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Korean

Society

Molecular

Cellular

Biology

2017 International Conference of the Korean Society for Molecular and Cellular Biology

September / 2017

12 (Tue) ▶ 14 (Thu)

COEX, Seoul, Korea

Seminar : Conference Room (3F-4F)

Exhibition & Poster Presentation : Hall D1 (3F)

I Organization I

Korean Society for Molecular and Cellular Biology

I Sponsors I

KOFST

KOREA TOURISM ORGANIZATION

SEOUL METROPOLITAN GOVERNMENT

Contents

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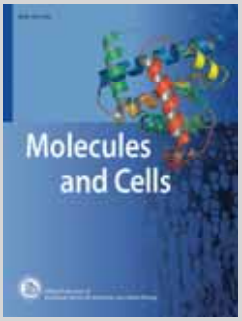


- Korea's leading online open-access journal in the life science
- Indexed in Science Citation Index (SCI)
- International readership
- Spans the breath of molecular and cellular biology
- Monthly publication
- Rapid review
- URL: http://www.molcells.org
- eISSN 0219-1032

*Impact factor 3.054

Invitation

Dear Colleagues,

On behalf of the organizing committee, I cordially invite all of you to participate the 29th International Conference of the Korean Society for Molecular and Cellular Biology (IC-KSMCB), which will be held at the convention center of COEX in Seoul, Republic of Korea from September 12-14, 2017. COEX is located in Gang-Nam, the new town of Seoul. The utmost purpose of our conference is to provide the scientific platform for sharing cutting edge knowledge with all participants, which will integrate expertise in the sciences of Basic Molecular Biology, Fisheries and Agriculture, and Biomedical Research. We are confident that this conference will provide all attendants with the most up-to-date information on the latest scientific achievements and will facilitate collaborative networks among the domestic and international scientists as well as graduate students. Furthermore, I am sure that this conference might be the exciting year-round scientific festival along with the 5 regional chapters and 20 satellite academic sections. There will be a series of many award lectures and 20 symposia focused on the latest research breakthroughs, more than 150 world-class researchers from domestic and foreign institutions will discuss about the cutting-edge studies in the symposia. We also invited world-renowned active scientists for plenary lectures; **Prof. Masayuki Yamamoto** at Tohoku University from Japan is going to deliver "*The KEAP1-NRF2 Stress Responses System in Biology and Medicine*", **Prof. James H. Hurley** at UC Berkeley from USA will talk about "*Molecular Mechanisms of Membrane Remodeling*", **Prof. Robert T. Sauer** at MIT from USA is going to talk about "*Structure and Function of the ATP-Fueled ClpXP Protein-Degradation Machine*", and **Prof. Marianne Bronner** at Cal Tech from USA is going to talk "*Gene Regulatory Analysis of Neural Crest Development*". One of the highlights of IC-KSMCB will be the poster presentation program together with the exhibition of research materials, bio-tools, and equipments. There will be a series of ceremonies for the academic research awards, travel grant awards, and the outstanding poster presentation awards to the young domestic and international participants.

I sincerely hope that all the attendants enjoy this **Scientific Festival** under the stimulating environment and get together more closely for future collaborations.

I am anticipating to meet you at the International Conference of the KSMCB at COEX in Seoul, Korea during September 12-14, 2017.

In Kyoung Lim M.D., Ph.D.
2017 President
Korean Society for Molecular and Cellular Biology

Schedule

■ Tuesday, September 12, 2017

Time/Place	Rm. 300	Rm. 307	Rm. 308	Rm. 401	Rm. 402
09:00–10:00	Registration				
10:00–11:40	Young Investigators' Session 1	Young Investigators' Session 2	Young Investigators' Session 3	AMOREPACIFIC Great Global Next Generation Research Award Lectures	Global Network Session
11:40–13:00	Break				
13:00–15:00	**Sym. 01** Crop Breeding by Genome-Editing	**Sym. 02** Social Behaviors Modulated by Synaptic and Circuit Mechanisms	**Sym. 03** The Control of Translation and RNA Degradation	**Sym. 04** Regulation of Metabolic Signaling and Disease	**Sym. 05** Host Responses to Immune Stimuli
15:00–15:20	Break				
15:20–15:40	Opening Ceremony (Rm. 401)				
15:40–16:30	Plenary Lecture I. Masayuki Yamamoto, M.D., Ph.D. (Rm.401)				
16:30–17:00	Macrogen Scientist Award Lecture (Rm. 401)				
17:00–17:30	KSMCB Award for Women in Life Science Lecture (Rm. 401)				

■ Wednesday, September 13, 2017

Time/Place	Rm. 300	Rm. 307	Rm. 308	Rm. 401	Rm. 402	Hall D1(3F) Poster/Exhibition
08:00–09:10	Registration					
09:10–11:10	**Sym. 06** Molecular Mechanism of Airway Inflammation: Differences in the Upper and Lower Airway	**Sym. 07** Interaction between Hepatitis Viruses and Host	**Sym. 08** Exosome: From Biology to Applications	**Sym. 09** Chromatin Dynamics in Cell Cycle	**Sym.10** New Trends in Structural Biology: High Resolution Cryo Electron Microscopy	
11:10–11:30	Break					
11:30–12:20	Plenary Lecture II. James H. Hurley, Ph.D. (Rm.401)					
12:20–13:10	Presentation of Korea Research Institute of Bioscience and Biotechnology (KRIBB)'s Infrastructure	Koram Biotech – ATCC Seminar with Dr. Goldsborough, Chief Science Officer	ZEISS Korea – Automated Platform for Live Cell Imaging	National OncoVenture (NOV) Symposium	KSMCB Council Meeting	Poster Posting I (09:00–18:00) *Poster Presentation I (13:10–15:00)
13:10–15:00	Break & Poster Viewing (Hall D1)					
15:00–15:50	Plenary Lecture III. Robert T. Sauer, Ph.D. (Rm. 401)					
15:50–16:00	Break					
16:00–18:00	**Sym.11** Molecular Mechanisms of Plant Immunity	**Sym.12** Transposable Elements from Evolution to Disease	**Sym.13** Nano-Biomedical Convergence for Translational Research on Retionapthy	**Sym.14** The Wnt/β-Catenin Signaling and Its Cross-Talk in the Tumorigenesis	**Sym.15** New Perspectives on Bioactive Lipids	
18:00–19:00	Welcome Reception for Principal Investigators (Hall E5–E6, COEX 3F)		Welcome Reception for Students/Postdoctoral Fellows (Rm. 401, COEX 4F)			

■ Thursday, September 14, 2017

Time/Place	Rm. 300	Rm. 307	Rm. 308	Rm. 401	Rm. 402	Hall D1(3F) Poster/Exhibition
08:00–09:10	Registration					
09:10–11:10	**Sym. 16** Novel Genetic and Epigenetic Modules Underlying Animal Physiology	**Sym. 17** Chemoresistance in Cancer Therapy	**Sym. 18** Mitochondrial Metabolism and Mitophagy	**Sym. 19** Hippocampus and Memory	**Sym. 20** Regulation of Cellular Network and Extracellular Matrix (ECM) in Tumor Microenvironment	
11:10–11:30	Break					
11:30–12:20	Plenary Lecture IV. Marianne E. Bronner, Ph.D. (Rm. 401)					Poster Posting II (09:00–17:00)
12:20–13:10	Research Ethics Sym. (Korean)			KSMCB General Assembly		*Poster Presentation II (13:10–15:00)
13:10–15:00	Break & Poster Viewing (Hall D1)					
15:00–15:50	Presidential Award Lecture (Rm. 401)					
15:50–16:20	Ilchun Memorial Lecture (Rm. 401)					
16:20–16:40	Break					
16:40–17:20	KSMCB Life Science Award Lecture (Rm. 401)					
17:20–18:00	M&C Award / TaKaRa Excellence Thesis Awards / SeouLin Bioscience Outstanding Ph.D. Thesis Awards / Best Presentation Awards / Presentation Awards / Travel Grant Awards / Excellent Poster Awards & Closing Remarks (Rm. 401)					

◤ Luncheon Symposium

3F Conference Room (Lectures)
Hall D1 (Exhibition, Poster Presentation)

4F Conference Room (Plenary Lectures, Awards Lectures, Symposia, Reception)

Tuesday, September 12, 2017

	Session	Time	Place
1	Young Investigators' Session I	10:00-11:40	Rm. 300
2	Young Investigators' Session II		Rm. 307
3	Young Investigators' Session III		Rm. 308
4	AMOREPACIFIC Great Global Next Generation Research Award Lectures		Rm. 401
5	Global Network Session		Rm. 402
6	**Sym. 01** Crop Breeding by Genome-Editing	13:00-15:00	Rm. 300
7	**Sym. 02** Social Behaviors Modulated by Synaptic and Circuit Mechanisms		Rm. 307
8	**Sym. 03** The Control of Translation and RNA Degradation		Rm. 308
9	**Sym. 04** Regulation of Metabolic Signaling and Disease		Rm. 401
10	**Sym. 05** Host Responses to Immune Stimuli		Rm. 402
11	Opening Ceremony	15:20-15:40	Rm. 401
12	Plenary Lecture I. Masayuki Yamamoto, M.D., Ph.D.	15:40-16:30	Rm. 401
13	Macrogen Scientist Award Lecture	16:30-17:00	Rm. 401
14	KSMCB Award for Women in Life Science Lecture	17:00-17:30	Rm. 401

Wednesday, September 13, 2017

	Session	Time	Place
1	**Sym. 06** Molecular Mechanism of Airway Inflammation: Differences in the Upper and Lower Airway	09:10-11:10	Rm. 300
2	**Sym. 07** Interaction between Hepatitis Viruses and Host		Rm. 307
3	**Sym. 08** Exosome: From Biology to Applications		Rm. 308
4	**Sym. 09** Chromatin Dynamics in Cell Cycle		Rm. 401
5	**Sym. 10** New Trends in Structural Biology: High Resolution Cryo Electron Microscopy		Rm. 402
6	Plenary Lecture II. James H. Hurley, Ph.D.	11:30-12:20	Rm. 401
7	Presentation of Korea Research Institute of Bioscience and Biotechnology (KRIBB)'s Infrastructure	12:20-13:10	Rm. 300
8	Koram Biotech – ATCC Seminar with Dr. Goldsborough, Chief Science Officer		Rm. 307
9	ZEISS Korea – Automated Platform for Live Cell Imaging		Rm. 308
10	National OncoVenture (NOV) Symposium		Rm. 401
11	KSMCB Council Meeting		Rm. 402
12	Plenary Lecture III. Robert T. Sauer, Ph.D.	15:00-15:50	Rm. 401
13	**Sym. 11** Molecular Mechanisms of Plant Immunity	16:00-18:00	Rm. 300
14	**Sym. 12** Transposable Elements from Evolution to Disease		Rm. 307
15	**Sym. 13** Nano-Biomedical Convergence for Translational Research on Retionapthy		Rm. 308
16	**Sym. 14** The Wnt/β-Catenin Signaling and Its Cross-Talk in the Tumorigenesis		Rm. 401
17	**Sym. 15** B62 New Perspectives on Bioactive Lipids		Rm. 402
18	Welcome Reception for Principal Investigators (Hall E5–E6, COEX 3F) / Welcome Reception for Students/Postdoctoral Fellows (Rm. 401, COEX 4F)	18:00-19:00	

Thursday, September 14, 2017

	Session	Time	Place
1	**Sym. 16** Novel Genetic and Epigenetic Modules Underlying Animal Physiology	09:10-11:10	Rm. 300
2	**Sym. 17** Chemoresistance in Cancer Therapy		Rm. 307
3	**Sym. 18** Mitochondrial Metabolism and Mitophagy		Rm. 308
4	**Sym. 19** Hippocampus and Memory		Rm. 401
5	**Sym. 20** Regulation of Cellular Network and Extracellular Matrix (ECM) in Tumor Microenvironment		Rm. 402
6	Plenary Lecture IV. Marianne E. Bronner, Ph.D.	11:30-12:20	Rm. 401
7	Research Ethics Symposium (Korean)	12:20-13:10	Rm. 300
8	KSMCB General Assembly		Rm. 401
9	Presedential Lecture Award	15:00-15:50	Rm. 401
10	Ilchun Memorial Lecture	15:50-16:20	Rm. 401
11	KSMCB Life Science Award Lecture	16:40-17:20	Rm. 401
12	M&C Award / TaKaRa Excellence Thesis Awards / SeouLin Bioscience Outstanding Ph.D. Thesis Awards / Best Presentation Awards / Presentation Awards / Travel Grant Awards / Excellent Poster Awards & Closing Remarks	17:20-18:00	Rm. 401

Call for Abstracts

* Deadline for Abstract Submission: August 11 (Fri), 2017
  - Abstracts should be written in English
  - Abstracts should be submitted online.
  - Authors may further edit and modify submitted abstracts until the submission deadline.
    It is the responsibility of the authors to ensure that their text does not contain types or grammatical errors.
  - No proofreading will be carried out, and no correction will be possible after the submission deadline.

Abstract Topics

- Aging and Age-Related Diseases
- Biochemistry, Structural Biology and Biophysics
- Bioimaging and Biotechnology
- Bioinformatics and Systems Biology
- Cell and Tissue Architecture
- Cell Cycle and Genome Stability
- Cell Death and Autophagy
- Development, Differentiation and Regeneration
- Epigenetics and Transcription
- Immunology and Immunological Diseases
- Lipids, Membranes and Trafficking
- Metabolism and Metabolic Diseases
- Microbiology, Virology and Pathogens
- Molecular and Cellular Neurobiology
- Molecular Cancer Biology
- Molecular Medicine
- Plant Development and Physiology
- Plant Stress Defense
- RNA and Translation
- Signal Transduction
- Stem Cells
- Systems Neuroscience
- Tumor Microenvironment
- Vascular Biology
- Others
- High School and Undergraduate Students' Posters
- Commercial Tutorials

Poster Presentation Date & Place

Session	Presentation Schedule	Q&A (Stand by)	Place
POSTER I	09:00-18:00, September 13, Wednesday	13:10-15:00	COEX 3F Hall D1
POSTER II	09:00-17:00, September 14, Thursday	13:10-15:00	

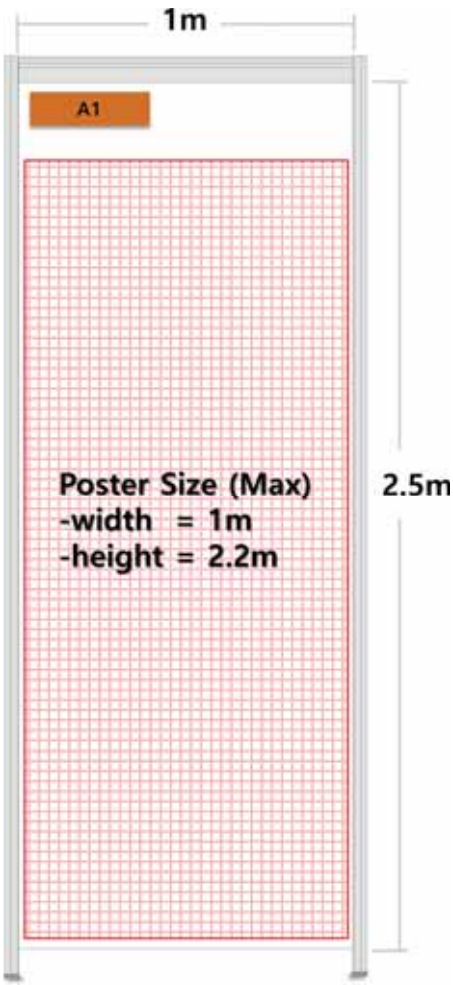
- Detailed schedule will be emailed to presenters by August 31, 2017.

General Guidelines for Poster Presentation

1. Presenters should finish registration for the conference.
2. Presenters will be asked to stand in front of their posters during the poster session.
   Especially, they need to be there within a specified window of time for the evaluation by referees.
3. The preferred content of poster has abstract, purpose of experiment, results (figures, tables), conclusions, and references.
4. The messages should be clear and easy to understand without oral explanation.
5. Please use tapes to attach your poster on the board. (Please bring your own tapes.); No pins or thumb tacks can be used.
6. Every poster has to be removed by presenters after their presentations.

Guidelines for attaching a poster

The size of poster board provided is 100 cm wide and 250 cm high.
Please prepare a 10-30 cm high headline strip that runs the full width of the poster with the title, author(s), and affiliation(s).
Please attach your poster 30-40 cm below the top of the poster board.



Awards

Academic Research Awards

Since 1994, the Foundation of the MOGAM Biological Engineering Research Center had sponsored the MOGAM Awards that recognize members of Korean Society for Molecular and Celluar Biology (KSMCB) who have contributed substantially to the advancement of molecular and cellular biology in Korea. Later, in 2001, these awards were replaced by the Academic Research Awards of the Korean Society for Molecular and Cellular Biology. Of these, the "KSMCB Life Science Award" is given to a Korean scientist who has creative research activity in the fields of molecular and cellular biology and exhibited outstanding research performance in Korea for the recent five years. The "Molecules and Cells Award" (M&C Award) is given to a member who has published the highly cited paper in Molecules and Cells, the main journal of KSMCB, during the previous three years. The awardees of the KSMCB Life Science Award and the M&C Award receives KRW 20,000,000 and KRW 3,000,000 as a cash prize, respectively, including plaque. The awardee of the KSMCB Life Science Award has given a lecture by the keynote speaker at the International Conference of KSMCB. Candidates of these awards have been recommended by the only members assigned by the member of the Academic Research Awards Committee and the awardees are selected by the strict review from the Academic Research Awards Committee.

KSMCB Award for Women in Life Science

To award the women scientists who have accomplished outstanding research achievement and contributions in the fields of life science, the KSMCB established Women's Life Science Award in 2016.
The awardee of the Women's Life Science Award receives KRW 10,000,000 as a cash prize, including plaque. The awardee of the Women's Life Science Award has given a lecture by the keynote speaker at the International Conference of KSMCB. Candidates of this award have been recommended by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee. This award is supported by the donations of the former KSMCB president, Sang-Dai Park who established our society in 1989.

Presidential Lecture Award

To award the distinguished scientists who have accomplished outstanding research achievement and contributions in the fields of life science, the KSMCB established KSMCB Presidential Lecture Award in 2017. The awardee of the KSMCB Presidential Lecture Award receives KRW 5,000,000 as a cash prize, including plaque. The awardee of the KSMCB Presidential Lecture Award has given a lecture by the keynote speaker at the International Conference of KSMCB. Candidates of this award have been recommended by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee. This award is supported by the donations of Hyen Sam Kang who served as the president of KSMCB in 1993.

Ilchun Memorial Lecture

Introduced in 1994, the Ilchun Memorial Lecture commemorates late Professor Ki-Young Lee, a pioneer of Korean molecular biology. Except 1999 and 2001, when the lecture was given every other year, the lecture has been given every year by the keynote speaker at the Annual Meeting of KSMCB. Candidates of the lecture have been recommended by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee.

Macrogen Scientist Award

To award the bright young scientists who have accomplished research achievement and contributions in the field of molecular and cellular biology, KSMCB established the "Macrogen Scientist Award" in 2003, awarded the 1st scientist in 2004. A junior researcher in a research department chief position (member) in Korea, or a Korean compatriot living outside Korea, is selected by the KSMCB board as the winner of the award. The winner will be awarded travel expenses including KRW 10,000,000 and will be presented with a plaque by the sponsor of the award, Macrogen Co. Candidates of this award have been recommended by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee.

AMOREPACIFIC Great Global Next Generation Research Awards

This award is given to research scientists including graduate student, postdoctoral research fellow, and regular/temporary doctoral researchers except faculty.
In order to be awarded, qualifications have to meet the criteria that the candidate must publish his research as the first author in the previous years, which should be performed in Korea.
The awardee is given prize money KRW 2,000,000 and plaque. Candidates of this award have been recommended

by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee. This award is sponsored by AMOREPACIFIC Co. since 2015.

SeouLin Bioscience Outstanding Ph.D. Thesis Awards

To encourage student researchers, since 1995, the society has given this award to a student member who wrote the best master or doctoral thesis of given year.
The awardee is given prize money KRW 1,000,000 and plaque. Candidates of this award have been recommended by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee. This award is sponsored by SeouLin Bioscience since 2015.

Takara Excellence Thesis Awards

This award is given to research scientists including graduate student, postdoctoral research fellow, and regular/temporary doctoral researchers except faculty.
In order to be awarded, qualifications have to meet the criteria that the candidate must publish his research as the first author in the past two years, which should be performed in Korea and abroad. (1 awardee from each field which is 1) natural sciences 2) medical science/pharmacology 3) agriculture/fishery science)
The awardee is given prize money KRW 2,000,000 and plaque. Candidates of this award have been recommended by the KSMCB regular member and the awardee is selected by the strict review from the Academic Research Awards Committee.
This award is sponsored by Takara Korea Biomedical Inc. since 2015.

❍ Above awards application forms are on the website, http://ksmcb.or.kr
❍ Awards Application Deadline: July 31, 2017

Presentation Award for Young Investigators

1. Eligibility
   (1) Ph.D. students and postdoctoral fellows who have applied to present posters.
   (2) Applicants' names must be on the posters they present. Only one person per poster is eligible for the award.
2. Procedure
   (1) Complete pre-registration and online abstract submission.
   (2) During the online abstract submission, click "Yes" radio button in the "Application for Oral Presentation" item.
   (3) The deadline for application is July 7 (Fri), 2017.
   (4) The Scientific Program Committee will review the abstracts. If you are selected as an "Oral Presenter", you will give an oral presentation on September 12 (Tue), 10:00-11:40. Each presentation time is 15 min (12 min presentation+ 3 min Q&A). All the oral presenters will receive Presentation Awards (certificate and KRW 100,000). In addition, the Committee will select several Best Presentation Awards (certificate and KRW 300,000). These awards will be given on September 14 (Thu) during the Closing Remarks.

Excellent Poster Awards

Each year at the annual meeting since 1997, KSMCB has given poster awards to approximately 70 presenters who delivered excellent poster presentations. Extra credits will be given to candidates attended outside of Seoul area. The awardees are selected directly from the venue by poster award evaluation committee. Each awardee will be given prize money 150,000 KRW and a certificate.

Travel Awards

1. Eligibility
   (1) Graduate students and Post-Docs. who have applied to present a poster abroad.
   (2) Applicants' name must on the posters they present. If more than two applicants are in one poster, only one will be funded.
2. Procedure
   (1) Complete a pre-registration and an online abstract submission.
   (2) During the pre-registration, click a "Yes" button in the "Application for travel award" item and write the reason for application in less 250 words.
   (3) The deadline for application is July 7 (Fri), 2017.
   (4) The Committee will review your application and abstract. The awards will be made by end of July, 2017
   (5) The Committee will support travel grants depending on the country and travel distance (USD 400).
   (6) Travel awardees will be reimbursed for their pre-registration fee.
   (7) The prize comprises a certificate. The certificates will be given on September 14 (Thu) during the Closing Remark.

General Information

Key Dates

- Best Presentation Awards Application Deadline ····· July 7
- Travel Awards Application Deadline ····· July 7
- Awards Application Deadline ····· July 31
- Deadline for Hotel Reservation ····· August 11
- Deadline for Pre-registration ····· August 11
- Deadline for Abstract Submission ····· August 11

Registration

* Deadline for Pre-registration: August 11 (Fri), 2017

Participants are advised to register in advance (before August 11, 2017) to receive a pre-registration discount. Please read carefully the registration guidelines below.

Registration Fee

• Domestic

Classification		Pre-Registration (~August 11, 2017)	On-site Registration
Member	Regular, Affiliate	KRW 120,000	KRW 180,000
	Graduate Student	KRW 60,000	KRW 80,000
	Undergraduate Student/ High School Student	FREE	FREE
Non-member	PI	KRW 170,000	KRW 220,000
	Student	KRW 90,000	KRW 100,000

• International

Classification	Pre-Registration (~August 11, 2017)
Non-Member	USD 200
Student	USD 70

* Undergraduate Students and High School Students should submit their certificates of school registration on site.
* Registration fees give the rights to participate in all the congress activities including scientific sessions, receptions, exhibitions, and breaks.

Hotel Reservation

You can make reservations as a discount rate through the http://www.ksmcb.or.kr/icksmcb2017, until August 11 (Fri), 2017.

Secretariat

Korean Society for Molecular and Cellular Biology (KSMCB)
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E-mail: home@ksmcb.or.kr URL: http://www.ksmcb.or.kr

Plenary Lecture

September 12 (Tue), 15:40-16:30, Rm. 401

PL. I The KEAP1-NRF2 Stress Response System in Biology and Medicine

Masayuki Yamamoto, M.D., Ph.D.

Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, Japan

Professor Masayuki Yamamoto was graduated from Tohoku University School of Medicine in 1979 and Tohoku University Graduate School of Medicine in 1983. He obtained Doctor of Medical Sciences (PhD) in 1983 for his study on the metabolic regulation of heme biosynthesis. In 1983-1986, Dr. Yamamoto was a postdoctoral fellow at Northwestern University with Professor Doug Engel. During this period, he cloned erythroid-type 5-aminllevulinate synthase cDNA, and conclusively proved the presence of erythroid isozymes in heme biosynthetic enzymes.

In 1989, Dr. Yamamoto revisited the Engel laboratory and in collaboration identified the GATA family of transcription factors, which are now widely studied and one of the prototype transcription factor families regulating lineage commitment and cell differentiation. In 1991, Dr. Yamamoto returned to Japan and starts analyses of the Gata1 and Gata2 genes. He clarified unique structure of Gata1 and Gata2 genes, and identified hematopoietic enhancer of Gata1 (1997), leukemia due to Gata1 knockdown (2000), and developed the notion GATA1-related leukemia (2008). Dr. Yamamoto received the Inoue Science Prize (1996) for his contribution to the study of hematopoietic transcription factors.

In 1995, Dr. Yamamoto started a series of analyses on NF-E2 and Maf family of transcription factors. He identified the Keap1-Nrf2 system regulating the cellular response against electrophilic and oxidative stresses in 1997. Since then, he has been addressing many questions related to this important regulatory pathway. A series of his paper on this topic awarded Thomson Scientific Research Front Award 2004 (Thomson Scientific Co), Tsukuba Prize (2007), Nissan Science Award (2008), Leading Edge in Basic Science Award (SOT, 2011), Toray Science and Technology Prize (The Toray Science Foundation; 2011), Uehara Prize (The Uehara Memorial Foundation; 2012), Medal with Purple Ribbon (The Emperor of Japan; 2012) and the Japan Academy Prize (the Japan Academy, 2014).

Organizer & Chair : Young-Joon Surh Ph.D. (College of Pharmacy, Seoul National University, Korea)

Plenary Lecture

September 13 (Wed), 11:30-12:20, Rm. 401

PL. II Molecular Mechanisms of Membrane Remodeling

James H. Hurley, Ph.D.
Department of Molecular and Cellular Biology, University of California, Berkeley, USA

James Hurley is the Judy C. Webb Chair and Professor of Biochemistry, Biophysics and Structural Biology, at University of California, Berkeley. He obtained his PhD at University of California, San Francisco and was a post-doctoral fellow at University of Oregon. He was an Investigator at the Laboratory of Molecular Biology (LMB) at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH, and Chief of the Section on Structural Biology and Cell Signalling at LMB, NIDDK, NIH from 1998-2013. The Hurley lab studies interactions between proteins and membrane lipids, their roles in autophagy, membrane scission, and coated vesicle formation, and how pathogens such as HIV subvert these processes. The Hurley lab uncovers the molecular mechanism behind these interactions using interdisciplinary approaches, including cryoelectron microscopy, x-ray crystallography, biochemical reconstitution, and live-cell imaging. Dr. Hurley received the Hans Neurath Award in 2014 from The Protein Society and the Outstanding Science Award from SER-CAT in 2009.

Organizer & Chair : Sangho Lee, Ph.D. (Department of Biological Sciences, Sungkyunkwan University, Korea)

Plenary Lecture

September 13 (Wed), 15:00-15:50, Rm. 401

PL. III Structure and Function of the ATP-Fueled ClpXP Protein-Degradation Machine

Robert T. Sauer, Ph.D.
Massachusetts Institute of Technology, USA

Bob Sauer grew up in the Hudson-River valley in New York State (U.S.A.), interested in physics and how "things" work. He attended Amherst College, graduating with a degree in biophysics (B.A., 1972), and also worked for several years as research technician at Massachusetts General Hospital in Boston, where he worked on polypeptide hormones and learned protein biochemistry. He attended graduate school at Harvard University (Ph.D., 1979), where his thesis research focused on the molecular mechanisms by which the modular structure of phage λ repressor allow it to act as a regulator of gene expression. He joined the MIT faculty in 1978 and has been there ever since. Over the years, his lab has worked on protein-DNA interactions, how proteins fold and unfold, and how ATP-dependent molecular machines destroy proteins and resculpt the cellular proteome. His honors include election to the United States National Academy of Sciences (1996), the Hans Neurath Award (2008), and the Stein and Moore Award (2013). Graduate students and postdocs trained in the Sauer lab have gone on to positions at Princeton University, University of Pennsylvania, University of Massachusetts Medical School (2), University of California Los Angeles, Purdue University, Rutgers University, Vanderbilt University Medical Center, University of Maryland, University of Mississippi, Texas A&M University, University of California Berkeley (2), University of California San Francisco, Columbia University, Pennsylvania State University (2), Tel Aviv University, Johns Hopkins University, William Patterson University, University of Arizona, University of Toronto, State University of New York at Stony Brook (2), Durham University, University of California Santa Barbara, University of Central Florida, Johns Hopkins University School of Medicine, Ben-Gurion University of the Negev, and Seoul National University.

Organizer & Chair : Seokhee Kim, Ph.D. (Department of Chemistry, Seoul National University, Korea)

Plenary Lecture

September 14 (Thu), 11:30-12:20, Rm. 401

PL. IV Gene Regulatory Analysis of Neural Crest Development

Marianne E. Bronner, Ph.D.
California Institute of Technology, USA

Dr. Marianne Bronner is a developmental biologist with a long-standing interest in specification, migration and differentiation of neural crest stem cells. Using a pan-vertebrate approach, her lab has been systematically studying the gene regulatory network responsible for neural crest formation and evolutionary origin. She received her Sc.B. in Biophysics from Brown University and then a PhD in Biophysics from Johns Hopkins University. She assumed her first faculty position at the University of California, Irvine, before moving to Caltech in 1996. Dr. Bronner received the Conklin Medal from The Society for Developmental Biology in 2013, the Women in Cell Biology Senior Award from the American Society for Cell Biology in 2012, as well as several teaching awards from her institution. She was elected to American Academy of Arts and Sciences in 2009 and the National Academy of Sciences in 2015.

Dr. Bronner is employed by the California Institute of Technology and receives research funding from the National Institutes of Health. She is on the board of the International Society for Stem Cell Research, and member of several other societies (e.g. Society for Developmental Biology, the American Society for Cell Biology, Society for Neuroscience, International Society for Differentiation). She is a Senior Editor for eLife, Editor-in-Chief of Developmental Biology and serves actively as monitoring editor of Journal of Cell Biology, Molecular Biology of the Cell, PLoS Biology and PNAS. She is presently on the boards of the Sontag Foundation and Curci Foundation as well as the Conference Evaluation Committee of the Gordon Research Conferences.

Organizer & Chair : Yun Kee, Ph.D. (Division of Biomedical Convergence, Kangwon National University, Korea)

Symposia

September 12 (Tue), 13:00-15:00, Rm. 300

Sym. 01 Crop Breeding by Genome-Editing

Sym. 01-1 13:00–13:30
Genome Editing Using CRISPR/Cas9 in Plants and the EU GMO Legislation

Stefan Jansson, Ph.D.
Umeå Plant Science Centre, Department Plant Physiology, Umeå University, Sweden

Sym. 01-2 13:30–14:00
Genome-Wide Target Specificity of CRISPR Nucleases and Deaminases

Jin-Soo Kim, Ph.D.
Center for Genome Engineering, Institute of Basic Science (IBS), Korea

Sym. 01-3 14:00–14:30
Multiplex Genome Editing for Crop Functional Genomics and Precision Breeding

Yinong Yang, Ph.D.
Pennsylvania State University, USA

Sym. 01-4 14:30–15:00
Genome-Editing of Cereal Crops

Ju-Kon Kim, Ph.D.
Graduate School of International Agricultural Technology, Seoul National University, Korea

Organizer & Chair : Ju-Kon Kim, Ph.D. (Graduate School of International Agricultural Technology, Seoul National University, Korea)

Genome-editing is going to generate new crop varieties with desirable traits that can satisfy the various demands for global agriculture. As one of the new plant breeding techniques, genome-editing allows plant breeding without introducing a transgene, and this has led to new challenges for the regulation and social acceptance of genome-edited crops. This modern technology can produce novel plants that are similar or identical to those generated by conventional breeding techniques, thus creating indistinct boundaries with regards to genetically modified organism(GMO) regulations. Therefore an appropriate regulatory response is required towards the social acceptance of genome-edited crops. In this symposium, we review the recent development of genome-editing of crops and propose a concept of appropriate regulatory models by unraveling the indistinct boundaries.

September 12 (Tue), 13:00-14:50, Rm. 307

Sym. 02 Social Behaviors Modulated by Synaptic and Circuit Mechanisms

Sym. 02-1 13:00–13:30

Synaptic Dysfunctions and Social Deficits in Shank2-Mutant Mice

Eunee Lee, M.D., Ph.D.

Center for Synaptic Dysfunction, Institute of Basic Science (IBS), Korea

Sym. 02-2 13:30–13:55

Thalamocortical Circuit in Cognitive Function

Eunji Cheong, Ph.D.

Department of Biotechnology, School of Life Science and Biotechnology, Yonsei University, Korea

Sym. 02-3 13:55–14:20

Inhibitory Circuits in Two Difference Cerebral Cortices during Critical Period

Se-Young Choi, Ph.D.

Department of Physiology, Seoul National University School of Dentistry, Korea

Sym. 02-4 14:20–14:50

Elucidating Neural Circuits Underlying Autism-Like Behaviors

Gloria Choi, Ph.D.

McGovern Institute, Massachusetts Institute of Technology (MIT), USA

Organizer & Chair : Jaewon Ko, Ph.D. (Department of Brain and Cognitive Sciences, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea)

Almost all biological organisms live at least partly in social environments constructed from emergent social organizations beyond individuals, structures ranging from dyads and families to groups and cultures. During past three decades, rapid advancements in molecular, cellular, and genetic methodologies, in addition to cutting-edge imaging technologies such as super-resolution and multi-photon microscopy, optogenetics, and fiber photometry, have accelerated the investigation of mechanisms underlying social cognitions. This symposium will bring together neuroscientists who are working on elucidation of synaptic and/or circuit mechanisms underlying various social behaviors. They will also discuss the implication of their research areas in relevant brain disorders, and further stimulate new directions in neuroscience research. An introduction to this topic will be provided by Dr. Jaewon Ko, and then four speakers will discuss their recent research programs that aim to understand social cognition at various levels.

September 12 (Tue), 13:00-14:50, Rm. 308

Sym. 03 The Control of Translation and RNA Degradation

Overview 13:00–13:05

Jin-Wu Nam, Ph.D.
Department of Life Science, Hanyang University, Korea

Sym. 03-1 13:05–13:30
Molecular Mechanism of Primary MicroRNA Processing

Jae-Sung Woo, Ph.D.
Center for RNA Research, Institute for Basic Science & School of Biological Sciences, Seoul National University, Korea

Sym. 03-2 13:30–13:55
General Rules for Functional MicroRNA Targeting

Daehyun Baek, Ph.D.
Center for RNA Research, Institute for Basic Science & School of Biological Sciences, Seoul National University, Korea

Sym. 03-3 13:55–14:25
Ribosome Heterogeneity and Translational Control

Huili Guo, Ph.D.
Institute of Molecular and Cell Biology, Singapore

Sym. 03-4 14:25–14:50
A Translation-Associated Protein Quality Control

Yoon Ki Kim, Ph.D.
Department of Life Sciences, Korea University, Korea

Organizer & Chair : Jin-Wu Nam, Ph.D. (Department of Life Science, Hanyang University, Korea)

Recent advances in high-throughput transcriptome and translatome sequencing technologies have facilitated the discovery of new principles and mechanisms of post-transcriptional and translational regulation in gene expression. High-throughput RNA sequencing (RNA-seq) and ribosome footprinting sequencing (Ribo-seq) experiments have been applied to recent studies that identified many noncoding elements, controlling translation and RNA degradation in Eukaryotic systems. In this symposium, speakers will present their fascinating works, regarding general rules of miRNA targeting that controls translation and RNA stability and new mechanism of post-transcriptional silencing occurred during translation.

September 12 (Tue), 13:00-15:00, Rm. 401

Sym. 04 Regulation of Metabolic Signaling and Disease

Sym. 04-1 13:00–13:25

Lactate-Induced Metabolic Signaling and Regulation of Hypoxia Responses

Young Il Yeom, Ph.D.

Biotherapeutics Translational Research Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Korea

Sym. 04-2 13:25–13:45

TM4SF5-Dependent Regulation of Metabolic Activities during Hepatocarcinogenesis

Jung Weon Lee, Ph.D.

Department of Pharmacy, College of Pharmacy, Seoul National University, Korea

Sym. 04-3 13:45–14:15

Phosphoinositide Signaling is a Master Regulator of Cancer Metabolism

Suyong Choi, Ph.D.

Department of Pharmacology, University of Wisconsin, USA

Sym. 04-4 14:15–14:35

Lipid Metabolism and Cancer Cell Proliferation

Jae Bum Kim, Ph.D.

School of Biological Sciences, Seoul National University, Korea

Sym. 04-5 14:35–15:00

Cell Stress and Non-Canonical Cell Death Modalities Triggered by Epigenetically Active Compounds

Marc Diederich, Ph.D.

Department of Pharmacy, College of Pharmacy, Seoul National University, Korea

Organizer & Chair : Jung Weon Lee, Ph.D. (College of Pharmacy, Seoul National University, Korea)

Diverse human diseases can be driven by chronical abnormalities in metabolic activities to regulate the levels of diverse biomolecules and cellular components. Fibrosis, diabetes, and cancers are currently being challenged via our exploring the metabolic fields, especially signaling molecules or pathways enough to be regulatory by re-programing or application of therapeutically-purposed reagents. This meeting will include diverse metabolic aspects to define commonalities and differences in metabolic pathways and their regulations, and to determine the role of these processes for physiology and disease states. Such metabolic signaling pathways for lactate, amino acid, and lipid, and involving p53 and autophagy would be covered by outstanding researchers focused on diverse pathways, cell types, or diseases.

한국파스퇴르연구소 Institut Pasteur Korea

September 12 (Tue), 13:00-15:00, Rm. 402

Sym. 05 Host Responses to Immune Stimuli

Sponsored by the Institut Pasteur Korea

Sym. 05-1 13:00–13:30

IL-15 and NKG2D in Virus-Induced Immunopathogenesis

Eui-Cheol Shin, M.D., Ph.D.

Graduate School of Medical Science and Engineering (GSMSE), Korea Advanced Institute of Science and Technology (KAIST), Korea

Sym. 05-2 13:30–14:00

Crucial Roles of Mast Cells for Induction of Group 2 Innate Lymphoid Cells and Clearance of Helminth Infections

Hiroshi Ohno, M.D., Ph.D.

Laboratory for Intestinal Ecocystem, RIKEN Center for Integrative Medical Sciences, Japan

Sym. 05-3 14:00–14:30

Protection by Universal Influenza Vaccine Mediated by CD4 T Cells, Bringing Our Cornerstone Defense to the Forefront of Protection

Sophie Valkenburg, M.D., Ph.D.

HKU Pasteur, Centre of Influenza Research and School of Public Health, The University of Hong Kong, Hong Kong

Sym. 05-4 14:30–15:00

Sustained Type I Interferon Reinforces NK Cell-mediated Immunosurveillance during Chronic Virus Infection

Sang-Jun Ha, Ph.D.

Department of Biochemistry, College of Life Science and Biotechnology, Yonsei University, Korea

Organizer & Chair : Wang-Shick Ryu (Institut Pasteur Korea (IPK), Korea)

Host response to immune stimuli is a highly complex multi-step process orchestrated by the host immune systems to fight pathogens. This session will highlight examples of how viruses and parasites induce defense mechanism and how a universal influenza vaccine may led to protective immunity. In addition, the session will also address dysregulated host response to non-foreign immune stimuli leading to auto-immune responses.

September 13 (Wed), 09:10-10:55, Rm. 300

Sym. 06 Molecular Mechanism of Airway Inflammation : Differences in the Upper and Lower Airway

Sym. 06-1 09:10–09:35

Different Triggering Factors in the Upper and Lower Airway

Ji-Hwan Ryu, Ph.D.

Severance Biomedical Science Institute, Yonsei University College of Medicine, Korea

Sym. 06-2 09:35–10:00

Host Responses in Viral Upper Respiratory Tract Infections

De-Yun Wang, M.D., Ph.D.

Department of Otolaryngology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Sym. 06-3 10:00–10:25

Role of Muc1 in Regulating Chronic Airway Inflammation

Wenju Lu, Ph.D.

Guangzhou Medical University, China

Sym. 06-4 10:25–10:55

Mitochondrial Dysfunction: Regulation of Inflammation and Cell Death

Jong-Seok Moon, Ph.D.

Soonchunhyang Institute of Medi-bio Science, Soonchunhyang University, Korea

Organizer & Chair : Joo-Heon Yoon, M.D., Ph.D. (Department of Otorhinolaryngology, Yonsei University College of Medicine, Korea)

Airway diseases characterized by inflammation, excessive secretion, and airway obstruction affect a substantial proportion of the population. Production of chemokines, cytokines, and growth factors in response to irritants, infectious agents, and inflammatory mediators plays an important role in the modulation of acute and chronic airway inflammation. Data accumulated over the last century have shown that inflammatory diseases in upper airway and lower airway often occur together and share a common genetic background. However, immunologic conditions of the nasal and lung mucosa are not identical because the nasal mucosa is continuously exposed to various microorganisms and aeroallergens, while the lung mucosa is only occasionally infected with a few microbes. This session will feature 4 internationally recognized speakers who will present recent findings on the genes and/or cellular factors controlling the immune cell function in the airway inflammatory diseases. This session will help us to understand how inflammatory diseases in upper or lower airway is triggered and mediated by specific regulatory immune mechanisms and how mitochondrial dysfunction acts as a regulator of inflammation and cell death, which are useful to develop specific therapeutics for airway inflammatory diseases.

September 13 (Wed), 09:10-11:10, Rm. 307

Sym. 07 Interaction between Hepatitis Viruses and Host

Sym. 07-1 09:10–09:40

Emerging Role of Mitochondrial Dynamics in Viral Hepatitis

Seong-Jun Kim, Ph.D.

Center for Convergent Research of Emerging Virus Infection, Korea Research Institute of Chemical Technology (KRICT), Korea

Sym. 07-2 09:40–10:10

Molecular Mechanisms of HCV Membrane Replication Complex Formation

Takaji Wakita, M.D., Ph.D.

National Institute of Infectious Diseases, Japan

Sym. 07-3 10:10–10:40

Cytokine-Mediated Suppression of Hepatitis B Virus and Viral Counteraction

Kyun-Hwan Kim, Ph.D.

Department of Pharmacology, School of Medicine, Konkuk University, Korea

Sym. 07-4 10:40–11:10

Type I and Type III Interferon Responses in Hapatitis Virus Infection

Pil Soo Sung, M.D., Ph.D.

Department of Internal Medicine, Seoul St. Mary Hospital, The Catholic University of Korea, Korea

Organizer & Chair : Eui-Cheol Shin, M.D., Ph.D. (Graduate School of Medical Science and Engineering (GSMSE) & Korea Advanced Institute of Science and Technology (KAIST), Korea)

Several human viruses have hepatotropism; that is, they preferentially infect hepatocytes and cause liver inflammation, which is known as viral hepatitis. Among them, hepatitis C virus (HCV) infection often progresses to chronic persistent infection. Although hepatitis B virus (HBV) infection spontaneously resolves in more than 90% of infected adults, HBV can sometimes result in chronic persistent infection, particularly when neonates are infected through vertical transmission. As a result, approximately 170 million and 350 million people worldwide are chronically infected with HCV and HBV, respectively, and infected individuals are at an increased risk of liver cirrhosis and hepatocellular carcinoma. In the present symposium entitled 'interaction between hepatitis viruses and host', we will discuss current knowledges on the mechanisms how HCV or HBV interacts with host cells for viral replication and immune evasion.

September 13 (Wed), 09:10-11:10, Rm. 308

Sym. 08 Exosome: From Biology to Applications

Sym. 08-1 09:10–09:30

Designed Exosomes as a Platform for Membrane-Associated Therapeutic Protein Delivery

Yoosoo Yang, Ph.D.
Center for Theragnosis, Biomedical Research Institute, Korea Institute of Science and Technology (KIST), Korea

Sym. 08-2 09:30–10:00

TBA

Stephen Gould, Ph.D.
Johns Hopkins University, USA

Sym. 08-3 10:00–10:30

MSC Exosome for Cell-Free MSC Therapy

Sai Kiang Lim, Ph.D.
A*STAR Institute of Medical Biology, Singapore

Sym. 08-4 10:30–10:50

Stem Cell Exosomes: Nanovesicles of Cell Communication toward Tissue Regeneration

Yong Woo Cho, Ph.D.
Department of Chemical Engineering, Hanyang University ERICA, Korea

Sym. 08-5 10:50–11:10

Regulation of Golgi Transport and Its Role in Tumorigenesis

Seung-Yeol Park, Ph.D. Travel Grant Awardee
Division of Rheumatology, Immunology and Allergy, Brigham and Women's Hospital & Department of Medicine, Harvard Medical School, USA

Organizer & Chair : In-San Kim, Ph.D. (Biomedical Research Institute, Korea Institute of Science and Technology (KIST), Korea)

Exosomes, nanometer–sized membranous vesicles play a major role in intercellular communication due to their ability to transfer proteins and nucleic acids from one cell to another. Their roles as mediators in intercellular communication and regulators of the cellular niche, provoke us to study their roles in disease pathogenesis as well as use exosomes as not only therapeutics but also drug delivery vehicles. Furthermore, with respect to their host attributes, we could expect that they may show different biological effects and/or targeting specificity, which can meet the needs of precision medicine as the next generation of therapeutics. This session will highlight innovative science and technologies covering from biology to manipulation of exosomes for developing therapeutics.

September 13 (Wed), 09:10-11:10, Rm. 401

Sym. 09 Chromatin Dynamics in Cell Cycle

Sym. 09-1 09:10–09:35

Transcriptional Regulation by the Chromatin Remodeler RSF1 under DNA Damage

Hyeseong Cho, Ph.D.
Department of Biochemistry and Molecular Biology, Ajou University School of Medicine, Korea

Sym. 09-2 09:35–10:00

An Oncogenic Role for INO80 Chromatin Remodeler in Colon Cancer Tumorigenesis

Jongbum Kwon, Ph.D.
Department of Life Science, Ewha Womans University, Korea

Sym. 09-3 10:00–10:25

A New Epigenetic Code

Saadi Khochbin, Ph.D.
Université Grenoble Alpes, France

Sym. 09-4 10:25–10:50

Single-Molecule Approach to Molecular Mechanism Underlying DNA Damage Repair

Ja Yil Lee, Ph.D.
School of Life Sciences, Ulsan National Institute of Science and Technology (UNIST), Korea

Sym. 09-5 10:50–11:10

Setting Two (SETD2) on Chromatin and Cytoskeleton: Tubulin Code

In Young Park, Ph.D.
Department of Molecular and Cellular Biology, Baylor College of Medicine, USA

Organizer & Chair : Hyeseong Cho, Ph.D. (Department of Biochemistry and Molecular Biology, Ajou University School of Medicine, Korea)

Chromatin in proliferating cells is highly dynamic and its dynamic feature is driven by two important factors during the cell cycle. First, histones are one of the primary components of chromatin and canonical histones are actively synthesized and incorporated into the synthesized DNA during S-phase. Second, many chromatin remodeling complexes and their components such as RSF1 and BAP1 cooperate with modified histones (PTMs) and contribute to global chromatin restructuring during DNA replication and transcriptional regulation. In addition, ATAD2 is discovered as an epigenetic reader of newly synthesized histone marks. In this session, five speakers will talk about the recent advances and tools in chromatin dynamics.

September 13 (Wed), 09:10-11:15, Rm. 402

Sym. 10 New Trends in Structural Biology: High Resolution Cryo Electron Microscopy

Sym. 10-1 09:10–09:30

Cryo-EM Facility and Research Infrastructure at Korea Basic Science Institute

Jaekyung Hyun, Ph.D.

Electron Microscopy Research Center, Korea Basic Science Institute (KBSI), Korea

Sym. 10-2 09:30–09:50

The Atomic CryoEM Structure of Nanodisc Embedded V-ATPase Proton Channel

Soung-Hun Roh, Ph.D.

SLAC National Accelerator Laboratory, Stanford University, USA

Sym. 10-3 09:50–10:15

Molecular Transformers: Dynamic Translational Machines in Organelles Revealed by Cryo-EM

Alexey Amunts, Ph.D.

Stockholm University, Sweden

Sym. 10-4 10:15–10:35

Single Particle EM from Low to High Resolution for Macromolecular Complex Structure

Ho Min Kim, Ph.D.

Graduate School of Medical Science and Engineering (GSMSE), Korea Advanced Institute of Science and Technology (KAIST), Korea

Sym. 10-5 10:35–11:00

Complete Structures of the Campylobacter Hook and Filament

Matthias Wolf, Ph.D.

Okinawa Institute of Science and Technology Graduate Shcool University (OIST), Japan

Sym. 10-6 11:00–11:15

Technical Approaches of Cryo-EM: Unraveling Complicated Macromolecular Structure from Cell

Hyun Suk Jung, Ph.D.

Department of Biochemistry, College of Natural Sciences, Kangwon National University, Korea

Organizer & Chair : Ji-Joon Song, Ph.D. (Department of Biological Sciences, Korea Advanced Institute of Science and Technology (KAIST), Korea)

Structural biology has been contributing tremendously to understanding molecular mechanism of life. However, obtaining high resolution structures of large multi-subunit complexes have been challenging due to the technical limitations. Due to recent advances in cryo Electron Microscopy (EM), cryo EM emerges as a major tool to enable us to visualize large complexes in atomic details. In this session, we will discuss this new trend in structural biology focusing on cryo Electron Microscopy.

September 13 (Wed), 16:00-18:00, Rm. 300

Sym. 11 Molecular Mechanisms of Plant Immunity

Sym. 11-1 16:00–16:24

Expanded Sesquiterpene Synthesis Gene Clusters Confer Nonhost Resistance of Pepper against Irish Potato Famine Pathogen

Doil Choi, Ph.D.
Department of Plant Science, College of Agriculture and Life Sciences, Seoul National University, Korea

Sym. 11-2 16:24–16:48

Dynamic Regulation of Plant Immunity through a Class of Cytoplasmic Protein Kinases

Jian-Min Zhou, Ph.D.
Institute of Genetics and Developmental Biology, Chinese Academy of Sciences (CAS), China

Sym. 11-3 16:48–17:12

Aboveground Insect Infestation-Mediated Reshaping of the Plant Immunity and Root Microbiota

Choong-Min Ryu, Ph.D.
Molecular Phytobacteriology Laboratory, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Korea

Sym. 11-4 17:12–17:36

Molecular Basis by which Convergently Evolved NLRs Function

Kee Hoon Sohn, Ph.D.
Department of Life Sciences, Pohang University of Science and Technology (POSTECH), Korea

Sym. 11-5 17:36–18:00

Roles of the Apoplastic Barrier in Plant Immunity

Ohkmae K. Park, Ph.D.
Department of Life Scineces, Korea University, Korea

Organizer & Chair : Ohkmae K. Park, Ph.D. (Department of Life Sciences, Korea University, Korea)

Plants have multiple layers of immunity to protect themselves from pathogen and herbivore attacks. Resistance to most pathogens, termed nonhost resistance, is considered the most durable and efficient immune response of plants but yet remains elusive. Plants possess numerous pattern recognition receptors that recognize pathogen-associated molecular patterns (PAMPs) and activate PAMP-triggered immunity. However, some pathogens have evolved to suppress this basal immunity by delivering various effectors into plant cells, resulting in disease development. Plants in turn have evolved a second, enhanced immune system, referred to as effector-triggered immunity, which requires plant resistance proteins for specific recognition of effectors and causes rapid, localized cell death termed hypersensitive response. Speakers will talk and discuss about various immune systems, and this will enhance our understanding of plant immunity.

September 13 (Wed), 16:00-18:00, Rm. 307

Sym. 12 Transposable Elements from Evolution to Disease

Open Discussion 16:00–16:20

Sym. 12-1 16:20–16:40

Mining Structural Variation Caused by Mobile Genetic Elements

Mina Rho, Ph.D.
Department of Computer Science and Engineering, Hanyang University, Korea

Sym. 12-2 16:40–17:00

Primate Gene Evolution and Transposable Elements

Jae-Won Huh, Ph.D.
National Primate Research Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Korea

Sym. 12-3 17:00–17:30

Genome-Wide Analyses of Endogenous Viral Elements in Mammalian Genomes Using the gEVE Database and Next-Generation DNA Sequencing Data

So Nakagawa, Ph.D.
Tokai University of Medicine, Japan

Sym. 12-4 17:30–18:00

Antibody Responses against Autoantigens and Human Endogenous Retrovirus K Envelope in Patient with Cancer and Vaccination Strategy to Prevent Cancer Development

Hong-Jin Kim, Ph.D.
Virology Lab, College of Pharmacy, Chung-Ang University, Korea

Organizer & Chair : Heui-Soo Kim, Ph.D. (College of Natural Sciences, Pusan National University, Korea)

Transposable elements also known as "jumping genes" or transposons, are sequences of DNA that move (or jump) from one location in the genome to another. Transposable elements have dynamically moved and changed genomes to affect evolution and diseases significantly. This symposium deals with recent studies about Transposable elements from evolution to diseases.

September 13 (Wed), 16:00-17:55, Rm. 308

Sym. 13 Nano-Biomedical Convergence for Translational Research on Retinoapthy

Sym. 13-1 16:00–16:25

Nano-Biomedical Convergence for Translational Research on Retinoapthy

Jeong Hun Kim, M.D., Ph.D.

Department of Biomedical Sciences & Ophthalmology, Seoul National University College of Medicine, Korea

Sym. 13-2 16:25–16:55

Pathogenesis of Proliferative Retinopathy

Marcus Fruttiger, Ph.D.

Institute of Ophthalmology, University College London, United Kingdom

Sym. 13-3 16:55–17:25

Wet-AMD on a Chip: Modeling the Outer Blood-Retinal Barrier in-vitro

Noo Li Jeon, Ph.D.

School of Mechanical and Aerospace Engineering, Seoul National University, Korea

Sym. 13-4 17:25–17:55

Microneedles for Ocular Diseases

Wonhyoung Ryu, Ph.D.

Department of Mechanical Engineering, Yonsei University, Korea

Organizer & Chair : Jeong Hun Kim, Ph.D. (Department of Biomedical Sciences & Ophthalmology, Seoul National University College of Medicine, Korea)

With advancement of nano-technology and biomedical science, convergence of nanotechnology and biomedical science has provided the basis, for various breakthroughs and follow-up applications of nanobiotechnology and medicine. This convergence between nanotechnology and biotechnology & medicine is becoming increasingly relevant to our lives. This session will look into recent translational research and applications in nanobiomedical convergence in the vision-threatening problem, retinopathy. In particular, this session will provide a successful example of translational research using nanobiomedical convergence in retinopathy. From this session, audience can easily follow-up recent innovative researchs and applications in the fields of nanobiotechnology and nanomedicine. based on retinopathy translational research.

September 13 (Wed), 16:00-18:00, Rm. 401

Sym. 14 The Wnt/β-Catenin Signaling and Its Cross-Talk in the Tumorigenesis

Sym. 14-1 16:00–16:25

Role of Crosstalk between Wnt and Hippo Signaling in Cancer

Eek-Hoon Jho, Ph.D.
Department of Life Science, University of Seoul, Korea

Sym. 14-2 16:25–16:50

The GSK3-Dependent Ras Destabilization via Targeting the Wnt/beta-Catein Pathway Suppress Colorectal Cancer Attributed by the K-Ras Mutation

Kang-Yell Choi, Ph.D.
Department of Biotechnology, College of Life Science and Biotechnology, Yonsei University, Korea

Sym. 14-3 16:50–17:15

Lgr5+ Stem Cells in Epithelial Homeostasis, Regeneration and Cancer

Nick Barker, Ph.D.
A*Star Institute & National University of Singapore, Singapore

Sym. 14-4 17:15–17:40

Intracellular Activation of WNT and SHH Signaling Pathways in Glioblastoma Stem Cells

Hyunggee Kim, Ph.D.
Department of Biotechnology, Korea University, Korea

Sym. 14-5 17:40–18:00

Alternative Wnt-YAP/TAZ Signaling in Tumorigenesis

Hyun Woo Park, Ph.D.
Department of Biochemistry, College of life Science and Biotechnology, Yonsei University, Korea

Organizer : Kang-Yell Choi, Ph.D. (Department of Biotechnology, College of Life Science and Biotechnology, Yonsei University, Korea)
Co-Chairs : Kang-Yell Choi, Ph.D. (Department of Biotechnology, College of Life Science and Biotechnology, Yonsei University, Korea)
Eek-Hoon Jho, Ph.D. (Department of Life Science, University of Seoul, Korea)

The Wnt/beta-catenin pathway plays pivotal roles in various pathophysiologies including cancer and stem cell differentiation. In this session of the symposium, speakers will present data and discuss the cross-talk of the Wnt/beta-catenin signaling pathway with other pathways such as the Ras-ERK, Hippo, and Hedgehog pathways etc. The outcome of the signaling cross-talk will be related with several different types of cancers including colorectal cancer and glioma etc. Molecular basis of cancer stem cell activation related with abnormalities of the signaling cross-talk will also be discussed. The advanced knowledge and discussion for these important signaling pathways will provide us critical insights into the relationship between fundamental nature of cellular signaling and human cancer.

September 13 (Wed), 16:00-18:00, Rm. 402

Sym. 15 New Perpectives on Bioactive Lipids

Sym. 15-1 16:00–16:05

Overview of Bioactive Lipids

Tack-Joong Kim, Ph.D.
Division of Biological Science and Technology, Yonsei University, Korea

Sym. 15-2 16:05–16:30

Proinflammatory Activity of 27-hydroxycholesterol

Koanhoi Kim, Ph.D.
Department of Pharmacology, Pusan National University School of Medicine, Korea

Sym. 15-3 16:30–17:00

Subunit-Specific Metabolic Roles of PI3K in the Ventromedial Hypothalamus

Ki Woo Kim, Ph.D.
Department of Pharmacology, Wonju College of Medicine, Yonsei University, Korea

Sym. 15-4 17:00–17:30

Sphingosine 1-Phosphate Regulates Adipocyte Proliferation and Adipogenesis

Tae-Sik Park, Ph.D.
Department of Life Science, Gachon University, Korea

Sym. 15-5 17:30–18:00

Dynamic Modification of Sphingolipids Regulate Function of the Plasma Membrane-Disorder of the Plasma Membrane Causes Obesity and Type 2 Diabetes-

Susumu Mitsutake, Ph.D.
Department of Applied Biochemistry and Food Science, Faculty of Agriculture, Saga University, Japan

Organizer & Chair : Tack-Joong Kim, Ph.D. (Division of Biological Science and Technology, Yonsei University, Korea)

Bioactive lipids are critical regulators of many diseases. Over the last 75 years, these diverse compounds have emerged as clinically-relevant mediators of disease pathophysiology. Animal and human studies have demonstrated the importance of lipid mediators in the development of many diseases. Here, we will talk classes of bioactive lipids with special emphasis on lipid synthesis pathways and signaling, the disease pathology, and the ongoing development of the treatments targeting lipid mediator pathways.

September 14 (Thu), 09:10-11:10, Rm. 300

Sym. 16 Novel Genetic and Epigenetic Modules Underlying Animal Physiology

Sym. 16-1 09:10–09:33

Genetic Regulation of *C. elegans* Longevity

Seung-Jae V. Lee, Ph.D.
Department of Life Sciences, Pohang University of Science and Technology (POSTECH), Korea

Sym. 16-2 09:33–10:08

Metabolic Regulation of Neural Functions

Kaveh Ashrafi, Ph.D.
Department of Physiology, School of Medicine, University of California, San Francisco, USA

Sym. 16-3 10:08–10:31

Alternative Lengthening of Telomeres Using Internal Genomic Regions in the Nematode and the Mammals

Junho Lee, Ph.D.
Department of Biological Sciences, Seoul National University, Korea

Sym. 16-4 10:31–10:54

Proprioceptive Circuits in *C. elegans*

Kyuhyung Kim, Ph.D.
Department of Brain and Cognitive Sciences, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea

Sym. 16-5 10:54–11:10

Enhancer Reprogramming Promotes Pancreatic Cancer Progression and Metastasis

Jae-Seok Roe, Ph.D. Travel Grant Awardee
Cold Spring Harbor Laboratory, Cold Spring Harbor, USA

Co-Organizers & Chairs : Sang-Dong Yoo, Ph.D. (College of Life Science and Biotechnology, Korea University, Korea)
Seung-Jae V. Lee, Ph.D. (Department of Life Sciences, Pohang University of Science and Technology (POSTECH), Korea)

Genetic and epigenetic regulation plays a central role in gene expression underlying animal physiology, including development, neural function, tumorigenesis and aging. In this symposium we will extend our current understanding of genetic constituents and their molecular mechanisms underlying animal physiology using mainly *C. elegans* as a model system. Kaveh Ashrafi (UCSF) will present his work on how metabolism and nervous systems are interconnected for the regulation of animal physiology. In addition, three leading principle investigators will talk about their recent work on genome stability (Joon-Ho Lee), neuronal circuitry (Kyu-Hyung Kim) and animal lifespan (Seung-Jae V. Lee). In addition, Jae Seok Roe will discuss the role of epigenetic regulation in mammalian cancer progression.

September 14 (Thu), 09:10-11:10, Rm. 307

Sym. 17 Chemoresistance in Cancer Therapy

Sym. 17-1 09:10–09:35

Cancer Stem Cells: Seeds of Recurrence and Engine of Therapy Resistance

Dean G. Tang, Ph.D.
Department of Pharmacology & Therapeutics, Roswell Park Cancer Institute, USA

Sym. 17-2 09:35–10:10

The Role of B7H3 (CD276) in Cancer Metabolism

Ming Tan, M.D., Ph.D.
Mitchell Cancer Institute, USA

Sym. 17-3 10:10–10:45

Activation of KITENIN/ErbB4-AP-1 Axis Confers Resistance to Anti-EGFR Agents in Colorectal Cancer via an Unconventional Pathway

Kyung Keun Kim, M.D., Ph.D.
Medical Research Center for Gene Regulation, Chonnam National University Medical School, Korea

Sym. 17-4 10:45–11:00

Cyclophilin B is a Novel Negative Regulator of p53 to Cause Chemoresistance via MDM2-Dependent Manner

Tae Gyu Choi, Ph.D.
Department of Biochemistry and Molecular Biology, School of Medicine, Kyung Hee University, Korea

Sym. 17-5 11:00–11:10

Genetic Progression of High Grade Prostatic Intraepithelial Neoplasia to Prostate Cancer

Sun Shin, TBA
Department of Microbiology, College of Medicine, The Catholic University, Korea

Organizer & Chair : Sung Soo Kim, M.D., Ph.D. (Kyung Hee University School of Medicine, Korea)

Since Dr. Farber introduced chemotherapy for the pediatric leukemia patients in 1949, it has been improved quite much and helped a lot of patients to survive for an extensive period of time. However, recurrence and metastasis still remain a major obstacle that should be overcome to eventually eradicatie or control cancers. To achieve this goal, basic and clinical studies to explore the underlying mechanisms of chemoresistance need to be performed further. In this symposium, the speakers will discuss about the most updated knowledge on the mechanisms of chemoresistance and provide the new way to tackle the chemoresistance, leading to development of new chemotherapeutic agents that will help cancer patients in the clinic.

September 14 (Thu), 09:10-11:10, Rm. 308

Sym. 18 Mitochondrial Metabolism and Mitophagy

Sym. 18-1 09:10–09:30
Molecular and Structural Determinants of Mitochondrial pH Flashes

Nicolas Demaurex, Ph.D.
University of Geneva, Swiss

Sym. 18-2 09:30–09:50
Role of Mitophagy in Pancreatic B-Cell Function

Myung-Shik Lee, M.D., Ph.D.
Avison Biomedical Research Center, Yonsei University College of Medicine, Korea

Sym. 18-3 09:50–10:10
Mitochondrial Proteostasis and Systemic Energy Metabolism

Minho Shong, M.D.
Department of Biomedical Science, Chungnam National University School of Medicine, Korea

Sym. 18-4 10:10–10:30
Interplays between Mitochondria and Organelle in a Multitude of Disease Pathogenesis

Kyu-Sun Lee, Ph.D.
Metabolism & Neurophysiology Lab, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Korea

Sym. 18-5 10:30–10:50
The Novel Role of p53 in Regulating Mitochondrial Dynamics during Cellular Senescence

Jeanho Yun, Ph.D.
Department of Biochemistry & Peripheral Neuropathy Research Center, College of Medicine, Dong-A University, Korea

Sym. 18-6 10:50–11:10
Gut Microbiota Generated Metabolites Urolithin a Induces Autophagy and Mitophagy

Dongryeol Ryu, Ph.D.
Department of Korean Medical Science, School of Korean Medicine, Pusan National University, Korea

Organizer & Chair : Kyu-Sang Park, M.D., Ph.D. (Yonsei University Wonju College of Medicine, Korea)

Unbalanced diet and physical inactivity give continuous stress to mitochondria, playing a critical role in pathogenesis of chronic metabolic diseases. To overcome or prevent this crisis, cells operate highly conserved protective mechanisms such as autophagy-mediated quality control or unfolded protein response in mitochondria. This session will provide informative background knowledge and cutting edge discoveries about physiologic regulations as well as pathophysiologic alterations in mitochondrial metabolism, mitoUPR and mitophagy, which may give us insight about biomedical research to identify the therapeutic targets for metabolic diseases.

September 14 (Thu), 09:10-11:10, Rm. 401

Sym. 19 Hippocampus and Memory

Sym. 19-1 09:10–09:35

Whole-Cell Recording in the Awake Brain: How Do Neurons Compute Where We Are?

Doyun Lee, Ph.D.
Center for Cognition and Sociality, Institute for Basic Science (IBS), Korea

Sym. 19-2 09:35–10:00

Role of Dentate Gyrus in Hippocampal Mnemonic Processing

Jong Won Lee, Ph.D.
Center for Synaptic Brain Dysfunctions, Institute for Basic Science (IBS), Korea

Sym. 19-3 10:00–10:50

From Virtual Reality to Reality: How Neurons Make Maps

Mayank Mehta, Ph.D.
University of California, Los Angeles, USA

Sym. 19-4 10:50–11:10

Probing Distinct Place Cell Mechanisms in a Treadmill Apparatus

Sebastien Royer, Ph.D.
Korea Institute of Science and Technology (KIST), Korea

Organizer & Chair : Min Whan Jung, Ph.D. (Center for Synaptic Dysfunctions, Institute for Basic Science (IBS) & Department of Biological Sciences, Korea Advanced Institute of Science and Technology (KAIST), Korea)

One of the central issues in neuroscience is to understand the neural basis of learning and memory. Although it is well known that the hippocampus plays a crucial role in remembering facts and events, its underlying neural mechanisms remain unclear despite a long history of intensive investigations. In the proposed symposium, we will focus on recent experimental findings from neurophysiological, optogenetics, and behavioral studies in rodents. These studies are revealing cellular and microcircuit processes underlying memorial operations of different sub-regions of the hippocampus. The symposium promotes junior scientists by involving researchers at different career stages, from associate scientist (Jongwon Lee) to junior PI (Doyun Lee) and mid-stage to senior investigators (Sebastien Royer and Mayank Mehta).

September 14 (Thu), 09:10-11:10, Rm. 402

Sym. 20 Regulation of Cellular Network and Extracellular Matrix (ECM) in Tumor Microenvironment

Sym. 20-1 09:10–09:35

Collagen VI-Derived Endotrophin Contributes to Pathogenesis of Chronic Liver Disease

Jiyoung Park, Ph.D.
Department of Biological Sciences, Ulsan National Institute of Science and Technology (UNIST), Korea

Sym. 20-2 09:35–10:15

Inflammation Drives Metastasis through Formation of Neurophil Extracellular Traps

Mikala Egeblad, Ph.D.
Cold Spring Harbor Laboratory, USA

Sym. 20-3 10:15–10:40

UV Modulation of Proteoglycans and Glycosaminoglycans in Human Skin

Jin Ho Chung, M.D., Ph.D.
Department of Dermatology, Seoul National University College of Medicine, Korea

Sym. 20-4 10:40–11:05

EMT-Associated Molecules in Liver Cancer

Sang Geon Kim, Ph.D.
Department of Pharmacy, College of Pharmacy, Seoul National University, Korea

General Discussion 11:05–11:10

Co-Organizers & Chairs : Byungheon Lee, M.D., Ph.D. (School of Medicine, Kyungpook National University, Korea)
Seung-Hyo Lee, Ph.D. (Graduate School of Medical Science and Technology (GSMSE), Korea Advanced Institute of Science and Technology (KAIST), Korea)

Tumor cells dynamically interact with other cells in tumor microenvironment, such as tumor-associated macrophages (TAMs) and myeloid-derived suppressor cells (MDSCs), and also with extracellular matrix (ECM) surrounding them. This session will introduce the role for the cell-cell networks and cell-ECM interactions in tumor survival and metastasis, and current anti-cancer therapies based on the regulation of these interactions.

Abstract p.TBA

September 12 (Tue), 10:00-11:40, Rm. 402

GN Global Network Session

GN-1 10:00–10:20

Engineering RNA-binding Proteins

Muhammad Fazril Mohd Razif, Ph.D.

Department of Molecular Medicine, Faculty of Medicine, University of Malaya, Malaysia

**recommended by the Malaysian Society for Cell Biology*

GN-2 10:20–10:40

A Transcriptomic Approach to Discovering Genes Involved in the Synthesis of Secondary Metabolites in the Seeds of Moringa oleifera Lam.

Vivian A. Panes, Ph.D.

Department of Biology, School of Science and Engineering, Loyola Schools, Ateneo De Manila University, Philippines

**recommended by the Philippine Society for Cell Biology*

GN-3 10:40–11:00

Recruitment of Bloom helicase to double strand breaks negatively regulates DNA repair pathways

Sagar Sengupta, Ph.D.

National Institute of Immunology, Aruna Asaf Ali Marg, India

**recommended by the Society of Biological Chemists, India*

GN-4 11:00–11:20

Direct Reprogramming of Human Fibroblasts into Induced Cardiomyocytes

JIANG Jianming, Ph.D.

Department of Biochemistry & Cardiovascular Research Institute, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

**recommended by the Singapore Society for Biochemistry and Molecular Biology*

GN-5 11:20–11:40

TBA

Jamiyansuren Jambaldorj, Ph.D.

Department of Molecular Biology and Genetics, School of Pharmacy and Biomedicine, Mongolian National University of Medical Sciences, Mongolia

**recommended by the Mongolian National University of Medical Sciences*

Organizer & Chair : TBA (TBA)

TBA

Luncheon Symposia

September 14 (Tue), 12:20-13:10, Rm. 300

Research Ethics Symposium

Medical and Ethical Implications of Recent

Bang-Ook Jun, Ph.D.
Department of Biology, Gangneung-Wonju National University, Korea

To date, three genome editing experiments on human embryos were performed using CRISPR-Cas9 (1-3). The results reveal limitations including off-target effects and mosaicism and highlight the need for further ethical deliberation on human germline editing. 1) Liang P et ak. 2015. CRISPR/Cad9- mediated gene editing in human tripronuclear zygotes. Protein Cell 6(5):363-372, 2) Kang X et al. 2016. Introducing prcise genetic modifications into human 3PN embryos by CRISPR/Cas-mediated genome editing, 3) Tang L et al. 2017. CRISPR/Cas9=mediated gene editing in human zygotes using Cas9 protein.

Bioethical Considerrations of CRISPR-Cas9 Tech

Myeong Jin Nam, Ph.D.
Department of Biological Sciences, Gachon University, Korea

The recent development of the clustered regularly interspaced short palindromic repeat (CRISPR)/associated nuclease system, has greatly accelerated genome engineering applications. When these systems bind to a target DNA sequence in the genome, they create a DNA double strand break (DSB), the repair of which leads to specific DNA sequence modifications.

Recent results (Introducing precise genetic modifications into human 3PN embryos by CRISPR/Cas-mediated genome editing) call for immediate attention being paid to the regulation of the genetic modification of human germline cells. For any germline genetic modification, the resulting allele needs to be precisely predefined. The specificity of the technologies needs to be further investigated and improved to ensure that no off-target mutations will be introduced. For any introduced allele, the effect of its introduction into a different genetic background needs to be carefully evaluated.

It is advocated for preventing any application of genome editing in the human germline until after a rigorous and thorough evaluation and discussion are undertaken by the global research and ethics communities.

Co-Organizers & Chairs : Eun-Kyeong Jo, M.D., Ph.D. (Department of Microbiology, Chungnam National University School of Medicine, Korea)
Hye-Kyung Na, Ph.D. (Department of Food Science and Biotechnology, College of Knowledge-Based Services Engineering, Sungshin Women's University, Korea)

September 13 (Wed), 12:20-13:10, Rm.300

Presentation of Korea Research Institute of Bioscience and Biotechnology (KRIBB)'s Infrastructure
(한국생명공학연구원 인프라 사업 현황 설명회)

Introducing :

National Bio-resources Portal ARIS for BT R&D
[바이오 R&D 연구자를 위한 생명연구자원정보통합시스템(ARIS) 소개]

Young Hyo Chang, Ph.D
Associate Director of ABS Research Support Center

Depository Institution of Bio-resources from National R&D Projects
[생물자원 연구성과물 기탁제도 소개]

Song-Gun Kim, Ph.D
Principal Researcher at Biological Resource Center

September 13 (Wed), 12:20-13:10, Rm.307

Koram Biotech - ATCC Seminar with Dr. Goldsborough, Chief Science Officer

Recent Advances in the Development of *In-vitro* Models for Cell and Molecular Biology Applications

Mindy Goldsborough, Ph.D.
Chief Science & Technology Officer, ATCC, USA

ATCC (American Type Culture Collection) has been engaged in a multifaceted approach to enhance and modernize its cell biology portfolio in order to provide more relevant cell and molecular models to aid in basic, translational and pre-clinical research. Our mission is to provide the most well characterized and authenticated primary cells, immortalized primary cell lines, continuous cell lines and associated products to the global research community.

With the vast collection of existing ATCC cell lines as starting material, ATCC is in a unique position to develop meaningful in-vitro models in the most relevant cell line background. Our efforts have resulted in a growing collection of well characterized and authenticated CRISPR gene edited isogenic cell lines in highly relevant cell backgrounds. These cell lines faithfully demonstrate the characteristics of the human cancers they have been modeled after, such as drug resistance. In addition to gene editing, ATCC is utilizing advanced 2D and 3D cell culture methods such as organoids, CRC (conditionally reprogramed cells), neurospheres and spheroid culture to create improved in-vitro models.

To address more molecular biology based research, ATCC has developed an extensive collection of cancer cell line panels that have been extensively characterized for cancer mutation biomarkers and cell signaling pathway expression levels. These pre-selected panels enable broader and more in-depth questions to be asked within cancer types, biomarker families or a cell signaling pathways.

September 13 (Wed), 12:20-13:10, Rm. 308

ZEISS Korea - Automated Platform for Live Cell Imaging

Automated Platform for Live Cell Imaging

Gi-Su Eom

Microscopy Division, ZEISS Korea, Seoul, Korea

New microscopes are needed to realize the potential of quantitative and systematic imaging for living samples. Automated platform gives answer of the requirement.

Automation is about reducing necessary/unwanted user interference. Reduced user interference will deliver more data in shorter times. It increases the overall efficiency of the lab workflow. It give researches time for concentrating on more important things.

At the result, automated live cell microscope will give optimizing usability, avoiding bias, long term stability and increasing throughput.

Today, I'd like to introduce long-term time-lapse imaging, high throughput fixed endpoint assays and high sensitivity imaging of a wide variety of sample types with automation microscope. This adaptable instrument ensure reliable results and is completely unique in the way. It addresses such a wide variety of applications in live cell imaging with unparalleled sensitivity.

September 13 (Wed), 12:20-13:10, Rm. 401

National OncoVenture (NOV) Symposium

National OncoVenture and its pipeline

Kangsik Yun
Head & VP of Business Development, NOV, Korea

Sungsook Lee
Head & VP of Preclinical Development, NOV, Korea

National OncoVenture, a system-integrated oncology drug development group, was established in June 2011. NOV is a national research and development project group of the Ministry of Health and Welfare supported by National Cancer Center. Our purpose is to carry out the development of oncology drug candidates that were discovered by domestic pharmaceutical companies or academic institutes. NOV aims to develop the candidates into oncology drugs for the global market by providing significant drug development expertise.

The professional project management of new drug development from pre-clinical to clinical development can be done by drug development experts in NOV. We provide the total solution for drug development including funding from the government, research & development support, and business development support, such as global partnering and out-licensing, etc.

Since establishment, NOV have selected 16 competitive oncology drug candidates and are now actively developing nine candidates in clinical and pre-clinical stages. With these efforts, NOV has been able to achieve a number of milestones, including two partnering agreements with global pharmaceutical companies as well as several successful phase 1 and phase 2 human clinical trials in Korea and the US.


Korean Society for Molecular and Cellular Biology
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