richard J. Simpson
La Trobe University, Australia |
| 8:55-9:20 | S-5 | An integrated 'omics approach toward understanding the role of aberrant lipid metabolism in colon cancer
Gavin Reid
University of Melbourne, Australia |
| 9:20-9:45 | S-6 | Plant proteomics and their potential approaches in various applications
Polkit Sangvanich
Chulalongkorn University, Thailand |
| 9:45-10:00 | O-2 | Label-free phosphoproteomic analysis of isogenic cholangiocarcinoma exosomes reveals distinct phosphorylation pattern of exosomal proteins involved in cancer metastasis
Churat Weeraphan
Prince of Songkla University, Songkla, Thailand |

10:00-11:00	Odd Poster Presentations, Coffee/Tea Break and Exhibition (Caribbean and Andaman Rooms)
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Plenaries: (Pacific 1-4)

Chairs: Yongyuth Yuthavong & Palangpon Kongsaree

11:00-11:45	PL-2 Protein science in Thailand; Past, Present and Future (Protein Society of Thailand Keynote Lecture) M.R. Jisnuson Svasti Chulabhorn Research Institute, Thailand
11:45-12:30	PL-3 Unstructured proteins: cellular complexity and human diseases (EMBO Keynote Lecture) M. Madan Babu Cambridge University, UK

Luncheon Lecture: (Pacific 1-4)

12:40-13:20	L-1 Increasing throughput of a tandem mAb purification using NGCTM chromatography Chelsea Pratt Bio-Rad Laboratories
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13:20-13:45	Reformat room
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Parallel Sessions:

Parallel Session 3: Proteins in Diseases, Folding & Dynamics (Pacific 1-2)

Chairs: Yuji Goto & Kurt Krause

13:45-14:10	S-7 Clusterin: full-length protein and one of its chains show opposing effects on cellular lipid accumulation Mohan Rao Centre for Cellular & Molecular Biology, India
14:10-14:35	S-8 Understanding TDP-43 oligomers and dipeptide repeats in neurodegenerative diseases Yun-Ru (Ruby) Chen Academia Sinica, Taiwan
14:35-15:00	S-9 Structural & dynamic aspects of antibody recognition of intrinsically disordered antigens Ray Norton Monash University, Australia

Parallel Session 4: Protein Engineering & Application (Pacific 3-4)*Chairs: Mohd Shukuri Mohamad Ali & Wipa Suginta*

- 13:45-14:10 **S-10 Recent progress on the analytical solutions for bio-pharmaceutics**
Kouhei Tsumoto
University of Tokyo, Japan
- 14:10-14:35 **S-11 A thermotolerant lipase with broad pH isolated from Antarctic *Pseudomonas* sp. AMS3**
Raja Noor Zaliha Raja Abd. Rahman
Universiti Putra Malaysia, Malaysia
- 14:35-15:00 **S-12 Production of rotavirus recombinant VP6 protein and its specific antibody for development of the lateral flow immunoassay test strip**
Truong Quoc Phong
Hanoi University of Science and Technology, Vietnam

Workshop Session: System Biology and Computational Biology Workshop (Caspian)**Finding New Frontiers in Biology using Systematic Approaches***(a meeting to commemorate M.R. Jisnuson Svasti's 70th birthday anniversary)**Chair: Varodom Charoensawan*

- 13:20-13:40 **Introduction**
M.R. Jisnuson Svasti
Chulabhorn Research Institute, Thailand
- 13:40-14:20 **Topic: Future of Systems Biology and Computational Biology**
Akhilesh Pandey
Johns Hopkins University/Indian Institute of Bioinformatics
USA/India
- 14:20-15:00 M. Madan Babu
Cambridge University, UK

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- 15:00-16:00 Even Poster Presentations, Coffee/Tea Break and Exhibition
(Caribbean and Andaman Rooms)
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Parallel Sessions:**Parallel Session 5: Proteins in Diseases (Virus and Antibodies) (Pacific 1-2)***Chairs: Joan Steitz & Puey Ounjai*

- 16:00-16:25 **S-13 MERS and SARS coronavirus cell entry: from structure to neutralizing antibody**
Xinquan Wang
Tsinghua University, China
- 16:25-16:45 **O-3 Specific interaction between human DDX6 RNA helicase and the dengue viral RNA genome**
Sarin Chimnaronk

- 16:45-17:05 **O-4** Mahidol University, Thailand
Comprehensive rearrangements of a domain order of small cancer therapeutic bispecific antibody to enhance the function
 Ryutaro Asano
 Tokyo University of Agriculture and Technology, Japan
- 17:05-17:20 **O-5** **Chemically induced dimerization of engineered TALE**
 Rung-Yi Lai
 University of Wisconsin-Madison, USA

Parallel Session 6: APPA Presidents' Forum (Pacific 3-4)

Chairs: Jisnuson Svasti & James Ketudat-Cairns

- 16:00-16:25 **S-14** **Supersaturation-limited phase transitions of denatured proteins producing amyloid fibrils**
 Yuji Goto
 Osaka University, Japan
- 16:25-16:50 **S-15** **The biogenesis and quality control of beta-barrel outer membrane proteins in Gram-negative bacteria**
 Zengyi Chang
 Peking University, China
- 16:50-17:20 **Society summaries from Carol Post & Asian protein science societies**

Workshop Session: System Biology and Computational Biology Workshop (Caspian)

Chair: Varodom Charoensawan

- Topic: Computational Biology and Systems Biology in Asia and Thailand**
- 16:00-16:40 Mitsunori Ikeguchi
 Yokohama University, Japan
- 16:40-17:10 Natini Jinawath
 Mahidol University, Thailand
- 17:10-18:00 **Panel discussion**
 Moderators:
 Varodom Charoensawan, Mahidol University, Thailand
 Bhoom Suktitipat, Mahidol University, Thailand
 Duanrudee Tanramluk, Mahidol University, Thailand
 Kamolchanok Chewapreecha, King Mongkut's University of Technology Thonburi, Thailand

- 17:30-19:00 APPA Council Meeting (**Atlantic meeting room**)
- 19:00-21:00 Invited Lecturers, APPA Council, and Organizing Committee Dinner

Scientific Program

Thursday, July 13, 2017

08.00 – 8.30 Registration

Parallel Sessions:

Parallel Session 7: Protein Drug Targets (Pacific 1-2)

Chairs: Mohan Rao & Rudee Surarit

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|------------|-------------|--|
| 8:30-8:55 | S-16 | Structural insights into the catalytic mechanism of dopamine N-acetyltransferase
Ping-Chiang Lyu
National Tsing-Hua University, Taiwan |
| 8:55-9:20 | S-17 | Serine hydroxymethyltransferase for antimalarial drug
Ubolsree Leartsakulpanich
National Center for Genetic Engineering and Biotechnology, Thailand |
| 9:20-9:45 | S-18 | Disarming the critical drivers of cancer
Erinna Lee
La Trobe University, Australia |
| 9:45-10:00 | O-6 | Cell-penetrable nanobodies specific to tyrosine kinase domain of epidermal growth factor (EGFR) able to modulate cell viability of human lung adenocarcinoma A549 cells
Luecha Tabtimmai
Kasetsart University, Thailand |

Parallel Session 8: Proteins in Microorganisms (Pacific 3-4)

Chairs: Panadda Boonserm & Han Choe

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|------------|-------------|--|
| 8:30-8:55 | S-19 | Structures and dynamics of acyl carrier proteins from multi-drug resistant bacteria
Yangmee Kim
Konkuk University, Korea |
| 8:55-9:20 | S-20 | Glutamate racemase from <i>Mycobacterium tuberculosis</i> is a new target for antituberculosis drug design
Kurt Krause
University of Otago, New Zealand |
| 9:20-9:45 | S-21 | Structural and biophysical insights into chitin acquisition by marine <i>Vibrios</i>
Wipa Suginta
Suranaree University of Technology, Thailand |
| 9:45-10:00 | O-7 | Yersinia effector YopO targets actin dynamics to evade phagocytosis |

Robert Robinson
Institute of Molecular and Cell Biology, A*STAR, Singapore

10:00-11:00 Odd Poster Presentations, Coffee/Tea Break and Exhibition
(Caribbean and Andaman Rooms)

Plenaries: (Pacific 1-4)

Chairs: Haruki Nakamura & Worachart Sirawaraporn

11:00-11:45 **PL-4 Membrane protein structures and free electron laser**
So Iwata
Kyoto University/RIKEN, Japan

11:45-12:30 **PL-5 Structural basis for regulation of histone acetylation**
Rui-Ming Xu
Institute of Biophysics, Chinese Academy of Science (CAS), China

Luncheon Lecture: (Pacific 1-4)

12:40-13:20 **L-2 High content cellular imaging in biological discovery**
Jaron Liu
GE Healthcare Life Sciences

13:20-13:40 Reformat room

Parallel Sessions:

Parallel Session 9: Biomarkers and Drug Discovery (Pacific 1-2)

Chairs: Chantragan Srisomsap & Lemmuel Tayo

13:40-14:05 **S-22 Mining the cancer secretome as a source for biomarkers**
Maxey C.M. Chung
National University of Singapore, Singapore

14:05-14:30 **S-23 Understanding the molecular basis and complexity of
Schizophrenia through neuroproteomics and interactomics**
Nikhat Ahmed Siddiqui
Barrett Hodgson University, Pakistan

14:30-14:55 **S-24 Antibodies, synthetic peptides and related constructs for planetary
health under the precautionary regime of the contemporary
Anthropocene**
Salvador Eugenio Caoili
University of the Philippines, The Philippines

- 14:55-15:10 **O-8 Fipronil induces autophagy and endoplasmic reticulum stress in human neuronal cells**
N. Monique Paricharttanakul
Chulabhorn Research Institute, Thailand

Parallel Session 10: Proteins in Plants (Pacific 3-4)

Chairs: Kittisak Yokthongwattana & Bambang Sugiharto

- 13:40-14:05 **S-25 Supramolecular basis for the light-harvesting processes in plants**
Zhengfeng Liu
Institute of Biophysics, Chinese Academy of Sciences, China
- 14:05-14:30 **S-26 The function and regulation of sucrose-phosphate synthase from sugarcane**
Bambang Sugiharto
Jember University, Indonesia
- 14:30-14:55 **S-27 Therapeutic evaluation of plant lectins as promising anticancer agents**
Syed Rashel Kabir
University of Rajshahi, Bangladesh
- 14:55-15:10 **O-9 Cloning and production of polyclonal antibody against coat protein of sugarcane mosaic virus isolates from Indonesia**
Nurmalasari Darsono
Airlangga University, Indonesia

Workshop Session: SLRI Synchrotron Protein Science Workshop (Caspian)

Chair: Somchai Tancharakorn

- 13:30-13:50 **W-1 Synchrotron Infrared microspectroscopy beamline and its applications on biological and biomedical research**
Kanjana Thumanu
SLRI IR, Thailand
- 13:50-14:10 **W-2 Basic small angle X-ray scattering for biological macromolecules**
Nuntaporn Kamonsutthipaijit
SLRI SAXS, Thailand
- 14:10-14:30 **W-3 Macromolecular crystallography beamline and protein structural studies in Thailand**
Chomphunuch Songsiriritthigul
SLRI macromolecular crystallography beamline, Thailand
- 14:30-14:50 **W-4 The establishment of training hub for protein crystallography @ SLRI**
Nuttawan Pramanpol
SLRI protein crystallization facility, Thailand
- 14:50-15:20 **SLRI Protein facility user meeting**

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- 15:10-16:00 Even Poster Presentations, Coffee/Tea Break and Exhibition
(Caribbean and Andaman Rooms)
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Parallel Sessions:

Parallel Session 11: New Techniques in proteomics & protein studies (Pacific 1-2)

Chairs: Sittiruk Roytrakul & Palangpon Kongsaree

- | | | |
|-------------|-------------|--|
| 16:00-16:25 | S-28 | Application of proteomics approaches to discovery of biomarkers in cancer diagnosis – An impossible mission?
Terence Poon
University of Macau, Macau, China |
| 16:25-16:50 | S-29 | A novel method for the preparation and stabilization of membrane proteins and its application for the biochemical analysis of GPCRs
Yeon Gyu Yu
Kookmin University, Korea |
| 16:50-17:05 | O-10 | Nanometer resolution video imaging reveals structural dynamics of single amyloidogenic protein assemblies
Takahiro Watanabe-Nakayama
Kanazawa University, Japan |
| 17:05-17:20 | O-11 | Chemokine oligomerization states regulate G-protein coupled receptor activation: CXCR3A activation through CXCL4 monomer
Shih-Che Sue
Institute of Bioinformatics and Structural Biology/ National Tsing-Hua University, Taiwan |

Parallel Session 12: Proteins in disease (cancer) (Pacific 3-4)

Chair: Erinna Lee & Weontae Lee

- | | | |
|-------------|-------------|--|
| 16:00-16:25 | S-30 | Systems biology of cancer stem cells by integrated proteomics and glycomics
Norie Araki
Kumamoto University, Japan |
| 16:25-16:50 | S-31 | Glycomic analysis reveals the significance of high mannose N-glycan in progression of cholangiocarcinoma
Sopit Wongkham
Khon Kaen University, Thailand |
| 16:50:17:05 | O-12 | Altered glycosylation related to N-acetylglucosamine attachment in colorectal cancer
Voraratt Champattanachai
Chulabhorn Research Institute, Thailand |
| 17:05-17:20 | O-13 | Classification of cholangiocarcinoma cell lines using phenotypic drug response and single-cell proteomic profiling
Patipark Kueanjinda
Mahidol University, Thailand |

Workshop Session: SLRI Synchrotron Protein Science Workshop (Caspian)*Chairs: Palangpon Kongsaree & Somchai Tancharakorn*

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|-------------|------------|---|
| 16:00-16:20 | W-5 | New opportunities of protein research at Taiwan Photon Source (TPS) of NSRRC
Chun-Jung Chen
NSRRC, Taiwan |
| 16:20-16:40 | W-6 | The roles of high-brilliance synchrotron radiation in macromolecular crystallography
Masaki Yamamoto
RIKEN SPring-8, Japan |
| 16:40-17:00 | W-7 | Present status of SPring-8 BL44XU, beamline designed for structure analysis of large biological macromolecular assemblies
Atsushi Nakagawa
Osaka University, Japan |
| 17:00-17:20 | W-8 | A partner of the wwPDB accepting structure deposition through OneDep
Genji Kurisu
Osaka University & PDBJ, Japan |

- | | |
|-------------|--|
| 17:30-18:30 | Protein Society of Thailand Annual Meeting
(Caspian) |
| 19:00-21:00 | Banquet (Tickets can be purchased on-site)
(Pacific 1-4) |

Scientific Program

Friday, July 14, 2017

08.00 – 8.30 Registration

Parallel Sessions:

Parallel Session 13: Proteins and Nucleic Acids (Pacific 1-2)

Chairs: Worachart Sirawaraporn & Erinna Lee

- | | | |
|------------|-------------|--|
| 8:30-8:55 | S-32 | Nuclear noncoding RNAs: more surprises
Joan Steitz
Yale University, USA |
| 8:55-9:20 | S-33 | Assembly of an activating transcription factor complex
Jacqueline Matthews
University of Sydney, Australia |
| 9:20-9:45 | S-34 | Molecular mechanism of CRISPR and structure-based development of genome editing tool towards medical application
Osamu Nureki
University of Tokyo, Japan |
| 9:45-10:00 | O-14 | Movement of the β-hairpin in the third zinc-binding module of UvrA is required for DNA damage recognition
Danaya Pakotiprapha
Mahidol University, Thailand |

Parallel Session 14: Molecular Enzymology (Pacific 3-4)

Chair: Pimchai Chaiyen

- | | | |
|------------|-------------|---|
| 8:30-8:55 | S-35 | Structural mechanism for the fidelity modulation of DNA polymerase Lambda
Ming Daw Tsai
Institute of Biological Chemistry
Academia Sinica, Taiwan |
| 8:55-9:20 | S-36 | pH effect study for exploring enzyme mechanisms-case studies from bacterial luciferase and succinic semialdehyde dehydrogenase
Ruchanok Tinikul
Mahidol University, Thailand |
| 9:20-9:45 | S-37 | Chiral proofreading: mechanism and functional implications
Rajan Sankaranarayanan
Centre for Cellular & Molecular Biology, India |
| 9:45-10:00 | O-15 | Mechanistic studies of flavin-dependent monooxygenase and reductase for toxic aromatic compounds detoxification
Panu Pimviriyakul
Mahidol University, Thailand |

10:00-10:40	Break & Poster Presentations Coffee/Tea Break & Exhibition And Awarded Posters (Caribbean & Andaman Room)
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Parallel Sessions:

Parallel Session 15: Protein Interactions, Dynamics & Signaling (Pacific 1-2)

Chairs: Ray Norton & Kiattawee Choowongkamon

- | | | |
|-------------|-------------|---|
| 10:40-11:05 | S-38 | Developments and applications of novel NMR methods to characterize functional dynamics of high molecular weight proteins
Ichio Shimada
University of Tokyo, Japan |
| 11:05-11:30 | S-39 | Oligomerization and adapter molecule interaction of proteoglycans reveals a unique molecular function related to cancer signaling
Weontae Lee
Yonsei University, Korea |
| 11:30-11:55 | S-40 | Structure and function of the polymyxin-resistance-associated response regulator PmrA
Chwan-Deng (David) Hsiao
Academia Sinica, Taiwan |

Parallel Session 16: Enzyme & Selected Orals: (Pacific 3-4)

Chairs: Dumrongkiet Arthan & Jittima Charoenpanich

- | | | |
|-------------|-------------|--|
| 10:40-10:55 | O-16 | Molecular mechanism of transglucosylation catalyzed by two α-glucosidase isozymes from <i>Aspergillus niger</i>
Atsuo Kimura
Hokkaido University, Japan |
| 10:55-11:10 | O-17 | Pushing the limits of detection of weak binding using fragment based drug discovery: identification of new cyclophilin binders
Charis Georgiou
The University of Edinburgh, UK |
| 11:10-11:25 | O-18 | Structural, kinetic and thermodynamic insights into reaction intermediate analogues binding to a GH20 β-N-acetylglucosaminidase (GlcNAcase) from <i>Vibrio harveyi</i>
Piyanat Meekrathok
Suranaree University of Technology, Thailand |
| 11:25-11:40 | O-19 | A shortened version of SecA (SecA^N) functions as the protein-conducting channel for nascent β-barrel outer membrane proteins
Feng Jin
Peking University, China |

- 11:40-11:55 **O-20 Mechanisms of heparin-induced amyloid fibrillation of β_2 -microglobulin explained by conformational phase diagram**
 Masatomo So
 Osaka University, Japan

Parallel 17: Selected Orals: (Caspian)

Chairs: Nilubol Paricharttanakul & Voraratt Champattanachai

- 10:40-10:55 **O-21 Discovery of a potential novel therapeutic target against metastatic thyroid cancer using proteomics**
 Kittirat Saharat
 Chulabhorn Graduate Institute, Thailand
- 10:55-11:10 **O-22 Asymmetry in the function and dynamics of the cytosolic group II chaperonin CCT/TRiC**
 Masafumi Yohda
 Tokyo University of Agriculture and Technology, Japan
- 11:10-11:25 **O-23 Alternate chirality of D-Cys to harness a specific geometry of a metal center in *de novo* designed protein**
 Leela Ruckthong
 King Mongkut's University of Technology Thonburi, Thailand
- 11:25-11:40 **O-24 Molecular cloning, expression and *in silico* analysis of a cold-active organic solvent tolerant lipase from an Antarctic *Pseudomonas* sp**
 Mohd Shukuri Mohamad Ali
 Universiti Putra Malaysia, Malaysia
- 11:40-11:55 **O-25 Chitoporin plays essential roles in chitooligosaccharide uptake and growth of pathogenic *Vibrio cholera***
 Sasimali M. Soysa
 Suranaree University of Technology, Thailand

11:55-12:20 Reformat room

Luncheon Lecture: (Pacific 1-4)

- 12:20-13:00 **L-3 Amplified detection of proteins and their interactions using the Duolink® Proximity Ligation Assay (PLA) technology – Applications and Advancements**
 Manpreet Mutneja
 Merck KGaA

M.R. Jisnuson Svasti 70 yr Symposium: (Pacific 1-4)*Chairs: Yongyuth Yuthavong & Rudee Surarit*

- 13:00-13:25 **S-41 Glycosyltransferases for the synthesis of oligosaccharides and glycosides**
Piamsook Pongsawasdi
Chulalongkorn University, Thailand
- 13:25-13:50 **S-42 Flavin-dependent monooxygenases for sustainable technology**
Pimchai Chaiyen
Mahidol University, Thailand
- 13:50-14:15 **S-43 Cancer proteomics and biomarker discovery**
Chantragan Srisomsap
Chulabhorn Research Institute, Thailand
- 14:15-14:30 **M.R. Jisnuson Svasti Outstanding Protein Scientist of Thailand Award 2017**
- 14:30-15:00 Coffee/Tea Break

Plenaries: (Pacific 1-4)*Chairs: Yuji Goto & Zengyi Chang*

- 15:00-15:45 **PL-6 Using isogenic systems to dissect interactomes and signaling pathways**
Akhilesh Pandey
Johns Hopkins University/Indian Institute of Bioinformatics, USA/India
- 15:45-16:30 **PL-7 Allosteric regulation of receptor interactions of Syk tyrosine kinase (Protein Society Keynote Lecture)**
Carol Beth Post
Purdue University, USA
- 16:30-17:00 **Closing ceremony, awards and raffle drawing**

Conference Layout

