

# KSABC International Symposium 2024

**Nature based solution  
for sustainability**

July 1 - 3, 2024  
ICC JEJU, Jeju, Korea



**한국응용생명화학회**  
Korean Society for Applied Biological Chemistry

# KSABC

## International Symposium

# 2024

Hosted by



한국응용생명화학회  
The Korean Society for Applied Biological Chemistry

Co-organized by



경북대학교  
농산물품질·안전성평가연구소



FOUR JEJU NATIONAL UNIVERSITY  
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한국과학기술연구원 강릉  
천연물연구소

KFR!

한국식품연구원



부산대학교 생명산업융합연구원



전북대학교  
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제주지역혁신플랫폼  
JEJU Regional Innovation Platform



바이오헬스 신산업 혁신을 위한  
프런티어 인재양성 사업팀

This work was supported by the Korean Federation of Science and Technology Societies(KOFST) grant funded by the Korean government.

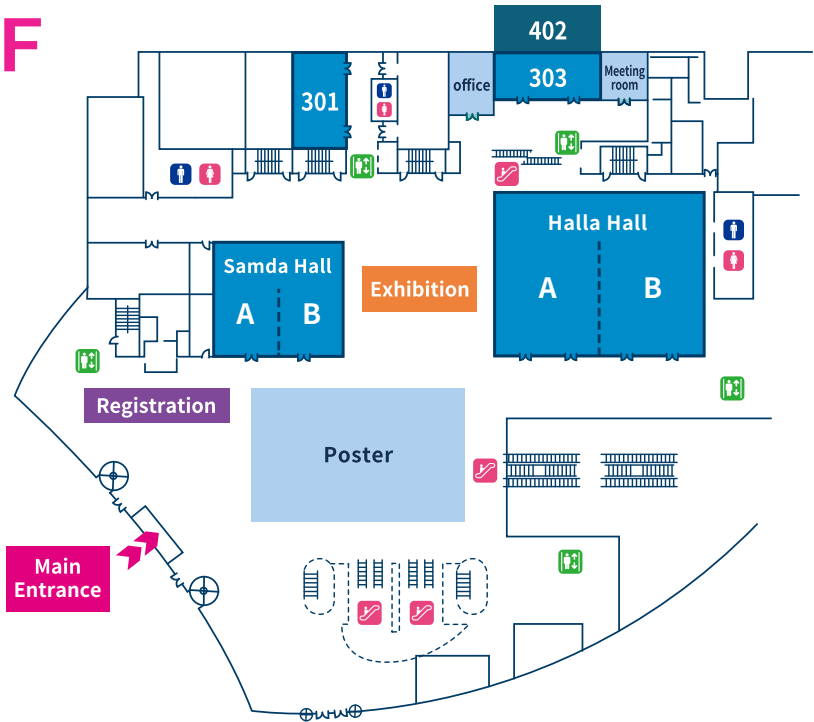
Supported by



This work was supported by the Korean Federation of Science and Technology Societies(KOFST) grant funded by the Korean government.

## Floor Plan

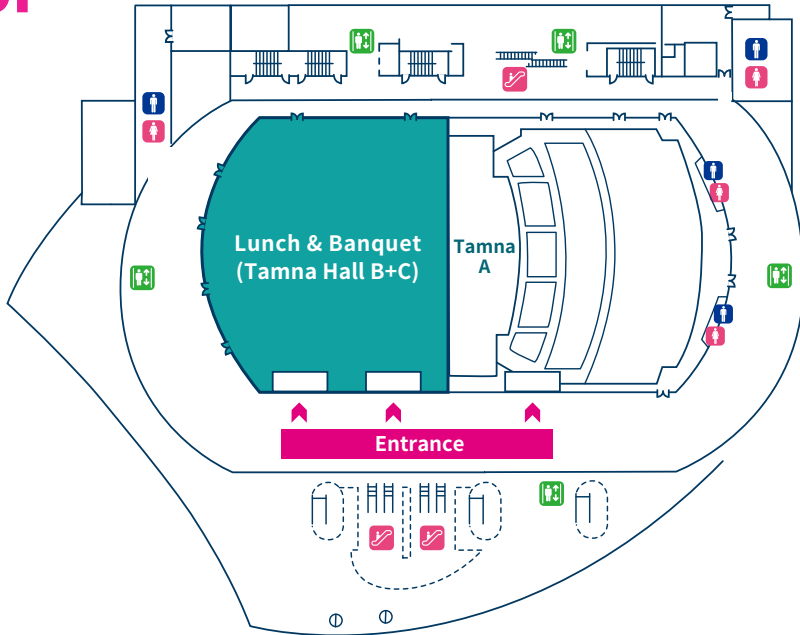
# 3F



Halla Hall	Opening & Award Ceremony PL-1, AL, SL
Halla Hall A	PL-2, GS1, YS1, S1, S7
Halla Hall B	GS2, YS2, S2, S8
Samanda Hall A	GS3, YS3, S3, S9
Samanda Hall B	GS4, YS4, S4
303	GS4, YS5, S5, S10, S13
301	S6, S11, S12, S13
Lobby	Poster, Exhibition
402	W, Closing Ceremony

## Floor Plan

# 5F



Tamna Hall B+C

Lunch & Banquet



## Program at a Glance

### July 1 (Mon)

		3F			
Time	Venue	Halla Hall	301	303	Lobby
13:00-		Registration			Poster & Exhibition
13:40-14:00		Opening & Award Ceremony			
14:00-14:40		PL-1		S13 Bio-health / Innovative Drug Development using Subtropical Bio-resources	
14:40-15:40		AL			
15:40-15:50		Break			
15:50-16:50		SL			
16:50-17:50		Poster Presentation I	S12 한국생명 공학연구원 천연물 클러스터		
17:50-18:10		General Assembly			
18:20-19:30		Banquet (Tamna Hall, 5F)			

**PL** Plenary Lectures

**AL** Award Lectures

**SL** Special Lecture

**S** Symposia

**YS** Young Scientist Presentation

**GS** Graduate Student Presentation

**W** Workshop

**P** Poster Presentation

## Program at a Glance

### July 2 (Tue)

		3F						
Venue	Halla Hall A	Halla Hall B	Samda Hall A	Samda Hall B	303	301	Lobby	
Time								
09:00-10:00	<b>GS1</b> Biochemistry · Molecular Biology	<b>GS2</b> Natural Products · Bioactive Materials · Biomedical Sciences	<b>GS3</b> Environmental Sciences	<b>GS4</b> Food Sciences	<b>GS5</b> Applied Microbiology	<b>S13</b> Bio-health / Innovative Drug Development using Subtropical Bio-resources	Poster & Exhibition	
10:10-11:10	<b>YS1</b> Biochemistry · Molecular Biology	<b>YS2</b> Natural Products · Bioactive Materials · Biomedical Sciences	<b>YS3</b> Environmental Sciences	<b>YS4</b> Food Sciences	<b>YS5</b> Applied Microbiology			
11:10-11:20	Break							
11:20-12:00	PL-2 (Halla Hall)							
12:00-13:00	Lunch (Tamna Hall, 5F)							
13:00-14:40	<b>S1</b> Biochemistry · Molecular Biology	<b>S2</b> Natural Products · Bioactive Materials · Biomedical Sciences	<b>S3</b> AI 기반 맞춤형식품 솔루션	<b>S4</b> 산업바이오	<b>S5</b> Environmental Sciences	<b>S6</b> Natural Product and Omics (KIST session)		
14:40-14:50	Break							
14:50-16:30	<b>S7</b> Agro-Bio Genome Editing	<b>S8</b> Synthetic Biology	<b>S9</b> Food Sciences	<b>S4</b> 산업바이오	<b>S10</b> Applied Microbiology	<b>S11</b> GreenBio Science		
16:30-17:30	Poster Presentation II							

### July 3 (Wed)

		4F
Venue	402	
Time		
09:30-11:30	<b>W</b> 산학연 상생을 위한 워크숍	
11:30-12:00	Closing Ceremony	

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# Plenary Lectures



## Plenary Lectures

July 1 (Mon), Halla Hall

Chair: Sei-Ryang Oh (Korea Research Institute of Bioscience and Biotechnology)



PL-1 14:00-14:40

### Empowering Bio-Digital Transformation with Synthetic Biology and Biofoundry

Seung Goo Lee

<sup>1</sup>*Synthetic Biology and Bioengineering Research Institute, KRIBB, Daejeon 34141,*

<sup>2</sup>*Biosystems and Bioengineering Dept., UST KRIBB School, Daejeon 34113,*

<sup>3</sup>*Graduate School of Engineering Biology, KAIST, Daejeon 34141, Republic of Korea*

July 2 (Tue), Halla Hall

Chair: Ji-Hoon Lee (Jeonbuk Nat'l University)



PL-2 11:20-12:00

### Microbial Intelligence Cleaning from Methane to Polymer

Hor-Gil Hur

*School of Environment and Energy Engineering, Gwangju Institute of Science and Technology, Republic of Korea*

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# Award Lectures

## Award Lectures

July 1 (Mon), Halla Hall

Chair: Dae Young Lee (Kyungpook Nat'l University)



 **학술상** 1967년도 제정


**AL-1** 14:40-15:00

### Journey to Promising Enzymes and their Inhibitors: from Cel to BACE1

Hoon Kim

*Department of Pharmacy, Sunchon National University, Suncheon 57922, Republic of Korea*



 **기초(基倉)과학상** 기초(基倉) 한태룡 전임회장의 후원으로 2010년도 제정


**AL-2** 15:00-15:20

### Application of Next Generation Sequencing for Antibiotic Resistome Investigation

Tatsuya Unno

*Department of Microbiology, Chungbuk National University, Cheongju, Chungbuk 28644, Republic of Korea*



 **HAN BIO Award** 한바이오 그룹 후원으로 2022년도 제정

**AL-3** 15:20-15:40

### Biogenic nanomaterials for eradication of environmental pollution

Myeong-Hyeon Wang

*Department of Bio Health Convergence, Kangwon National University, Chuncheon, 200-701, Republic of Korea*

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# Special Lecture

## Special Lecture

July 1 (Mon), Halla Hall

Chair: Moonsung Choi (Seoul Nat'l University of Science & Technology)



SL-1

15:50-16:50

축구 전설들의 성공 비밀과 그들의 실패 극복법

박문성

스포츠해설가



# Symposia

- S1** Biochemistry · Molecular Biology
- S2** Natural Products · Bioactive Materials · Biomedical Sciences
- S3** AI 기반 맞춤형식품 솔루션
- S4** 산업바이오
- S5** Environmental Sciences
- S6** Natural Product and Omics (KIST session)
- S7** Agro-Bio Genome Editing
- S8** Synthetic Biology
- S9** Food Sciences
- S10** Applied Microbiology
- S11** GreenBio Science
- S12** 한국생명공학연구원 천연물 클러스터
- S13** Bio-health/Innovative Drug Development using Subtropical Bio-resources

## Symposia

### S1 Biochemistry · Molecular Biology

July 2 (Tue), Halla Hall A

Chair: Bong-Gyu Mun (Chungbuk Nat'l University)



S1-1 13:00-13:25

#### Molecular mechanisms underlying our sleep cycles and sleep disorders

Choogon Lee

*College of Medicine, Florida State University, 1115 West Call Street, Tallahassee, USA*



S1-2 13:25-13:50

#### Chromatin remodeling and DNA methylation associated with plant phenotypic diversity and human disease

Seung Cho Lee

*<sup>1</sup>HHMI/Cold Spring Harbor Laboratory, NY, USA,  
<sup>2</sup>Genius Inc., Seoul, Republic of Korea (Present)*



S1-3 13:50-14:15

#### Mass spectrometry-based proteomics for systems biology

Min-Sik Kim

*Department of New Biology, DGIST, Daegu 42988, Republic of Korea*



S1-4 14:15-14:40

#### Two for One: Bacteriophage proteins for both biocontrol and detection of pathogens

Minsuk Kong

*Department of Food Science and Biotechnology, SeoulTech, Seoul 01811, Republic of Korea*



**S2**

**Natural Products · Bioactive Materials · Biomedical Sciences**

**July 2 (Tue), Halla Hall B**

**Chair: Jin-Soo Park** (Korea Institute of Science and Technology)



**S2-1**    **13:00-13:20**

**Evaluation of the pharmacokinetic properties in terms of protein binding assay and permeability of andrographolide molecules in synovial membrane cells model**

Korbtham Sathirakul

*Department of Pharmacy, Faculty of Pharmacy, Mahidol University, Bangkok 10400, Thailand*



**S2-2**    **13:20-13:40**

**A New Family of Peptide Cyclases Enabled Streamlined Chemoenzymatic Synthesis of Cyclic Peptides**

Kenich Matsuda

*Faculty of Pharmaceutical Sciences, Hokkaido University, Japan*



**S2-3**    **13:40-14:00**

**Zebrafish screening platform for clinical effects of natural products**

Yoonsung Lee

*<sup>1</sup>School of Medicine, Kyung Hee University, Seoul 02447, Republic of Korea,  
<sup>2</sup>Clinical Research Institute, Kyung Hee University Hospital at Gangdong, Seoul 05278, Republic of Korea*



**S2-4**    **14:00-14:20**

**BACE1 inhibitory potential of selected medicinal plants collected from high altitude of Nepal**

Bishnu Prasad Pandey

*<sup>1</sup>Department of Chemical Science and Engineering, Kathmandu University, PO Box No. 6250, Dhulikhel, Kavre, Nepal,  
<sup>2</sup>Department of Pharmacy, and Research Institute of Life Pharmaceutical Sciences, Suncheon National University, Suncheon 57922, Republic of Korea*



**S2-5**    **14:20-14:40**

**A New Strategy for Developing Functional Biomaterials Using Natural-derived Nano-like Vesicles**

Young Bae Ryu

*Functional Biomaterial Research Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Jeongseup 56212, Republic of Korea*



S3

AI 기반 맞춤형식품 솔루션

July 2 (Tue), Samda Hall A

Chair: Min Young Um (Korea Food Research Institute)



S3-1

13:00-13:25

식품 커스터마이징 산업 동향 및 R&D 연구 전략

정창화

한국식품연구원 푸드디지털플랫폼기획단



S3-2

13:25-13:50

Predicting Food Nutrients and Customized Product Applications based a Machine Learning approach

Ji-Youn Hong

Department of Food and Biotechnology, Department of Food Regulatory Science, Korea University, Sejong 30019, Republic of Korea

July 2 (Tue), Samda Hall A

Chair: 안지윤 (Korea Food Research Institute)



S3-3

13:50-14:15

개인맞춤형 건강개선, 식단관리 동향 및 접근 방안

이한석

렉스소프트



S3-4

14:15-14:40

식품 연구 데이터의 디지털 전환 기술

박정민

한국식품연구원 지능화정책팀



**S4**

**산업바이오**

**July 2 (Tue), Samda Hall B**

**Chair:** Moonhyuk Kwon (Gyeongsang Nat'l University)



**S4-1**

**13:00-13:25**

**Nulla Bio: Pioneering the Future of Crop Genome Editing and Plant Synthetic Biology**

Jae-Yean Kim

*<sup>1</sup>Nulla Bio Inc. Jinju 52828, Republic of Korea, <sup>2</sup>Division of Applied Life Science (BK21 Four Program), Plant Molecular Biology and Biotechnology Research Center, Gyeongsang National University, Jinju 52828, Republic of Korea*



**S4-2**

**13:25-13:50**

**피부 마이크로바이옴 유래 포스트바이오틱스를 활용한 아토피성 피부염 개선 연구  
허영목**

*COSMAX BTI R&I Center*



**S4-3**

**13:50-14:15**

**Developing materials with biotechnology in the cosmetics industry**

HyungWoo Jo

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



**S4-4**

**14:15-14:40**

**GenoFocus: platform technology company developing enzyme and biochemical solutions**

Seung Hoon Jang

*R&D Center, GenoFocus Inc., 65 Techno 1-ro, Yuseong-gu, Daejeon 305-509, Republic of Korea*

July 2 (Tue), Samda Hall B

Chair: Jihye Kim (Hannam University)



S4-5 14:50-15:15

**Case Study: BTC Corporation's Development of Health Functional Food Ingredients**

Yongduk Kim

R&D center, BTC corporation, Ansan 15588, Republic of Korea



S4-6 15:15-15:40

**근종 기반 소재 개발과 기능성 화장품 원료로의 응용**

신민규

농업회사법인 푸디웜(주) 기업부설연구소



S4-7 15:40-16:05

**NLRP3 억제/AhR 활성화/장내균총 개선 멀티타겟 염증성 장질환 치료제 MT102 임상 개발**

김세웅

엔테라피마(주)



S4-8 16:05-16:30

**바이오의약품의 안전성 검증과 CRO의 역할**

김인섭

한남대학교 생명시스템과학과, (주)바이오피에스



**S5**

**Environmental Sciences**

**July 2 (Tue), 303**

**Chair:** Eun Hea Jho (Chonnam Nat'l University)



**S5-1**

**13:00-13:25**

**Regulatory Models and Meta-models for Predicting Environmental Concentrations of Agrochemicals**

Seo Jin Ki

*Department of Environmental Engineering, Gyeongsang National University, Jinju 52725, Republic of Korea*



**S5-2**

**13:25-13:50**

**Exploring Innovative Soil Management Strategies to Address Environmental Challenges and Enhance Crop Productivity in Agricultural Ecosystems**

Sang Yoon Kim

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



**S5-3**

**13:50-14:15**

**Chemosensory adaptation upon host specialization and symbiosis**

Daehan Lee

*Department of Biological Sciences, Sungkyunkwan University, Republic of Korea*



**S5-4**

**14:15-14:40**

**Microplastic Contamination in the Agricultural Soil: Unraveling the Potential Ecological Hazards to Agroecosystems**

Guanlin Li

*School of Environment and Safety Engineering, Jiangsu University, Zhenjiang 212013, People's Republic of China*

S6

Natural Product and Omics (KIST session)

July 2 (Tue), 301

Chair: Kwang Hyun Cha (Korea Institute of Science and Technology)



S6-1 13:00-13:25

**Application of LC-MS based Metabolomics in the Study of Natural Products Research**

Hee Ju Lee

*Natural Product Informatics Research Center, Korea Institute of Science and Technology, Gangneung 25451, Republic of Korea*



S6-2 13:25-13:50

**Introduction to the application of NMR spectroscopy to the analysis of natural products with complex structures and mixed natural products**

Jin Wook Cha

*Natural Product Informatics Research Center, KIST Gangneung Institute, Gangneung 25451, Republic of Korea*



S6-3 13:50-14:15

**Host-Specific Effects of *Eubacterium* Species on Rg3-Mediated Osteosarcopenia Treatment in a Genetically Diverse Mouse Population**

Myungsuk Kim

*<sup>1</sup>Department of Natural product Applied Science, University of Science and Technology (UST), Daejeon 34113, Republic of Korea, <sup>2</sup>Department of Convergence Medicine, Wonju College of Medicine, Yonsei University, Wonju, Gangwon-do, Republic of Korea, <sup>3</sup>Natural Product Research Center, Korea Institute of Science and Technology (KIST), Gangneung, Gangwon-do, Republic of Korea*



S6-4 14:15-14:40

**Integrative Multi-Omics Profiling Reveals Virulence Mechanisms in Pathogenic Fungi**

Kyunghun Min

*Department of Plant Science, Gangneung-Wonju National University, Gangneung 25457, Republic of Korea*



**S7**

## Agro-Bio Genome Editing

**July 2 (Tue), Halla Hall A**

**Chair:** Yeon Jong Koo (Chonnam Nat'l University)



**S7-1**

**14:50-15:15**

### **X-MAS (Cross-Mediated Allele Switching), Non-Mendelian Inheritance through CRISPR-induced HDR between F<sub>1</sub> Hybrid Alleles**

Jae-Young Yun

*School of Convergence, Seoul National University of Science and Technology, Seoul 01811, Republic of Korea*



**S7-2**

**15:15-15:40**

### **RNA-derived genome editing in plants**

Beum-Chang Kang

*Department of Horticulture, Jeonbuk National University, Jeonju 54896, Republic of Korea*



**S7-3**

**15:40-16:05**

### **Using natural variation and CRISPR to understand ripening and improve quality in tomato fruit**

Je Min Lee

*Department of Horticultural Science, Kyungpook National University, Daegu 41566, Republic of Korea*



**S7-4**

**16:05-16:30**

### **CTP synthase enzyme activity regulates rice seed yield and quality**

Lae-Hyeon Cho

*Department of Plant Bioscience, Pusan National University, Miryang 50463, Republic of Korea*

S8

## Synthetic Biology

July 2 (Tue), Halla Hall B

Chair: Moonhyuk Kwon (Gyeongsang Nat'l University)



S8-1 14:50-15:15

### Exploiting *Pseudomonas putida* as a Versatile Microbial Factory for Sustainable Chemical Production

Sung Kuk Lee

*School of Chemical Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan 44919, Republic of Korea*



S8-2 15:15-15:40

### Enabling New Chemistries with Ribosomes in Vitro

Joongoo Lee

*Department of Chemical Engineering, POSTECH, Pohang 37673, Republic of Korea*



S8-3 15:40-16:05

### Synthetic Biology for *Vibrio* Microbial Platforms to Construct Efficient Biomass Refineries

Hyungyu Lim

*Department of Biological Engineering, Inha University, Incheon, Republic of Korea*



S8-4 16:05-16:30

### Synthetic Biology Strategies for Enhanced Production of Aromatic Natural Products

Dongsoo Yang

*Department of Chemical and Biological Engineering, Korea University, Seoul 02841, Republic of Korea*



**S9**

**Food Sciences**

**July 2 (Tue), Samda Hall A**

**Chair:** Hae Won Jang (Sungshin Women's University)



**S9-1**

**14:50-15:15**

**Allergen components to diagnose food allergy**

Nobuyuki Maruyama

*Laboratory of Food Quality Design and Development, Graduate School of Agriculture, Kyoto University, Kyoto, Japan*



**S9-2**

**15:15-15:40**

**Developments of Value Added Food Products Using Emerging Combination Technologies**

Sung Hee Park

*Department of Food Science and Biotechnology, Seoul National University of Science and Technology, Seoul 01811, Republic of Korea*

**July 2 (Tue), Samda Hall A**

**Chair:** Hur Jinyoung (Korea Food Research Institute)



**S9-3**

**15:40-16:05**

**Composition of Volatile Sulfur Compounds in Various Vegetables Consumed in Korea**

Jeehye Sung

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



**S9-4**

**16:05-16:30**

**Flavor challenges and effective strategies in alternative foods**

Min Kyung Park

*Food Processing Research Group, Korea Food Research Institute, Wanju 55365, Republic of Korea*



S10

Applied Microbiology

July 2 (Tue), 303

Chair: Tatsuya Unno (Chungbuk Nat'l University)



S10-1 14:50-15:15

**Shewanella-supported non-external circuit Bioelectrical System for Nanoparticles Synthesis and its Potential Application on Phytopathogens Control**

Cuong Tu Ho

*Dept. of Environmental Treatment, Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam*



S10-2 15:15-15:40

**Engineering and Enhancing Rhizosphere Microbiome for Sustainable Agriculture**

Dongfei Han

*Suzhou University of Science and Technology (USTS), Suzhou, China*



S10-3 15:40-16:05

**Understanding Mechanisms of Formation and Resuscitation in Persister Cells: Towards Novel Control Strategies**

Sooyeon Song

*Department of Animal Science, Jeonbuk National University, 567 Baekje-daero, Deokjin-gu, Jeonju-si, Jeollabuk-do 54896, Republic of Korea*



S10-4 16:05-16:30

**The N121T and N121S substitutions on the spike protein of SARS-CoV-2 affects to serum neutralization reactions**

Hye Kwon Kim

*Department of Biological Science and Biotechnology, College of Natural Science, Chungbuk National University, Cheongju 28644, Republic of Korea*



**S11**

**GreenBio Science**

**July 2 (Tue), 301**

**Chair:** Kye Man Cho (Gyeongsang Nat'l University)



**S11-1**    **14:50-15:10**

**Molecular Analysis and Safety Evaluation of Novel Biocontrol Agent *Metschnikowia persimmonesis* K10M G15050 Isolated from Medicinal Plant *Diospyros kaki* Thunb.**

Endang Rahmat

*Biotechnology Department, Faculty of Engineering, Bina Nusantara University, Jakarta, 11480, Indonesia*



**S11-2**    **15:10-15:30**

**Elucidating the Intricacies of Plant-Microbe Interactions to Unlock the Symbiotic Potential of Plant Growth-Promoting Microorganisms in Diverse Horticultural Crops**

Hyungmin Rho

*Department of Horticulture and Landscape Architecture, National Taiwan University, Taipei, Taiwan*



**S11-3**    **15:30-15:50**

**Development of healthy functional foods using native plants in vertical farms**

Ki-Ho Son

*<sup>1</sup>Department of GreenBio Science, Gyeongsang National University, <sup>2</sup>Division of Horticultural Science, College of Agriculture & Life Science, Gyeongsang National University*



**S11-4**    **15:50-16:10**

**Polyphenols from *Loranthus tanakae* Franch & Sav. and pharmacological activities**

A Yeong Lee

*<sup>1</sup>KM Data Division, Korea Institute of Oriental Medicine (KIOM), <sup>2</sup>Herbal Medicine Resources Research Center, Korea Institute of Oriental Medicine (KIOM)*



S11-5

16:10-16:30

**Cultivation Physiology and Commercial Application Trials of the High-Value Crop Wasabi (*Wasabia japonica* Matsum)**

Sang Min Kim

<sup>1</sup>Smart Farm Research Center, KIST Gangneung Institute of Natural Products,

<sup>2</sup>Natural Production Applied Science, Korea Institute of Science and Technology (KIST) School



**S12**

**한국생명공학연구원 천연물 클러스터**

**July 1 (Mon), 301**

**Chair:** 최상호 (한국생명공학연구원)



**S12-1 16:50-17:00**

**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 17:00-17:10**

**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*



**S12-3 17:10-17:20**

**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*



**S12-4 17:20-17:30**

**The Material Base Bank for Food Resources**

Sang Yoon Choi

*Korea Food Research Institute, Wanju 55365, Republic of Korea*



**S12-5 17:30-17:40**

**Development and test of Taqman probe for quantification of horseradish myrosinase gene contents in wasabi products**

Hyosig Won

*Institute of Natural Science, Daegu University, Gyungsan, Gyungbuk 38453, Republic of Korea*



**S12-6**    **17:40-17:50**

**Plant-derived functional food resource efficacy evaluation cooperation center: efficacy evaluation for activation of immune response, improving intestinal health, and improving cognitive ability**

Gil-Saeng Jeong

*College of Pharmacy, Chungnam National University, Daejeon 34134, Republic of Korea*



**S12-7**    **17:50-18:00**

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

Young-Won Chin

*Natural Product Research Institute of Pharmaceutical Sciences, College of Pharmacy, Seoul National University, Seoul 08826, Republic of Korea*



**S12-8**    **18:00-18:10**

**Korea Forest Plants Essential Oil Bank**

Hwan Myung Lee

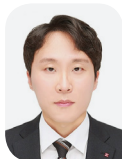
*Department of Biotechnology, College of Life and Health Sciences, Hoseo University, Asan 31499, Republic of Korea*



**S13 Bio-health/Innovative Drug Development using Subtropical Bio-resources**

July 1 (Mon), 303

Chair: Ji-Yeong Bae (Jeju Nat'l University)



**S13-1 13:40-14:00**

**Discovery of Bioactive Natural Products and Molecular Mechanisms Based on Microbial Chemical Biology**

Munhyung Bae

*College of Pharmacy, Gachon University, Incheon 21936, Republic of Korea*



**S13-2 14:00-14:20**

**NMR/MS-based Probing of Chemicals in Wheat Bran**

Yun-Seo Kil

*College of Pharmacy and Inje Institute of Pharmaceutical Sciences and Research, Inje University, Gimhae, Gyeongnam 50834, Republic of Korea*



**S13-3 14:20-14:40**

**Oncogenic Proteins and Their Protein-Protein Interactions: Drug Targetability and Overcoming Therapeutic Resistance Strategies**

Youngjoo Kwon

*College of Pharmacy, Graduate School of Pharmaceutical Sciences, Ewha Womans University, Seoul 03760, Republic of Korea*



**S13-4 14:50-15:10**

**Impact of high sucrose diet on osteoarthritis in TLR4 knock-out mice with surgically induced osteoarthritis**

Hyun-Jin Jang

*Department of Food Science and Nutrition, Jeju National University, Jeju Special Self-Governing Province, Republic of Korea*



**S13-5 15:10-15:25**

***Cladophora Wrightiana* Var. *Minor* extract can act as a nasal vaccine adjuvant promoting natural killer cell activation in influenza vaccine**

Thi Len Ho

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



S13-6 15:25-15:40

**Investigation on NO and N<sub>2</sub>O Emissions from Nitrifiers as Greenhouse Gases**

Yun Ji Choi

*Interdisciplinary Graduate Program in Advance Convergence Technology and Science, Jeju National University, 102 Jejudaehak-ro, Jeju-si, Jeju-do, Republic of Korea*



S13-7 15:40-15:55

**Microbial communities and kinetic properties of nitrifying microbes in spring water from Jeju Island**

Israr Aziz

*Interdisciplinary Graduate Program in Advance Convergence Technology and Science, Jeju National University, 102 Jejudaehak-ro, Jeju-si, Jeju-do, Republic of Korea*



S13-8 15:55-16:10

**Exploring the Mechanisms Behind Impact on Obesity of Lactic Acid Bacteria in High-Fat Diet Models**

Ayub Hina

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



S13-9 16:10-16:25

**Nitric Oxide release inhibition effect in LPS-stimulated Macrophages and Free Radical scavenging activity of *Rubus buergeri* leaves**

Theophilus Bhatti

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



S13-10 16:25-16:40

***Tetragonia tetragonoides* (Pall) Kuntz attenuates the inflammatory response of Periodontal Ligament Cells by inhibiting IL-1 $\beta$ , IL-6 and TNF- $\alpha$**

Yoon-A Kang

*College of Pharmacy and Jeju Research Institute of Pharmaceutical Sciences, Jeju National University, Jeju 63243, Republic of Korea*



July 2 (Tue), 301

Chair: Young-Ok Son (Jeju Nat'l University)



**S13-11** 09:00-09:20

**Causes and consequences of nuclear hypertrophy in cancer cells**

김준

*카이스트 의과대학원*



**S13-12** 09:20-09:40

**The Function of Peroxiredoxin II in Neuron**

Dong-Seok Lee

*Molecular Neurobiology, School of life Sciences & Biotechnology, Kyungpook National University, Republic of Korea*



**S13-13** 09:40-10:00

**Structural Basis of Chemokine Receptor CXCR1 Selectivity to the Monomeric CXCL8**

Jae-Hyun Park

*Department of Molecular Cell Biology, Sungkyunkwan University, School of Medicine, Suwon, Republic of Korea*



**S13-14** 10:10-10:30

**Glycyrrhizin loaded gelatin nanoparticles ameliorate flutamide-induced hepatotoxicity in rats**

Md. Meraj Ansari

*Interdisciplinary Graduate Program in Advanced Convergence Technology and Science, Jeju National University, Jeju-si 63243, Republic of Korea*



**S13-15** 10:30-10:45

**Mechanistic Insights into Cadmium-Induced Osteoarthritis: Gut Microbiome Dysbiosis and Systemic Metabolic Disruptions**

Godagama Gamaarachchige Dinesh Suminda

*Interdisciplinary Graduate Program in Advanced Convergence Technology and Science, Jeju National University, Jeju-si 63243, Republic of Korea*





S13-16 10:45-11:00

**Role of the psychosphere bacterial community in enhancing algal zoospore proliferation in the Red Cell Inoculation System (RCIS)**

Mehwish Taj

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



S13-17 11:00-11:15

**Comparative Analysis of Novel TMF Conjugates Attenuating Idiopathic Pulmonary Fibrosis via the NOX-Induced ROS/HIF-1 $\alpha$  Axis**

Hiruni Indeevarie Abey Siriwardhana

*Department of Advanced Convergence Technology and Science, Jeju National University, Jeju-Si 63241, Republic of Korea*



S13-18 11:15-11:30

**Targeting NOX-Generated ROS to Regulate HIF-1 $\alpha$  and Mitigate Fibrosis**

Jin-Hyuk Choi

*Department of Biochemistry, School of Medicine, Jeju National University, Jeju-Si 63241, Republic of Korea*



S13-19 11:30-11:45

**$\beta$ -Sitosterol improves radiosensitivity and ferroptosis sensitivity in breast cancer by targeting the ROR1/YAP/TAZ pathway**

Dae kyeong Kim

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



# Young Scientist Presentation

**YS1**

Biochemistry · Molecular Biology

**YS2**

Natural Products · Bioactive Materials ·  
Biomedical Sciences

**YS3**

Environmental Sciences

**YS4**

Food Sciences

**YS5**

Applied Microbiology

## Young Scientist Presentation

### YS1 Biochemistry · Molecular Biology

July 2 (Tue), Halla Hall A

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



YS1-1 10:10-10:30

**Antioxidant effects of natural product in the liver through activation of the AMPK pathway that interacts with Nrf2 and YAP signalings**

Su-Jin Bae

*Department of Korean Medicine, Dongguk University, Gyeongju 38066, Republic of Korea*



YS1-2 10:30-10:50

**Inhibition of HDACs (Histone Deacetylases) Ameliorates High-Fat Diet-Induced Hypertension Through Restoration of the MsrA (Methionine Sulfoxide Reductase A)/Hydrogen Sulfide Axis**

Jin Ki Jung

*Senotherapy-based Metabolic Disease Control Research Center, College of Medicine, Yeungnam University, Daegu, Republic of Korea*



YS1-3 10:50-11:10

**Design of Metal Binding Proteins with Metal Selectivity or Enzymatic Activity**

Tae Su Choi

*College of Life Sciences & Biotechnology, Division of Life Sciences, Korea University, Republic of Korea*



**YS2**

**Natural Products · Bioactive Materials · Biomedical Sciences**

**July 2 (Tue), Halla Hall B**

**Chair:** Seonbeom Kim (Pusan Nat'l University)



**YS2-1**

**10:10-10:30**

**Unlocking silent biosynthetic gene clusters of microbes to discover novel secondary metabolites**

Seungrak Lee

*Department of Manufacturing Pharmacy, Pusan National University, Busan 46241, Republic of Korea*



**YS2-2**

**10:30-10:50**

**The Development of Next-Generation Avian Influenza COBRA Vaccines using Artificial Intelligence**

Jongseo Mo

*College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea*



**YS2-3**

**10:50-11:10**

**Development of rapid quality evaluation technology for traditional herbal medicines**

Yeongjun Ban

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

YS3

Environmental Sciences

July 2 (Tue), Samda Hall A

Chair: Dong Yeol Lee (Gyeongnam Anti-Aging Research Institute)



YS3-1 10:10-10:30

**Fate and Effects of Microplastics in the Rhizosphere**

Hakwon Yoon

*Department of Biological Environment, Kangwon National University,  
Chuncheon 24341, Republic of Korea*



YS3-2 10:30-10:50

**Changes in Growth Characteristics and Active Compound of Wild-simulated Ginseng with Different Cultivation Environments**

Yeong-Bae Yun

*Forest Medicinal Resources Research Center, National Institute of Forest  
Science, Yeongju 36040, Republic of Korea*



YS3-3 10:50-11:10



**YS4**

**Food Sciences**

**July 2 (Tue), Samda Hall B**

**Chair:** Min Jung Kim (Korea Food Research Institute)



**YS4-1**

**10:10-10:30**

**Improving stress vulnerability in aging through rosmarinic acid supplementation**

Jung-Eun Lee

*Research Division of Food Functionality, Korea Food Research Institute, Wanju 55365, Republic of Korea*



**YS4-2**

**10:30-10:50**

**Norharmane extends healthspan in *Caenorhabditis elegans* and prevents muscle aging in mice via activation of SKN-1/NRF2 stress response pathway**

Farida Sukma Nirmala

*Department of Food Biotechnology, Korea University of Science and Technology, Daejeon-si, Republic of Korea*



**YS4-3**

**10:50-11:10**

**Improvement in the Beef Protein Digestibility *In Vitro* by Freezing and Aging Processes for Complementary Foods**

Seonmin Lee

*Division of Animal and Dairy Science, Chungnam National University, Daejeon, Republic of Korea*

YS5

Applied Microbiology

July 2 (Tue), 303

Chair: Yuri Yang (Kangwon Nat'l University)



YS5-1 10:10-10:30

**Development of microbial biocontrol agent (*Lysinibacillus capsici* TT41.) for enhancement of drought stress tolerance in Kimchi Cabbage (*Brassica rapa* L. subsp. *pekinensis*)**

Tae Jin Kim

*Using Technology Development Department, Bio-resources Research Division, Nakdonggang National Institute of Biological Resources, Gyeongsangbuk-do 37242, Republic of Korea*



YS5-2 10:30-10:50

**Pannorin isolated from marine-derived *Penicillium* sp. SG-W3 as a selective monoamine oxidase A inhibitor**

Jong Min Oh

*Department of Pharmacy, and Research Institute of Life Pharmaceutical Sciences, Suncheon National University, Suncheon 57922, Republic of Korea*



YS5-3 10:50-11:10

**Efficient Valorization of Food Waste Oils to Renewable Biodiesel by a *Candida antarctica* Lipase B Mutant that Catalyzes the Ester Synthesis Reaction in the Presence of Water**

Hyunjun Ko

*<sup>1</sup>Synthetic Biology and Bioengineering Research Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), 125 Gwahak-ro, Yuseong-gu, Daejeon 34141, Republic of Korea, <sup>2</sup>Department of Forest Biomaterials Engineering, College of Forest and Environmental Sciences, Kangwon National University, Chuncheon 24341, Republic of Korea*



# Graduate Student Presentation

**GS1**

Biochemistry · Molecular Biology

**GS2**

Natural Products · Bioactive Materials ·  
Biomedical Sciences

**GS3**

Environmental Sciences

**GS4**

Food Sciences

**GS5**

Applied Microbiology



GS1

Biochemistry · Molecular Biology

July 2 (Tue), Halla Hall A

Chair: Su Yeon Seo (Korea Institute of Oriental Medicine)

GS1-1

09:00-09:10

### Development of SARS-CoV-2 Spike Receptor Binding Domain Binding De Novo Scaffold Protein

Thuy Thi Thanh Phan<sup>1,2</sup>, Erdenedolgor Erdene-Ochir<sup>2</sup>, Priyadharshini Kannan<sup>2</sup>, Jisung Oh<sup>3</sup>, Moon-Hyeong Seo<sup>3</sup>, Keunwan Park<sup>2</sup>, Dae-Geun Song<sup>1,2\*</sup>

<sup>1</sup>Department of Natural Product Applied Science, University of Science & Technology, Republic of Korea, <sup>2</sup>Natural Product Informatics Center, Korea Institute of Science and Technology, Republic of Korea, <sup>3</sup>Natural Product Research Center, Korea Institute of Science and Technology, Republic of Korea

GS1-2

09:10-09:20

### Profiling and expression of Korean snake venom

Hyo-sun Park<sup>1</sup>, Su-bin Moon<sup>1</sup>, Su-jin Lee<sup>2</sup>, Yeon-jong Koo<sup>1\*</sup>

<sup>1</sup>Department of Agricultural Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea, <sup>2</sup>School of Environment and Energy Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju 61005, Republic of Korea

GS1-3

09:20-09:30

### Protein Involved in Tip Elongation Containing DUF3511 Regulates Pollen Tube and Root Hair Growth in Rice

Chan Mi Yun<sup>1†</sup>, Woo-Jong Hong<sup>2†</sup>, Ji-Hyun Kim<sup>1</sup>, Chan-Woo Park<sup>1</sup>, Ye-jin Son<sup>1</sup>, Gayoung Noh<sup>1</sup>, HuanJun Li<sup>3</sup>, Wanqi Liang<sup>3</sup>, Chang-Oh Hong<sup>1</sup>, Kwang Min Lee<sup>1</sup>, Ki-Hong Jung<sup>4\*</sup>, Yu-Jin Kim<sup>1\*</sup>

<sup>1</sup>Department of Life Science and Environmental Biochemistry, and Life and Industry Convergence Research Institute, Pusan National University, Miryang 50463, Republic of Korea, <sup>2</sup>Department of Smart Farm Science, Kyung Hee University, Yongin 17104, Republic of Korea, <sup>3</sup>Joint International Research Laboratory of Metabolic & Developmental Sciences, State Key Laboratory of Hybrid Rice, School of Life Sciences and Biotechnology, Shanghai Jiao Tong University, Shanghai 200240, China, <sup>4</sup>Graduate School of Green Bio Science & Crop Biotech Institute, Kyung Hee University, Yongin 17104, Republic of Korea



GS1-4

09:30-09:40

### **Improving Skin Function by Controlled Nanoparticle-Mediated Photodynamic Therapy Against Senescent Fibroblast**

Jia Choi<sup>1,2</sup>, Jihwan Park<sup>1,2</sup>, Sehoon Kim<sup>1,2\*</sup>

<sup>1</sup>*Korea Institute of Science and Technology, Republic of Korea*, <sup>2</sup>*KU-KIST Graduate School of Converging Science and Technology, Korea University, Republic of Korea*

GS1-5

09:40-09:50

### **Identification and functional analysis of *In Vivo* SSPs (Small Secreted Peptides) in the apoplast during rice-blast fungus interactions**

Woo Jae Seo<sup>1</sup>, Su Yeon Jeon<sup>1</sup>, Gi-Hyun Lee<sup>1</sup>, Jeong Woo Jang<sup>1</sup>, Munir Adeela<sup>1</sup>, Leonard Jean Clement<sup>1</sup>, Cheol Woo Min<sup>1,2</sup>, Sun Tae Kim<sup>1,2\*</sup>

<sup>1</sup>*Department of Plant Bioscience, Pusan National University, Miryang, Republic of Korea*, <sup>2</sup>*Department of Plant Bioscience, Life and Industry Convergence Research Institute, Pusan National University, Miryang, Republic of Korea*

GS1-6

09:50-10:00

### **A new insight into the correlation with fucoxanthin-chlorophyll-binding protein in the regulation of fucoxanthin biosynthesis in *Phaeodactylum tricoratum***

To Quyen Truong<sup>1,2</sup>, Sang Min Kim<sup>1,2\*</sup>

<sup>1</sup>*Natural Production Applied Science, Korea Institute of Science and Technology (KIST) School, Gangneung 25451, Republic of Korea*, <sup>2</sup>*Smart Farm Research Center, KIST Gangneung Institute of Natural Products, Gangneung 25451, Republic of Korea*

GS1-7

10:00-10:10

### **Improving Thermal Stability and Functionality of Glucose Oxidase with Calcium Ions**

Jihye Ahn<sup>1</sup>, Yeonwoo Lee<sup>1,2</sup>, Moonsung Choi<sup>1,3</sup>, Seung-Woo Lee<sup>2\*</sup>

<sup>1</sup>*Department of Optometry, College of Energy and Biotechnology, Seoul National University of Science and Technology, Seoul 01811, Republic of Korea*,

<sup>2</sup>*Department of Fine Chemistry, Seoul National University of Science and Technology, 232 Gongneung-ro, Nowon-gu, Seoul, Republic of Korea*, <sup>3</sup>*Convergence Institute of Biomedical Engineering and Biomaterials, Seoul National University of Science and Technology, Seoul 01811, Republic of Korea*

GS2

Natural Products · Bioactive Materials · Biomedical Sciences

July 2 (Tue), Halla Hall B

Chair: Sullim Lee (Gachon University)

GS2-1

09:00-09:10

**The inhibitory effect of cumambrin B from *Chrysanthemum zawadskii* var. *latilobum* on human ovarian cancer cell**

Yea Jung Choi<sup>1</sup>, Young-Won Chin<sup>2</sup>, Sullim Lee<sup>3</sup>, Ki Sung Kang<sup>1\*</sup>

<sup>1</sup>College of Korean Medicine, Gachon University, Seongnam 13120, Republic of Korea,

<sup>2</sup>College of Pharmacy and Research Institute of Pharmaceutical Sciences,

Seoul National University, Seoul 08826, Republic of Korea, <sup>3</sup>Department of Life Science, Gachon University, Seongnam 13120, Republic of Korea

GS2-2

09:10-09:20

**The solid lipid nanoparticle through intra nasal pathway for treating brain diseases**

Yousun Chun<sup>1</sup>, Honghwan Choi<sup>1</sup>, Jeongyun Heo<sup>2</sup>, Sehoon kim<sup>1,2\*</sup>

<sup>1</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University,

145 Anam-ro, Seongbuk-gu, Seoul, Republic of Korea, <sup>2</sup>Chemical and Biological

integrative Research Center, Korea Institute of Science and Technology,

5 Hwarang-ro 14-Gil, Seongbuk-gu, Seoul, Republic of Korea

GS2-3

09:20-09:30

**Luteolin and 5-FU Synergistically Induces Apoptosis and Modulates Cell Cycle in Melanoma Cells**

Himanshi Gahlot, Sun Chul Kang\*

Department of Biotechnology, Daegu University, Gyeongsan 38453, Republic of Korea

GS2-4

09:30-09:40

**Structure elucidation of new triterpenes from the aerial parts of *Spinacia oleracea* L.**

Su-Yeon Lee<sup>1,2</sup>, Doo-Young Kim<sup>1</sup>, Hyun-Jae Jang<sup>1</sup>, Eun Kyoung Seo<sup>2</sup>,

Sei-Ryang Oh<sup>1</sup>, Hyung Won Ryu<sup>1\*</sup>

<sup>1</sup>Natural Product Research Center, KRIBB, Cheongju 28116, Republic of Korea,

<sup>2</sup>College of Pharmacy, Graduate School of Pharmaceutical Sciences, Ewha Womans University, Seoul 03760, Republic of Korea



GS2-5

09:40-09:50

**Anticancer Compounds to COVID-19 Therapeutics: Repurposing Small Molecules as Potent Inhibitors of the SARS-CoV-2 Main Protease**

Md Sofequl Islam Mukim<sup>1,2</sup>, Ashraf K. El-Damasy<sup>3,4</sup>, Cheol-Ho Pan<sup>1,2</sup>,  
Dae-Geun Song<sup>1,2\*</sup>

*<sup>1</sup>Natural Product Informatics Research Center, Division of Biomedical Science & Technology, Korea Institute of Science & Technology (KIST), Gangneung 25451, Republic of Korea, <sup>2</sup>KIST School, University of Science and Technology (UST), Daejeon 34113, Republic of Korea, <sup>3</sup>Brain Science Institute, Korea Institute of Science and Technology (KIST), Seoul 02792, Republic of Korea, <sup>4</sup>Department of Medicinal Chemistry, Faculty of Pharmacy, Mansoura University, Mansoura 35516, Egypt*

GS2-6

09:50-10:00

**Exploring the Anti-aging Potential of Tremulacin and Tremuloidin in Human Dermal Fibroblasts**

Si-Young Ahn, Hee Woon Ann, Sullim Lee\*

*Department of Life Science, College of Bio-Nano Technology, Gachon University, Seongnam 13120, Republic of Korea*

GS3

Environmental Sciences

July 2 (Tue), Samda Hall A

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

GS3-1

09:00-09:10

**Woody Biochar Applications Significantly Enhance Net Ecosystem Carbon Budget and Soil Properties in Red Pepper Cropping System: Two-year Field Experiment**

Sohee Yoon<sup>1</sup>, Yeomyeong Lee<sup>1</sup>, Jasmin Melendez<sup>1</sup>, Sang Yoon Kim<sup>1,2\*</sup>

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

GS3-2

09:10-09:20

**Effect of microplastics on fate of imidacloprid in soil**

Ji Won Yang<sup>1</sup>, Jeong Min Heo<sup>1</sup>, Hoo Bin Han<sup>1</sup>, Eun Hea Jho<sup>1,2\*</sup>

<sup>1</sup>Department of Agricultural Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea, <sup>2</sup>Department of Agricultural and Biological Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea

GS3-3

09:20-09:30

**The Effect of Fe-stabilized Natural Organic Matter on Methane Emissions and Microbial Community Dynamics in Paddy Soils**

Eun-Nam Joe, Jong-Rok Jeon\*

Department of Agricultural Chemistry and Food Science & Technology, Division of Applied Life Science (BK21), and IALS, Gyeongsang National University, Jinju 52828, Republic of Korea

GS3-4

09:30-09:40

**Size-Dependent Impact of Polystyrene Plastics on Metabolic and Mitochondrial Dysfunction in Adipocyte Differentiation**

Narayan Sah Sonar<sup>1,2</sup>, Laxmi Sen Thakuri<sup>3</sup>, Ye Jin Jang<sup>1,2</sup>, Hye Bin Park<sup>1,2</sup>, Jiun Kang<sup>2</sup>, Dong Young Rhyu<sup>1,2\*</sup>

<sup>1</sup>Department of Biomedicine, Health & Life Convergence Sciences, BK21 FOUR, Mokpo National University, Jeonnam 58554, Republic of Korea, <sup>2</sup>Department of Nutraceutical Resources, Mokpo National University, Jeonnam 58554, Republic of Korea, <sup>3</sup>Bio-medicine Advanced Formulation Research Centre, College of Natural Science, Mokpo National University, Jeonnam 58554, Republic of Korea



GS3-5

09:40-09:50

**Effect of photodegradation of plastics on the adsorption characteristics of environmental pollutants**

Yu Jin Seo, Eun Hea Jho\*

*Department of Agricultural Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea*

GS3-6

09:50-10:00

**Effect of Biochar Application on Grass Growth and Pollutant Reduction in Golf Courses**

Yu-Jin Park<sup>1</sup>, Jae-Hoon Lee<sup>1</sup>, Jun-Suk Rho<sup>1</sup>, Seul-Rin Lee<sup>2</sup>, Jeong-Mok Lee<sup>1</sup>, Jong-Hwan Park<sup>3</sup>, Dong Cheol Seo<sup>1\*</sup>

<sup>1</sup>*Division of Applied Life Science(BK21 Four) & Institute of Agriculture and Life Science, Gyeongsang National University, Jinju 52828, Republic of Korea,*

<sup>2</sup>*Institute of Agriculture and Life Science, Gyeongsang National University, Jinju 52828, Republic of Korea,* <sup>3</sup>*Department of Life Resources Industry, Dong-A University, Busan 49315, Republic of Korea*

GS4

Food Sciences

July 2 (Tue), Samda Hall B

Chair: Dahye Yoon (Rural Development Administration)

GS4-1

09:00-09:10

***In vitro* propagation of *Apios americana* Medik and assessment of its phytochemical properties to boost production of the potential staple food and tissues with diverse bioactive properties**

Roggers Gang<sup>1,2</sup>, Youngmin Kang<sup>1,2\*</sup>

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

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

GS4-2

09:10-09:20

***Ecklonia cava* mitigates stress hormone-induced depression-like behaviors by regulating glucocorticoid receptor activity**

Inhye Park<sup>1,2</sup>, Minseok Yoon<sup>1</sup>, Minji Kim<sup>1,2</sup>, Min-Sun Kim<sup>3</sup>, Seungmok Cho<sup>4</sup>, Min Young Um<sup>1,2\*</sup>

<sup>1</sup>Division of Functional Food Research, Korea Food Research Institute, Wanju 55365, Republic of Korea, <sup>2</sup>Division of Food Biotechnology, University of Science and Technology, Daejeon 34113, Republic of Korea, <sup>3</sup>Division of Food Analysis Research

Center, Korea Food Research Institute, Wanju 55365, Republic of Korea, <sup>4</sup>Department of Food Science and Technology/Institute of Food Science, Pukyong National University, Busan 48513, Republic of Korea

GS4-3

09:20-09:30

**Identification of *Lactobacillus gasseri* by *Polyporus umbellatus* Extract Administration as a Putative Mediator of Muscle Protection Against Dexamethasone-Induced Atrophy via the Gut-Muscle Axis**

Ngoc Nguyen Bao<sup>1,2</sup>, Hye-Young Youn<sup>1</sup>, Tam Thi Le<sup>1</sup>, Kwang Hyeon Cha<sup>3,4,5</sup>, Huitae Min<sup>1</sup>, Young Tae Park<sup>1,4</sup>, Sang Hoon Jung<sup>1,4</sup>, Myungsuk Kim<sup>1,4,5\*</sup>

<sup>1</sup>Natural Product Research Center, Korea Institute of Science and Technology (KIST), Gangneung, Gangwon-do, Republic of Korea, <sup>2</sup>College of Dentistry, Gangneung Wonju National University, Gangneung, Gangwon-do, Republic of Korea, <sup>3</sup>Natural Product

Informatics Research Center, Korea Institute of Science and Technology (KIST), Gangneung, Gangwon-do, Republic of Korea, <sup>4</sup>Division of Bio-Medical Science and

Technology, KIST School, University of Science and Technology (UST), Seoul, Republic of Korea, <sup>5</sup>Department of Convergence Medicine, Wonju College of Medicine, Yonsei

University, Wonju, Gangwon-do, Republic of Korea



GS4-4

09:30-09:40

**Pea Seedlings (*Pisum sativum* L.) as a Promising Functional Food: Metabolite Profile, Muscle Atrophy Prevention**

Hangyeol Lee, SoYeon Moon, Mi Ja Lee, Seung-Yeob Song, EunJi Suh, Eun Bin Choi, Hye Young Seo, Woo Duck Seo\*

*Division of Crop Foundation, National Institute of Crop Science (NICS), Rural Development Administration (RDA), Wanju 55365, Republic of Korea*

GS4-5

09:40-09:50

**Enhancement of Tomato Sweetness through Tomato ALS1 Gene Editing**

So Hee Yang, Yeonjong Koo\*

*Department of Agricultural Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea*

GS4-6

09:50-10:00

**Characterization of *Clostridium acetobutylicum* ATCC 824 (pCD07239) during the acidogenic phase using metabolic and transcriptomic analyses**

Haeng Lim Lee, Aram Kim, Yu-Sin Jang\*

*Division of Applied Life Science (BK21 Four), Department of Applied Life Chemistry, Institute of Agriculture & Life Science (IALS), Gyeongsang National University (GNU), Jinju, Republic of Korea*



GS5

Applied Microbiology

July 2 (Tue), 303

Chair: Tatsuya Unno (Chungbuk Nat'l University)

GS5-1

09:00-09:10

**Dietary Entomophagy: Impact of Edible Silkworm Pupae (Boendegi) on Gut Microbiome**

Justina Klingaite<sup>1</sup>, Kanika Mahra<sup>2</sup>, Vineet Singh<sup>2</sup>, Jae-Ho Shin<sup>1,2,3\*</sup>

<sup>1</sup>Department of Integrative Biology, Kyungpook National University, Daegu, Republic of Korea, <sup>2</sup>Department of Applied Biosciences, Kyungpook National University, Daegu, Republic of Korea, <sup>3</sup>Next Generation Sequencing (NGS) Core Facility, Kyungpook National University, Daegu, Republic of Korea

GS5-2

09:10-09:20

**Characterization and Comparison of Alginate-Degrading Bacteria Derived from South Korea Territory**

Seung Hwa Jeong<sup>1</sup>, Yeon jong Koo<sup>1,2\*</sup>

<sup>1</sup>Chonnam National University, Department of Agricultural Chemistry, Republic of Korea, <sup>2</sup>Chonnam National University, Institute of Environmentally-friendly Agriculture, Republic of Korea

GS5-3

09:20-09:30

**Change in metabolites by lactic acid bacterial fermentation with produced isoflavone-enriched soybean leaves in plant factory**

Ji Ho Lee<sup>1</sup>, Hee Yul Lee<sup>1</sup>, Du Yong Cho<sup>1</sup>, Ae ryeon Lee<sup>1</sup>, Jong Bin Jeong<sup>1</sup>, Ga Young Lee<sup>1</sup>, Mu Yeun Jang<sup>1</sup>, Ki Hun Park<sup>2</sup>, Jin Hwan Lee<sup>3</sup>, Kye Man Cho<sup>1\*</sup>

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GS5-4

09:30-09:40

**Effects of UVA light intensity and temperature on agricultural antibiotics degradation**

So Yun Park<sup>1</sup>, Eun Hea Jho<sup>2\*</sup>

<sup>1</sup>Department of Agricultural Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea, <sup>2</sup>Department of Agricultural and Biological Chemistry, Chonnam National University, Gwangju 61186, Republic of Korea



GS5-5

09:40-09:50

**Biodegradation of Commercial PBAT/PLA/Starch Film by newly isolated fungal strains at room temperature**

Yongseok Ko<sup>1</sup>, Yuri Yang<sup>2,3</sup>, Sunil Ghatge<sup>1</sup>, Hor-Gil Hur<sup>1\*</sup>

<sup>1</sup>*School of Sciences and Environmental Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju 61005, Republic of Korea,* <sup>2</sup>*School of Nature Resources and Environmental Science, Department of Biological Environment, Kangwon National University, Chuncheon, Gangwon State 24341, Republic of Korea,* <sup>3</sup>*Department of Food Biotechnology and Environmental Science, Kangwon National University, Chuncheon, Gangwon State 24341, Republic of Korea*

GS5-6

09:50-10:00

**Effect of red beetroot (*Beta vulgaris* L.) powder and betanin on human gut microbiota according to enterotype**

Gwang-Pyo Ko<sup>1</sup>, Hye-jun Jo<sup>1</sup>, Chang-Sook Kim<sup>1,2\*</sup>

<sup>1</sup>*Faculty of Biotechnology, School of life sciences, SARI, Jeju National University, Jeju 63243, Republic of Korea,* <sup>2</sup>*Subtropical/tropical Organism Gene Bank Jeju National University, Jeju 63243, Republic of Korea*

GS5-7

10:00-10:10

**Bicolonization and Biodegradation of Low-density Polyethylene Microplastics by plastsphere-associated *Fusarium* and *Penicillium* strains Isolated from Agricultural Soil**

Kehinde Caleb Omidoyin<sup>1</sup>, Eun Hea Jho<sup>2\*</sup>

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