

KSABC International Symposium 2026

Future Convergence Strategies for Applied Biological Chemistry

June 21 - 24, 2026

ICC JEJU, Korea



Abstract

Sino Biological의 다양한 Cytokine Protein을 (주)이호바이오사이언스를 통해 만나보세요!

- 250종 이상의 molecules 및 900종 이상의 Cytokine Protein 제품 (GMP Grade 25종 이상 포함)
- 다양한 분석을 통해 검증된 높은 생물학적 활성과 높은 순도
- 높은 안정성 및 제조 배치 간 일관성
- 낮은 Endotoxin Levels : < 5-10 EU/mg

[Product List of Cytokine Proteins]

* 이외에 다양한 Cytokine 제품들을 제공합니다.

Immune Cell		Stem Cell		Organoid	
Cytokine	Cat#	Cytokine	Cat#	Cytokine	Cat#
IFN gamma	GMP-11725-HNAE	BDNF	50240-M08H	Activin A	GMP-10429-HNAH
IL-2	11848-HNAE2	BMP-2	10426-HNAE1	basic FGF/FGF2	GMP-10014-HNAE
IL-4	GMP-11846-HNAE	BMP4	10609-HNAE2	DLL4	10171-H02H
IL-7	11821-HNAE	FGF-10	10573-HNAE	EGF	GMP-10605-HNAE
IL-12	GMP-CT011-H08H	FGF-4	16043-HNAE	Fit3 Ligand	10315-HNAE
IL-15	10360-HNCE	HGF	10463-HNAS	GM-CSF/CSF2	GMP-10015-HNAH
	GMP-10360-HNCE	IGF1	10598-HNAE	IL-3	GMP-11858-HNAE
IL-21	10584-HNAE	KGF/FGF-7	10210-H07E	IL-6	GMP-10395-HNAE
TNF-alpha	GMP-10602-HNAE	Noggin/NOG	10267-HNAH	TGF beta 1	10804-HNAC
IL-1 beta	GMP-10139-HNAE	R-Spondin 1	11083-HNAS	VEGF-A	11066-HNAH

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Abstract

KSABC

International Symposium

2026

Hosted by



한국응용생명화학회
The Korean Society for Applied Biological Chemistry

Co-organized by



경상국립대학교 램프사업단



한국과학기술연구원 강릉
천연물연구소



FOUR JEJU NATIONAL UNIVERSITY
BK21 제주대학교



제주대학교
글로벌대학사업단
JEJU GLOBAL UNIVERSITY PROJECT



국립호남권생물자원관
섬야생생물소재 선진화연구단



생명자원과학과
GreenBio Science

조선대학교 G-LAMP 사업단
CHOSUN UNIVERSITY G-LAMP



농촌진흥청
국립농업과학원



전북대학교
농업과학기술연구소



항노화 바이오소재 세포공장 지역혁신연구센터
Anti-aging Bio Cell factory RLR (ABC-RLRC)

This work is supported by the 'Lottery Fund' of the 'Ministry of Strategy and Finance' and the 'Science and Technology Promotion Fund' of the 'Ministry of Science and ICT', contributing to the realization of social value and the development of national science and technology.

Supported by



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KSABC International Symposium **2026**

Contents

Page	
004	Floor Plan
005	Program at a Glance
009	Plenary Lecture
011	Award Lecture
013	Special Lecture
015	Symposia
031	Young Scientist Presentation
037	Graduate Student Presentation

Floor Plan

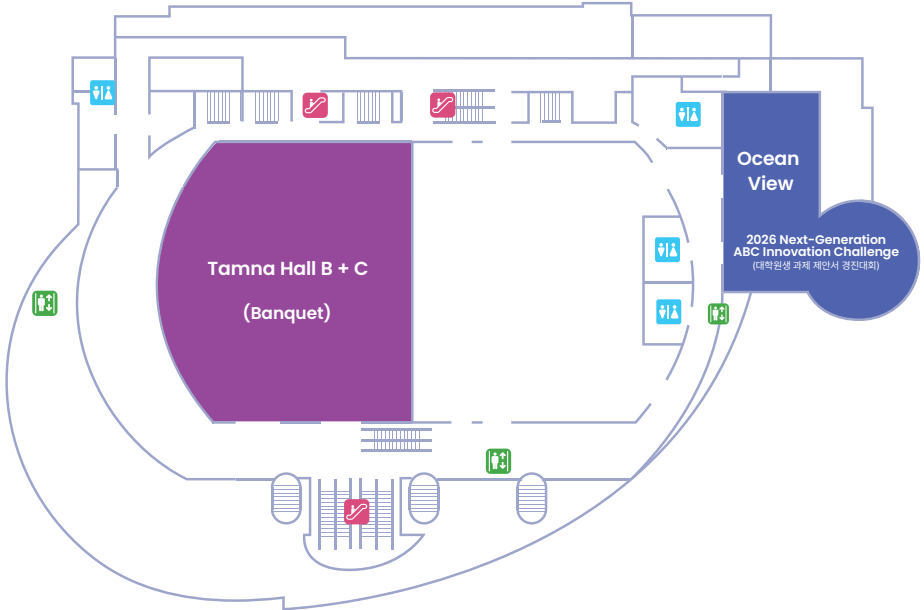
3F



Halla Hall	Poster & Exhibition
Samda Hall	Opening & Award Ceremony, PL, AL1~3, SL-1~3, General Assembly, Closing Ceremony
Samda Hall A	S1, S4, GS1, YS1
Samda Hall B	S2, S5, GS2, YS2
303	S3, S6, S7, S11
301	S8, S9, S10, S12

Floor Plan

5F



Tamna Hall B+C

Banquet

Ocean View

2026 Next-Generation ABC
Innovation Challenge

Program at a Glance

June 21 (Sun)

Time \ Venue	Samda Hall	303	301	Halla Hall
13:00-	Registration			Poster & Exhibition
13:40-14:00	Opening & Award Ceremony	S7 제주대학교 아열대생물자원을 활용한 바이오헬스 /혁신신약 교육연구단	S8 디지털융합 그린바이오	
14:00-14:40	PL			
14:40-15:00	<i>Break</i>			
15:00-16:00	AL-1~3			
16:00-16:40	SL-1			
16:40-17:00	<i>Break</i>			
17:00-18:00	Poster Presentation I			
18:00-19:30	Banquet (Tamna Hall, 5F)			

- PL** Plenary Lecture
- SL** Special Lecture
- YS** Young Scientist Presentation
- 2026 Next-Generation ABC** Innovation Challenge

- AL** Award Lecture
- S** Symposia
- GS** Graduate Student Presentation
- Poster Presentation**

Program at a Glance

June 22 (Mon)

Time	Venue	Samda Hall A	Samda Hall B	303	301	Halla Hall
09:00-10:00		Poster Presentation II				Poster & Exhibition
10:00-11:40		S1 Next-Generatoin Applied Biological Chemistry for Climate Solution	S2 Applied Biological Chemistry - Inspired for Sustainable Innovation	S3 Convergent Applied Biological Chemistry for One Health	S9 COSMAX Special Session: Microbiome Technology for Next-Generation Skin Health	
11:40-13:40		Lunch				
13:40-15:20		Future Convergence Strategies for Applied Biological Chemistry			S10 섬야생생물소재 선진화연구단	
		S4 CRISPR-X 13:30-15:30	S5 AI-X	S6 Microbiome-X		
15:20-15:30		Break				
15:30-16:10		SL-2		S11 한국생명공학연구원 천연물클러스터	S12 Plant Synthetic Biology for Sustainable Future	
16:10-16:50		SL-3				
17:00-18:00		Poster Presentation III				

June 23 (Tue)

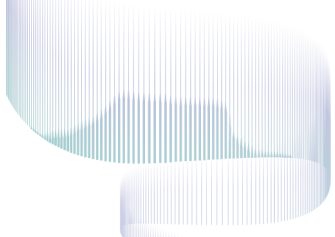
Time	Venue	Samda Hall A	Samda Hall B	Halla Hall
09:00-11:40		GS1	GS2	Poster Exhibition
11:40-13:30		Lunch		
13:30-14:30		Poster Presentation IV		
14:30-17:20		YS1	YS2	
17:20-17:40		General Assembly		
17:40-18:00		Closing Ceremony		

June 24 (Wed)

Time	Venue	Ocean View
09:10-11:30		2026 Next-Generation ABC Innovation Challenge (대학원생 과제 제안서 경진대회)

KSABC
International Symposium 2026

Plenary Lecture



Plenary Lecture

June 21 (Sun), Samda Hall

Chair: Moonjae Cho (Jeju Nat'l University)



PL

14:00-14:40

How Genome Editing Changes the World

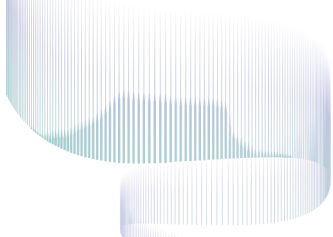
Yong-Sam Kim

¹GenKore Inc,

²KRIBB, Daejeon 34141, Republic of Korea

KSABC
International Symposium 2026

Award Lecture



Award Lecture

June 21 (Sun), Samda Hall

Chair: Sanghyun Lee (Chung-Ang University)



 학술상 1967년도 제정


AL-1 15:00-15:20

A Biochar-Based Carbon-Negative Strategy for Converting Waste into High-Value Carbon Resources

Dong-Cheol Seo

Division of Applied Life Science (BK21 Four) & Institute of Agricultural and Life Sciences, Gyeongsang National University, Jinju 52828, Republic of Korea



 기창(基倉)과학상 기창(基倉) 한태룡 전임회장의 후원으로 2010년도 제정


AL-2 15:20-15:40

Integrated Metabolite Profiling for Quality Evaluation and Functional Standardization of Spinach (*Spinacia oleracea* L.)

Hyung Won Ryu

Natural Product Research Center and Natural Product Central Bank, KRIBB, 30-Yeongudanji-ro, Ochang-eup, Cheongwon-gu, Cheongju-si, Chungcheongbuk-do 28116, Republic of Korea



 HAN BIO Award 한바이오 그룹 후원으로 2022년도 제정

AL-3 15:40-16:00

Smart-Herbalomics: Advancing Medi-foods and APIs Production via Multi-Omics Platform in Controlled Phytotron Environments

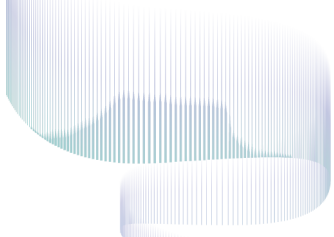
Youngmin Kang

¹*Herbal Medicine Resources Research Center, Korea Institute of Oriental Medicine (KIOM), 111 Geonjae-ro, Naju-si, Jeollanam-do 58245,*

²*University of Science & Technology (UST), Korean Convergence Medical Science Major, Campus of KIOM, Daejeon 34054, Republic of Korea*

KSABC
International Symposium 2026

Special Lecture



Special Lecture

June 21 (Sun), Samda Hall

Chair: Namhyun Chung (Korea University)



SL-1 16:00-16:40

Nature Water: A journal for all water-related research

Heejung Jung

Nature Water, Nature Portfolio, Springer Nature, USA

June 22 (Mon), Samda Hall

Chair: Jae Sung Shim (Chonnam Nat'l University)



SL-2 15:30-16:10

Introduction to Basic Research Programs in Life Sciences by the NRF of Korea, 2026

Yonghwan Kim

Division of Life Sciences, National Research Foundation of Korea, Daejeon, Republic of Korea

June 22 (Mon), Samda Hall

Chair: Dong-Geol Lee (Cosmax BTI)



SL-3 16:10-16:50

End-to-End Hyper-Personalization in Cosmetics: From Sensory Digitization and Skin Phenotyping to Automated Manufacturing

Chun Ho Park

¹Cosmax BTI R&I Center; ²Cosmax R&I Center; Gyeonggi-do 13486, Republic of Korea

Symposia

S1	Next-Generatoin Applied Biological Chemistry for Climate Solution	016
S2	Applied Biological Chemistry - Inspired for Sustainable Innovation	017
S3	Convergent Applied Biological Chemistry for One Health	018
S4	Future Convergence Strategies for Applied Biological Chemistry; CRISPR-X	019
S5	Future Convergence Strategies for Applied Biological Chemistry; AI-X	020
S6	Future Convergence Strategies for Applied Biological Chemistry; Microbiome-X	021
S7	제주대학교 아열대생물자원을 활용한 바이오헬스 /혁신신약 교육연구단, 제주대학교 글로벌대학사업단	022
S8	디지털융합 그린바이오	024
S9	COSMAX Special Session: Microbiome Technology for Next-Generation Skin Health	025
S10	섬야생생물소재 선진화연구단	026
S11	한국생명공학연구원 천연물클러스터	027
S12	Plant Synthetic Biology for Sustainable Future	029

Symposia

S1

Next-Generatoin Applied Biological Chemistry for Climate Solution

June 22 (Mon), Samda Hall A

Chair: Sang-Ah Lee (Jeju Nat'l University)



S1-1 10:00-10:25

Biological Design and Engineering of Biofuels Producing Microbial Systems

Taek Soon Lee

¹Biological Systems and Engineering Division, Lawrence Berkeley National Laboratory, Berkeley, ²Biofuels and Bioproducts Division, Joint BioEnergy Institute, Emeryville, CA, U.S.A.



S1-2 10:25-10:50

Species-Independent Analytical Tools for Non-Destructive and Real-Time Detection of Abiotic Stress in Plants

In-Cheol Jang

¹Temasek Life Sciences Laboratory, 1 Research Link, National University of Singapore, Singapore 117604, ²Department of Biological Sciences, National University of Singapore, Singapore 117543, ³Disruptive & Sustainable Technologies for Agricultural Precision, Singapore-MIT Alliance for Research and Technology, Singapore 138602, Singapore



S1-3 10:50-11:15

Respiratory Toxicity of Household Chemicals

Wan-Seob Cho

Department of Health Sciences, The Graduate School of Dong-A University, Busan 49315, Republic of Korea



S1-4 11:15-11:40

Pesticide Research for Climate Solution; Plant Medicine

Ji-Ho Lee

Department of Biological and Environmental Chemistry, College of Agriculture and Life Sciences, Kangwon National University, Chuncheon 24341, Republic of Korea

S2

Applied Biological Chemistry - Inspired for Sustainable Innovation

June 22 (Mon), Samda Hall B

Chair: Youri Yang (Kangwon Nat'l University)



S2-1

10:00-10:25

Wastewater-Based Epidemiology: Can the Concept Work in Agricultural Systems?

Tao Yan

¹Water Resources Research Center, ²Department of Civil, Environmental, and Construction Engineering, College of Engineering, University of Hawaii at Manoa, Honolulu HI 96822, USA



S2-2

10:25-10:50

Complexities in Symbiotic Nitrogen Fixation Among Legumes are due to Biochemical and Soil Abiotic Factors

Michael J. Sadowsky

BioTechnology Institute and Department of Medicine, University of Minnesota, St. Paul, 55208, MN, USA



S2-3

10:50-11:15

Establishing a plant-based production platform for microbial biocatalysts for sustainable industrial innovation

Hyeran Kim

Department of Biological Sciences, Kangwon National University, Chuncheon 24341, Republic of Korea



S2-4

11:15-11:40

Development of a Novel Microbial Biocontrol Strategy Using *Lysinibacillus* sp. TT41 and Lactic Acid to Mitigate Drought Impact on Kimchi Cabbage (*Brassica rapa* L. subsp. *pekinensis*)

Tae Jin Kim

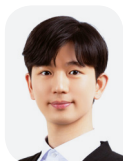
Bio-resource Division, Nakdonggang National Institute of Biological Resources, Gyeongsangbuk-do 37242, Republic of Korea

S3

Convergent Applied Biological Chemistry for One Health

June 22 (Mon), 303

Chair: Soo-Jeung Park (Woosong University)



S3-1 **10:00-10:30**

Microbial food: sustainable and nutritious food for human and planetary health

Kyeong Rok Choi

Graduate School of Green Growth & Sustainability (GGGS), Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea



S3-2 **10:30-11:00**

Defining a CBDA-optimized Harvest Window in Medical Cannabis by Integrating Morphology, Chemistry, and Spectral Signatures

Je Hyeong Jung

Department of Plant Biotechnology, Korea University, Seoul 02841, Republic of Korea



S3-3 **11:00-11:30**

Urolithin A as a Dietary Postbiotic Strategy to Enhance Resilience Against Extreme Climate Stressors

Soonkyu Chung

Department of Nutrition, University of Massachusetts, Amherst, MA 01003, USA

S4

Future Convergence Strategies for Applied Biological Chemistry; CRISPR-X

June 22 (Mon), Samda Hall A

Chair: Lae-Hyeon Cho (Pusan Nat'l University)



S4-1 13:30-13:55

Five Strategic Pillars for Overcoming Barriers in Crop Genome Engineering: From Organelle Design to Super-Agrobacterium-Enabled In Planta Editing

Jae-Yean Kim

¹Division of Applied Life Science (BK21 Four Program), Plant Molecular Biology and Biotechnology Research Center, Gyeongsang National University, Jinju 52828, ²Nulla Bio Inc 501 Jinju-daero, Jinju 52828, Republic of Korea



S4-2 13:55-14:20

Engineering and Regulation of Chloroplast and Mitochondrial Genomes

Shin-ichi Arimura

Graduate School of Agricultural and Life Science, The University of Tokyo, Tokyo, Japan



S4-3 14:20-14:45

From genome editing to evolutionary design: Predictability and constraints in microbial systems

Tomoya Maeda

¹Research Faculty of Agriculture, Hokkaido University, Kita 9, Nishi 9, Kita-ku, Sapporo 060-8589, ²RIKEN Center for Biosystems Dynamics Research, Integrated Innovation Building, 6-7-1 Minatojima-minamimachi, Chuo-ku, Kobe, Hyogo 650-0047, Japan



S4-4 14:45-15:10

CRISPR-Cas Based Gene Therapy Strategies for Conquering Genetic Disorder

Jihyeon Yu

¹School of Biomedical Convergence Engineering, Pusan National University, Yangsan, ²Medical Research Institute, Pusan National University, Yangsan, Republic of Korea



S4-5 15:10-15:30

Multiplexed CRISPR-Cas9 genome editing enhances carotenoid and chlorophyll accumulation in rice by overcoming genetic redundancy

Heebak Choi

Graduate School of Green-Bio Science, College of Life Sciences, Kyung Hee University, Yongin, Republic of Korea

S5

Future Convergence Strategies for Applied Biological Chemistry; AI-X

Co-organized by  경상국립대학교 램프사업단

June 22 (Mon), Samda Hall B

Chair: Seonbeom Kim (Pusan Nat'l University)



S5-1 13:40-14:05

Development of AI and Omics-Based qPCR Assay for Food Safety and Authentication

Si Hong Park

Department of Food Science and Technology, Oregon State University, Corvallis, 97331, USA



S5-2 14:05-14:30

AI-Driven MALDI-TOF MS for *Enterococcus* Classification with Feature Selection and WGS Validation

Eiseul Kim

Major of Food Science and Biotechnology, Gyeongbuk National University, Andong 36729, Republic of Korea



S5-3 14:30-14:55

From Research to Real World: NUSEUM as a Vertical AI for Scalable Food-as-Medicine Delivery

Jiyoung Kim

¹NUSEUM, Seongnam, Gyeonggi-do, ²Research Institute of Human Ecology, Seoul National University, Seoul, Republic of Korea



S5-4 14:55-15:20

Explainable AI as a Convergence Strategy for Applied Biological Chemistry

Minsoo Jeong

¹Department of Applied Biosciences, Kyungpook National University, ²NGS Core Facility, Kyungpook National University, Daegu 41566, Republic of Korea

S6

Future Convergence Strategies for Applied Biological Chemistry; Microbiome-X

June 22 (Mon), 303

Chair: Hokyung Song (Chosun University)

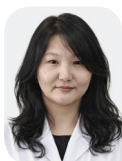


S6-1 13:40-14:05

Microbiome-Based Ecological Monitoring Across Diverse Environmental Systems

Jin-Kyung Hong

Department of Environment and Energy Engineering, Chonnam National University, Gwangju 61186, Republic of Korea



S6-2 14:05-14:30

Bioactive Protein Hydrolysates from Four Agro-industrial By-products: Production, Physicochemical Properties and *in vivo* Functional Evaluation

Erdenedolgor Erdene-Ochir

Laboratory of Protein Chemistry and Technology, Institute of Chemistry and Chemical Technology, Mongolian Academy of Sciences, Ulaanbaatar 13260, Mongolia



S6-3 14:30-14:55

Cooperation for Biodegradation: A Synthetic Microbial Community for the Remediation of Herbicide Pollution

Dongfei Han

School of Environmental Science and Engineering, Suzhou University of Science and Technology, 215009, China



S6-4 14:55-15:20

Gut Microbiome Dysbiosis as A Driver of Disease Activity in Spondyloarthritis and Liver Disease: Integrated Evidence from Multicohort Studies

Jorge F. Vázquez-Castellanos

¹Rega Institute, Microbiology, Immunology & Transplantation, KU Leuven, Leuven, Belgium, ²Research Institute of Human Ecology, Seoul National University, Seoul, Republic of Korea

S7

주대학교 아열대생물자원을 활용한 바이오헬스/혁신신약 교육연구단,
제주대학교 글로벌대학사업단

June 21 (Sun), 303

Chair: Sang-Ah Lee (Jeju Nat'l University)



S7-1 14:00-14:20

Bisphenol A Induces Neurodegeneration Through GPER-CHMP2B-Dependent Exosome-Mediated Mitochondrial Transfer, and Activating Neurotoxic Glia

Duy Vu Ba Le

Laboratory of Veterinary Biochemistry, College of Veterinary Medicine and Interdisciplinary Graduate Program in Advanced Convergence Technology & Science, Jeju National University, Jeju 63243, Republic of Korea



S7-2 14:20-14:40

Stress resilience-associated microbiome metabolites alleviate Alzheimer's disease by modulating amyloid pathology

Thi Hoa Luong

Department of Biochemistry, College of Veterinary Medicine, Jeju National University, Jeju 63243, Republic of Korea



S7-3 14:40-15:00

Application of red seaweed to design fried-instant noodles for the modulation of oil uptake and postprandial glycemic response

Yerin Hyun

Department of Food Bioengineering, Jeju National University, Republic of Korea



S7-4 15:00-15:20

High-Sucrose Diet Exacerbates Osteoarthritis Through TLR4-Dependent Gut-Liver-Adipose Inflammation and NETosis As a Critical Amplifier

Yunhui Min

Interdisciplinary Graduate Program in Advanced Convergence Technology and Science, Jeju National University, Jeju Special Self-Governing Province, Republic of Korea

June 21 (Sun), 303

Chair: Jongbin Lim (Jeju Nat'l University)



S7-5 15:20-15:40

Beyond Aging and Mechanics: Heavy Metal Pollution as a New Pathogenic Frontier in Osteoarthritis

Godagama Gamaarachchige Dinesh Suminda

Graduate Program for Bio-health & Innovative Drug Development using Subtropical Bioresources, Jeju National University, Jeju, Republic of Korea



S7-6 15:40-16:00

Nanoengineered Carrot-Derived Bioactive Molecule and Their Immunomodulatory Effects in Rheumatoid Arthritis

Md. Meraj Ansari

Department of Animal Biotechnology, Faculty of Biotechnology, College of Applied Life Sciences, Jeju National University, Jeju-si 63243, Republic of Korea



S7-7 16:00-16:20

Biological Nitrification Inhibition in Rice: Induction, Mechanisms, and the Role of Reactive Oxygen Species

Israr Aziz

Interdisciplinary Graduate Program in Advanced Convergence Technology and Science, Jeju National University, Republic of Korea



S7-8 16:20-16:40

Anti-inflammatory Effects of *Rubus buergeri* Aerial Extract and Its Phenolic Compounds in LPS-Stimulated Macrophages

Theophilus Bhatti

Interdisciplinary Graduate Program in Advanced Convergence Technology & Science, Jeju National University, Jeju 63243, Republic of Korea



S7-9 16:40-17:00

TLR4 Deficiency Impairs Renal Recovery Following Aristolochic Acid-Induced Kidney Injury

Hong-Yi Xiang

Interdisciplinary Graduate Program in Advanced Convergence Technology & Science, Jeju National University, Jeju 63243, Republic of Korea

S8

디지털융합 그린바이오

June 21 (Sun), 301

Chair: Jeong Yoon Kim (Gyeongsang Nat'l University)



S8-1 14:00-14:25

Enhanced production of novel bioactive metabolites in mung bean (*Vigna radiate*) plants induced by signal molecule ethylene in a vertical farm

Kye Man Cho

Department of GreenBio Science (BK21) and Agri-Food Bio Convergence Institute, Gyeongsang National University, Jinju 52727, Republic of Korea



S8-2 14:25-14:50

Neuroprotective Effects of Tryptophan on Methylglyoxal-Induced Cognitive and Behavioral Deficits

Seong-Min Hong

Division of Food Science and Technology, Gyeongsang National University, Jinju, Gyeongnam 52828, Republic of Korea



S8-3 14:50-15:15

From basic research to clinical try for the development of bitter melon industrialization

Sang Soo Kang

Department of Anatomy & Convergence Medical Science, School of Medicine, Gyeongsang National University, Jinju 52727, Republic of Korea



S8-4 15:15-15:30

A Digital Reference Standard-Based Platform for Untargeted Multi-Component Quantitative Analysis of Natural Products

Seon Beom Kim

¹Department of Food Science and Technology, ²Institute for Future Earth, ³Food Tech Innovation Center; Life and Industry Convergence Research Institute, Pusan National University, Miryang 50463, Republic of Korea

S9

COSMAX Special Session: Microbiome Technology for Next-Generation Skin Health

Co-organized by  경상국립대학교 램프사업단

June 22 (Mon), 301

Chair: Jihye Kim (Gachon University)



S9-1 10:00-10:25

Advances in Microbiome Technology and Emerging Trends in the Global Cosmetics Industry

HyungWoo Jo

COSMAX BTI, R&I Center, Seongnam-si 13486, Republic of Korea



S9-2 10:25-10:50

Understanding Skin Quality Through Facial Microbes and Age-Adjusted Machine Learning

Hye-Been Kim

Research and Innovation Center; COSMAX BTI, Seongnam 13486, Republic of Korea



S9-3 10:50-11:15

Functional Correlation Between Skin Bioelectricity and Microbiome Homeostasis: Insights from an Electrogenic Prebiotic Solution

Se Jin Cheon

R&I Center, COSMAX BTI, Seongnam 13486, Republic of Korea



S9-4 11:15-11:40

Beyond Species: Lineage Dynamics of Skin Commensals with Aging

Ikwhan Kim

Department of Applied Biosciences, Kyungpook National University, Daegu 41566, Republic of Korea

S10

섬야생생물소재 선진화연구단

June 22 (Mon), 301

Chair: Kyung-Min Choi (Honam National Institute of Biological Resources)



S10-1 13:40-13:55

Obtainment of Omics Big Data and Peptide Materials from Island Wildlife

Ha Yeun Song

Advanced Research Center for Island Wildlife Biomaterials, Honam National Institute of Biological Resources, 99, Gohadoan-gil, Mokpo-si, Jeollanam-do 58762, Republic of Korea



S10-2 13:55-14:10

AI-Driven Discovery of Bioactive Peptides from Island Wildlife Using Multi-omics Data

Myunghee Jung

Insilicogen Inc., Yongin-si 16954, Republic of Korea



S10-3 14:10-14:25

In Silico Screening of Functional Peptides from Island Wildlife

Guijae Yoo

Korea Food Research Institute, Wanju 55365, Republic of Korea



S10-4 14:35-14:50

Integrated discovery and bioengineering of Halcarins, antimicrobial peptides from sea anemone with broad-spectrum therapeutic potential

Namki Cho

Research Institute of Pharmaceutical Sciences, College of Pharmacy, Chonnam National University, Gwangju 61186, Republic of Korea



S10-5 14:50-15:20

Pharmaco-medical Application of Antimicrobial Peptides Derived from Insects

Jae-Sam Hwang

Hanmi Nutrition Inc. Paju, Republic of Korea

S11

한국생명공학연구원 천연물클러스터

June 22 (Mon), 303

Chair: Sangho Choi (Korea Research Institute of Bioscience and Biotechnology)



S11-1 15:30-15:40

The role of Natural Product Cluster in Korea

Sei-Ryang Oh

Natural Product Central Bank, Korea Research Institute of Bioscience and Biotechnology, Cheongju-si, Chungcheongbuk-do 28116, Republic of Korea



S11-2 15:40-15:50

A Base Bank for Korean Native Plants

Jaeyoung Kwon

KIST Gangneung Institute of Natural Products, Korea Institute of Science and Technology, Gangneung 25451, Republic of Korea



S11-3 15:50-16:00

Plant-derived natural product resource base bank

Jun Lee

Herbal Medicine Resources Research Center, Korea Institute of Oriental Medicine (KIOM), Naju 58245, Republic of Korea



S11-4 16:00-16:10

Establishment of a Base Bank for Plant-Derived Functional Food Materials

Sang Yoon Choi

Korea Food Research Institute, Wanju 55365, Republic of Korea



S11-5 16:10-16:20

Korea Forest Plant Essential Oil Bank

Hwan Myung Lee

Department of Biotechnology, College of Life and Health Sciences, Hoseo University, Asan 31499, Republic of Korea



S11-6 16:20-16:30

Establishment of the cooperation center for securing characteristic information of natural compounds to advance Natural Product Cluster and maximize utilization of strategic materials

Young-Won Chin

College of Pharmacy and Research Institute of Pharmaceutical Sciences, Seoul National University, Seoul 08826, Republic of Korea



S11-7 16:30-16:40

Agentic AI-Orchestrated Platform for Natural Product Analysis

Daesik Jeong

Sangmyung University, INSILICOX Inc., Seoul 06136, Republic of Korea



S11-8 16:40-16:50

Advancing the natural product data annotation to expand AI-driven information utilization

Heejae Yang

Cocoon Inc., Cheongju 28161, Republic of Korea

S12

Plant Synthetic Biology for Sustainable Future

Co-organized by  농촌진흥청
국립농업과학원

June 22 (Mon), 301

Chair: Sichul Lee (National Institute of Agricultural Sciences)



S12-1 15:30-15:45

Increasing the yield of biomaterial production using gene-edited *Nicotiana benthamiana* plants

Kyeong-Ryeol Lee

Department of Agricultural Biology, National Institute of Agricultural Sciences, Rural Development Administration, Jeonju 54875, Republic of Korea



S12-2 15:45-16:00

Amaryllidaceae Alkaloids: Insights, Challenges, and Opportunities

Nuwan Sameera Liyanage

Division of Applied Life Science (BK21), Gyeongsang National University, Jinju 52828, Republic of Korea



S12-3 16:00-16:15

Rewiring steroidal metabolic pathways for diosgenin production in *Solanum nigrum*

Jongbu Lim

Department of Biological Sciences, KAIST, Daejeon 34141, Republic of Korea



S12-4 16:15-16:30

Development of a Plant Cell-Derived Anti-PD-L1 Antibody for Canine Cancer Immunotherapy

Sunmee Choi

Plant Cell Research Institute of BIO-FD&C Co., Ltd., Incheon 21990, Republic of Korea



S12-5 16:30-16:45

Cytokines as Universal Antiviral Agents

Jin Hur

College of Veterinary Medicine, Jeonbuk National University, Iksan 54596, Republic of Korea

【종합 토론】 16:45-16:50

Young Scientist Presentation

YS1

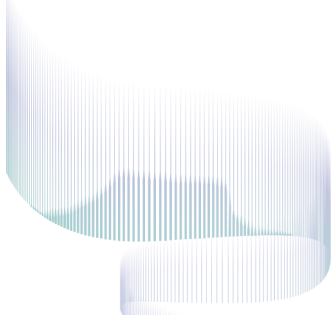
Biochemistry · Molecular Biology /
Environmental Sciences / Food Sciences

032

YS2

Natural Products · Bioactive Materials ·
Biomedical Sciences / Applied Microbiology

034



Young Scientist Presentation

YS1

Biochemistry·Molecular Biology / Environmental Sciences / Food Sciences

June 23 (Tue), Samda Hall A

Chair: Jun Sung Seo (Dankook University)



YS1-1 14:30-14:50

SlHair3- and SlHair4-mediated regulatory mechanism of multicellular trichome development in tomato

Seong-Min Kim

Crop Biotechnology Institute, Institutes of Green-bio Science and Technology, Seoul National University, PyeongChang 25354, Republic of Korea



YS1-2 14:50-15:10

Functional Divergence of DXS Gene Family in Rice

Ji Su Yu

Graduate School of Green-Bio Science, Kyung Hee University, Yongin 17104, Republic of Korea



YS1-3 15:10-15:30

Restoring AIBP in the Glaucomatous Retina Protects Retinal Ganglion Cells via Cholesterol and Neuroinflammation Regulation

Sin Woo Hwang

School of Biohealth Convergence, Sungshin Women's University, Seoul, Republic of Korea



YS1-4 15:30-15:50

Adipose Tissue-Derived Extracellular Vesicles from Obese Mice Impair Natural Killer Cell-Mediated Immunity and Promote Pancreatic Ductal Adenocarcinoma Progression

Inae Jeong

¹Division of Food and Nutrition, ²Human Ecology Research Institute, Chonnam National University, Gwangju 61186, Korea

June 23 (Tue), Samda Hall A

Chair: Seonbeom Kim (Pusan Nat'l University)



YS1-5 16:00-16:20

Design of a Fuel Cell System for Electricity Generation and Valuable Metal Recovery from Sulfidic Mine Tailings

Won Jung Ju

*Research Institute of Energy and Resources, Seoul National University,
1 Gwanak-ro, Gwanak-gu, Seoul 08826, Republic of Korea*



YS1-6 16:20-16:40

Cognitive reserve and effects of air pollution mixture on cognitive function in dementia-free adults

Juyeon Ko

*Department of Preventive Medicine, Yonsei University College of Medicine,
Seoul, Republic of Korea*



YS1-7 16:40-17:00

Engineering the Future of Food through Synthetic Biology Platforms

Jonghyeok Shin

*¹Department of Food Science and Biotechnology, College of Life Sciences,
²Carbohydrate Bioproduct Research Center, Sejong University, Seoul 05006,
Republic of Korea*



YS1-8 17:00-17:20

Prediction of Pesticide Residues Using Dynamic Modeling and Machine Learning

Min-Ho Song

*¹Department of Food Biotechnology and Environmental Science, ²Department
of Biological and Environmental Chemistry, College of Agriculture and Life
Sciences, Kangwon National University, Chuncheon, Republic of Korea*

YS2

Natural Products·Bioactive Materials·Biomedical Sciences /
Applied Microbiology

June 23 (Tue), Samda Hall B

Chair: Hokyung Song (Chosun University)



YS2-1 14:30-14:50

**Radiation-Induced Structural Transformation of Natural Products
for the Discovery of Novel Bioactive Materials**

Gyeong Han Jeong

*Advanced Radiation Technology Institute (ARTI), Korea Atomic Energy Research
Institute (KAERI), Jeongseup 56212, Republic of Korea*



YS2-2 14:50-15:10

**Antioxidant and Anti-inflammatory Effects of Phenolic Compounds
Derived from *Lonicera japonica* and Chenpi in Skin Keratinocytes**

Hun Hwan Kim

*Center for Bio-Health Research, Division of Gyeongnam Bio-Environmental
Research, Korea Institute of Toxicology*



YS2-3 15:10-15:30

Anti-inflammatory effects of plasma treated phloridzin

So-Yeun Woo

*Advanced Radiation Technology Institute (ARTI), Korea Atomic Energy Research
Institute (KAERI), Jeongseup 56212, Republic of Korea*



YS2-4 15:30-15:50

**Metabolomics Approach for Evaluating Bioactive Potential of
Horticultural and Herbal Crops**

Seonghye Kim

*Department of Herbal Crop Research, National Institute of Horticultural and
Herbal Science, RDA, Eumseong 27709, Republic of Korea*

June 23 (Tue), Samda Hall B

Chair: Dae-Geun Song (Korea Institute of Science and Technology)



YS2-5 16:00-16:20

Antioxidant and Neuroprotective Efficacy of Hwangryunhaedok-tang and Its Bioactive Compound Baicalein through Nrf2/AMPK Activation in Alzheimer's Disease

Su-Jin Bae

Korean Medicine (KM) Application Center, Korea Institute of Oriental Medicine (KIOM), Dong-gu, Daegu 34054, Republic of Korea



YS2-6 16:20-16:40

Unraveling the Female Reproductive Microbiome: From Microbial Ecology to Postbiotic Application

Da-Ryung Jung

¹Department of Applied Biosciences, ²NGS Core Facility, Kyungpook National University, Daegu 41566, Republic of Korea



YS2-7 16:40-17:00

Volatile Organic Compounds from *Pseudomonas* Mediate Broad-Spectrum Biocontrol of Phytopathogens

Dariimaa Ganbat

Institute of Basic Science Convergence, Kyungpook National University, Daegu 41566, Republic of Korea



YS2-8 17:00-17:20

Bio-Fenton reaction system facilitated by *Desemzia* sp. strain C1 for the degradation of polyethylene to oxalate

Yongseok Ko

Department of Environment and Energy Engineering, Gwangju Institute of Science and Technology

Graduate Student Presentation

GS1

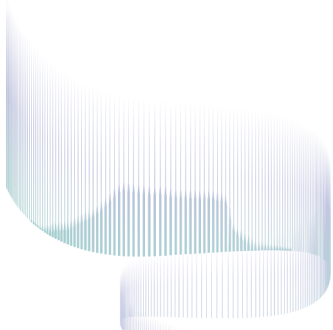
Biochemistry · Molecular Biology /
Environmental Sciences

038

GS2

Natural Products · Bioactive Materials ·
Biomedical Sciences / Applied Microbiology

042



Graduate Student Presentation

GS1 Biochemistry · Molecular Biology / Environmental Sciences

June 23 (Tue), Samda Hall A

Chair: Tae Woo Oh (Korea Institute of Oriental Medicine)

GS1-1 09:00-09:10

Insights into Source-to-Sink Metabolite Allocation from a Half-Albino EMS Mutant: Functional Analysis of *SIRING3* and *SIFB12* in Tomato

Min-Seo Kang, So-Hyun Kim, Zion Lee, Seung-won Park, Jae-Sung Shim*

School of Biological Sciences and Technology, Chonnam National University, Gwangju 61186, Republic of Korea

GS1-2 09:10-09:20

Metabolic engineering for enhanced nervonic acid production in plants

Byeong-Cheol Oh, Hyun Uk Kim*

Department of Bioindustry and Bioresource Engineering, Sejong University, Seoul 05006, Republic of Korea

GS1-3 09:20-09:30

Age-Dependent Sulfur Assimilation and Glucosinolate Biosynthesis in *Wasabia japonica* Leaves under Sulfur Fertilization

Ye Lin Kim^{1,2}, To Quyen Truong², Yeong Bin Choi³, Phuong Kim Huynh³,
Tae In Ahn^{1,4,5}, Sang Min Kim^{2,3*}

¹*Department of Agriculture, Forestry and Bioresources, Seoul National University, Seoul 08826, Republic of Korea,* ²*Smart Farm Research Center, Korea Institute of Science and Technology (KIST), KIST Gangneung Institute of Natural Products, Gangneung 25451, Republic of Korea,* ³*Natural Product Applied Science, KIST School, University of Science and Technology (UST), Gangneung 25451, Republic of Korea,* ⁴*Research Institute of Agriculture and Life Sciences, Seoul National University, Seoul 08826, Republic of Korea,* ⁵*Seoul National University Energy Initiative, Seoul National University, Seoul 08826, Republic of Korea*

GS1-4

09:30-09:40

UV Weathering Intensifies the Negative Effects of PLA/PBAT Biodegradable Mulch Films on Chili Pepper Growth and Rhizosphere Microbial Function

Juwon Yoo¹, Sohyun An¹, Hakwon Yoon^{1,2*}

¹Department of Food Biotechnology and Environmental Science, Kangwon National University, Chuncheon 24341, Republic of Korea, ²Department of Biological and Environmental Chemistry, Kangwon National University, Chuncheon 24341, Republic of Korea

GS1-5

09:40-09:50

Integrated Metagenomic Analysis of Cyanobacterial Bloom Dynamics in the Nakdong River

Seung-Yeon Jeong¹, Jae-Ho Shin^{1,2}, Seungjun Lee^{1*}

¹Department of Applied Biosciences, Kyungpook National University, Daegu 41566, Republic of Korea, ²NGS Core Facility, Kyungpook National University, Daegu 41566, Republic of Korea

GS1-6

09:50-10:00

Pot-grown seedling transplanting mitigates CH₄ emissions and maintains rice productivity under different planting densities in paddy fields

Min-Gyeong Lee¹, So-Hee Yoon¹, Sang Yoon Kim^{1,2*}

¹Department of Agricultural Chemistry & Interdisciplinary Program in IT-Bio Convergence System, Suncheon National University, Suncheon 57922, Republic of Korea, ²Department of Agricultural Life Science, Suncheon National University, Suncheon 57922, Republic of Korea

GS1-7

10:00-10:10

Investigation of the groundwater mobility of pesticides and their metabolites using lysimeter systems

In-Ung Jeong, Hyo-Sub Lee^{*}, Hyang-Hee Kim

Residual Agrochemical Assessment Division, Department of Agro-Food Safety and Crop Protection, National Institute of Agricultural Sciences, Wanju 55365, Republic of Korea

June 23 (Tue), Samda Hall A

Chair: Hakwon Yoon (Kangwon Nat'l University)

GS1-8

10:20-10:30

Mitigation of Freshwater Cyanobacterial Blooms Using Metal-Modified Biochar: Nutrient Removal and Microbial Shifts

Seul-Rin Lee, Jae-Hoon Lee, Jun-Suk Rho, Seung-Hoon Lee, Dong-Cheol Seo*
Institute of Agricultural and Life Sciences & Division of Applied Life Science (BK21 Four), Gyeongsang National University, Jinju 52828, Republic of Korea

GS1-9

10:30-10:40

Application of Smart-Herbalomics in the *in vitro* Propagation of *Atractylodes macrocephala* Koidz. for Sustainable Herbal Medicine Production

Kenneth Happy^{1,2}, Youngmin Kang^{1,2*}

¹*Herbal Medicine Resources Research Center, Korea Institute of Oriental Medicine (KIOM), 111 Geonjae-ro, Naju-si, Jeollanam-do 58245, Republic of Korea,*

²*Korean Convergence Medicine Major, University of Science and Technology (UST), Republic of Korea*

GS1-10

10:40-10:50

Methane Mitigation and Arsenic Immobilization via Sulfate-Reducing Bacteria-Methanogen competition in Paddy Soil during Rice Growth

Han Na Kim¹, Jong Geon Oh², Jin Hee Park^{1,2*}

¹*Department of Agricultural Chemistry, Chungbuk National University, Cheongju 28644, Chungbuk, Republic of Korea,* ²*Department of Environmental and Biological Chemistry, Chungbuk National University, Cheongju 28644, Chungbuk, Republic of Korea*

GS1-11

10:50-11:00

Aggregate Size Dependent Responses of Humic Acid Accumulation and Composition to Lime and Silicate Amendments in Agricultural Soil

Na-Hyun Kwon¹, Dong-Jin Lee¹, Chang-Dong Lee¹, Seung-Hwan Lee¹, Jae-Eun Jung¹, Jong-Hoon Lim², Chan-Young Lee², Jeong-Gu Lee^{1,2*}

¹*Department of Applied Biosciences, Kyungpook National University, Daegu 41566, Republic of Korea,* ²*School of Applied Life Science, Kyungpook National University, Daegu 41566, Republic of Korea*

GS1-12

11:00-11:10

Depth-Specific Responses of Methane-Related Soil Processes to Fertilizer Deep Placement in Paddy Soils

Sehun Im¹, Minji Lee², Kyungmin Kim^{1*}

¹*Department of Agricultural Biotechnology, Seoul National University, Seoul 08826, Republic of Korea,* ²*Department of Agricultural Environment, National Institute of Agricultural Sciences, Wanju 55365, Republic of Korea*

GS1-13

11:10-11:20

Potential of Fe/Al Modified Biochar for Agricultural Nonpoint Source Pollutant Removal

Hoo Bin Han¹, Min-Jin Hwang³, Eun Hea Jho^{1,2*}

¹*Department of Agricultural Chemistry, Chonnam National University, Gwang-Ju 61186, Republic of Korea,* ²*Department of Agricultural and Biological Chemistry, Chonnam National University, Gwang-Ju 61186, Republic of Korea,* ³*Department of Environmental System Engineering, Chonnam National University, Yeosu, Jeonnam 59626, Republic of Korea*

GS1-14

11:20-11:30

Evaluation of pepper residue versus its biochar application on greenhouse gas emissions and productivity under a climate chamber

So Hee Yoon¹, Sang Yoon Kim^{1,2*}

¹*Department of Agricultural Chemistry & Interdisciplinary Program in IT-Bio Convergence System, Suncheon National University, Suncheon 57922, Republic of Korea,* ²*Department of Agricultural Life Science, Suncheon National University, Suncheon 57922, Republic of Korea*

GS2

Natural Products·Bioactive Materials·Biomedical Sciences / Applied Microbiology

June 23 (Tue), Samda Hall B

Chair: Yeongjun Ban (Korea Institute of Oriental Medicine)

GS2-1

09:00-09:10

Somatic embryogenesis-mediated plant regeneration and phytochemical characterization of *Codonopsis pilosula* (Franch.) Nannf.

Joyce Mudondo^{1,2}, Youngmin Kang^{1,2*}

¹Herbal Medicine Resources Research Center, Korea Institute of Oriental Medicine (KIOM), 111 Geonjae-ro, Naju-si, Jeollanam-do 58245, Republic of Korea,

²Korean Convergence Medicine Major, University of Science and Technology (UST), Republic of Korea

GS2-2

09:10-09:20

Discovery of Antifungal Metabolites from the Human Gut Bacteria, *Butyricimonas paravirosa* and *Bacteroides uniformis*

Hyemin Kim¹, Seung Hwan Lee¹, Hyunjin Cha², Ga Yeon Lee¹, Yong-Sun Bahn², Chung Sub Kim^{1,3*}

¹Department of Biopharmaceutical Convergence, Sungkyunkwan University, Suwon 16419, Republic of Korea, ²Department of Biotechnology, College of Life Science and Biotechnology, Yonsei University, ³School of Pharmacy, Sungkyunkwan University, Suwon 16419, Republic of Korea

GS2-3

09:20-09:30

Comparative Metabolomic Profiling of Processed Ginseng by High-Resolution Mass Spectrometry and Molecular Networking

Woo-Cheol Shin, Dae Young Lee*

BK21 FOUR KNU Creative BioResearch Group, School of Life Sciences, Kyungpook National University, Daegu 41566, Republic of Korea

GS2-4

09:30-09:40

Lifespan-Extending Effects of Hypericin-Mediated Photodynamic Treatment in *Caenorhabditis elegans*: Insights into the Temporal Dynamics of NRF-2/SKN-1 Activation

Uyen Tran Tu Nguyen^{1,2}, Son Hung Tran^{1,2}, Sohyun Lee^{1,2}, Phuong Ly Ho^{1,2}, Kyungsu Kang^{1,2*}

¹Center for Natural Product Systems Biology, Gangneung Institute of Natural Products, Korea Institute of Science and Technology (KIST), Gangwon-do 25451, Republic of Korea, ²Natural Product Applied Science, KIST School, University of Science and Technology (UST), Gangneung, Gangwon-do 25451, Republic of Korea

GS2-5

09:40-09:50

Structure elucidation and in-silico study of megastigmane glycosides from the extract of *Ardisia humilis* Vahl leaves to PPARs receptor for the treatment of metabolic syndrome

Alfan Danny Arbiyanto^{1,2,3}, Seon Min Oh¹, Hyoung-Geun Kim¹, Jongmin Ahn¹, KyuJong Lee⁴, Ngatinem³, Agung Eru Wibowo³, Jin-Hyub Paik⁴, Hyung Won Ryu¹, Sofa Fajriah³, Sangho Choi⁴, Sei-Ryang Oh^{1,2*}

¹Natural Product Research Center, KRIBB, Cheongju-si, Chungbuk 28116, Republic of Korea, ²KRIBB School, University of Science and Technology, Daejeon 34113, Republic of Korea, ³Research Center for Pharmaceutical Ingredients and Traditional Medicine, BRIN, Cibinong, 16911, Indonesia, ⁴International Biological Material Research Center, KRIBB, Daejeon 34141, Republic of Korea

GS2-6

09:50-10:00

Hydroponic System-dependent Variation in Phenylpropanoid Accumulation and Antioxidant Activity of Greenhouse-grown Basil

Sang-Yun Lee¹, Sanghyun Lee^{1,2*}

¹Department of Plant Science and Technology, Chung-Ang University, Anseong 17546, Republic of Korea, ²Natural Product Institute of Science and Technology, Anseong 17546, Republic of Korea

GS2-7

10:00-10:10

Neuroprotective Efficacy of an Isoflavone-Potentiated Soybean Leaf (ISL) Extract against Scopolamine-Induced Cognitive Impairment via the CREB-BDNF Signaling Pathway

Seo Young Kim^{1,2}, Tae Woo Oh^{1,2*}

¹Korean Medicine (KM) Application Center, Korea Institute of Oriental Medicine (KIOM), Dong-gu, Daegu 41062, Republic of Korea, ²University of Science and Technology (UST), Korean Convergence Medicine Major KIOM, 1672 Yuseongdae-ro, Yuseong-gu, Daejeon 34054, Republic of Korea

June 23 (Tue), Samda Hall B

Chair: Si Young Ha (GyeongSang Nat'l University)

GS2-8

10:20-10:30

Effects of Biofilm-Forming Induced PGPR on Rhizosphere Colonization and Secondary Metabolism in Medicinal Plants

Tae-Ho Kim¹, Sihyun Park¹, Minseo Kim¹, Jae-Ho Shin^{1,2*}

¹Department of Applied Biosciences, Kyungpook National University, Daegu 41566, Republic of Korea, ²NGS Core Facility, Kyungpook National University, Daegu 41566, Republic of Korea

GS2-9

10:30-10:40

Biochar Immobilization and Endospores of Ureolytic *Priestia megaterium* strain GS1

Chaemin Sim¹, Dong-Cheol Jang², Yong-Gu Lee^{3,4*}, Yuri Yang^{1,5*}

¹Department of Food Biotechnology and Environmental Science Kangwon National University, Chuncheon 24341, Republic of Korea, ²Department of Horticulture, Kangwon National University, Chuncheon 24341, Republic of Korea, ³Department Puricyclesolution Co. Ltd, 1 Kangwondaehak-gil, Chuncheon 24341, Republic of Korea, ⁴Environmental Research Institute, Kangwon National University, Chuncheon 24341, Republic of Korea, ⁵School of Life and Environmental Sciences, Department of Biological and Environmental Chemistry, Kangwon National University, Chuncheon 24341, Republic of Korea

GS2-10

10:40-10:50

Application of Biogenic Iron-Oxide Nanomaterials for Highly Effective Fenton Reaction

Seoyeon Lee, Minje Kang, Yongseok Ko, Sujin Lee, Hor-Gil Hur*

Department of Environment and Energy Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju 61005, Republic of Korea

GS2-11

10:50-11:00

Effects of saturated fatty acid (SFA) and unsaturated fatty acid (UFA) on anaerobic microbiome in rumen

Kwang-Min Kim, Kyung-Yeol Oh, Jin-Hyo Kim*

Department of Agricultural Chemistry, Division of Applied Life Science, Institute of Agriculture and Life Science (IALS), Gyeongsang National University, Jinju 52727, Republic of Korea