



Asia **P**acific **P**rotein **A**ssociation

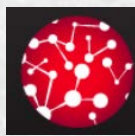
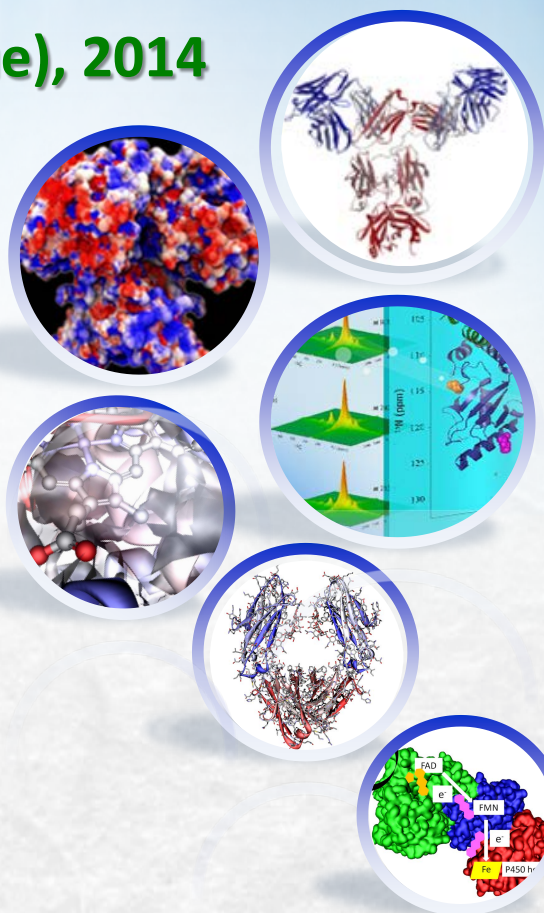
APPA2014 Jeju

The 4th Asia Pacific Protein Association (APPA) Conference

Date : May 17 (Sat) – 20 (Tue), 2014

Place : ICC Jeju, Korea

Program & Abstracts



**Organizer: Asia Pacific Protein Association
The Protein Society**

**Host: Korean Society for Protein Science
Korean Magnetic Resonance Society**

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Welcome Address

Message from Prof. Young Kee Kang

Chair of APPA2014 Local Organizing Committee

Greetings,



On behalf of the Korean Society for Protein Science (KSPS), we give you a warm welcome to the 4th Conference of the Asia Pacific Protein Association (APPA2014) in Jeju.

APPA was founded to advance protein science and share friendship between countries in the Asia Pacific region. Currently, council members from 13 countries actively participate in APPA. It organizes a triennial International Conference that provides an international forum to promote communication, cooperation and collaboration in all aspects of protein science. After the successful conferences held in Yokohama, Japan (2004), Cairns, Australia (2008) and Shanghai, China (2011), the 4th Conference will be held in Jeju Island, Korea during May 17-20, 2014.

Jeju Island is famous for three abundant things of stones, wind, and fishermen's wives, three rare things of beggars, thieves, and house gates, and three treasury things of sea, Halla volcanic mountain, and dialect. In particular, Jeju Island has been recognized as the beautiful and admirable World Natural Heritage Site with volcanic island and molten lava tubes.

We invite you to explore the current aspects of protein science and simultaneously the exotic landscape in this wonderful island. We hope you will enjoy the scientific and social programs and have a great time in Jeju Island.

A handwritten signature in black ink, appearing to read 'YK Kang', written in a cursive, flowing style.

Young Kee Kang (Chair)

Kyou-Hoon Han, Weontae Lee (Co-chair)

Organizing committee of APPA2014 Jeju

Welcome Address

Message from Prof. Zengyi Chang

The President of Asia Pacific Protein Association (APPA)

Dear Colleagues,

On behalf of the APPA Council, I would like to warmly welcome you to the 4th APPA Conference here on Jeju Island, Korea!!



The objectives of APPA are to promote protein research and education among Asia Pacific nations and regions. The first three APPA Conferences were held in Japan (Yokohama, April 14-18, 2004), Australia (Cairns, June 22-26, 2008), and China (Shanghai, May 6-9, 2011), respectively.

As a key type of biological molecule, proteins are involved in almost all life processes. Genome sequencing studies revealed that about half of the proteins encoded by the genomes of various model organisms have never been touched by us. Our understanding on how proteins work in the living cells is still very limited and many more surprising discoveries are still awaiting us. We, as scientists from the Asia Pacific region, should make our due contributions in this tremendously important field of life sciences.

The Protein Society Council has decided, at its council meeting held on Feb 1st, 2014 in Los Angeles, to have its 31st conference in Shanghai, China in 2017 (exact dates to be decided). I hope to see you all there three years from now.

Last, but not least, as the president of the Chinese Protein Society and a council member of the Protein Society, I would like to congratulate our Korea colleagues for bringing about this event here on Jeju Island!

I hope you will enjoy this meeting and this beautiful island!

My warmest regards,

A handwritten signature in black ink, appearing to read 'Z. Chang'.

Zengyi Chang, Ph.D.

Professor of Biochemistry and Molecular Biology,

Peking University, Beijing, China

E-mail: changzy@pku.edu.cn



Dear Attendees,

As president of the Protein Society, I would like to welcome you to the APPA meeting. The Protein Society is a not-for-profit scientific and educational membership organization. Our mission to advance state-of-the-art science through international forums that promote communication, cooperation, and collaboration among scientists involved in the study of proteins.



*James Bowie, Protein
Society President*

I encourage you to publish in our prestigious journal, *Protein Science*, and to attend our international symposia. Historically, our main annual meeting was held in the United States, but that is changing. The 2015 meeting will be in Barcelona, Spain and in 2017 the meeting will move to Shanghai, China. The Protein Society is truly an international community, and we are very happy to be sponsoring the 4th Conference of the Asia Pacific Protein Association.

I would also encourage you to become a member of the Protein Society. As a member you will be able to publish in *Protein Science*, save more as much as 50% on 2014 Symposium registration, and attend many meetings at discounted rates. You will also be able to apply for our Mini Grant Program, which provides up to \$500 to support protein science related gatherings. And of course, as a member, you can nominate outstanding scientists for one of the distinguished awards of The Protein Society. Please visit our website for a full list of member benefits and other valuable information:

www.proteinsociety.org

I look forward to meeting many of you in San Diego at The 28th Annual Symposium of The Protein Society (July 27-30, 2014)!

Best Wishes,

James U. Bowie, PhD
Protein Society President
UCLA

Program at a Glance

May 17 (Saturday), 2014

12:00 - 13:20	Registration			
13:20 - 14:20	Young Scientists Talk (YST-1): 6 speakers			
14:20 - 14:30	Coffee/Tea break			
14:30 - 16:15	Symposium 1A Proteins in emerging fields I	Symposium 1B Proteins in disease I	Symposium 1C Protein folding and dynamics	Symposium 1D Structural targetomics for drug discovery
16:15 - 16:30	Coffee/Tea break			
16:30 - 16:40	Opening Ceremony (Room Yeongju A, ICC)			
16:40 - 17:30	Nobel Lecture (NL): Prof. Roger Kornberg			
17:30 - 18:20	Keynote Lecture (KL-1): Prof. Sunghoon Kim			
18:20 - 20:40	Welcome Reception (Ocean View Hall, ICC)			
20:40 -	Free evening			

May 18 (Sunday), 2014

09:00 - 10:30	Symposium 2A Protein catabolism and trafficking	Symposium 2B Proteins in disease II	Symposium 2C Protein analysis techniques I	Symposium 2D Proteogenomics
10:30 - 10:50	Coffee/Tea break			
10:50 - 11:30	Plenary Lecture (PL-1): George Fu Gao, Ph.D.			
11:30 - 12:10	Plenary Lecture (PL-2): Haruki Nakamura, Ph.D.			
12:10 - 14:20	Lunch & Lunch Workshop			
(12:50 - 14:20)	Poster Presentations (Odd Numbers; Event Hall, ICC)			
14:20 - 15:00	Plenary Lecture (PL-3): Ming-Daw Tsai, Ph.D.			
15:00 - 15:10	Coffee/Tea break			
15:10 - 16:40	Symposium 3A Protein modification	Symposium 3B Proteins as therapeutics I	Symposium 3C Protein analysis techniques II	Symposium 3D Intrinsically disordered protein
16:40 - 17:00	Coffee/Tea break			
17:00 - 18:30	Symposium 4A Proteins in emerging fields II	Symposium 4B Proteins as therapeutics II	Symposium 4C Protein design and engineering	Symposium 4D Structure-function of GPCR
18:30 -	Free evening			
(18:30 - 20:30)	APPA Council Meeting (Chalotte room, Lotte Hotel Jeju)			

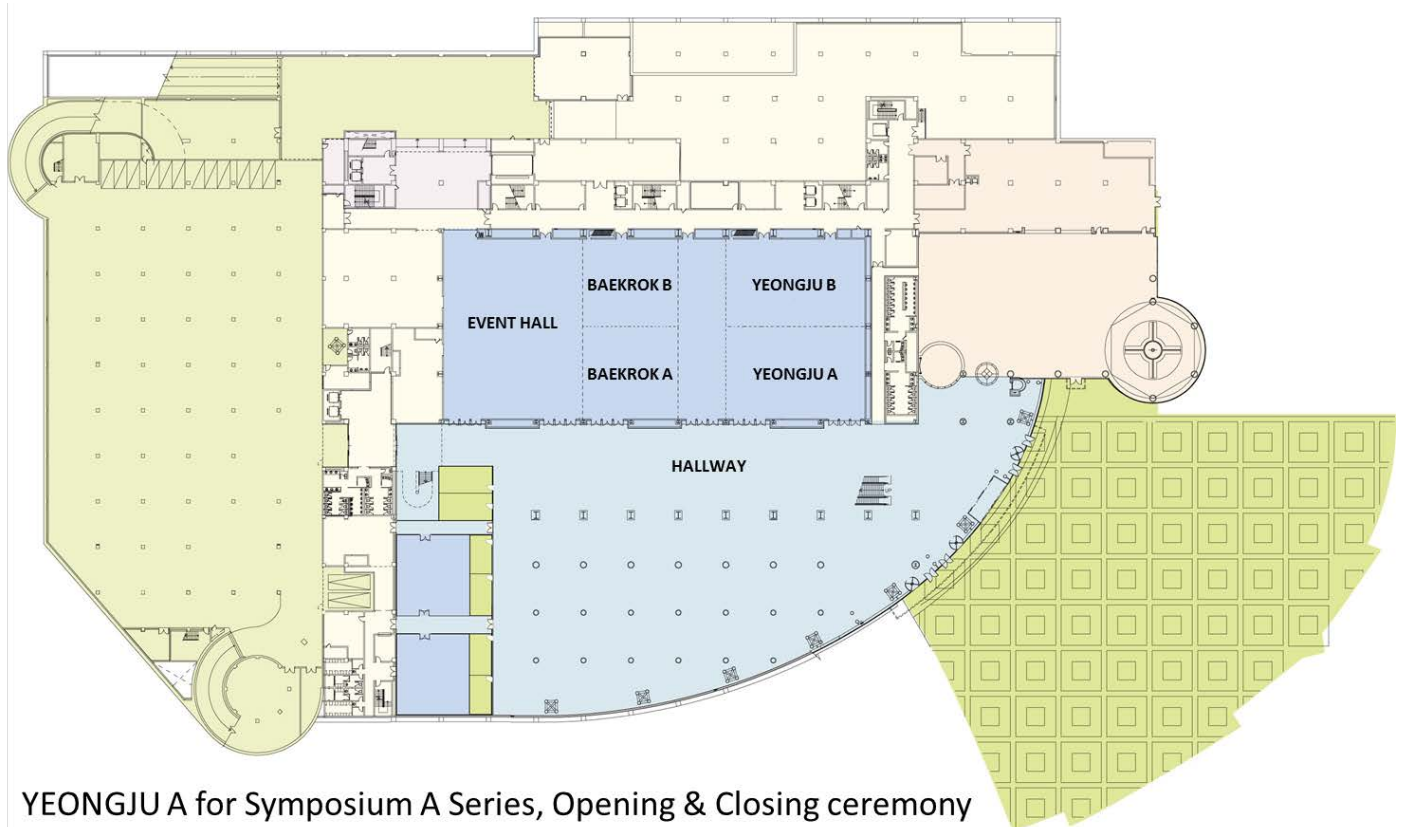
May 19 (Monday), 2014

09:00 - 10:30	Poster Presentations (Even Numbers; Event Hall, ICC)			
10:30 - 12:15	Symposium 5A Protein anabolism	Symposium 5B Proteins as drug targets	Symposium 5C Proteins in nanobiotechnology	Symposium 5D Cancer biomarker discovery by proteomics and glycoproteomics
12:15 - 19:00	Lunch & Free time			
(13:00-18:50)	Excursion			
19:00 - 22:30	Conference Banquet (Crystal ballroom, Lotte Hotel Jeju)			

May 20 (Tuesday), 2014

09:00 - 10:45	Symposium 6A Proteins in membranes	Symposium 6B Proteins and drug discovery	Symposium 6C Protein bioinformatics	Symposium 6D Frontiers in protein sciences
10:45 - 11:00	Coffee/Tea break			
11:00 - 11:40	Plenary Lecture (PL-4): Hong Wanjin, Ph.D.			
11:40 - 12:40	Young Scientists Talk (YST-2): 6 speakers			
12:40 - 13:00	Closing Ceremony & Awards (Room Yeongju A, ICC)			

APPA2014 Jeju Conference Rooms Map



YEONGJU A for Symposium A Series, Opening & Closing ceremony

YEONGJU B for Symposium B Series

BAEKROK A for Symposium C Series

BAEKROK B for Symposium D Series

EVENT HALL for Poster presentations

HALLWAY for Exhibition

General Information

Meeting dates and places

The meeting will be held in the 1st floor of ICC (International Convention Center), Jungmun, Seogwipo, Jeju, May 17-20, 2014.



<Registration desk>

The registration desk is located in the hallway close to the room "Yeongju A".

<Opening ceremony>

The opening and closing ceremonies will be held in the room "Yeongju A".

<Oral presentation>

All oral presentations will be held in the room "Yeongju A,B and Baekrok A, B".

<Poster>

Poster will be displayed in the event hall.

<Exhibition>

The conference exhibits are located in the hallway in front of the rooms 'Yeongju A and Baekrok A'.

<Conference office>

The conference office is located at the "Event Hall".

<Preview room>

The preview room is located in "Event Hall"

Registration

The registration desk will open at 12:00 pm on Saturday, May 17 (refer to hours below). Registration includes admission to all scientific and poster session, exhibits, abstract book and one bag. Registration also includes the first day welcome reception, light breakfast (donuts, Tteok, Tea and coffee), snack and coffee in coffee break.

<Hours>

Saturday, May 17	12:00 pm – 19:00 pm
Sunday, May 18	9:00 pm – 19:00 pm
Monday, May 19	9:00 pm – 13:00 pm
Tuesday, May 19	9:00 pm – 13:00 pm

<Registration fee – on site registration>

Full registration \$450

Student registration \$165

<Name badge>

Name badges are required for entry in the conference zone (hallway and rooms) and welcome reception.

Meals

<Welcome reception>

The welcome reception will be provided in Ocean View Hall, 5th floor of ICC.

<Breakfast>

The light breakfast will be provided from 8:30 AM to 9:00 AM from Sunday to Tuesday. Breakfast includes doughnuts, tteok (Korean rice cake), tea and coffee. It is possible that the foods will be run out earlier.

<Lunch>

Saturday, May 17: No service

Sunday, May 18: Lunch will be provided during workshop session.

Monday, May 19 & Tuesday, May 20: Lunch coupon will be available in the registration desk with 3,000 Korean Won. 100 meals will be prepared per each day. Coupon can be used in the cafeteria which is located in the 1st floor of ICC.

<Conference banquet>

The conference banquet will be held on the evening of Monday 19th May at the Crystal Ballroom of the

Lotte Hotel. This banquet is open to those who purchased the ticket. The banquet ticket will be available on site by Sunday in the reception desk.

(Lotte Hotel phone number - +82 64 731 4343)

<Restaurants>

The restaurants within a working distance from ICC are listed. Maps and detailed menus are listed in the "Guide to local activity (page 204)".

- DELIZIA in ICC - Western & Korean cuisine
- Sinwoosung town – Korean, Japanese & Jeju local cuisine
- Jeju MAWON – Pork, Beef, and Sea-food dishes
- Garam Dolsotbap – Korean dishes
- Heukdon Maeul – Pork dishes.

Accommodation

The following hotels are arranged in the organizing committee with discounted prices

- Kensington Hotel - <http://www.kensingtonjeju.com>, +82 64 735 8900
- Hyatt Regency Hotel - <http://www.jeu.regency.hyatt.kr>, + 82 64 733 1234
- Silla Hotel - <http://www.shilla.net/jeju>, +82 64 735 8495
- Hana Hotel - <http://www.hotelhana.co.kr/>, +82 64 738 7001-11
- Corea Condo - <http://www.coreacondo.co.kr/>, +82 64 738 9101
- Bareve Hotel - <http://www.barevehotel.com/>, +82 64 735 8899

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Internet

The free wifi and wireless internet service will be available in the conference zone of ICC Jeju. A password will be arranged for access to the internet. Computers close to the preview room will be used for free e-mail and internet access.

Telephone numbers

Conference manager (Mr. Evan Ahn) 010 4939 5263

Conference security general (Prof. Yeon Gyu Yu) 010 8792 1121

Emergency/Fire 119

ICC Information Desk – +82 64 735 1072

Duty Free Shop - +82 64 780 7600

DELIZIA restaurant - +82 64 738 6400

Presentation

<Oral presentation>

It is recommended to copy your presentation file to the computer in the preview room at least 1/2 hour prior to the start time of the session. Presenters can also copy their presentation files to the computer in the session room or bring their own computers. However, it is strongly recommended to test the function of the computer and projects in advance. Your presentation file can be checked in the preview room which is open during the conference period. For the presentation, only Powerpoint 2007 and 2010 operated in Window OS will be available. If you need to use programs in Mac OS, you need to bring your own computer, connector and OS.

<Poster presentation>

Posters must be displayed in the event hall from Saturday to Tuesday. The size of poster board is 120 cm (width) x 150 cm (height). Poster board will be available from 1:00 pm on the 17th of May till the closing day. Please be present at your poster at the designated time on the day to which you are assigned and remove your poster before 1:00 pm on the 20th of May.

Posters with odd number: 12:50 PM – 14:20 PM, Sunday, May 18

Posters with even number: 9:00 AM – 10:30 AM, Monday, May 19

Lunch Workshop

Title: Advances in Circular-Dichroism (CD) Dynamic multi-mode spectroscopy, Automated Circular-Dichroism and Linear-Dichroism (LD) spectroscopy

Presenter: Geut Hoshen (Applied Photophysics Ltd., Leatherhead, UK)

12:10 – 13:00 PM, Sunday, May 18

Room Baekrok A

Organized by Maestor Korea

Free lunch will be available

Contact: Ms. Miran Suh, 02 2636 0369, mastor@maestor.co.kr

Tourist Information

The sightseeing places close to ICC are listed in the end of abstract book (page 206-215). The group tour will be arranged by Yeha Tour (www.yehatour.com, +82 64 713 5505). Information regarding tours will be available in the registration desk. For additional information on the sights in Jeju, visit the city's website (<http://english.jeju.go.kr/>)

Pre-arranged half tour

- East Tour Course – Seongsan Ilchulbong Peak [UNESCO World Heritage], Seongeup Folk Village
- West Tour Course – Spirited Garden, Suweolbong Trekking, Cheonjeyeon Waterfall

(Custom tour will be arranged by Yeha Tour)

Transportation

<Airport to ICC>

From Jeju International Airport

From Jeju International Airport, you will reach ICC Jeju within approximately 40-50 minutes by car through Pyeonghwa-Ro Road. Limousine buses are also available every 15 minutes at the airport.

Guide to the airport limousines

(Jeju International Airport ↔ Jeju International Convention Center)

- **Place**

Limousine bus stop at the left side of the front gate (Samyoung Traffic No. 600)

- **First departure**

06:20 at the airport; last departure: after the arrival of the last airplane

- **Service route**

Airport → T.H.E Hotel and Vegas Casino Jeju → Entrance to the Yeomiji Botanical Garden → Hyatt Hotel → Shilla Hotel → Lotte Hotel → Hankook Condominium → Jeju International Convention Center → New Gyeongnam Hotel → Seogwipo KAL Hotel

Taxi guide (Jungmun - Jeju International Airport)

- Select the distance (long-distance or short-distance) at the taxi stop.
- When you go to the Center, it is all right to take a taxi at the long-distance stop.
- Since the taxi fare is fixed, please confirm the distance before taking a taxi
- Fare (Korean won) : About 30,000 won; Distance: 40km; Duration: 40-45 minutes

<Hotel to ICC>

Limousine bus stops by each major hotel in Jungmun Area

Bus route: Jeju City (Jeju Airport) →→→→→→ Jungmun Area (Kensington Hotel → Hyatt Hotel → Silla Hotel → Suite Hotel → Hana Hotel → Lotte Hotel → Corea Condo → ICC →→**Bareve Hotel.

**Hotel shuttle from Bareve hotel to ICC will be available (~15 minutes)

Walking distance from hotel to ICC

Hyatt Regency Hotel: 2.5 km

Kensington: 2.2 km

Silla Hotel: 2.5 km

Hana Hotel: 2.4 km

Corea Condo: 2.2km.

Bareve Hotel: 9km

The 4th Asia Pacific Protein Association (APPA) Conference Committee Members

APPA Jeju 2014 Local Organizing Committee

Chair: Young Kee Kang, Chungbuk National University (Korea), ykkang@chungbuk.ac.kr

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James R. Ketudat-Cairns*, Suranaree University of Technology, cairns@sut.ac.th

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Phan Van Chi, Vietnam Acad. of Sci. & Tech. (VAST), chi@ibt.ac.vn

Exhibitors

1. Bioneer, 손은혜 팀장, 042-930-8690, ehson@bioneer.co.kr
2. Bion Life Science Co. Ltd., 고창욱 사장, 010-6280-5600, changwookgoh@gmail.com
3. Hucom Systems, 정해식 부장, 010-5654-5440, okhucom@naver.com
4. Malvern Instruments, 홍명희 과장, 031-786-0843, info.korea@malvern.com
5. DS&G, 김근희 차장, 02-6309-1530, ghkim@dsngsystem.co.kr
6. Waters Korea, 배상철 부장, 010-4954-7904, Marcelino_Bae@Waters.com,
7. The 7th Asian-Oceania HUPO Conference, Bangkok.
8. Maestor Korea, 서미란 대리, 02-2636-0369 mastor@mastor.co.kr

PROTEIN|SCIENCE

A PUBLICATION OF THE PROTEIN SOCIETY

Protein Science is looking to publish strong manuscripts in all areas related to the structure, function, design, interaction and evolution of proteins. We pride ourselves on our rapid and informed review of all manuscripts. Also, if you have an important contribution that needs to be in press as quickly as possible, don't hesitate to contact the Editor, Brian Matthews, at brian@uoregon.edu.



Editor-in-chief
Dr. Brian W. Matthews

Our **Associate Editors** are knowledgeable with diverse experience:

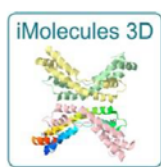
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HIDEO AKUTSU, OSAKA UNIVERSITY..... *SPECTROSCOPIC TECHNIQUES*

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Each year, two student or postdoctoral authors are invited to give **Best Paper Talks** at the Protein Society Symposium. These junior investigators, typically first authors, are selected from articles published in *Protein Science* the year before.

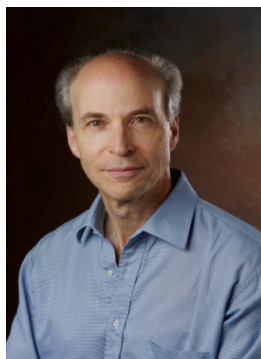
For additional information and manuscript submission visit:
www.proteinscience.org.



Scientific Program

4th Asian Pacific Protein Association Conference
Jeju, Korea
17-20, May 2014

➤ Nobel Laureate Lecture



The Molecular Basis of Eukaryotic Transcription

May 17 (Sat), 16:40-17:30, ROOM: YEONGJU A

Chair: Zengyi Chang, Ph. D. (APPA President, China)

Roger D. Kornberg, Ph.D.

Stanford University School of Medicine, USA

2006 Nobel Laureate in Chemistry

Roger Kornberg is Winzer Professor in Medicine in the Department of Structural Biology at Stanford University. In his doctoral research, he demonstrated the diffusional motions of lipids in membranes, termed flip-flop and lateral diffusion. He was a postdoctoral fellow and member of the scientific staff at the Laboratory of Molecular Biology in Cambridge, England from 1972-5, where he discovered the nucleosome, the basic unit of DNA coiling in chromosomes. He moved to his present position in 1978, where his research has focused on the mechanism and regulation of eukaryotic gene transcription. Notable findings include the demonstration of the role of nucleosomes in transcriptional regulation, the establishment of a yeast RNA polymerase II transcription system and the isolation of all the proteins involved, the discovery of the Mediator of transcriptional regulation, the development of two-dimensional protein crystallization and its application to transcription proteins, and the atomic structure determination of an RNA polymerase II transcribing complex.

➤ Keynote Lecture

Keynote Lecture



Function of Human tRNA Synthetases for New Biology and Medicine

May 17 (Sat), 17:30-18:20, ROOM: YEONGJU A

Chair: Young Kee Kang, Ph.D. (APPA2014 Chair & KSPS former president, Korea)

Sunghoon Kim, Ph.D.

Seoul National University, Korea

Professor Kim earned his Ph.D. in Biology and Medicine from Brown University, USA. At present, he is the director of the Medicinal Bioconvergence Research Center at Seoul National University, Korea. Dr. Sunghoon Kim received his bachelor's degree at Seoul National University College of Pharmacy, master's degree at Korea Advanced Institute of Science and Technology and PhD degree at Brown University Division of Biology and Medicine.

He has been studying novel functions of human aminoacyl-tRNA synthetases (ARSs) and searching for their pathophysiological connections to human diseases with about 120 research publications (PNAS 105:11043, 2008; Nat Rev Cancer 11:708, 2011 for recent review). More specifically, he has identified potent novel tumor suppressors such as AIMP2/p38 (Nat Genet 34:330, 2003), AIMP3/p18 (Cell, 120:209, 2005). Besides, he has also investigated novel extracellular activities of ARSs and associated factors such as lysyl-tRNA synthetase (KRS, PNAS 102, 6356, 2005), tryptophanyl-tRNA synthetase (WRS) (Nat Struct Mol Biol 11:149, 2004) and AIMP1/p43 (PNAS 103:14913, 2006). He also discovered the oncogenic variant of AIMP2, designated AIMP2-DX2, as one of the critical factors that determines the survival of lung cancer patients (Plos Genet 7:e1001351, 2011). More recently, he found that leucyl-tRNA synthetase (LRS) serves as an amino acid sensor for mTOR signal pathway (Cell 149:410, 2012).

In summary, his research is unveiling novel regulatory network mediated by human aminoacyl-tRNA synthetases that have been regarded as housekeeping machinery for protein synthesis. The regulatory roles and implications of these proteins in human diseases have been largely overlooked for decades. His series of the discoveries on the new function, pathology and medicine of ARSs are rapidly opening a research area that throws new insights into the central dogma of life and human diseases.

➤ Plenary Lectures

Plenary Lectures I



Influenza A virus "host jump": structural determinant

May 18 (Sun), 10:50-11:30, ROOM: YEONGJU A

Chair: Yuji Goto (APPA former president, Japan)

George Fu Gao, Ph.D.

CAS Key Laboratory of Pathogenic Microbiology and Immunology, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China

Professor George F. Gao obtained his Ph.D (DPhil) degree from Oxford University, UK and did his postdoc work in both Oxford University and Harvard University (with a brief stay in Calgary University).

His research interests include enveloped viruses and molecular immunology. His group research is focusing on the enveloped virus entry and release, esp. influenza virus interspecies transmission (host jump), structure-based drug-design and structural immunology.

He has published more than 260 refereed papers, 10 books or book chapters and has applied and obtained more than 25 UK, US and Chinese patents. His recent work on HA/receptor binding and structural basis of both H7N9 and H5N1 influenza viruses provided novel insights into the molecular mechanism of avian-flu "host jump" and the work on MERS-CoV entry delineated the molecular mechanism of receptor-viral protein interaction (Science, 2013a, 2013b; Lancet, 2013; Nature Communications, 2014; Nature, 2013).



New Approach to Electrostatic Properties of Proteins and Protein-Protein Interactions**May 18 (Sun), 11:30-12:10, ROOM: YEONGJU A****Chair: Kyou-Hoon Han, Ph.D. (APPA2014 co-chair & KSPS president, Korea)****Haruki Nakamura, Ph.D.****Institute for Protein Research, Osaka University, Japan**

Professor Nakamura obtained his Ph.D. from University of Tokyo, Japan. His research fields include biophysics, protein science, and structural bioinformatics. From 2012, he is the Advisor to Osaka University Trustees.

Haruki Nakamura is a Professor of Laboratory of Protein Informatics, Institute for Protein Research, Osaka University. He is also a Head of Protein Data Bank Japan (PDBj, <http://pd bj.org/>), one of the four members of the wwPDB (<http://wwpdb.org/>) as the international organization to look after PDB. He was born on 7 April 1952, at Tokyo, Japan. He graduated Department of Physics, Faculty of Science, the University of Tokyo, in March 1975, and he took the Doctor of Science in March 1980, at Department of Physics, Faculty of Science, The University of Tokyo, supervised by Dr. Akiyoshi Wada.

His research experiences are as follows: April 1980 - July 1987, Research Associate at Department of Applied Physics, Faculty of Engineering, the University of Tokyo. August 1987 - March 1996, Protein Engineering Research Institute, Osaka. April 1996 - March 1999, Biomolecular Engineering Research Institute, Osaka. April 1999 -, Professor, Laboratory of Protein Informatics, Institute for Protein Research, Osaka University. April 2012 -, Advisor to Osaka University Trustees. June 2001 -, Head of PDBj.

His research fields are structural bioinformatics, biophysical studies about protein architecture, electrostatic properties and enzymatic functions, protein modeling, protein design, structure guided drug development, and molecular and electronic simulation. He is an associate Editor of BREV (Biophysical Reviews), and an editorial board member of PEDS (Protein Engineering Design and Selection), J. Struct. Funct. Genomics, and Biophysics.

Since 2012, he has been a Council member of the Protein Society until December 2014, and a President of Protein Science Society of Japan until March 2014. He is also a Council member of APPA.



How a low-fidelity DNA polymerase chooses non-Watson-Crick from Watson-Crick incorporation

May 18 (Sun), 14:20-15:00, ROOM: YEONGJU A

- **Chair: Myeong-Hee Yu, Ph.D. (Korea Institute of Science and Technology, Korea)**

Ming-Daw Tsai, Ph.D.

Institute of Biological Chemistry, Academia Sinica, Chinese Taipei

Professor Tsai obtained his Ph.D. in Biochemistry and Medicinal Chemistry from Purdue University, USA. At present, he is the director of the Institute of Biological Chemistry, Academia Sinica, Chinese Taipei.

Ming-Daw Tsai received a B.S. degree in chemistry from the National Taiwan University in 1972, a Ph.D. in medicinal chemistry from Purdue University in 1978, and joined the faculty of The Ohio State University in 1981. He established the Chemistry-Biology Interface Training Program of OSU in 1996 and served as its director through 2003. He has also directed OSU's Office of Research Campus Chemical Instrument Center for 14 years (1995-2007). From 2004-2008 Tsai served as Director of the Functional Proteomics Division of the Genomics Research Center of Academia Sinica, Chinese Taipei. He also served as Director of the National Core Facilities Office during 2004-2010. In 2006 Tsai took the directorship of the Institute of Biological Chemistry of Academia Sinica.

His honour includes an Alfred P. Sloan Fellowship (1983-1985), the Camille and Henry Dreyfus Teacher-Scholar Award (1985-1990), the Distinguished Scholar Award of The Ohio State University (1992), an Elected Fellow of the American Association for the Advancement of Science (1992), the Kimberly Professor of Chemistry at The Ohio State University (2003-2007), and Distinguished Alumnus Award (Purdue College of Pharmacy). He also serves as an Associate Editor of Biochemistry since 2010. He was elected to Academician of Academia Sinica in 2012.

Tsai's research interests include mechanistic enzymology of phosphoryl transfer enzymes particularly DNA polymerases and kinases, and structure-function relationship of proteins in DNA damage response and cancer signaling, particularly ankyrin repeat proteins and FHA domain containing proteins. He uses structural biology approaches including NMR, X-ray, and mass spectrometry to study mechanistic problems. Tsai has published over 250 articles in chemical and biological journals. His h index is 45.

Plenary Lectures IV



Membrane trafficking in mammalian cells and beyond

May 20 (Tue), 11:00-11:40, ROOM: YEONGJU A

Chair: Wontae Lee, Ph.D. (APPA2014 co-chair, Korea)

Hong Wanjin, Ph.D.

Institute of Molecular & Cell Biology, A*STAR, Singapore

After graduating from Xiamen University in 1982, Wanjin Hong was one of a few hundred Chinese students chosen for further graduate training in the United States via the CUSBEA program. He received his PhD from the State University of New York (SUNY Buffalo), and was a postdoctoral fellow there before he joined IMCB as a principal investigator in 1989.

In Singapore, his research group has published over 200 papers in international journals including Science, Nature, Nature Cell Biology, Developmental Cell, EMBO J, JCB, MBC, JCS and JBC. His work in the early 1990s identified the Golgi-targeting motifs for TGN38 and Golgi sugar transferases and defined the trafficking pathway of KDEL receptor in mammalian cells. Among the 40 or so SNAREs in mammalian cells involved in vesicle docking and fusion, about half of them were independently identified and functionally characterized by his lab. His lab also showed that endobrevin (VAMP8) is a major v-SNARE responsible for regulated exocytosis in exocrine cells and other secretory cells. His group also discovered that the PX (phox) domain is a novel structural module capable of interacting with phosphoinositides, Arl1 GTPase regulates Golgi targeting of the GRIP domain-containing proteins Golgin-97 and Golgin-245, and Rab7 and Rab34 share a common downstream effector (RILP). He also worked on COPII and COG complex.

His recent work has uncovered that TAZ (WWTR1) is an oncogene and TAZ interacts with TEAD transcriptional factors to drive oncogenic process. Wbp2 and Amot were identified as positive and negative regulator, respectively, of TAZ/YAP. TAZ and YAP are inhibited by the emerging Hippo tumor suppressor pathway.

He was the recipient of National Science Award in 1999. Presently, he is a Professor and Executive Director of IMCB. He serves as the Editor-in-Chief of Bioscience Reports and is on the editorial board of several Journals such as PLOS One and TRAFFIC.

➤ Symposia

May 17 (Sat.)

Symposium 1A (14:30 - 16:15; ROOM: YEONGJU A) Proteins in emerging fields I		
14:30 - 14:52	Nei-Li Chan	Chinese Taipei
14:52 - 15:14	Shan-Ho Chou	Chinese Taipei
15:14 - 15:36	Jeong-Sun Kim	Korea
15:36 - 15:58	Linwoo Kang	Korea
15:58 - 16:15	Rui Wang	China

Symposium 1B (14:30 - 16:15; ROOM: YEONGJU B) Proteins in disease I		
14:30 - 14:51	Cong Liu	China
14:51 - 15:12	Yao Cong	China
15:12 - 15:33	SangYun Kim	Korea
15:33 - 15:54	SeungJae Lee	Korea
15:54 - 16:15	David Churchill	Korea

Symposium 1C (14:30 - 16:15; ROOM: BAEKROK A) Protein folding and dynamics		
14:30 - 14:52	Kunihiro Kuwajima	Japan
14:52 - 15:14	Jayant B. Udgaonkar	India
15:14 - 15:36	Wei Wang	China
15:36 - 15:58	Jooyoung Lee	Korea
15:58 - 16:15	Matthias Buck	USA

Symposium 1D (14:30 - 16:15; ROOM: BAEKROK B) Structural targetomics for drug discovery		
14:30 - 14:56	Jeong-Kyu Bang	Korea
14:56 - 15:22	Kwang Yeon Hwang	Korea
15:22 - 15:48	Yunje Cho	Korea
15:48 - 16:15	Young Ho Jeon	Korea

May 18 (Sun.)

Symposium 2A (09:00-10:30; ROOM: YEONGJU A) Protein catabolism and trafficking		
09:00 - 09:18	Nobuo N. Noda	Japan
09:18 - 09:36	Koji Okamoto	Japan
09:36 - 10:54	M. Sakoh-Nakatogawa	Japan
10:54 - 10:12	Taijoon Chung	Korea
10:12 - 10:30	Hyun Kyu Song	Korea

Symposium 2B (09:00-10:30; ROOM: YEONGJU B) Proteins in disease II		
09:00 - 09:22	Senyon Choe	USA
09:22 - 09:45	Joon Kim	Korea
09:45 - 10:07	Chinpan Chen	Chinese Taipei
10:07 - 10:30	Feng Shao	China

Symposium 2C (09:00-10:30; ROOM: BAEKROK A)		
Protein analysis techniques I		
09:00 - 09:23	Hong-Wei Wang	China
09:23 - 09:46	Kenji Sugase	Japan
09:46 - 10:00	Tae-Young Yoon	Korea
10:00 - 10:15	Jose M.M. Caaverio	Japan
10:15 - 10:30	Hajin Kim	Korea

Symposium 2D (09:00-10:30; ROOM: BAEKROK B)		
Proteogenomics		
09:00 - 09:22	Daehee Hwang	Korea
09:22 - 09:45	Myeong-Hee Yu	Korea
09:45 - 10:07	Youngsoo Kim	Korea
10:07 - 10:20	Eunok Paek	Korea

Symposium 3A (15:10-16:40; ROOM: YEONGJU A)		
Protein modification		
15:10 - 15:34	Ho Chul Kang	Korea
15:34 - 15:58	Yong Chen	China
15:58 - 16:22	Ji-Hong Lim	Korea
16:22 - 16:40	Tadashi Satoh	Japan

Symposium 3B (15:10-16:40; ROOM: YEONGJU B)		
Proteins as therapeutics I		
15:10 - 15:33	Kouhei Tsumoto	Japan
15:33 - 15:55	Junho Chung	Korea
15:55 - 16:18	Tse Wen Chang	Chinese Taipei
16:18 - 16:40	Sang Taek Jung	Korea

Symposium 3C (15:10-16:40; ROOM: BAEKROK A)		
Protein analysis techniques II		
15:10 - 15:34	Kozo Kaibuchi	Japan
15:34 - 15:58	Won Do Heo	Korea
15:58 - 16:22	Rahul Roy	India
16:22 - 16:40	Willem M. Albers	Finland

Symposium 3D (15:10-16:40; ROOM: BAEKROK B)		
Intrinsically disordered protein		
15:10 - 15:15	Kyou-Hoon Han (Session Overview)	
15:15 - 15:32	Carmay Lim	Chinese Taipei
15:32 - 15:49	Hong-Yu Hu	China
15:49 - 16:06	Hugh I. Kim	Korea
16:06 - 16:23	Gary Daughdrill	USA
16:23 - 16:40	Mamoru Sato	Japan

Symposium 4A (17:00-18:30; ROOM: YEONGJU A)		
Proteins in emerging fields II		
17:00 - 17:22	Injae Shin	Korea
17:22 - 17:45	Andrew H.-J. Wang	Chinese Taipei
17:45 - 18:07	Hyun-Suk Lim	Korea
18:07 - 18:30	James Ketudat Cairns	Thailand

Symposium 4B (17:00-18:30; ROOM: YEONGJU B)		
Proteins as therapeutics II		
17:00 - 17:22	Zhou Songyang	China
17:22 - 17:45	Ruibao Ren	China
17:45 - 18:07	Sangyong Jon	Korea
18:07 - 18:30	Byeong Doo Song	Korea

Symposium 4C (17:00-18:30; ROOM: BAEKROK A)		
Protein design and engineering		
17:00 - 17:20	Seung-Goo Lee	Korea
17:20 - 17:40	Katsumi Maenaka	Japan
17:40 - 18:00	Abu Bakar Salleh	Malaysia
18:00 - 18:15	Guan Siyu	Singapore
18:15 - 18:30	Madan Bharat	Korea

Symposium 4D (17:00-18:30; ROOM: BAEKROK B)		
Structure-function of GPCR		
17:00 - 17:20	Wei Liu	USA
17:20 - 17:40	Jae Young Seong	Korea
17:50 - 18:10	Han Suk Choe	Korea
18:10 - 18:30	Art Cho	Korea

May 19 (Mon.)

Symposium 5A (10:30-12:15; Rm. YEONGJU A)		
Protein anabolism		
10:30 - 10:58	Weiping Han	Singapore
10:58 - 11:26	Lu Lei	Singapore
11:26 - 11:54	Han-Jung Chae	Korea
11:54 - 12:15	Jinsong Liu	China

Symposium 5B (10:30-12:15; Rm. YEONGJU B)		
Proteins as drug targets		
10:30 - 10:56	Sung-Jean Park	Korea
10:56 - 11:22	Toshiyuki Shimizu	Japan
11:22 - 11:48	Beili Wu	China
11:48 - 12:15	Xin Xie	China

Symposium 5C (10:30-12:15; ROOM: BAEKROK A)		
Proteins in nanobiotechnology		
10:30 - 11:05	Haesik Yang	Korea
11:05 - 11:40	Fan-Gang Tseng	USA
11:40 - 12:15	Ryuji Yokokawa	Japan

Symposium 5D (10:30-12:15; ROOM: BAEKROK B)		
Cancer biomarker (proteomics and glycoproteomics)		
10:30 - 11:05	Jong Shin Yoo	Korea
11:05 - 11:40	Je Yeol Cho	Korea
11:40 - 12:15	Hyun Joo An	Korea

May 20 (Tue.)

Symposium 6A (09:00-10:45; ROOM: YEONGJU A)		
Proteins in membranes		
09:00 - 09:28	Yeon-Kyun Shin	USA
09:28 - 09:56	Tae-Joon Jeon	Korea
09:56 - 10:24	Masaki Yamamoto	Japan
10:24 - 10:45	Atsushi Nakagawa	Japan

Symposium 6B (09:00-10:45; ROOM: YEONGJU B)		
Proteins and drug discovery		
09:00 - 09:22	Po-Huang Liang	Chinese Taipei
09:22 - 09:44	Koichi Kato	Japan
09:44 - 10:06	Sun Choi	Korea
10:06 - 10:28	Raymond S. Norton	Australia
10:28 - 10:45	Qian Wang	China

Symposium 6C (09:00-10:45; ROOM: BAEKROK A)		
Protein bioinformatics		
09:00 - 09:26	Motonori Ota	Japan
09:26 - 09:52	Kwang-Hyun Cho	Korea
09:52 - 10:18	Nozomi Nagano	Japan
10:18 - 10:45	Keun Woo Lee	Korea

Symposium 6D (09:00-10:45; ROOM: BAEKROK B)		
Frontiers in protein sciences		
09:00 - 09:20	Kurt L. Krause	New Zealand
09:20 - 09:40	Peter Czabotar	Australia
09:40 - 10:00	Hyung-Sik Won	Korea
10:00 - 10:15	Yi Liang	China
10:15 - 10:30	James Torres	Singapore
10:30 - 10:45	Young Mee Jung	Korea

Symposium 1A: Proteins in emerging fields I

May 17 (Sat), 14:30-16:15, ROOM: YEONGJU A

- **Nei-Li Chan, Ph.D. (National Taiwan University, Chinese Taipei)**
 - Structural Analysis of a Metal-Activated Transcriptional Regulator from *Bacillus subtilis*
 - **Shan-Ho Chou, Ph.D. (National Chung Hsing University, Chinese Taipei)**
 - Structure and function of a novel bacterial c-GMP binding protein
 - **Jeong-Sun Kim, Ph.D. (Chonnam National University, Korea)**
 - Structural features of two Cmr proteins in the CRISPR RNA-mediated bacterial immunity
 - **Linwoo Kang, Ph.D. (Konkuk University, Korea)**
 - PLP cofactor-based catalysis mechanism
 - **Rui Wang (Peking University, China)**
 - DegP primarily functions as a protease for the biogenesis of β -barrel outer membrane proteins in the Gram-negative bacterium *Escherichia coli*
-

The most recent topics in “Structural and/or functional studies of hot proteins in various fields including enzyme, microbial & plant proteins” will be discussed.

Organizer and Chair 1: Shan-Ho Chou, Ph.D. (National Chung Hsing University, Chinese Taipei)

Organizer and Chair 2: Sangkee Rhee, Ph.D. (Seoul National University, Korea)

Symposium 1B: Proteins in disease I

May 17 (Sat), 14:30-16:15, ROOM: YEONGJU B

- **Cong Liu, Ph.D. (Shanghai Institute of Organic Chemistry, China)**
 - Atomic view of amyloids
 - **Yao Cong, Ph.D. (Institute of Biochemistry and Cell Biology, SIBS, CAS, China)**
 - Cryo-EM study on asymmetric and dynamic macromolecular machines
 - **SangYun Kim, Ph.D. (Medical school on Alzheimer's disease, Seoul National University, Korea)**
 - New concepts of Alzheimer's disease: diagnosis and treatment
 - **SeungJae Lee, Ph.D. (Medical Graduate School on Cellular transmission of alpha-synuclein, Konkuk University, Korea)**
 - Lysosomal function is the key determinant of propagation of synucleinopathy
 - **David Churchill, Ph.D. (Department. of Chemistry, KAIST, Korea)**
 - Small molecules in the context of phosphorylated PD proteins
-

The most recent topics in “Protein folding diseases” will be discussed.

Organizer and Chair 1: Yao Cong, Ph.D. (Institute of Biochemistry and Cell Biology, SIBS, CAS, China)

Organizer and Chair 2: Sungsoo Ahn, Ph.D. (Gachon University, Korea)

Symposium 1C: Protein folding and dynamics

May 17 (Sat), 14:30-16:15, ROOM: BAEKROK A

- **Kunihiro Kuwajima, Ph.D. (The Graduate University for Advanced Studies, Hayama, Kanagawa, Japan)**
 - The problem of protein folding and its relationship to bioscience
 - **Jayant B. Udgaonkar, Ph.D. (National Centre for Biological Sciences, Tata Institute of Fundamental Research, India)**
 - Unfolding of a small protein proceeds via dry and wet globules and a solvated transition state
 - **Wei Wang, Ph.D. (School of Physics, Nanjing University, China)**
 - Metal ion binding induced folding and allosteric motions of proteins
 - **Jooyoung Lee, Ph.D. (Korea Institute for Advanced Study Seoul, Korea)**
 - The atomistic mechanism of conformational transition of adenylate kinase investigated by Lorentzian structure-based potential
 - **Matthias Buck, Ph.D. (Case Western Reserve University, USA)**
 - Molecular Simulation and Experimental Study of Transitions and Dissociation Events in a Dynamic Protein Complex
-

The most recent topics in “Theory and experiments for protein folding, unfolding, and dynamics etc.” will be discussed.

Organizer and Chair 1: Satoshi Takahashi, Ph.D. (Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan)

Organizer and Chair 2: Jooyoung Lee, Ph.D. (Korea Institute for Advanced Study, Korea)

Symposium 1D: Structural targetomics for drug discovery

May 17 (Sat), 14:30-16:15, ROOM: BAEKROK B

- **Jeong-Kyu Bang, Ph.D. (Division of Magnetic Resonance, Korea Basic Science Institute, Korea)**
 - Design and synthesis of small molecule inhibitors targeting the polo-box domain of polo-like kinase 1
 - **Kwang Yeon Hwang, Ph.D. (College of Life Sciences & Biotechnology, Korea University, Korea)**
 - Structural and mechanistic studies for the interaction of prolyl-tRNA synthetase and halofuginone, the anti-cancer and -fibrotic compound
 - **Yunje Cho, Ph.D. (Department of Life Science, POSTECH, Korea)**
 - Regulation of cellular metabolism and signaling through an ordered assembly of amino acyl tRNA synthetase
 - **Young Ho Jeon, Ph.D. (College of Pharmacy, Korea University, Korea)**
 - Pro-metastatic interaction between the two translational components and its therapeutic potential
-

The most recent topics in “Structural targetomics for drug discovery” will be discussed.

Organizer and Chair: Young-Ho Jeon, Ph.D. (Korea University, Korea)

Symposium 2A: Protein catabolism and trafficking

May 18 (Sun), 09:00-10:30, ROOM: YEONGJU A

- **Nobuo N. Noda, Ph.D. (Institute of Microbial Chemistry, Japan)**
 - Structural basis of autophagy initiation by starvation
 - **Koji Okamoto, Ph. D. (Graduate School of Frontier Biosciences, Osaka University, Japan)**
 - Targeting autophagy for mitochondrial clearance
 - **Machiko Sakoh-Nakatogawa, Ph. D. (Frontier Research Center, Tokyo Institute of Technology, Japan)**
 - Regulation of lipidation of the ubiquitin-like protein Atg8 that drives autophagosome formation
 - **Taijoon Chung, Ph.D. (Department of Biological Sciences, Pusan National University, Korea)**
 - Autophagy of peroxisomes in plant cells
 - **Hyun Kyu Song, Ph.D. (Division of Life Sciences, Korea University, Korea)**
 - Structural basis of autophagosome maturation by swapping interaction partners of Atg5
-

The most recent topics in “Protein degradation, autophagy, proteolytic enzymes, ubiquitination-dependent proteolysis” will be discussed.

Organizer and Chair 1: Nobuo N. Noda, Ph.D. (Institute of Microbial Chemistry, Japan)

Organizer and Chair 2: Hyun Kyu Song, Ph.D. (Korea University, Korea)

Symposium 2B: Proteins in disease II

May 18 (Sun), 09:00-10:30, ROOM: YEONGJU B

- **Senyon Choe, Ph.D. (Salk Institute for Biological Studies, La Jolla, USA)**
 - Drug discovery collaboratory by CNDY and RASCH
 - **Joon Kim, Ph.D. (Division of Life Sciences, Korea University, Korea)**
 - Ribosomal proteins play important roles for the determination of cell fate under stress conditions
 - **Chinpan Chen, Ph.D. (Institute of Biomedical Sciences, Academia Sinica, Chinese Taipei)**
 - Structure of the activated full-length PmrA response regulator in complex with DNA from *Klebsiella pneumoniae*
 - **Feng Shao, Ph.D. (National Institute of Biological Sciences, Beijing, China)**
 - Biochemical dissection of bacterial virulence and macrophage innate immunity
-

The most recent topics in “Pathogenesis-related proteins” will be discussed.

Organizer and Chair 1: Tai-Huang Huang, Ph.D. (Institute of Biomedical Sciences, Academia Sinica, Chinese Taipei)

Organizer and Chair 2: Myung Hee Kim, Ph.D. (Korea Research Institute of Bioscience and Biotechnology, Korea)

Symposium 2C: Protein analysis techniques I

May 18 (Sun), 09:00-10:30, ROOM: BAEKROK A

- **Hongwei Wang, Ph.D. (Tsinghua University, China)**
 - Visualization of distinct substrate recruitment pathways in the yeast exosome by electron microscopy
 - **Kenji Sugase, Ph.D. (Suntory Institute for Bioorganic Research, Japan)**
 - Dynamics of nuclear proteins analyzed by relaxation NMR spectroscopy
 - **Tae-Young Yoon, Ph.D. (Korea Advanced Institute of Science and Technology, Korea)**
 - Personalized diagnosis of cancers at the protein-protein interaction level with real-time single-molecule co-IP analysis
 - **Jose M.M. Caaverio, Ph.D. (University of Tokyo, Japan)**
 - Thermodynamic Tools in the Early Stages of Drug Discovery
 - **Hajin Kim (Ulsan National Institute of Science and Technology, Korea)**
 - Protein-guided RNA dynamics during early ribosome assembly
-

The most recent topics in “Novel technologies in protein analysis - *in vitro*” will be discussed.

Organizer and Chair 1: Kouhei Tsumoto, Ph.D. (University of Tokyo, Japan)

Organizer and Chair 2: Tae-Young Yoon, Ph.D. (Korea Advanced Institute of Science and Technology, Korea)

Symposium 2D: Proteogenomics

May 18 (Sun), 09:00-10:30, ROOM: BAEKROK B

- **Daehee Hwang, Ph.D. (Department of New Biology, DGIST, Korea)**
 - An integrative proteogenomics approach in gastric cancer
 - **Myeong-Hee Yu, Ph.D. (Korea Institute of Science and Technology, Korea)**
 - How to achieve the goal of quantitative proteomics: 1000 immuno-MRM assay program
 - **Youngsoo Kim, Ph.D. (Seoul National University, Korea)**
 - International effort to develop analytically validated multiple reaction monitoring (MRM)-based assays to breast cancer cell proteins
 - **Eunok Paek, Ph.D. (Hanyang University, Korea)**
 - ExonGraph: Discovery of novel transcripts using nucleotide-based splice graphs
-

The most recent topics in “Proteogenomics” will be discussed.

Organizer and Chair 1: Eun Gyeong Yang, Ph.D. (Korean Institute of Science and Technology, Korea)

Organizer and Chair 2: Cheolju Lee, Ph.D. (Korean Institute of Science and Technology, Korea)

Symposium 3A: Protein modification

May 18 (Sun), 15:10-16:40, ROOM: YEONGJU A

- **Ho Chul Kang, Ph.D. (Department of Physiology, Ajou University School of Medicine, Korea)**
 - Structural and functional roles of both Poly(ADP-ribose) and Poly(ADP-ribosylation)
 - **Yong Chen, Ph.D. (National Center for Protein Science Shanghai, China)**
 - The structural basis for activity regulation of MLL-family histone methyltransferase
 - **Ji-Hong Lim, Ph.D. (Biomedical Chemistry, Konkuk University, Korea)**
 - PKA (Protein Kinase A) phosphorylates and activates SIRT1
 - **Tadashi Satoh, Ph.D. (Nagoya City University, Japan)**
 - Structural insight into substrate recognition mechanism of glycoprotein processing enzyme ER glucosidase II
-

The most recent topics in “Protein modification, ubiquitination, sumoylation, phosphorylation, acetylation, methylation etc.” will be discussed.

Organizer and Chair 1: Yong Chen, Ph.D. (National Center for Protein Science Shanghai, China)

Organizer and Chair 2: Young Jun Kim, Ph.D. (Konkuk University, Korea)

Symposium 3B: Proteins as therapeutics I

May 18 (Sun), 15:10-16:40, ROOM: YEONGJU B

- **Kouhei Tsumoto, Ph.D. (Department of Bioengineering, Graduate School of Engineering, Japan Institute of Medical Science, The University of Tokyo, Japan)**
 - How we can improve affinity of antibodies for the targets for therapeutics
 - **Junho Chung, Ph.D. (Department of Biochemistry and Molecular Biology & Cancer Research Institute Seoul National University College of Medicine, Korea)**
 - In vitro and in vivo application of anti-cotinine antibody and cotinine-conjugated compounds
 - **Tse Wen Chang, Ph.D. (Genomics Research Center Academia Sinica Taipei, Chinese Taipei)**
 - Rational drug design: antibodies for treating severe asthma and allergy
 - **Sang Taek Jung, Ph.D. (Department of Bio and Nano Chemistry, Kookmin University, Korea)**
 - Tailoring Aglycosylated Antibodies for a New Class of Next –Generation Immunotherapeutics
-

The most recent topics in “Antibodies and vaccines” will be discussed.

Organizer and Chair 1: Tse-Wen Chang, Ph.D. (Genomics Research Center, Academia Sinica, Chinese Taipei)

Organizer and Chair 2: Junho Jung, Ph.D. (Seoul National University, Korea)

Symposium 3C: Protein analysis techniques II

May 18 (Sun), 15:10-16:40, ROOM: BAEKROK A

- **Kozo Kaibuchi, Ph.D. (Department of Cell Pharmacology, Nagaya University, Graduate School of Medicine, Japan)**
 - Protein phosphorylation remains a black box in signal transduction: developing new methods to search for substrates of specific kinases including Rho-kinase
 - **Won Do Heo, Ph.D. (Department of Biological Sciences, KAIST, Korea)**
 - Optical control of cell signaling in mammalian cells
 - **Rahul Roy, Ph.D. (Indian Institute of Science, India)**
 - Spatial organization and dynamics of eukaryotic gene regulation
 - **Willem M. Albers, Ph.D. (BioNavis Ltd, Finland)**
 - Multi-Parametric Surface Plasmon Resonance (MP-SPR): new possibilities for characterization of biomolecular layers
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The most recent topics in “Novel technologies in protein analysis - *in vivo*” will be discussed.

Organizer and Chair 1: Kozo Kaibuchi, Ph.D. (Nagoya University, Graduate School of Medicine, Japan)

Organizer and Chair 2: Sungchul Hohng, Ph.D. (Seoul National University, Korea)

Symposium 3D: Intrinsically disordered protein

May 18 (Sun), 15:10-16:40, ROOM: BAEKROK B

- **Kyou-Hoon Han, Ph.D. (Korea Research Institute of Bioscience and Biotechnology, Korea)**
 - Session Introduction: A brief overview on IDPs (No abstract available)
 - **Carmay Lim, Ph.D. (Institute of Biomed. Sci., Academia Sinica, Chinese Taipei)**
 - Two potential therapeutic antibodies bind to a peptide segment of membrane-bound IgE in different conformations
 - **Hong-Yu Hu, Ph.D. (Shanghai Institutes for Biological Sciences, China)**
 - Ordered in disordered: structural transformation of the amyloidogenic core in the C-terminal part of TDP-43
 - **Hugh I. Kim, Ph.D. (Pohang University of Science and Technology, Korea)**
 - Structural transitions of intrinsically disordered α -synuclein to helix by hydrophobic interaction with neutral lipid membrane
 - **Gary Daughdrill, Ph.D. (University of South Florida, USA)**
 - Evolution of transient helical secondary structure in intrinsically disordered proteins
 - **Mamoru Sato, Ph.D. (Yokohama City University, Japan)**
 - Protein flexibility investigated by SAXS and MD simulation
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The most recent topics in “Intrinsically Disordered Protein” will be discussed.

Organizer and Chair 1: Jin-Hyun Ahn, Ph.D. (Sungkyunkwan University, Korea)

Organizer and Chair 2: Mi-Hee Lim, Ph.D. (Ulsan National Institute of Science and Technology, Korea)

Symposium 4A: Proteins in emerging fields II

May 18 (Sun), 17:00-18:30, ROOM: YEONGJU A

- **Injae Shin, Ph.D. (Department of Chemistry, Yonsei University, Korea)**
 - Glycan microarrays as a powerful tool for studies of glycan-protein interactions
 - **Andrew H.-J. Wang, Ph.D. (Institute of Biological Chemistry, Academia Sinica, Chinese Taipei)**
 - DNA mimic proteins: a new paradigm for regulation of DNA functions
 - **Hyun-Suk Lim, Ph.D. (Department of Chemistry, Pohang University of Science and Technology, Korea)**
 - Targeting protein-protein interactions using proteomimetics
 - **James Ketudat Cairns, Ph.D. (Department of Biochemistry Suranaree University of Technology, Nakhon Ratchasima, Thailand)**
 - Protein-carbohydrate interactions leading to specificity in plant glycoside hydrolase family 1 enzymes
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The most recent topics in “Structural and/or functional studies of hot proteins in various fields including glycobiology, protein-protein or protein-DNA interactions etc.” will be discussed.

Organizer and Chair 1: Andrew H.-J. Wang, Ph.D. (Institute of Biological Chemistry, Academia Sinica, Chinese Taipei)

Organizer and Chair 2: Injae Shin, Ph.D. (Yonsei University, Korea)

Symposium 4B: Proteins as therapeutics II

May 18 (Sun), 17:00-18:30, ROOM: YEONGJU B

- **Zhou Songyang, Ph.D. (Sun Yat-Sen University School of Life Sciences, China)**
 - Telomere signaling networks
 - **Ruibao Ren, Ph.D. (Shanghai Jiao-Tong University School of Medicine, China)**
 - Targeting the RAS signaling network
 - **Sangyong Jon, Ph.D. (Department of Biological Sciences, KAIST, Korea)**
 - Biomedical applications of aptides
 - **Byeong Doo Song, Ph.D. (Scripps Korea Antibody Institute, Korea)**
 - Protein combination enables facile construction of spatially addressed antibody library for functional screening
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The most recent topics in “Hormones, growth factors, cytokines, peptides, and chimeric proteins” will be discussed.

Organizer and Chair 1: Ruibao Ren, Ph.D. (Shanghai Jiatong University Medical School, Ruijing Hospital, China)

Organizer and Chair 2: Yong Sung Kim, Ph.D. (Ajou University, Korea)

Symposium 4C: Protein design and engineering

May 18 (Sun), 17:00-18:30, ROOM: BAEKROK A

- **Seung-Goo Lee, Ph.D. (KRIBB, Korea)**
 - Genetic devices for protein engineering and synthetic biology
 - **Katsumi Maenaka, Ph.D. (Hokkaido University, Japan)**
 - Protein expression systems for cell surface receptors
 - **Abu Bakar Salleh, Ph.D. (Department of Biochemistry, University Putra Malaysia, Malaysia)**
 - Miniaturization of proteins for possible catalytic functions
 - **Guan Siyu, Ph.D. (Nanyang Technology University, Singapore)**
 - Characterization of Single Amino Acid Substitutions in the $\beta 2$ Integrin Subunits of Patients with Leukocyte Adhesion Deficiency (LAD)-1
 - **Madan Bharat (Pusan National University, Korea)**
 - Modulation of intracellular protein activity at level of protein folding by beta-turn engineering
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The most recent topics in “Protein design, engineering and synthetic biology” will be discussed.

Organizer and Chair 1: Katsumi Maenaka, Ph.D. (Hokkaido University, Faculty of Pharmaceutical Science, Japan)

Organizer and Chair 2: Hak-Sung Kim, Ph.D. (Korea Advanced Institute of Science and Technology, Korea)

Symposium 4D: Structure-function of GPCR

May 18 (Sun), 17:00-18:30, ROOM: BAEKROK B

- **Wei Liu, Ph.D. (Scripps Research Institute, USA)**
 - Serial femtosecond crystallography of G protein-coupled receptors
 - **Jae Young Seong, Ph.D. (Korea University, Korea)**
 - Ligand binding pocket formed by evolutionarily conserved residues in the GLP1 receptor core domain
 - **Han Choe, Ph.D. (University of Ulsan, Korea)**
 - Homology modeling of GPCRs
 - **Art Cho, Ph.D. (Korea University, Korea)**
 - Targeting GPCR's
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The most recent topics in “Structure-function of GPCR ” will be discussed.

Organizer and Chair 1: Hyun-Soo Cho, Ph.D. (Yonsei University, Korea)

Organizer and Chair 2: Wontae Lee, Ph.D. (Yonsei University, Korea)

Symposium 5A: Protein anabolism

May 19 (Mon), 10:30-12:15, ROOM: YEONGJU A

- **Weiping Han, Ph.D. (Department of Biochemistry, National University of Singapore, Singapore)**
 - Regulated exocytosis and diabetes.
 - **Lu Lei, Ph.D. (School of Biological Sciences, Nanyang Technological University, Singapore)**
 - A novel imaging method for systematic super-localizations of Golgi proteins.
 - **Han-Jung Chae, Ph.D. (Department of Pharmacology, Chonbuk National University Medical School, Korea)**
 - BAX Inhibitor-1-associated V-ATPase glycosylation enhances collagen degradation
 - **Jinsong Liu, Ph.D. (Guangzhou Institutes of Biomedicine and Health, China)**
 - Structural Studies on Sorting Nexins
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The most recent topics in “protein synthesis, folding, translation, and trafficking” will be discussed.

Organizer and Chair 1: Wanjin Hong, Ph.D. (Institute of Molecular and Cell Biology, Singapore)

Organizer and Chair 2: Kyung Tae Chung, Ph.D. (Dong-Eui University, Korea)

Symposium 5B: Proteins as drug targets

May 19 (Mon), 10:30-12:15, ROOM: YEONGJU B

- **Sung-Jean Park, Ph.D. (Gachon University, Korea)**
 - Discovery of a novel compound acting on the C-terminal domain of HSP90: Knowledge-based approach
 - **Toshiyuki Shimizu, Ph.D. (University of Tokyo, Japan)**
 - Structural study of TLR8 sensing single stranded RNA in innate immune system
 - **Beili Wu, Ph.D. (Shanghai Institute of Materia Medica, China)**
 - Structural studies of HIV-1 co-receptors CXCR4 and CCR5
 - **Xin Xie, Ph.D. (Shanghai Institute of Materia Medica, China)**
 - Targeting G protein-coupled receptors for the treatment of autoimmune diseases.
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The most recent topics in “Target identification and validation” will be discussed.

Organizer and Chair 1: Xin Xie, Ph.D. (Shanghai Institute of Materia Medica, China)

Organizer and Chair 2: Jun-Goo Jee, Ph.D. (Kyungpook National University, Korea)

Symposium 5C: Proteins in nanobiotechnology

May 19 (Mon), 10:30-12:15, ROOM: BAEKROK A

- **Haesik Yang, Ph.D. (Pusan National University of Chemistry, Korea)**
 - Ultrasensitive immunosensors using redox cycling combined with enzymatic amplification
 - **Fan-Gang Tseng, Ph.D. (UCLA of Engineering and System Science, USA)**
 - High throughput 3-in-1 protein chip toward ultra-sensitive single protein nano array
 - **Ryuji Yokokawa, Ph.D. (Kyoto University of Micro Engineering, Japan)**
 - Nano system integration using micro/nano fabrications and motor proteins
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The most recent topics in “Proteins for nanobiotechnology application including sensors and drug delivery” will be discussed.

Organizer and Chair 1: Ryuji Yokokawa, Ph.D. (Kyoto University, Japan)

Organizer and Chair 2: Sangyong Jon, Ph.D. (Korea Advanced Institute of Science and Technology, Korea)

Symposium: 5D Cancer biomarker discovery by proteomics and glycoproteomics

May 19 (Mon), 10:30-12:15, ROOM: BAEKROK B

- **Jong Shin Yoo, Ph.D. (Korea Basic Science Institute, Korea)**
 - The Advent of High throughput Glycoproteomics and Application to Biomarker Discovery in Human Plasma
 - **Je Yeol Cho, Ph.D. (Seoul National University, Korea)**
 - Lung Cancer Proteome Biomarkers: Discovery, Validation and Clinical Assay Development
 - **Hyun Joo An, Ph.D. (Chungnam National University, Korea)**
 - The sweet spot of post-translational modifications – understanding the role of the glycosylation in diseases and health
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The most recent topics in “Cancer biomarker discovery by proteomics and glycoproteomics” will be discussed.

Organizer and Chair: Jong Shin Yoo, Ph.D. (Korea Basic Science Institute, Korea)

Symposium 6A: Proteins in membranes

May 20 (Tue), 09:00-10:45, ROOM: YEONGJU A

- **Yeon-Kyun Shin, Ph.D. (Iowa State University, USA)**
 - Reconstructing synaptic membrane fusion
 - **Tae-Joon Jeon, Ph.D. (Inha University, Korea)**
 - Biomimetic membranes for ion channel studies and engineered sensor applications
 - **Masaki Yamamoto, Ph.D. (Advanced Photon Technology of RIKEN SPring-8 Center, Japan)**
 - Macromolecular crystallography at SPring-8 and SACLA
 - **Atsushi Nakagawa, Ph.D. (Osaka University, Japan)**
 - Crystal Structure of Voltage-gated Proton Channel, Hv1/VSOP
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The most recent topics in “Structure, function, and/or production of membrane-bound proteins” will be discussed.

Organizer and Chair 1: Che (Alex) Ma, Ph.D. (Genomics Research Center, Academia Sinica, Chinese Taipei)

Organizer and Chair 2: Yeon-Kyun Shin, Ph.D. (Iowa State University, USA)

Symposium 6B: Proteins and drug discovery

May 20 (Tue), 09:00-10:45, ROOM: YEONGJU B

- **Po-Huang Liang, Ph.D. (Academia Sinica, Chinese Taipei)**
 - Protein-protein interaction inhibitors against drug-resistant cancers
 - **Koichi Kato, Ph.D. (Okazaki Institute for Integrative Bioscience, National Institutes of Natural Sciences, Japan)**
 - Structural views of glycosylation as potential drug target
 - **Sun Choi, Ph.D. (Ewha Womans University, Korea)**
 - Computer-aided drug discovery of adenosine receptor modulators using multiple receptor conformation and network analysis
 - **Raymond S. Norton, Ph.D. (Monash University, Australia)**
 - Developing new anti-malarial agents using fragment-based drug discovery
 - **Qian Wang (Peking University, China)**
 - Discovery of Novel Allosteric Effectors Based on the Predicted Allosteric Sites for Escherichia Coli D-3-Phosphoglycerate Dehydrogenase
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The most recent topics in “Protein-targeted drug discovery and protein-drug interaction” will be discussed.

Organizer and Chair 1: Jia Li, Ph.D. (Shanghai Institute of Materia Medica, China)

Organizer and Chair 2: Sun Choi, Ph.D. (Ewha Womans University, Korea)

Symposium 6C: Protein bioinformatics

May 20 (Tue), 09:00-10:45, ROOM: BAEKROK A

- **Motonori Ota, Ph.D. (Nagoya University, Japan)**
 - How an intrinsically disordered region function: a case of CARMIL protein
 - **Kwang-Hyun Cho, Ph.D. (Korea Advanced Institute of Science and Technology, Korea)**
 - Systems biology: How to understand the functional interaction network of proteins
 - **Nozomi Nagano, Ph.D. (National Institute of Advanced Industrial Science and Technology, Japan)**
 - Biosynthetic mechanism prediction for a secondary metabolite, ustiloxin B, in *Aspergillus flavus*
 - **Keun Woo Lee, Ph.D. (Gyeongsang National University, Korea)**
 - Computer-aided drug design/discovery (CADD) via systems biology
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The most recent topics in “Database, Systems biology, Modeling, etc.” will be discussed.

Organizer and Chair 1: Nozomi Nagano, Ph.D. (National Institute of Advanced Industrial Science and Technology, Japan)

Organizer and Chair 2: Keun Woo Lee, Ph.D. (Gyeongsang National University, Korea)

Symposium 6D: Frontiers in protein sciences

May 20 (Tue), 09:00-10:45, ROOM: BAEKROK B

- **Kurt L. Krause, Ph.D. (Department of Biochemistry, University of Otago, New Zealand)**
 - Orf virus chemokine binding protein – structural basis of chemokine binding
 - **Peter Czabotar, Ph.D. (The Walter and Eliza Hall Institute of Medical Research, Australia)**
 - Crystal structures of Bax and Bak reveal molecular events initiating apoptosis
 - **Hyung-Sik Won, Ph.D. (Konkuk University, Korea)**
 - A protein allostery that discriminates cyclic nucleotide second messengers
 - **Yi Liang, Ph.D. (Wuhan University, China)**
 - Amino acid sequence influences fibril formation of the recombinant full-length prion proteins
 - **James Torres, Ph.D. (Nanyang Technological University, Singapore)**
 - Structural and functional aspects of viroporins in enveloped viruses
 - **Young Mee Jung, Ph.D. (Kangwon University, Korea)**
 - 2D Correlation Analysis of Protein Denaturation
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The most recent topics in “Frontier protein sciences” will be discussed.

Organizer and Chair: Cheol-Won Lee, Ph.D. (Department of Chemistry, Chonnam Nat'l University, Korea)

➤ Young Scientists Talk I

May 17 (Sat), 13:20-14:20, ROOM: YEONGJU A

- **Winnie Ariesandi (Academia Sinica, Chinese Taipei)**
 - Temperature-dependent structural changes of Parkinson's alpha-synuclein reveal the role of pre-existing oligomers in alpha-synuclein fibrillization
 - **Xinmiao Fu (Peking University, China)**
 - In vivo substrate diversity and preference of small heat shock protein IbpB as revealed by using a genetically incorporated photo-crosslinker
 - **Tae Hun Kim (University of Toronto, Canada)**
 - Conformational dynamics in the regulation of β 2-adrenergic receptor signaling
 - **Yuxi Lin (Osaka University, Japan)**
 - Solubility and supersaturation-dependent protein misfolding revealed by ultrasonication
 - **Yong-Yea Park (Ajou University School of Medicine, Korea)**
 - MARCH5-mediated quality control on acetylated Mfn1 facilitates mitochondrial homeostasis and cell survival
 - **Mayu S. Terakawa (Osaka University, Japan)**
 - Membrane Curvature Affects the Fibrillation of Amyloid β
-

Oral presentations by six eminent young scientists (Ph.D. students or Post-Doc) selected in the symposia topics

Organizer and Chair 1: Raja Noor Zaliha Raja Abd. Rahman, Ph.D. (Enzyme and Microbial Technology Research Center, Malaysia)

Organizer and Chair 2: Alex Law, Ph. D. (School of Biological Sciences, Nanyang Technological University Singapore)

➤ Young Scientists Talk II

May 20 (Tue), 11:40-12:40, ROOM: YEONGJU A

- **Bui Chi Bao (University of medicine and pharmacy Hochiminh city, Vietnam)**
 - Characteristics of oxidized LDL and technetium 99m for non-invasive SPECT/CT imaging of atherosclerotic diseases
 - **Tae Su Choi (Pohang University of Science and Technology, Korea)**
 - The effect of environmental factors on amyloid assembly of insulin
 - **Khanit Ruangjaroon (Chulabhorn Graduate Institute, Thailand)**
 - Toxicoproteomics revealed neuronal projection and developmental impairment of human neuroblastoma cells upon treatment with fipronil
 - **Yuichi Yoshimura (Aarhus University, Denmark)**
 - Inhibition of α -synuclein oligomer toxicity by epigallocatechin gallate
 - **Chen Yu (Peking University, China)**
 - Discovery of Compounds that Can Bind to Intrinsically Disordered Proteins
 - **Li Zhang (National Institute of Biological Sciences, Beijing, China)**
 - Manipulation of host signal transduction by secreted effectors from enteropathogenic *E. coli*
-

Oral presentations by six eminent young scientists (Ph.D. students or Post-Doc) selected in the symposia topics

Organizer and Chair 1: James R. Ketudat-Cairns, Ph.D. (Suranaree University of Technology, Thailand)

Organizer and Chair 2: Byeong Doo Song, Ph.D. (Scripps Korea Antibody Institute, Korea)