

2018 BEST CONFERENCE

& International Symposium on Biotechnology and Bioengineering

台灣生物技術與生化工程學會年會
暨科技部專題研究計畫成果發表會

28-30 June 2018

Hong-Yue Technology Research Building
National Taipei University of Technology, Taipei

Conference Website: <http://best2018.conf.tw>



Hosted by

The Biotechnology and Biochemical Engineering Society of Taiwan (BEST)

Organized by

Department of Chemical Engineering and Biotechnology
National Taipei University of Technology

Co-Organizer:

Ministry of Science and Technology
Ministry of Health and Welfare
International Academia-Industry Alliance of NTUT
Engineering & Technology Promotion Center
Healthcare Industry Development Association across the Strait

WELCOME Message from the BEST President

Dear Friends and Colleagues,

On behalf of Biotechnology and Biochemical Engineering Society of Taiwan (BEST) , I am pleased to welcome you to Taipei and the 2018 BEST Conference & International Symposium on Biotechnology and Bioengineering in National Taipei University of Technology. Taipei is the capital city of Taiwan and is widely regarded as the political, economical, and cultural center of Taiwan. It is an amazing city famous for its modern buildings, historical monuments and cultural attractions. Those popular night markets, unique style coffee houses, and several culture and creative parks never fail to offer visitors from all over the world a fantastic nightlife to enjoy.

The conference is the most important event for the Taiwanese members and students working on the biochemical engineering and applied biotechnology. Since 2015, the BEST Conference started to run as an international symposium, and the involvement of foreign participants in the BEST conference makes it more influential and helpful for promoting international friendship and collaborations.

Green Biotechnology is the theme for the conference, and it may offer a chance for all of the participants to share and learn related knowledge and experiences. Since more and more critical challenges, such as extremely climate change, environmental pollution and food safety have to be faced, we need more green biotechnology and innovative ideas to solve the problems or to reduce the impact of the challenges.

I would like to show my deep appreciation to all invited speakers and oversea participants to join this 2018 BEST Conference and International Symposium on Biotechnology and Biochemical Engineering. A warm welcome is especially extended to all of CSBT, KSBB, SBA, SBJ and TSB good friends who will attend the BEST Conference this time. I do hope all of you have a good time during your stay in Taipei.

Welcome again for all of the participants and let`s enjoy this conference altogether!

Sincerely yours,



Ching-Kuan Lin

President of Biotechnology and Biochemical Engineering Society of Taiwan (BEST)

ORGANIZERS

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Ching-Kuan Lin (林景寬)

President of Biotechnology and Biochemical Engineering Society of Taiwan (BEST)

Executive Director

Yi-Hung Chen (陳奕宏)

Chair of Department of Chemical Engineering and Biotechnology, National Taipei University of Technology

Organizing Coordinator

Jyh-Cheng Jeng (鄭智成)

National Taipei University of Technology

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I-Ming Chu (朱一民), National Tsing Hua University
Wen-Teng Wu (吳文騰), National Cheng Kung University
Wen-Chien Lee (李文乾), National Chung Cheng University
Steven S.-S. Wang (王勝仕), National Taiwan University
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Kow-Jen Duan (段國仁), Tatung University
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AWARDEES

BEST Medal

Initiated in 2013, the BEST Medal recognized individual members for accomplishments in research excellence. This award established to confer honor on individuals who have brought recognition to themselves and to the Biotechnology and Biochemical Engineering Society of Taiwan, by their contributions to academia, industry and society.

2018 BEST Medal Awardee

Dr. Wen-Chien Lee



Dr. Wen-Chien Lee is professor in Department of Chemical Engineering and Director of Systems Biology and Tissue Engineering Research Center at National Chung Cheng University, Taiwan. He received his B.S. and M.S. in chemical engineering from National Taiwan University of Science and Technology and Ph.D. from Purdue University (1989). He has served as a visiting professor in Cornell University (USA) and Kasetsart University (Thailand) and chairman of Department of Chemical Engineering at National Chung Cheng University. Dr. Lee has published 110 refereed international journal papers and book chapters, 19 journal papers and book chapters in Chinese, and totally 204 plenary,

keynote, oral and poster presentations in international and domestic conferences. His research accomplishments cover advances in theory and practice of protein affinity chromatography, biomagnetic macro- and nano-particles for impulse magnetic field-mediated gene and protein delivery, enzyme producing strains and immobilization systems for biotransformation, proteomic platform to excavate biomarkers of diseases, stem cell differentiation and cell physiology of recombinant bacteria, and production technologies for bio-based chemicals and value-added co-products. He is an editorial board member of Enzyme and Microbial Technology. In addition to 12 granted patents, he has an excellent record in helping industrial companies to drive innovation. Dr. Lee served as the Deputy Secretary General of Asian Federation of Biotechnology (AFOB), responsible for academic activities (scientific divisions) of AFOB and cooperating with the European Federation of Biotechnology. He also served as the President of Biotechnology and Biochemical Engineering Society of Taiwan (BEST) and established many international relations for the society. He received 2015 YABEC award from AFOB and 2017 Research Exchange Award from Korean Society for Biotechnology and Bioengineering.

Past Awardees of the BEST Medal

2013	Dr. Wen-Teng Wu
2014	Dr. I-Ming Chu
2015	Dr. Yew-Min Tzeng
2016	Dr. Yu-Chen Hu
2017	Dr. Jo-Shu Chang

BEST Academic Service Award

The BEST Academic Service Award was initiated in 2013 as an annual award to recognize outstanding contributions by an individual academic member in service to the research and education of Biotechnology and Biochemical Engineering and in support of the mission of the Biotechnology and Biochemical Engineering Society of Taiwan.

2018 BEST Academic Service Awardee

Dr. Kow-Jen Duan



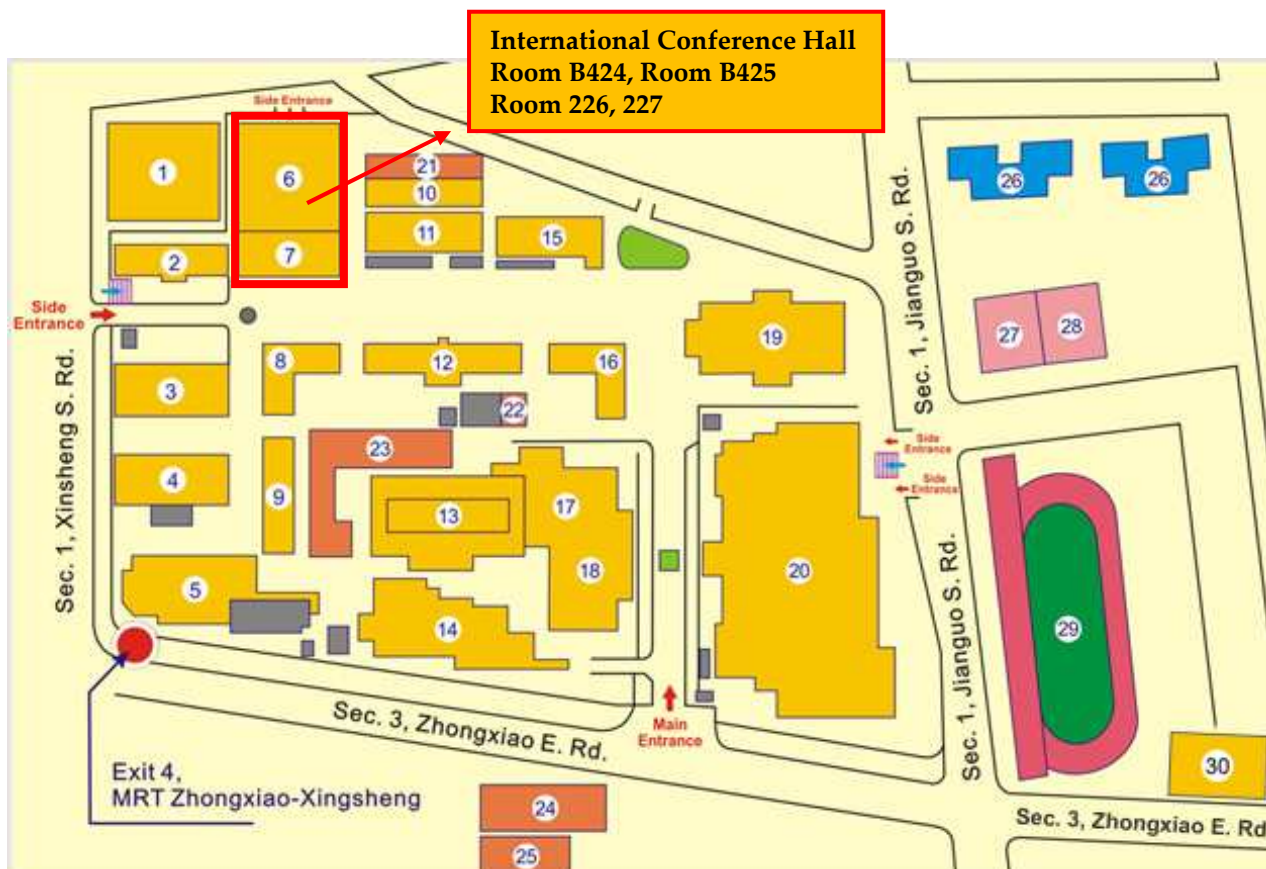
Dr. Kow-Jen Duan received his PhD in Chemical Engineering at the University of Missouri-Rolla in 1985. He is currently a professor in the Department of Bioengineering, Tatung University, Taipei, Taiwan. He also served as Chairman of the Department. Dr. Duan's recent research interests have been on production of some oligosaccharides to improve animal or human being intestinal microflora, production of bio-ethanol from starch or agricultural wastes, discovery of bacteria that have antifungal activities and application in agricultural area. Dr. Duan has long term interest in brewing of alcoholic beverages and the market. He was one of the founders of a microbrewery in Taiwan. He is one of the Technical Committee Members of National Treasury Administration, Ministry

of Finance of Taiwan (ROC) for Fine Wine Certification. Dr. Duan was author or co-author of about 50 peer review papers, 3 patents, and several cases of technology transfer. He has served as consultant for Yan Ten Biotech. Corp., Fourways Dairy Farm and North Taiwan Brewing. Dr. Duan is member of Biotechnology and Biochemical Engineering Society of Taiwan, Taiwan Institute of Chemical Engineers, Taiwan Association for Lactic Acid Bacteria and Asia Federation of Biotechnology.

Past Awardees of the BEST Academic Service Award

2013	Dr. Jau-Yann Wu
2014	Dr. Yaw-Nan Chang
2015	Dr. Dey-Chyi Sheu
2016	Dr. Yu-Kaung Chang
2017	Dr. Wen-Yih Chen

VENUE

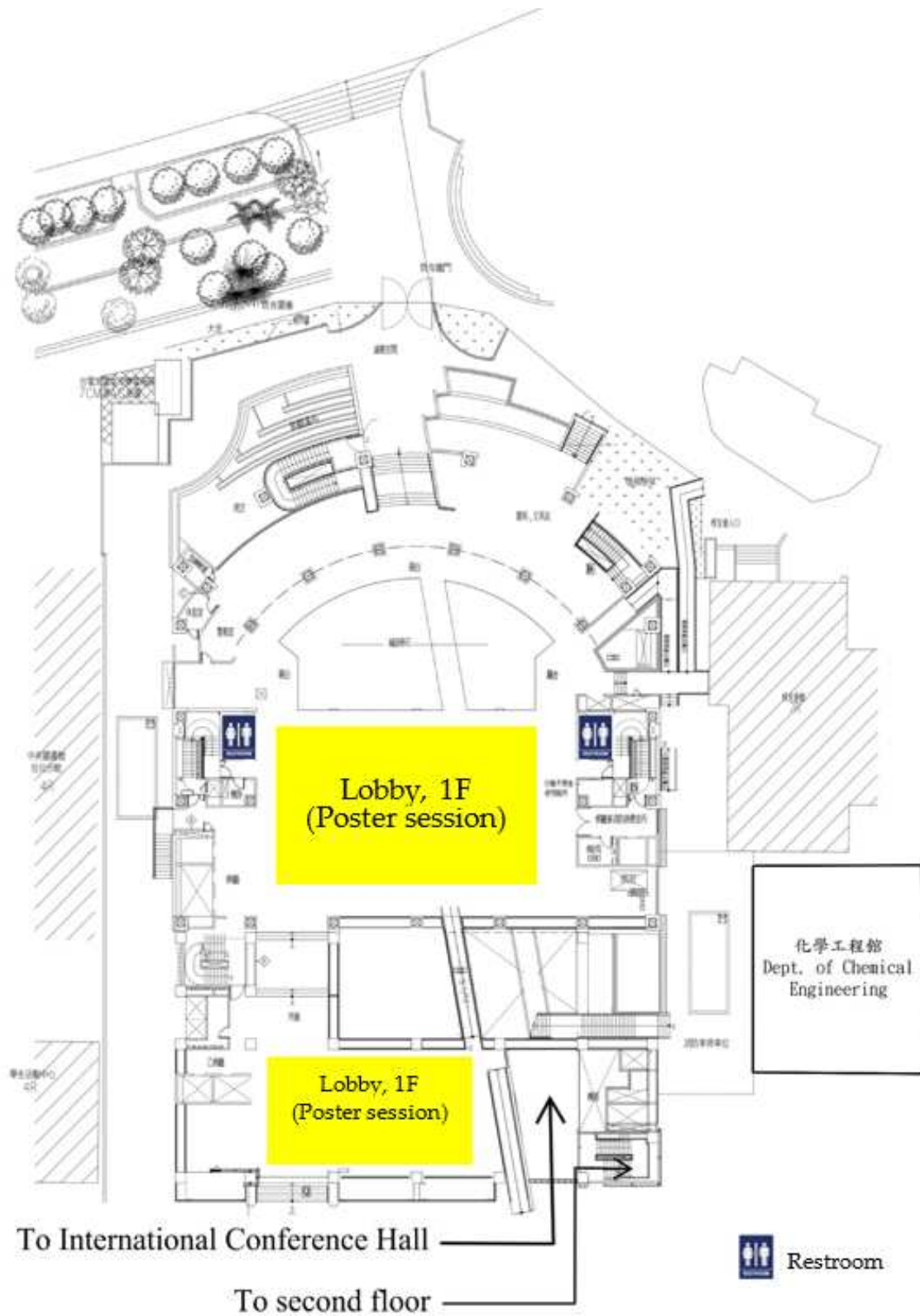


Campus Map of National Taipei University of Technology

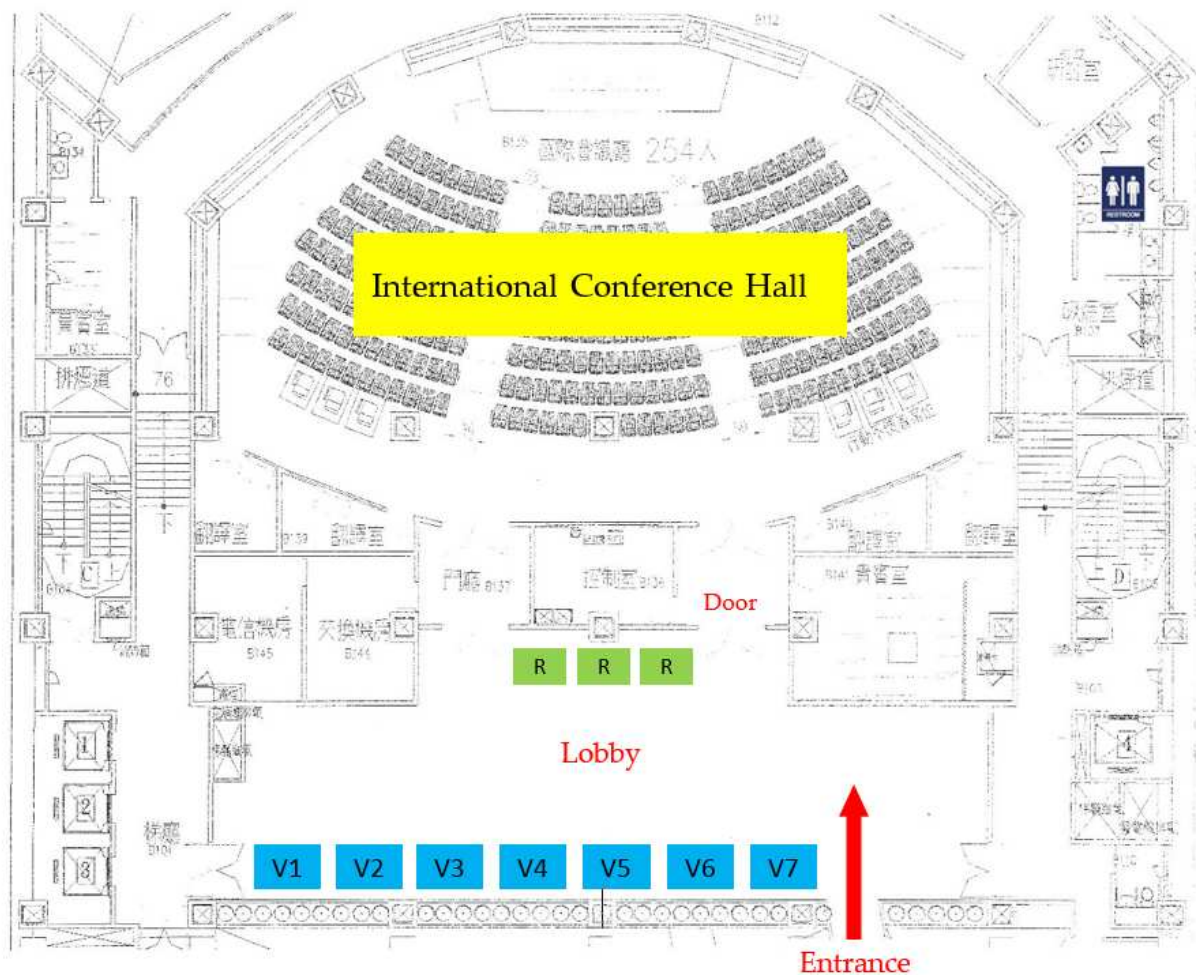
Main Entrance / Side Entrance

- | | |
|--|--------------------------------------|
| 1. Dept. of Electro-Optical Engineering | 16. Chemistry Building |
| 2. Sun Yat-Sen Memorial hall (Environmental Engineering) | 17. Library |
| 3. Dept. of Civil Engineering | 18. Administration Building |
| 4. Dept. of Materials and Mineral Resources Engineering | 19. Chiang Kai-Shek Memorial Hall |
| 5. Design Building | 20. Integrated Technology Complex |
| 6. Hong-Yue technology Research Building | 21. Alumnus Association |
| 7. Sixth Academic Building | 22. Red House (Historic Monument) |
| 8. First Academic Building | 23. Corridor |
| 9. Fourth Academic Building | 24. Innovation and Exhibition Center |
| 10. Biotechnology Building Biotech | 25. Cooperative Education Building |
| 11. Dept. of Chemical Engineering | 26. Dormitory |
| 12. Second Academic Building | 27. Tennis Court |
| 13. Third Academic Building | 28. Basketball Court |
| 14. General Studies Building | 29. Track & Field |
| 15. Dept. of Molecular Science and Engineering Building | 30. Everlight Building |

FLOOR PLANS

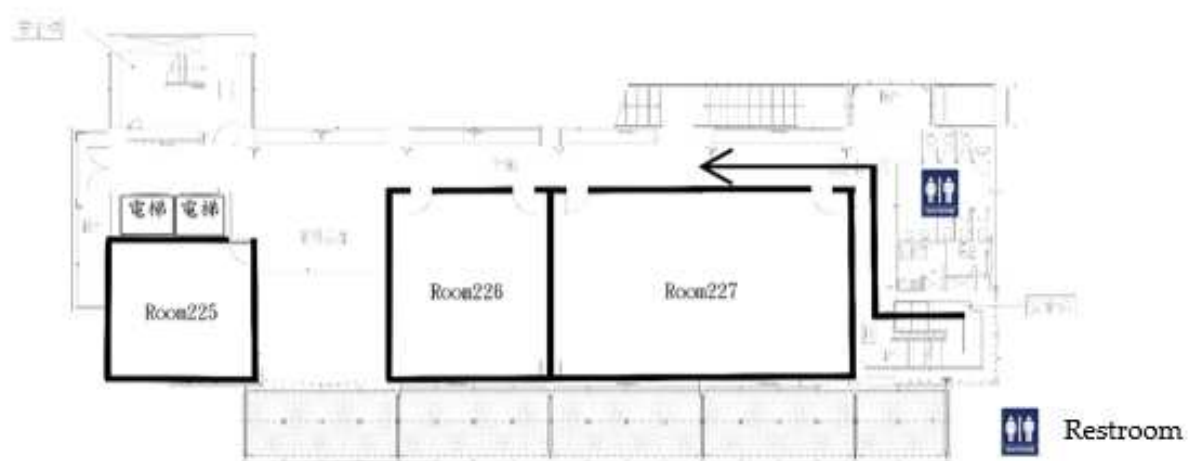


Hong-Yue Technology Research Building, 1F

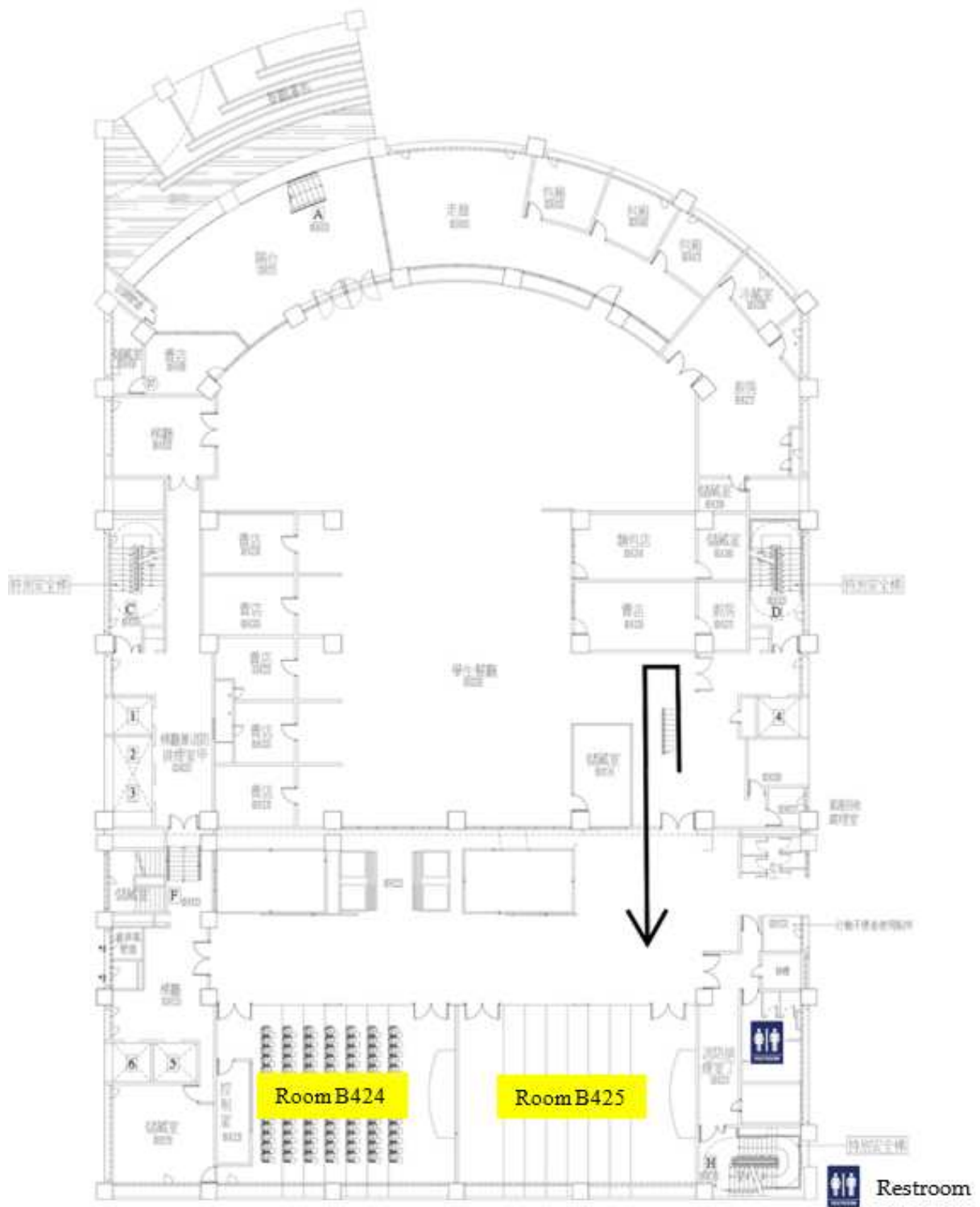


R Reception desk
 V Vendor Exhibition desk
 Restroom Restroom

International Conference Hall, B2F Hong-Yue Technology Research Building



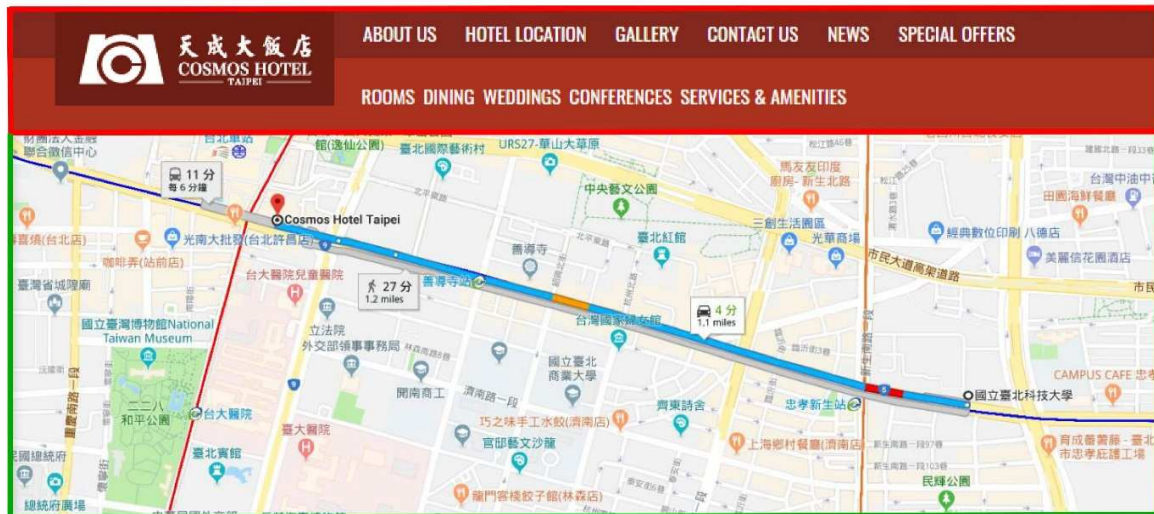
Room 226 and Room 227 Sixth Academic Building, 2F



Room B424 and Room B425
Hong-Yue Technology Research Building, B4F

CONFERENCE BANQUET

COSMOS HOTEL TAIPEI (台北天成大飯店)



Hotel Location

By car:

Zhongxiao East Road, head west to Zhongxiao West Road, and you will arrive at your destination.

By MRT:

Take the MRT and get off at the **Taipei Station stop**, go through the **M3 exit** and the hotel will be on your left.

Parking:

The hotel has a two-level underground parking garage but not guarantee the availability of parking lot.

Address:

No.43,Sec. 1, Zhongxiao W. Rd 100 Taipei City



PROGRAM OVERVIEW

Thursday, June 28

Time	Agenda
18:00 - 20:00	Welcome Reception MIRAMAR GARDEN TAIPEI, 1F

Friday, June 29

Time	Agenda			
08:30 - 12:00	BEST Board of Directors and Supervisors Meeting Pre-Conference Tour (Invited only)			
12:00 - 13:00	Registration (Entrance of International Conference Hall, 12:00-17:30) Exhibition opens, Poster session I setup			
13:00 - 13:30	Opening Welcome Address: Dr. Thomas C.-K. Yang (Vice-President of NTUT) & Ching-Kuan Lin (President of BEST) Opening Remarks: Dr. Chester Ho Honorary Awards Ceremony (International Conference Hall)			
13:40 - 14:20	Opening Plenary Speech 2018 BEST Medal Awardee Prof. Wen-Chien Lee Department of Chemical Engineering, National Chung Cheng University, Taiwan Chair: Prof. Wen-Teng Wu, NCKU (International Conference Hall)			
14:30 - 15:00	Keynote Speech I Prof. Masahiro Takagi School of Materials Science, Japan Advanced Institute of Science and Technology, Japan Chair: Prof. Jo-Shu Chang, NCKU (International Conference Hall)	Keynote Speech II Prof. Seung Pil Pack Department of Biotechnology and Bioinformatics, Korea University, Korea Chair: Prof. Wen-Chien Lee, CCU (Room B424)	Keynote Speech III Prof. Rujikan Nasanit Department of Biotechnology, Silpakorn University, Thailand Chair: Prof. I-Son Ng, NCKU (Room B425)	
15:00 - 16:00	Coffee break, Exhibitions and networking Poster Session I Topics: Biocatalysis and Protein Engineering; Micro- and Nano-biotechnology; Environmental Biotechnology; Agro-biotechnology and Natural Products (Hong-Yue Technology Research Building, Lobby, 1F)			
16:00 - 17:35	Parallel Oral Sessions I			
	Session I-1 Biocatalysis and Protein Engineering (I) (Int. Conference Hall)	Session I-2 Micro- and Nano-biotechnology (Room B424)	Session I-3 Environmental Biotechnology (Room B425)	Session I-4 Agro-biotechnology and Natural Products (Room 226)
	Chair: Prof. Ling Chao Invited Speech Prof. Kazuhito Fujiyama International Center for Biotechnology, Osaka University, Japan	Chair: Prof. Chih-Chen Hsieh Abstract No.: 0029 0092 0097 0199 0239	Chair: Prof. Chao-Ling Yao Abstract No.: 0009 0054 0132 0136 0156	Chair: Prof. Yaw-Nan Chang Abstract No.: 0048 0130 0143 0204 0227
	Abstract No.: 0008, 0014, 0042, 0050, 0133			
18:30 - 20:30	Conference Banquet COSMOS HOTEL TAIPEI, 1F			

Saturday, June 30

Time	Agenda			
08:10 - 08:40	Registration (Entrance of International Conference Hall, 08:10-12:30) Exhibition opens, Poster session II setup			
08:40 - 09:20	<u>Conference Theme Plenary Speech</u> Professor Oliver Rackham President of Synthetic Biology Australasia (SBA) Head of Synthetic Biology and Drug Discovery, The University of Western Australia, Australia Chair: Prof. Sheng-Tung Huang, NTUT (International Conference Hall)			
09:30 - 10:00	<u>Keynote Speech IV</u> Prof. Hyung Joon Cha Department of Chemical Engineering, Pohang University of Science and Technology, Korea Chair: Prof. Sheng-Shih Wang, NTU (International Conference Hall)	<u>Keynote Speech V</u> Prof. Chiaki Ogino Department of Chemical Science and Engineering, Kobe University, Japan Chair: Prof. Cheng-Kang Lee, NTUST (Room B424)	<u>Keynote Speech VI</u> Prof. Mohamad Faizal Ibrahim Department of Bioprocess Technology, Universiti Putra, Malaysia Chair: Prof. Yung-Chuan Liu, NCHU (Room B425)	
10:00 - 11:00	Coffee Break, Exhibitions and networking <u>Poster Session II</u> Topics: Bioenergy and Biorefinery; Biomedical Science and Engineering; Metabolic Engineering and Synthetic Biology; Cell Culture and Bioprocessing (Hong-Yue Technology Research Building, Lobby, 1F)			
11:00 - 12:30	Parallel Oral Sessions II			
	Session II-1 Bio-industrial Forum (Int. Conference Hall)	Session II-2 Bioenergy and Biorefinery (I) (Room B424)	Session II-3 Biomedical Science and Engineering (I) (Room B425)	Session II-4 Metabolic Engineering and Synthetic Biology (Room 226)
	Chair: Dr. Wei-Kuang Chi, DCB Co-chair: Chia-Hwa Lee, NTUT Invited Speech Dr. Wei-Kuang Chi Institute of Pharmaceutics, Development Center for Biotechnology, Taiwan	Chair: Prof. C. Will Chen Abstract No.: 0036 0082 0103 0137 0139	Chair: Prof. Jen-Huang Huang Abstract No.: 0011 0016 0017 0079 0090	Chair: Prof. Yi-Huang Hsueh Abstract No.: 0028 0069 0123 0180 0212
	EYT Health Technology Co., Ltd. BIONIN Biotechnology, Inc. CellMax Life, Inc.			
12:30 - 13:50	Lunch (B3F Dinning Area) 2018 BEST Member Annual Meeting (Room 227)			
14:00 - 15:30	Parallel Oral Sessions III			
	Session III-1 Biocatalysis and Protein Engineering (II) (Int. Conference Hall)	Session III-2 Bioenergy and Biorefinery (II) (Room B424)	Session III-3 Biomedical Science and Engineering (II) (Room B425)	Session III-4 Cell Culture and Bioprocessing (Room 226)
	Chair: Prof. Jiasheng Yu Abstract No.: 0058 0168 0203 0208 0215	Chair: Prof. Jun-Hsien Wang Abstract No.: 0147 0149 0154 0159 0169	Chair: Prof. Chi-Hsien Liu Abstract No.: 0081 0150 0164 0173 0230	Chair: Prof. Min-Ying Wang Abstract No.: 0107 0118 0135 0163 0224
15:35 - 16:00	Closing & Award Presentation Ceremony (International Conference Hall)			

Opening Plenary Speech

Wen-Chien Lee

(2018 BEST Medal Awardee)

13:40–14:20, Friday June 29, 2018

International Conference Hall

Chair: Prof. Wen-Teng Wu, National Cheng Kung University

From biological macromolecules to small molecules: purification and upstream processing

Wen-Chien Lee

Department of Chemical Engineering, National Chung Cheng University, Minhsiung 621

Bioproducts are substances made by living organisms and can be classified into small molecules, macromolecules and particulate products. Proteins are biological macromolecules that dictate virtually all activities of a cell. Therefore, protein purification is important for bioscience and biotechnology research and in the production of protein drugs. For the affinity chromatography of proteins and other bioactive molecules, we have developed several polymer and non-polymer-based microparticles especially as nonporous and molecularly imprinted supports. Non-linear chromatography has been revisited, resulting in a novel plate-height equation for scaling-up a non-linear chromatographic process and in determining the thermodynamic and kinetic constants characterizing non-linear chromatography. Predicted equations for describing elution behavior of proteins in affinity chromatography were also developed. Furthermore, two-dimensional gel electrophoresis platform was established to extend our study from protein purification to proteomics. This proteomic approach was employed to excavate biomarkers for two diseases, oral cancer and biliary atresia, as well as the study of circadian desynchronization in animal model and neuronal differentiation of human mesenchymal stem cells. The investigation of proteomes in recombinant *Escherichia coli* before and after induction for over-expressing foreign protein led to some novel findings on the alteration of metabolic pathways and expression of cellular proteins in the recombinant bacterial cells. In addition, the genetic manipulation for yielding enzymatically active inclusion bodies in the recombinant *E. coli* over-expressing protein has been demonstrated. As the bioproducts were switched to small molecules like bioethanol and bio-based organic acids including succinic acid, D- and L-lactic acids, the utilization of sugars from cellulosic parts of plant biomass as the raw material was *particularly* of interest. Genetic engineering on production strains could significantly enhance the product yield. Technologies for the co-production of value-added compounds like xylitol and xylooligosaccharides were developed in order to reduce the overall production cost of bioethanol and bio-based organic acids from lignocellulosic biomass.

Conference Theme Plenary Speech

Oliver Rackham

08:40–09:20, Saturday June 30, 2018

International Conference Hall

Chair: Prof. Sheng-Tung Huang, National Taipei University of Technology

Engineered protein scaffolds to target nucleic acids

Oliver Rackham

Harry Perkins Institute of Medical Research and Centre for Medical Research, The University of Western Australia, Nedlands 6009, Australia

School of Molecular and Chemical Sciences, The University of Western Australia, Crawley 6009, Australia

E-mail: oliver.rackham@uwa.edu.au

Post-transcriptional regulation of gene expression is ubiquitous and fundamental for the control of cell growth, differentiation and the complex developmental programs of multicellular eukaryotes. Because of their modular structure, repeat domain proteins are particularly well suited for these processes and have been widely adopted throughout evolution. This presentation focuses on a family of RNA-binding repeat domain proteins: the pentatricopeptide repeat (PPR) proteins, which play key roles in mitochondrial gene expression. We have used mouse models and next generation sequencing approaches to reveal the mechanisms by which PPR proteins function. Furthermore, in recent work we have created synthetic proteins inspired by PPR proteins. These artificial proteins have revealed the code for RNA binding by natural PPR domains and provide unique tools for manipulating cellular RNAs. The design of proteins that can bind any RNA sequence of interest and modulate its function will be important to elucidate the mechanisms by which genes are controlled at the RNA level and for new therapeutic approaches.

Oliver Rackham

Harry Perkins Institute of Medical Research & School of Molecular Sciences
The University of Western Australia
Level 7, QQ Block, QEII Medical Centre
6 Verdun Street, Nedlands, Western Australia 6009, Australia
Phone: +61 8 6151 0735
E-mail: oliver.rackham@uwa.edu.au
Nationality: New Zealand, Australian



Career contributions

My research has been influential in shaping the fields of synthetic biology and mitochondrial gene expression. I pioneered an “orthogonal” approach to create synthetic cellular networks and created synthetic ribosomes that have proven to be powerful tools for understanding translation and synthesising protein therapeutics. My patent from this work has reached the world stage, received a nomination for the European Inventor Award in 2012, and is currently being commercialized by the MRC (UK) for the production of protein therapeutics. This work was described as one of the “*seminal achievements for synthetic biology*” (Luc Jaeger, *Faculty of 1000*, 2013). My synthetic ribosomes have been adopted by the MIT’s BioBricks Foundation, the authoritative resource for synthetic biologists worldwide, and resulted in my admission to the *European Inventor Hall of Fame* in 2013.

My contributions to understanding mitochondrial gene expression include the discovery of non-coding RNAs generated from the mitochondrial genome, the development of new next generation sequencing technologies to analyse mitochondrial RNAs, and characterisation of the roles of RNA-binding proteins within mitochondria. Recent studies have revealed the mechanistic role of LRPPRC, a common causative gene for Leigh syndrome, a neurodegenerative disorder. The impact of my research is highlighted by invitations to contribute 7 reviews and 2 book chapters, invitations to speak at top international conferences, as well as the many news & views and highlights articles that have been dedicated to it, in top journals including *Nature*, *Science*, *Nature Methods*, *Nature Chemical Biology*, *Nature Biotechnology* and *Nature Reviews Genetics*.

Education and positions held

- | | |
|---------------------|--|
| 2015-present | Cancer Council Western Australia Fellow
Harry Perkins Institute of Medical Research & School of Molecular Sciences (from 2013), The University of Western Australia, Perth, Australia |
| 2010-2014 | ARC Future Fellow
Western Australian Institute for Medical Research & School of Molecular Sciences (from 2013), The University of Western Australia, Perth, Australia |
| 2006-2010 | NHMRC Peter Doherty Fellow
Western Australian Institute for Medical Research & UWA Centre for Medical Research, Perth, Australia |
| 2003-2005 | MRC Career Development Fellow
MRC Laboratory of Molecular Biology, Cambridge, United Kingdom
Supervisor: Professor Jason W. Chin |
| 1998-2003 | PhD in Biochemistry
Biochemistry Department, University of Otago, New Zealand
Supervisor: Dr. Chris M. Brown.
<i>Thesis: Visualisation of RNA-protein interactions in living cells</i>
<i>Requirements completed: 17 November 2003</i>
<i>Degree conferred: 8 May 2004</i> |
| 1994-1997 | Bachelor of Science with Honours (First Class)
Biochemistry Department, University of Otago, New Zealand
Supervisor: Dr. Chris M. Brown
<i>Thesis: Readthrough: a novel mechanism for the regulation of cellular gene expression</i> |

Keynote Speech I

Masahiro Takagi

14:30–15:00, Friday June 29, 2018

International Conference Hall

Chair: Prof. Jo-Shu Chang, National Cheng Kung University

Endocytic Movements of Biomaterials in Both Actual and Artificial Membranes

Masahiro TAKAGI^a and Naofumi SHIMOKAWA

^a School of Materials Science, Japan Advanced Institute of Science and Technology

E-mail: takagi@jaist.ac.jp

Grant number(s) for acknowledgments: The Grant-in-Aid for Scientific Research (C) (JP17K05610) (N.S)

“Thermal Biology” (JP15H05928) (M.T) Scientific Research (B) (JP26289311) (M.T)

【 Background 】 The cell membrane is based on structure of lipid bilayer, and is constituted with hundreds kinds of phospholipid molecules. In recent years, it has been suggested that there is a domain structure called “Lipid raft” in membrane. Rafts contain high concentration of sphingolipids and cholesterol. Rafts concentrate receptor proteins and their dynamics are related to membrane trafficking and intracellular signaling. But mechanism of raft dynamics in intracellular signaling is still unknown. As the examples for the studies about membrane dynamics and signal transduction, I would like to introduce the cell-sized liposome and use of the liposome and cultured cells for studies of neurotoxicity of amyloid and drug delivery system.

【 Lipid raft and neurotoxicity of amyloid β 】 Amyloid beta ($A\beta$) is a peptide responsible for the development of Alzheimer’s disease (AD). Misfolding and accumulation of the peptide can lead to neural cell apoptosis through endoplasmic reticulum (ER) stress. We have speculated that the endocytic transport of $A\beta$ causes ER stress. We have demonstrated important factors affecting endocytic transport such as oxysterols, glycosyl chains of membranes, and the nano-structures (oligomers and protofibrils) of $A\beta$.

【 Drug delivery by nanoemulsions 】 Nanoemulsions of a lipophilic vitamin, retinol palmitate (vitamin A; VA), have a therapeutic effect on corneal damage. We have shown that the vesicles that absorbed nanoemulsions formed from the plasma membrane as real endocytosis, and were transported to the area around the nucleus. Consequently, it is likely that nanoemulsions entered the cell by membrane mediated transport at raft region, delivering vitamin to the cell nucleus effectively and enhancing the effects of vitamins.

These findings reveal that endocytic movements (in particular raft-dependent endocytic movements) are very important for signal transduction.

Masahiro TAKAGI

Title: Professor

Affiliation: Biophysics and Biotechnology Laboratory, School of Material Science, Japan Advanced Institute of Science and Technology

Address: Asahidai, Nomi ISHIAWA, 923-1292 JAPAN

Phone/Fax: +81-761-51-1650

E-mail: takagi@jaist.ac.jp

Web URL: <http://www.jaist.ac.jp/ms/labo/takagi.html>



Biosketch

Dr. Masahiro TAKAGI is currently the Professor of School of Material Science at Japan Advanced Institute of Science and Technology. He received Ph.D at Osaka University, JAPAN and began his teaching career as an Assistant Professor at Osaka University in the Department of Biotechnology from 1985. From 1990 to 1992, he was a postdoctoral researcher at University of California, Davis. From 1994 to 2001. Then he became an Associate Professor at Department of Biotechnology, Osaka University. Since 2001, Dr. Takagi is a professor at Japan Advanced Institute of Science and Technology (JAIST). JAIST was founded in October 1990 as the first independent national graduate school in Japan. He leads the "Biophysics and Biotechnology Laboratory".

Recently, he became interested in interaction between protein and peptides with biomembrane. Dr. Takagi has developed biomimetic model membranes and investigated interactions with external molecules, including Amyloid peptides which play a causal role in Alzheimer's disease (AD). He served as the editor-in-chief of Journal of Bioscience and Bioengineering (Elsevier) and an editor of Biotechnology and Bioengineering (Wiley).

He is now a vice-president of Society of Biotechnology, Japan and also an executive board member of Asian Federation of Biotechnology (AFoB) and also a college of fellow of American Institute for Medical and Biological Engineering (AIMBE).

Keynote Speech II

Seung Pil Pack

14:30–15:00, Friday June 29, 2018

Room B424

Chair: Prof. Wen-Chien Lee, National Chung Cheng University

Marine-derived molecular biomineralizations: silica-forming proteins and their applications

Ki Baek Yeo, Sung Ho Kim, Ryeo Gang Son, Mi-Ran Ki, and Seung Pil Pack*,^a

^a *Department of Biotechnology and Bioinformatics, Korea University, Sejong 30019, Korea*

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Silica with nontoxic and highly biocompatible characteristics can be applied for tissue scaffolds, drug-delivery system, biosensors and imaging. For silica synthesis, conventional methods typically require a combination of high temperatures and extreme pH and also it is difficult to prepare controlled structures. However, the discovery of the critical molecules involved in biosilicification found both in diatoms (silaffins and polyamines) and sponges (silicateins) brings out understandings about silica forming process in vivo and has presented a new paradigm for silica synthesis under ambient or mild conditions. Here, we reported new silica-forming peptides (SFP), named EctP1 and EctP2. They were also genetically fused to the N- or C-terminus of other protein. The SFP-fused proteins showed silicification ability. In addition, silicified SFP-fused protein exhibited an organic-inorganic complex form. These results indicate that the SFP fusion system is a novel tool for immobilizing biomolecules on silica material for biological and industrial applications.

Seung Pil Pack

Personal Information

Date of Birth: June 11, 1972
Nationality: Republic of Korea
Present Status:

Professor (Dept. Biotechnology & Bioinformatics, Korea University, Korea)
President (Korea University Research and Business Foundation (Sejong Campus))
Director (Institute of Science and Technology, Korea University, Korea)
Adjunct Professor (KU-Medical Center, Korea University, Korea)



Address of Correspondence

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Scope of Research

1. Protein/peptide Engineering (Rational Design, HT Screening, Directed Evolution)
2. Biomimetic or Bio-inspired Materials/Systems for Tissue Engineering & Regenerative Medicine (TERM)
3. Bio-Mineralization (BIO-MIN), Biosilica Technology, Diatom Technology
4. Modified DNA/RNA Technology, Aptamer Selection and Design for Genome Study

Education

- Ph. D.** 1997. 3. 1 - 2003. 2. 25
School of Chemical Engineering, Seoul National University; Thesis: (Advisor : Prof. Young Je Yoo)
"Development of Protein Thermostabilization Strategies using Structure-based Pattern Analysis and Solvation Energy Model"
- M.S.** 1995. 3. 1 - 1997. 2. 26
Department of Chemical Engineering, Seoul National University; Thesis: (Advisor : Prof. Young Je Yoo);
"Development of Cellobiose-utilizing Recombinant Yeast and its Application to Ethanol Production"
- B.S.** 1991. 3. 1 - 1995. 2. 25
Department of Agricultural Chemistry, Seoul National University

Experience in Research

2018. 5.23- Present **President** Korea University Research and Business Foundation (Sejong Campus), Korea University, Korea
2016. 6.23- Present **Director** Marine Bio-Mineralization Research Center (mBMRC), NRF, MISP, Korea
2016. 3.1- Present **Professor** Department of Biotechnology and Bioinformatics, Korea University, Korea
2014. 8.1- 2015. 07.31 **Visiting Professor** Institute of Collaborative Biotechnologies, University of California, Santa Barbara CA, USA
2013. 1.1- Present **Adjunct Professor** KU Medical Center; Korea University, Korea
2012. 8.1- Present **Director** Institute of Science and Technology, Korea University, Korea
2011. 3.1- 2016.2. 28 **Associate Professor** Department of Biotechnology and Bioinformatics, Korea University, Korea
2008. 9.1-2010.2. 28 **Assistant Professor** Department of Biotechnology and Bioinformatics, Korea University, Korea
2008. 4.1-2008.8. 31 **Research Fellow** @Institute of Sustainability Science, Kyoto University, Japan (PI: Prof. Takashi Morii & Prof. Keisuke Makino)
2006. 9.1- 2008. 3. 31 **JST Research Fellow (CREST)** @Institute of Advanced Energy, Kyoto University, Japan; (PI: Prof. Keisuke Makino)
2004. 9.1 - 2006. 8. 31 **JSPS Research Fellow** @Institute of Advanced Energy, Kyoto University, Japan (PI: Prof. Keisuke Makino)
2004. 4.1 - 2004. 8. 31 **Research Fellow** @Institute of Advanced Energy, Kyoto University, Japan (PI: Prof. Keisuke Makino)
2003. 9.1 - 2004. 3. 31 **Post-Doctoral Fellow, Instructor** @Venture Business Laboratory, Kyoto University, Japan (PI: Prof. Keisuke Makino)
2003. 3.1 - 2003. 8. 31 **Post-Doctoral Fellow** @ Institute of Molecular Biology and Genetics, SNU, Korea (PI: Prof. Young Je Yoo)

Keynote Speech III

Rujikan Nasanit

14:30–15:00, Friday June 29, 2018

Room B425

Chair: Prof. I-Son Ng, National Cheng Kung University

Bacteriophages: Antibacterial agents against foodborne pathogens

Rujikan Nasanit*, Phiraphat Chaengphaniad, Wongsatorn Sirisurapong, Napakhwan Imklin
*Department of Biotechnology, Faculty of Engineering and Industrial Technology, Silpakorn University,
Sanamchandra palace campus, Nakhon Pathom, 73000, Thailand*
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Food is a fundamental requirement of everyday life. However, it is also a primary route of foodborne disease transmission which become a major problem worldwide. The contamination of bacterial pathogens in foods is one of the important causes of foodborne illness. Moreover, the emergence of antibiotic-resistant bacteria has been increasing because of antibiotic overuse nowadays. Therefore, an effort to develop a new technology to control these microbial contaminations for food safety concern along with the quality control of food is continuously challenged. During the last decade, bacteriophages known as bacterial viruses, have gained interest as an alternative approach against pathogenic bacteria in foods, since they are highly specific to bacterial hosts, safe and no effect on food sensory. In this talk, we will provide some examples of bacteriophage control in food industry, both pre- and postharvest applications. Our findings of bacteriophages specific to some foodborne pathogens, *Salmonella* spp. and *Staphylococcus aureus* is also introduced. The advantages and possible disadvantages of phage therapy is then discussed. Finally, the current exploitation of phages as biocontrol agents in the food industry is presented.

Rujikan Nasanit



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Tel: +66 853524668
5. **E-mail:** nasanitr@su.ac.th, rnasanit@gmail.com
6. **Educational background:**
 - B.Sc. (Agro-Industrial Technology), King Mongkut's Institute of Technology North Bangkok, Thailand, in 1999.
Dissertation title: Kinetics study of citric acid fermentation by yeast, *Yarrowia lipolytica* TISTR5054.
 - M.S. (Genetic Engineering), Kasetsart University, Thailand, in 2003.
Thesis title: Study on cellulase and the related gene from bacteria in termite gut.
 - Ph.D. (Chemistry), University of Birmingham, UK, in 2009.
Thesis title: Modulatable endosomolytic, intracellularly biodegradable vectors for gene delivery.

Keynote Speech IV

Hyung Joon Cha

09:30–10:00, Saturday June 30, 2018

International Conference Hall

Chair: Prof. Sheng-Shih Wang, National Taiwan University

Pre-clinical medical applications of protein glue

Hyung Joon Cha

Department of Chemical Engineering, Pohang University of Science and Technology, Pohang 37673, Korea

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Marine mussel adhesion is known to be mediated by adhesive proteins, which are secreted through the mussel byssus and have great potential as biologically and environmentally friendly adhesive biomaterials due to their biocompatibility and biodegradability. In addition, mussel adhesive proteins (MAPs) have strong adhesion ability even on wet surfaces due to unique amino acid arrangements and composition. However, researches using the natural amino acid composition have been limited due to extreme difficulties in obtaining sufficient quantities of MAPs for practical applications and commercialization. Previously, we successfully produced redesigned new MAP using a bacterial expression system and this MAP showed significant adhesion ability and biological safety. In this talk, I will present our research team's efforts on development of MAP as innovative bioadhesive materials in diverse medical area with proper fabrications and formulations. Also, I will introduce startup company 'Nature Gluetech' for technology commercialization of these innovative medical bioadhesives.

Hyung Joon CHA

SeAH Chair Professor, Department of Chemical Engineering
Director, Marine BioMaterials Research Center
Head, National Research Laboratory of Molecular Biotechnology
Pohang University of Science and Technology (POSTECH)
Pohang, KOREA
Chief Technology Officer Nature Gluetech Co., Ltd Seoul, KOREA
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Biographical Sketch

Hyung Joon Cha received his PhD in Chemical Engineering from Seoul National University in 1995. From 1996 to 1998, he was the Postdoctoral Associate in University of Maryland Biotechnology Institute, USA and the Assistant Research Professor of Department of Chemical Engineering at University of Maryland, College Park in 1998-1999. He joined POSTECH in 1999. His area of interests includes protein-based biomaterials, tissue and biomedical engineering, and biosensors. He has published ~200 peer-reviewed research papers and holds more than 80- registered patents. Currently, he is the SeA Chair Professor of POSTECH and the Director of Marine BioMaterials Research Center funded by the Ministry of Oceans and Fisheries, Korea through recognition of his prominent works on mussel-derived adhesive biomaterials for tissue and biomedical applications. He is also the founder and Chief Technology Officer of Nature Gluetech Co., Ltd for technology commercialization of mussel adhesive protein as an innovative medical glue. His work has been recognized by a Korea Engineering award of the Korea President, a 2020 Future 100 Best Technologies and Researchers award of the National Academy of Engineering of Korea, a 2012 National R&D 100 Best Researches award of the Ministry of Education, Science, and Technology, a Song-Gok Science and Technology Award of the Korea Institute of Science and Technology, a Beom-Seok Research Award of the Korea Institute of Chemical Engineering, a Dam-Yeon Research Award of the Korean Society for Biotechnology and Bioengineering, and so on. He is the Editor of Biotechnology and Bioprocess Engineering, the Associate Editor of Korean Journal of Chemical Engineering, and the Associate Editor of BMC Biotechnology.

Education

3/1992 – 2/1995 Ph.D. in Chemical Engineering (Molecular Biotechnology) Seoul National University, Seoul, Korea
3/1986 – 2/1990 B.S. in Chemical Engineering (with honors) Seoul National University, Seoul, Korea

Professional Experience

3/2017- present **SeAH Chair Professor**, POSTECH
9/2015-present **Chief Technology Officer**, Nature Gluetech, Inc.
4/2012- 3/2015 **SeAH Young Chair Professor**, POSTECH
1/2013-12/2014 **Committee Member**, Faculty senate, POSTECH
12/2012-present **Director**, Marine BioMaterials Research Center (MBMRC)
5/2010-5/2012 **Reviewer Board Member**, Korea Research Foundation (KRF)
7/2009-present **Member**, National Policy Council for Marine Biotechnology
1/2018 - 2/2018 **Visiting Professor**, Shinshu University, Ueda, Japan
3/2008 - present **Adjunct Professor**, School of Interdisciplinary Bioscience and Bioengineering, POSTECH
8/2006 - 2/2008 **Visiting Professor**, Department of Chemistry, Purdue University, West Lafayette, USA
3/2002 - present **Adjunct Professor**, Division of Environmental Science and Engineering, POSTECH
8/1999 – present **Assistant, Associate, and Professor**, Department of Chemical Engineering, POSTECH
5/1998 - 7/1999 **Research Assistant Professor**, Department of Chemical Engineering, University of Maryland, College Park, Maryland, USA
4/1996 - 4/1998 **Postdoctoral Research Associate**, Department of Chemical Engineering, University of Maryland, College Park, Maryland, USA
3/1995 - 3/1996 **Postdoctoral Researcher**, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Korea

Keynote Speech V

Chiaki Ogino

09:30–10:00, Saturday June 30, 2018

Room B424

Chair: Prof. Cheng-Kang Lee, National Taiwan University of Science and Technology

Bio-refinery strategy by collaboration Asian's partnership

Chiaki Ogino¹, Prihardi Kahar¹, and Akihiko Kondo²

¹Department of Chemical Science and Engineering, Graduate School of Engineering,

² Organization of Advanced Science and Technology,

Kobe University, 1-1 Rokkodaicho, Nada-ku, Kobe 657-8501, Japan

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Acknowledgments: This work was supported in part by a Science and Technology Research Partnership for Sustainable Development (SATREPS) from collaborating project between JST and JICA, National biological research center (NBRC) of National institute of technology and evaluation (NITE) for providing strains, and a Special Coordination Fund for Promoting Science and Technology, Creation of Innovative Centers for Advanced Interdisciplinary Research Areas (Innovative Bioproduction Kobe) from the Ministry of Education, Culture, Sports and Technology (MEXT) Japan.

We believe there are many broad candidates available in nature, which can move beyond difficulties to our boundary so that the good platform for fermentation of lignocellulosic biomass could be built without too much genetic modification. However, it is not easy to achieve the candidates due to the unique adaptation possessed by many yeasts upon the environmental stress.

In this study, we have developed the simultaneous method for screening the candidate yeasts, which capable to grow and ferment lignocellulosic lysate into ethanol and fine chemicals such as lactate. By using culture collection in National Bio-resource Collection (NBRC) Japan, and Indonesian National Culture Collection (InaCC), the screening of the yeast strain, having a potential of growing and fermentation in the medium containing fermentation inhibitors, was conducted. Regarding the possibility of bio-resources in Asian for bio-refinery, we would like to discuss also in this presentation.

Chiaki OGINO

Present address

Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Rokkoudai-chou 1-1, Nada, Kobe 657-8501, JAPAN



Education

- 1993.4-1995.3 Department of chemical engineering, Faculty of engineering, Kobe University, Japan
- 1995.4-1997.3 Department of chemical science and engineering, Graduate school of science and technology, Kobe University, Japan
- 1997.4-1999.7 Division of molecular science, Graduate school of science and technology, Kobe University (Doctor course), Japan
- 2002.3 Awarded the degree of doctor of engineering in biochemical engineering, Kobe University for thesis entitled "Characterization of phospholipase D (PLD) from *Streptoverticillium cinnamomeum* and its application for phospholipid synthesis". Work supervised by Professor H. Fukuda

Research and Professional Experience

- 1999.1-1999.7 JSPS Research Fellowships for Young Scientists
- 1999.8-2001.12 Assistant professor, Department of chemistry and chemical engineering, Kanazawa University, Japan
- 2002.1-2007.7 Assistant Professor, Division of Material Engineering, Graduate School of Natural Science and Technology, Kanazawa University, Japan
- 2007.8-2016.9 Associate Professor, Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University
- 2016.10- Professor, Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University

Awards

- 2007.3 Young research award for encouragement in Society of Chemical Engineers, Japan
- 2010.9 Young research award for encouragement in Society for Biotechnology, Japan

Research interests

Yeast breeding for bio-refinery
Ethanol fermentation from cellulosic material
Metabolic engineering in *Streptomyces*
Protein expression by fungi and *Streptomyces*
Application of AFM to bimolecular interaction assessment
Application of nanoparticle to cancer therapy

Membership

Society of Chemical Engineering, Japan (1993 ~)
Society for Biotechnology, Japan (1999 ~)
Japan Society of Enzyme Engineering (2000 ~)
Chemical Society of Japan (2003 ~)
Society for Actinomycete Japan (2006 ~)
Japan Society for Bioscience, Biotechnology, and Agrochemistry (2007 ~)

Keynote Speech VI

Mohamad Faizal Ibrahim

09:30–10:00, Saturday June 30, 2018

Room B425

Chair: Prof. Yung-Chuan Liu, National Chung Hsing University

Combination Pretreatment of Oil Palm Biomass into Fermentable Sugars

Nur Fatin Athirah Ahmad Rizal^a, Mohamad Faizal Ibrahim^{a,b,*}, Mohd Rafein Mohd Zakaria^{a,b},
Ezyana Kamal Bahrin^{1a,b}, Phang Lai Yee^a, Suraini Abd-Aziz^a and Mohd Ali Hassan^a

^a*Department of Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia, 43400 UPM Serdang, Malaysia*

^b*Laboratory of Biopolymer and Derivatives, Institute of Tropical Forestry and Forest Products, Universiti Putra Malaysia, 43400 UPM Serdang, Malaysia*

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AFOB-Malaysia Chapter

SATREPS-6300156

Malaysia is the second largest palm oil producer in the world and this industry generates more than 80 million tonnes of biomass every year. Considering the potential of this biomass to be used as a fermentation feedstock, several studies have been conducted to develop the complete process for sugar production. One of the essential processes is the pretreatment to modify the lignocellulosic components by altering the structural arrangement and/or removing lignin component to expose the internal structure of cellulose and hemicellulose for cellulases to digest it into sugars. Each of the pretreatment processes developed have their own advantages and disadvantages. One example is the combination of superheated steam (SHS) with laccase pretreatment together with size reduction which had enhanced the glucose yield. Reduction of size from raw to 0.25 mm plays important role in lignin degradation by laccase that removed 38.7% and 39.6% of the lignin from oil palm empty fruit bunch (OPEFB) and oil palm mesocarp fiber (OPMF), respectively. The subsequent saccharification process of these pretreated OPEFB and OPMF generates glucose yields of 71.5% and 63.0%, which represent a 4.6 and 4.8-fold increment, respectively, as compared to untreated samples.

MOHAMAD FAIZAL IBRAHIM

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Biomolecular Sciences Universiti Putra Malaysia 43400 UPM Serdang,
Selangor Malaysia
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Academic qualifications

Qualification obtained	Institution	Year obtained	Area of socialization
Doctor of Philosophy	University Putra Malaysia	2013	Environmental Biotechnology
Bachelor of Science	University Putra Malaysia	2009	Biotechnology
Diploma of Science	University Teknologi Mara	2006	Biology

Employment

Employer	Designation	Department	Start date	Date ended
Universiti Putra Malaysia	Senior Lecturer	Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences	2013.12.5	
Korea University	Post-Doctorate	Department of Chemical and Biological Engineering	2016.3.1	2017.2.28
Universiti Putra Malaysia	Teaching Assistant	Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences	2013.6.1	2013.12.4

Other Positions

2017-2018	Treasurer (Head)	AFOB-MC International Symposium 2018 (AFOBMCIS 2018), Sarawak, Malaysia
2017-2019	Research Associate	Laboratory of Biopolymer and Derivatives, Institute of Tropical Forestry and Forest Products, Universiti Putra Malaysia
2017-2018	Representative	Academician Society of Universiti Putra Malaysia
2017	Chair	WOBIC 2017 Pre-Conference Workshop on Response Surface Methodology, Universiti Putra Malaysia
2017	Session Chair	AFOB-MC: Bioenergy and Biorefinery Session in the 2nd International Conference on Molecular Biology and Biotechnology 2017 (ICMBB2017), University of Malaya
2016	Life member	Asian Federation of Biotechnology – Malaysia Chapter (AFOB-MC)
2016-2018	Auditor	Asian Federation of Biotechnology – Malaysia Chapter (AFOB-MC)
2015	Secretary General	Asian Congress on Biotechnology 2015 (ACB2015), Kuala Lumpur, Malaysia
2015	Event Manager	Asian Congress on Biotechnology 2015 (ACB2015), Kuala Lumpur, Malaysia
2015	Panel	Student Assessment Centre (SAC) for Master Students, JPA, Malaysia
2015	Panel	Student Assessment Centre (SAC) for Undergraduate Students, JPA, Malaysia
2014	Secretary General	AFOB Regional Symposium 2014 (ARS2014), Kuala Lumpur, Malaysia
2014	Event Manager	AFOB Regional Symposium 2014 (ARS2014), Kuala Lumpur, Malaysia
2014	Judge	IIUM Research, Invention and Innovation Exhibition 2014 (IRIIE2014)
2013	Researcher	Environmental Biotechnology Research Group, Universiti Putra Malaysia

ORAL SESSIONS

Session I-1: Biocatalysis and Protein Engineering (I)

16:00–17:35, Friday June 29, International Conference Hall

Chair: Ling Chao, National Taiwan University

Time	Title	Authors
16:00-16:20	Invited Speech: Recombinant protein production in silkworm, <i>Bombyx mori</i>	Hiroyuki Kajiura, Takao Ohashi, Ryo Misaki, <u>Kazuhito Fujiyama</u>
16:20-16:35	0008: Discovery of novel CCR5 inhibitors by structure-based pharmacophore modeling and molecular dynamics simulations	Hsuan-Yu Lin, Yih Ho, Hsuan-Liang Liu*
16:35-16:50	0014: Establish Constitutive and Inducible Recombinant Expression System by <i>Shewanella oneidensis</i> MR-1	<u>Ying-Chen Yi</u> , I-Son Ng*
16:50-17:05	0042: Comparison on the production of fructosyl amino acid oxidase by different recombinant <i>Escherichia coli</i> and promoter system	<u>Yan-Cheng Chang</u> , Yung-Chuan Liu*
17:05-17:20	0050: Purification of <i>Candida antarctica</i> lipase A overexpressed in <i>Escherichia coli</i> via immobilized metal ion membrane	Tzu-Chi Syu, Yung-Chuan Liu
17:20-17:35	0133: Influence of the molecular weight of recombinant protein on the cell physiology and protein expression in <i>Escherichia coli</i>	<u>Ya-Chu Hsu</u> , Shu-Jyuan Li, Wen-Chien Lee*

Invited Speech

Kazuhito Fujiyama

Recombinant protein production in silkworm, *Bombyx mori*

Hiroyuki Kajiura, Takao Ohashi, Ryo Misaki, Kazuhito Fujiyama
International Center for Biotechnology, Osaka University, Suita, Osaka, Japan
Presenting author's email address: fujiyama@icb.osaka-u.ac.jp

Silkworms (*Bombyx mori*) have been widely used for the production of recombinant proteins, which are mostly glycosylated. Glycosylation profiles in silkworms are distinguishable from those of human cells. Since silkworm genome databases are open, we examined potentials of glycosylation in silkworm through molecular analysis of N-glycosylation enzymes. In this presentation, I will summarize glyco-engineering for recombinant proteins produced by silkworms. In addition, I highlighted sialyltransferase (ST) among N-glycosylation enzymes in silkworm, because sialic acids on glycoproteins play physiologically important roles. cDNA encoding human sialyltransferase homolog (BmST) was isolated and expressed in Sf9

cells. Biochemical analysis of the recombinant BmST showed α 2,6-sialyltransferase activity capable of transfer of N-acetylneuraminic acid (NeuAc) to the nonreducing terminus of Gal β 1-R. However, BmST exhibited the highest activity toward GalNAc β 1,4-GlcNAc-R. BmST was ubiquitously expressed in different organs and in various developmental stages. These results indicate that *B. mori* carries an α 2,6-ST. Further investigations to elucidate the sialylation potentials in silkworms would be mentioned. In (near) future, tiny silkworms would contribute to large-scale production of recombinant proteins, and help/revive sericulture industry in Japan.

References

- [1] H. Kajiura, Y. Hamaguchi, H. Mizushima, R. Misaki, K. Fujiyama, *Glycobiol.* **2015**, 25, 1441-1453.

Kazuhito FUJIYAMA

International Center for Biotechnology (ICBiotech),
Osaka University



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2-1 Yamaoka-oka, Suita, Osaka 565-0871, Japan

Education/Positions

- 1980-1984 Department of Fermentation Technology, Faculty of Engineering, Osaka University
- 1984-1986 Master course, Department of Fermentation Technology,
Graduate School of Engineering, Osaka University
- 1990 PhD (supervised by Prof. Hirosuke Okada and Prof. Atsuhiko Shinmyo) Employment
- 1988-2003 Assistant Professor, International Center for Biotechnology, Osaka University
- 2003-2009 Associate Professor, International Center for Biotechnology, Osaka University
- 2009-Now Professor, International Center for Biotechnology, Osaka University

Research experience in Foreign Universities and Institutes:

- 1988 Visiting scientist, University of California at Davis (Dr.R.L. Rodriguez)
- 1998 Visiting scientist, Boyce Thompson Institute for Plant Research at Cornell University
(Dr.C.J. Arntzen)
- 1999 Visiting scientist, University of Zurich (Dr. E. Berger)
- 2003-2004 Visiting scientist, Arizona State University (Dr. L. Joshi)
- 2004-Now The Biodesign Institute at Arizona State University,
Non-Resident Research Faculty (Adjunct Faculty)

Short Overview about Scientific Work

Glyco-engineering of heterologously-produced recombinant proteins, Plant glycobiology, Applied microbiology

Session I-2: Micro- and Nano- biotechnology

16:00–17:30, Friday June 29, Room B424

Chair: Chih-Chen Hsieh, National Taiwan University

Time	Title	Authors
16:00-16:18	0029: Fabrication and Characterization of EGFR-Targeted Indocyanine Green- Mitomycin C-Incorporated Perfluorocarbon Nano-Agents for Photochemotherapy of Bladder Cancer Cells	<u>Yu-Chun Lin</u> , Yu-Hsiang Lee*
16:18-16:36	0092: The innovatively measuring model of AC-impedance for biochemical analysis in microbial culture system	<u>Chien-An Su</u> , John Chi-Wei Lan*
16:36-16:54	0097: Superparamagnetic iron oxide nanoparticles with surface modification for the capture of human serum albumin	<u>Yi-Ying Huang</u> , Mei-Jywan Syu*
16:54-17:12	0199: Cellulose Nanocrystals Based Antimicrobial Pickering Emulsion	Chynthia Devi Hartono, Cheng Kang-Lee*
17:12-17:30	0239: A chameleon-inspired stretchable electronic skin with interactive color changing controlled by tactile sensing	Ho-Hsiu Chou

Session I-3: Environmental Biotechnology

16:00–17:30, Friday June 29, Room B425

Chair: Chao-Ling Yao, Yuan Ze University

Time	Title	Authors
16:00-16:18	0009 : Optimization of microalgae-to-biofuel systems regarding revenue and environment impact	<u>Wei Wu</u> , Keng-Hsien Lin, Jo-Shu Chang
16:18-16:36	0054 : Inoculation of a Plant Growth Promoting Bacterium in Composting Process	Pin-Yu Lin, Ching-An Lin, Ming-Tse Lin, Chia-Chung Chou, <u>Kow-Jen Duan</u>
16:36-16:54	0132 : Cultivating <i>Chlorella sorokiniana</i> AK-1 with swine wastewater for simultaneous algal biomass production and wastewater treatment	Chun-Yen Chen, En-Wei Kuo, <u>Jo-Shu Chang</u>
16:54-17:12	0136 : Optimization of fermented γ -aminobutyric acid (GABA) from nitrogen-rich waste feedstocks	Shih-Ting Lin, <u>John Chi-Wei Lan</u>
17:12-17:30	0156 : Production of 1,3 PDO and 2,3 BDO from renewable feedstock using <i>Klebsiella</i> sp.	Bergas Kristiadi, Dillirani Nagarajan, <u>Jo-Shu Chang</u>

Session I-4: Agro-biotechnology and Natural Products

16:00–17:30, Friday June 29, Room 226, Sixth Academic Building

Chair: Yaw-Nan Chang, National Formosa University

Time	Title	Authors
16:00-16:18	0048 : Enhanced high molecular weight polysaccharides production via <i>Tuber borchii</i> submerged cultivation	<u>Cheng-Chun Chen</u> , Yung-Chuan Liu
16:18-16:36	0130 : Utilization of agro-industrial byproducts as low-cost media for exopolysaccharides production	<u>Apisara Iadcharoen</u> , Benjamas Cheirsilp
16:36-16:54	0143 : The use of sap from felled oil palm tree as low-cost nutrient source for lactic acid production	<u>Asma Billateh</u> , Muchchima Chaiyaphum, Nattha Lojananan, Benjamas Cheirsilp
16:54-17:12	0204 : Pectinous polysaccharides extracted from <i>Ficus awkeotsang</i> Makino is a potential material for colon target delivery capsule production	<u>Jhao-Syuan Gu</u> , Yu-Shen Cheng
17:12-17:30	0227: Developing antimicrobial edible film from <i>Hyptis Suaveolens</i> seed gum and seed essential oil	<u>Guan-Wei Chiu</u> , Yu-Shen Cheng*

Session II-1: Bio-industrial Forum

11:00–12:30, Saturday June 30, International Conference Hall

Chair: Wei-Kuang Chi, Development Center for Biotechnology

Co-chair: Chia-Hwa Lee, International Academia-Industry Alliance of NTUT

Time	Title	Speaker
11:00-11:05	Remarks	Chia-Hwa Lee, CEO
11:05-11:25	Invited Speech: Advanced platform technology for biotherapeutics industry	Dr. Wei-Kuang Chi
11:25-11:40	基因檢測的應用與發展 (EYT Health Technology Co., Ltd.)	楊仁福 營運長
11:40-11:55	保健食品代工之創新服務模式 (BIONIN Biotechnology, Inc.)	陳禧瑩 博士
11:55-12:10	Clinical Applications of Circulating Tumor Cells as Liquid Biopsy for Cancer Prevention, Management and Immunotherapy Selection/Monitoring (CellMax Life, Inc.)	Dr. Tony, Kai-Chuan Chen
12:10-12:30	Discussion	

Invited Speech

Wei-Kuang Chi

Advanced platform technology for biotherapeutics industry

Development Center for Biotechnology, Taiwan, R.O.C.

E-mail: weikchi@dcb.org.tw

Biomanufacturing technologies have been advancing greatly for the last 5 years in biotherapeutics industry, especially on therapeutic antibody bioproduction platform. In this talk I will present DCB's advanced bioengineering platform technology in the following areas: (1) Novel CHO cell line development by applying CHO genomics toolbox; (2) Integrated continuous biomanufacturing platform to achieve around 2 g/L/day by combining high density CHO cell perfusion process with continuous multi-column capture step purification technology, which can purify > 100 gram antibody/24 hours; (3) Microbial secretion system for the production of fab, scFv, bispecific antibody and enzymes with *E. coli* and *Pichia pastoris*; (4) T cell and CAR-T cell expansion to achieve 100 fold cell expansion with a week under serum free and suspension culture using commercial T cell and T cell from healthy donors. By integrating these bioprocess platform, next generation bioproduction technologies can be implemented in biotherapeutics industry.

Wei-Kuang Chi

Distinguished Scientist

Executive Director, Institute of Pharmaceutics

Director, Bioengineering Group, Institute of Biologics Development
Center for Biotechnology, Taipei, Taiwan



Biography

Dr. Wei-Kuang Chi, Executive Director, Institute of Pharmaceutics since July 2017, Distinguished Scientist and Director of Bioengineering Group in Institute of Biologics since September 2009, Vice President of the Development Center for Biotechnology (DCB) from December 2008 to December 2013, obtained his M.S in Engineering and Ph.D. in Chemical Engineering from the University of Pennsylvania, Philadelphia, USA.

Dr. Chi has over 30 years of experience in biotechnology process development, including mammalian cell culture (CHO, NS0, hybridoma, 293 cell, insect cell etc.), recombinant yeast (*Saccharomyces cerevisiae*, and *Pichia pastoris*), recombinant *Escherichia coli*, online mass spectrometric off-gas analysis for fed-batch process control, and cell disruption bioseparation technology. In addition to coordinate new biologics and new drug development activities in DCB, he is also responsible for the establishment of DCB's multi-product 500 L mammalian cell culture and 100 L microbial fermentation CGMP Biopharmaceutical Pilot Plant Facility (BPPF), this facility CGMP was certified by Taiwan Department of Health (DOH) on December 2005 and received DMF with USA FDA on March 2006. The CGMP Biopharmaceutical Pilot Plant Facility has joined Boehringer Ingelheim Biopharmaceuticals Production Alliance Network since May 2007. This CGMP facility has been used to conduct ten bioprocess scale-up/development and to produce clinical trial material for protein drugs (monoclonal antibodies, recombinant proteins), has received eight IND approvals from US FDA, Canadian health authority, Taiwan FDA and EMA. On April 2013 CGMP BPPF has been spun-off into private sector to provide CDMO service on a broader scale.

Dr. Chi's new responsibility focuses on new drug R&D, international collaboration and novel bioprocess engineering technology development including novel CHO cell line development, continuous cell culture and purification process technology, T cell/CAR-T process technology and microbial secretion platform development.

Invited Professionals

Chia-Hwa Lee (李嘉華)

學歷

台北工專 工業工程科畢業
美國安德魯大學企管碩士

經歷

英業達集團副總裁
獲頒第一屆卓越金炬獎
獲頒馬來西亞拿督榮銜
英保達董事長

現職

台北科技大學國際產學執行長
多家上市公司董事 監察人



楊仁福

眾基健康科技股份有限公司 營運長



學歷

2006 - 2008 國立陽明大學生命科學系暨基因體科學研究所 碩士
2002 - 2006 國立中山大學生物科學系 學士

經歷

2016 - 迄今 眾基健康科技股份有限公司 營運長
2009 - 2016 均泰生物科技有限公司 業務代表

基因檢測的應用與發展

楊仁福

基因體科學於近年有大幅度的突破。一個人的基因資訊已經不再是遙不可及。2000 年初，一個人的基因解碼需要 30 億美金、20 多個研究機構才能完成；如今，僅需要 1000 多美金、一個實驗室即可完成。也因為技術、價格的突破，前美國總統歐巴馬在 2015 年宣布，政府投資 2.15 億美元發展「精準醫學計畫 (The Precision Medicine Initiative)」，建立基因資料、環境資料以及生活習慣資訊，期待當基因檢測與大數據結合，能在預防、個人醫學以及健康照護等領域有所突破。

目前進行基因檢測之市場上最常使用之技術(sanger sequencing, qPCR, Array, NGS 等)，針對不同的市場需求，選擇適當的基因檢測方式。透過國外市場的發展，了解目前在消費者市場中基因服務的趨勢。並從中找出可能的將學術界技術帶到業界的潛在可能性。

陳禧瑩 博士

學歷: 國立台灣大學化學工程學博士

專長: 基因營養學，保健食品原料、配方、生產及行銷，生物技術，
乳酸菌生產及應用



工作經歷:

現任: 拜寧生物科技股份有限公司 執行長

1. 欣漾生醫股份有限公司 總經理
2. 聯邦應用基因股份有限公司 總經理
3. 拜寧生物科技股份有限公司 總經理
4. 利統股份有限公司 營運長
5. 上海利統生化製品有限公司 副總經理

證書及講座:

基因健康管理師, 臨床遺傳諮詢師

勞動部勞動力發展署-產業人才投資方案講師

保健食品代工之創新服務模式

陳禧瑩

傳統生產企業位於產業價值鏈的最低點，而對於保健食品代工業而言其生產製造技術門檻更低，只要有合適場地搭配簡單混拌，包裝設備即可從事相關代工生產服務。因所提供服務附加價值低、可取代性高且經常面臨價格競爭獲利不佳，從而更難進行生產設備、環境更新及產業升級。

保健食品代工企業可由前端的新穎性原物料開發，具有功效及市場性的配方設計，獨特的製劑(劑型)技術等三個方面來提升客戶在零售市場的競爭優勢及代工企業本身的獲利。對於大部分的代工企業並無足夠研發能量從事自主研發工作，可藉由技術授權轉移等方式加速開發流程，而代工企業總希望往高附加價值的自有品牌發展，但常有與代工客戶產生衝突的疑慮或因不具備終成品銷售經驗及團隊而導致功敗垂成。

拜寧生物位於美麗的蘭陽平原，結合教育、休閒、研究開發，生產製造為一體的保健食品及美容保養品觀光工廠，提供客戶各種劑型產品的創新設計的代工服務。園區中也規劃菌寶貝博物館傳播微生物相關應用知識並結合各種 DIY 實做的體驗行銷模式向顧客推廣預防保健醫學概念。拜寧生物擁有國際級標準之研發實驗室，不僅能提供顧客最新、獨創的產品成分及配方，同時可進行有效性評測及驗證報告，更是國內保健食品代工業者唯一一家取的全微生物檢測 TAF 認證的實驗室。

Tony, Kai-Chuan Chen

BRIEF OVERVIEW

Manager of Product Management and Business Development at CellMax Life. Prior to joining CellMax Life, he was Project Coordinator of R&D at OBI Pharma, and was responsible for development therapeutic Abs, ADC and bi-specific Ab. Before OBI, he was responsible for the development and BD of CTC instruments at Abnova. He received his Ph.D. in Microbiology and Immunology from Yang-Ming University, and completed his post-doctoral training at Academia Sinica, Taiwan.



EDUCATION

- | | |
|------|---|
| 2011 | National Yang Ming University, Taipei, Taiwan, Academia Sinica Taipei, Taiwan
Ph. D of Microbiology and Immunology |
| 2002 | National Tsing Hua University, Hsinchu, Taiwan
Master of Life Science |
| 2000 | Tunghai University, Taichung, Taiwan
Bachelor of Biology |

PERSONAL EXPERIENCE

- | | |
|----------------|--|
| 2017-- Present | CellMax Life, Inc., Product Management and Business Development,
Taipei, Taiwan
Manager, Product management & Business Development |
| 2016-- 2017 | OBI Pharma, Inc., Immunology & Antibody Dept., Taipei, Taiwan
Project Coordinator; Senior Scientist II |
| 2014-- 2016 | Abnova Corporation, System Technology Support Dept.;
Research & Development Dept., Taipei, Taiwan
Technology Deputy Manager; Application Scientist |
| 2012-- 2014 | Abnova Corporation, Sales Department, Taipei, Taiwan
Sales Specialist
Academia Sinica, Institute of Biomedical Science, Taipei, Taiwan |

About CellMax Life

CellMax Life is a leading cancer diagnostics company whose mission is to transform how cancer is diagnosed and managed with globally affordable non-invasive tests for early cancer detection and management. CellMax Life's unique expertise in circulating tumor cells (CTC) and next generation sequencing (NGS) of DNA, as well as circulating tumor DNA (ctDNA) has enabled it to offer highly effective precision medicine solutions for healthy people, as well as patients diagnosed with cancer. CellMax Life's tests include CellMax-DNA Hereditary Cancer Risk Test, CellMax-CRC Colorectal Cancer Screening Test, CellMax-Prostate Cancer Test, CellMax-LBx Liquid Biopsy for immunotherapy and targeted therapy selection and CellMax-PanCa Monitoring Test. All clinical testing is performed at CLIA and CAP accredited laboratories in Sunnyvale, California and Taipei, Taiwan.

Clinical Applications of Circulating Tumor Cells as Liquid Biopsy for Cancer Prevention, Management and Immunotherapy Selection/Monitoring

Tony, Kai-Chuan Chen

Circulating tumor cells or CTCs are cells that shed from a tumor and circulate into the bloodstream very early in cancer development. However, they are very rare in early stage cancer, presenting in fewer than five cells in a background of one billion cells, and until now have been challenging to detect with high accuracy. The CMx platform with clinically proven, convenient and non-invasive early cancer detection blood tests provides alternative for nearly hundred million individuals who are eligible for routine cancer screenings.

The CMx platform has eight patents for its proprietary technology that contains a microfluidic chip with lipid coating mimicking the human epithelium, proprietary antibodies, gentle air-foam based cell release, and advanced imaging, capturing CTCs in up to 90 percent of early stage cancer patients across cancers such as colorectal, prostate and lung. A study announced by the American Society of Clinical Oncology

(ASCO) showed that the accuracy of the test ranged from 84 to 88 percent for the detection of early stage colorectal cancer and pre-cancer. Additionally, the platform's successful detection of prostate cancer could help reduce unnecessary invasive biopsies by up to 90 percent in patients receiving indeterminate results following a PSA screen by clarifying what patients need the procedure.

A simple blood test with high sensitivity for early cancer detection like the CTC blood test has the potential to transform cancer diagnostics. The clinical applications can go well beyond early detection to guiding treatment selection for patients diagnosed with cancer. This CTC test can detect the expression of PD-L1 - a key protein involved in suppressing the immune system. Patients who express this protein have better response rates to immunotherapy treatment than those who do not express this protein.

Session II-2: Bioenergy and Biorefinery (I)

11:00–12:30, Saturday June 30, Room B424

Chair: C. Will Chen, Tatung University

Time	Title	Authors
11:00-11:18	0036 : Direct biodiesel production from wet yeast biomass of <i>Rhodotorula glutinis</i> by <i>in situ</i> transesterification	<u>Shih-Jie Chen</u> , Chi-Yang Yu
11:18-11:36	0082 : Study of Enzymatic Covalent Immobilization Electrode in Biofuel Cells	<u>Adama A. Bojang</u> , Ho Shing Wu
11:36-11:54	0103 : Kinetic of Lignin Degradation Using Catalytic Pyrolysis	<u>Damayanti</u> , Ho-Shing Wu
11:54-12:12	0137 : Biological pretreatment of empty fruit bunch (EFB) using oleaginous <i>Aspergillus tubingensis</i> TSIP9	<u>Rawitsara Intasit</u> , Benjamas Cheirsilp
12:12-12:30	0139 : Separation of free fatty acids (FFAs) from high-FFA crude palm oil-palm kernel oil mix obtained from dry-milling process using vacuum distillation	<u>Nantanit Tohpong</u> , Wiriya Duangsuwan, Poonsuk Prasertsan

Session II-3: Biomedical Science and Engineering (I)

11:00–12:30, Saturday June 30, Room B425

Chair: Jen-Huang Huang, National Tsing Hua University

Time	Title	Authors
11:00-11:18	0011: Extracorporeal shock wave therapy ameliorates liver fibrosis	<u>Chang-Chun Hsiao*</u> , Tian-Zong Chen, Ching-Jen Wang, Kuang-Hung Cheng
11:18-11:36	0016: Discovery of novel irreversible HER2 inhibitors for treating breast cancer	Jhih-Yan Tang, Hsuan-Liang Liu*, Yi Ho
11:36-11:54	0017: Targeted delivery of rosmarinic acid across the blood–brain barrier for neuronal rescue using polyacrylamide-chitosan-poly(lactide-co-glycolide) nanoparticles with surface cross-reacting material 197 and apolipoprotein E	I-Yin Chen, Rajendiran Rajesh, Yung-Chih Kuo*
11:54-12:12	0079: Synthetic Circuit-based Baculovirus for Transgene Expression Control and Selective Killing of Hepatocellular Carcinoma Cells	<u>Mei-Wei Lin</u> , Yen-Wen Tseng, Chih-Che Shen, Mu-Nung Hsu, Chin-Wei Chang, Chung-Ju Yeh, Jaw-Ching Wu, Yu-Chen Hu*
12:12-12:30	0090: Fabrication and characterization of indocyanine green- rifampicin loaded PLGA nanoparticles for photochemo-antibacterial therapy	<u>Chen-Chih Chiu</u> , Yu-Hsiang Lee*

Session II-4: Metabolic Engineering and Synthetic Biology

11:00–12:30, Saturday June 30, Room 226, Sixth Academic Building

Chair: Yi-Huang Hsueh, Yuan Ze University

Time	Title	Authors
11:00-11:18	0028 : Development of genetic circuit platform (GCP) as a high sensitivity biosensor in <i>E. coli</i>	<u>Shih-I Tan</u> , I-Son Ng
11:18-11:36	0069 : Development of a new cre/loxP-based long-term gene expression system in single recombinant baculovirus	<u>Chin-Wei Chang</u> , Liang-Shin Wang, Chih-Che Shen, Li-Yu Sung, Mei-Wei Lin, Yu-Chen Hu
11:36-11:54	0123 : A novel method to tune the noise of gene expression	<u>Iyy-Ning Chen</u> , Shih-Chiang Lo, Che-Chi Shu
11:54-12:12	0180 : Microbial production of <i>n</i> -butyraldehyde in metabolic engineered <i>Escherichia coli</i>	<u>Jason T. Ku</u> , Wiwik Simanjuntak, Ethan I. Lan
12:12-12:30	0212 : High titer production of 2,3-butanediol by flexible cofactor utilization	<u>Keming Liang</u> , Claire R. Shen

Session III-1: Biocatalysis and Protein Engineering (II)

14:00–15:30, Saturday June 30, International Conference Hall

Chair: Jiashing Yu, National Taiwan University

Time	Title	Authors
14:00-14:18	0058: Construction and production of recombinant cecropinB2 via the Ssp dnaB mini-intein system	Yi-Ting Fang, Yung-Chuan Liu*
14:18-14:36	0168: In vitro biosynthesis of 3-Hydroxypropionic acid from glucose using immobilized multi-enzymes	Ping Shen, Yu-Shen Cheng*
14:36-14:54	0203: Application of Elastin-like polypeptide for recombinant proteins purification	<u>Shen-Jung Chen</u> , Ying-Lin Lu, Shen-Long Tsai*
14:54-15:12	0208: Adsorption Behavior of Mussel Adhesive Protein (Mfp-5) on Different Biomaterial Surfaces	Chi-Fong Lin, Kuan-Lin Chen, Pei-Hsuan Chiang, Wen-Yu Su*, Yang Wei*
15:12-15:30	0215: Activity changes of α -Amylase on a glass surface due to different protein-protein interactions involved	Chuan-Tse Kao, Chia-Hua Chang, Tsung-Hsien Wu, Yang Wei*

Session III-2: Bioenergy and Biorefinery (II)

14:00–15:30, Saturday June 30, Room B424

Chair: Jun-Hsien Wang, Minghsin University of Science and Technology

Time	Title	Authors
14:00-14:18	0147 : Enhancing lipid production efficiency of <i>Thraustochytrium</i> sp. BM2 using fermentation strategies with lipids upgrading assessments	Chun-Yen Chen, <u>Meng-Hsiu Lee</u> , Jo-Shu Chang
14:18-14:36	0149 : Evaluation of Two Different Photobioreactors for Microalgae Cultivation in Secondary Effluent from Seafood Processing Plant	<u>Faridah Jehalee</u> , Benjamas Cheirsilp
14:36-14:54	0154 : Methane production from succinic acid fermentation waste via mesophilic anaerobic digestion	<u>Yuan-Jung Chiang</u> , Yung-Chung Lo, Jo-Shu Chang
14:54-15:12	0159 : Biobutanol fermentation with immobilized cells using microalgal biomass as feedstock integrated with in-situ product removal	<u>Ya-Jyun Lin</u> , Yung-Chuang Lo, Jo-Shu Chang
15:12-15:30	0169 : ATP independent in vitro biosynthesis of 3-Hydroxypropionic acid	<u>Lee Keng-wei</u> , Yu-Shen Cheng

Session III-3: Biomedical Science and Engineering (II)

14:00–15:30, Saturday June 30, Room B425

Chair: Chi-Hsien Liu, Chang Gung University

Time	Title	Authors
14:00-14:18	0081: CRISPR Activation for BMSC and ASC Engineering and Enhanced Cranial Bone Healing	<u>Kai-Lun Huang</u> , Mu-Nung Hsu, Vu Anh Truong, Fu-Jen Yu, Nguyễn Thị Kiều Nương, Yu-Chen Hu*
14:18-14:36	0150: Adipose-derived Stem Cell Sheets Functionalized by Hybrid Baculovirus for Prolonged GDNF Expression and Improved Nerve Regeneration	Mu-Nung Hsu, Han-Tsung Liao, Kuei-Chang Li, Hwei-Hsien Chen, Tzu-Chen Yen, Pavel Makarevich, Yelena Parfyonova, Yu-Chen Hu*
14:36-14:54	0164: SOS Beauty Magic Patch	Hui-Min David Wang*
14:54-15:12	0173: A Digital Molecular Switch for Selective Detection of Cysteine and Aminoacylase-1 in Human Whole Blood.	T.S.T. Balamurugana, Sheng-Tung Huang*
15:12-15:30	0230: Polyelectrolyte Multilayers Coatings on 316L Stainless Steel for Drug Control Release	<u>Hsiang-Wen Chen</u> , Wen-Chi Wang, Ren-Jei Chung*

Session III-4: Cell Culture and Bioprocessing

14:00–15:30, Saturday June 30, Room 226, Sixth Academic Building

Chair: Min-Ying Wang, National Chung Hsing University

Time	Title	Authors
14:00-14:18	0107: Fabrication of human bronchial epithelium culture platform as a model system for studying lung disease	Hsin-Lin Hsieh, Jen-Huang Huang*
14:18-14:36	0118: Reduce CRISPR Off-target Effects by Synthetic Switch and Self-Restricting Cas9	Chih-Che Shen, Yu-Chen Hu*
14:36-14:54	0135: Investigation and Characterization of Plasma Surface Modifications on PHB and PHBV Biopolymers for In Vitro Cellular Studies of Mouse Adipose-Derived Stem Cells	Chih-Kai Chang, Hui-Min David Wang, John Chi-Wei Lan*
14:54-15:12	0163: Cultivation of <i>Chlorella sorokiniana</i> MB-1-M12 using aquaculture wastewater for biomass and lutein production with mixotrophic growth	Jih-Heng Chen, Chun-Yen Chen, Jo-Shu Chang*
15:12-15:30	0224: Development of aqueous two-phase systems comprising cholinium aminoate and polypropylene glycol for protein separation	Ooi Chien Wei*, Song Cher Pin, Nagasundara Ramanan Ramakrishnan

POSTER SESSIONS

Poster Session I

15:00–16:00, Friday June 29, 2018

Hong-Yue Technology Research Building, Lobby, 1F

Topics: Environmental Biotechnology; Micro- and Nano-biotechnology;
Biocatalysis and Protein Engineering; Agro-biotechnology and Natural Products

Environmental Biotechnology			
Poster No.	Abstract No.	Title	Authors
P-I-01	0032	A highly conducting flower like Au nanoparticles interconnected functionalized CNFs and its enhanced electrocatalytic activity towards hydrazine through direct electron transfer	Mani Sakthivel, Sukanya Ramaraj, <u>Shen-Ming Chen</u> , Bose Dinesh, Kuang-Hsiang Chen
P-I-02	0040	Increasing toluene removal and electricity generation by microbial fuel cells with cathode modification	<u>Li-Chen Lin</u> , Shu-Hui Liu, Chi-Wen Lin
P-I-03	0041	Isolation and application of ammonium-degrading microorganisms	Yun-Sian Wang, Yu-Yu Hsieh, <u>Shiaw-Wei Tyan</u>
P-I-04	0062	Functional Expression and Analysis of LsrR Protein in the Regulation of Bioluminescence in <i>Vibrio orientalis</i>	Yu Ting Chen, <u>Douglas J. H. Shyu</u>
P-I-05	0071	The Seasonal Effect of Eutrophication for the Monitoring of Irrigational Ponds	Kun-Lin Kuo, Guo-Lian Cai, Feng-Yi Chang, Jian-Lun Zeng, <u>Jun-Hong Lin</u>
P-I-06	0078	Biodegradation of Industrial Wastewater by using <i>Bacillus</i> spp.	Jia-Hong Fan, Yi-Chen Wang, <u>Shan-Yu Chen</u>
P-I-07	0096	Optimization of fermentation conditions for the production of carotenoids by a newly isolated strain, <i>Gordonia terrae</i> TWRH-01	Wai Leng Carmen Loh, Kuan-Chieh Huang, Hui Suan Ng, <u>John Chi-Wei Lan</u>
P-I-08	0101	Variation of microbiota in Polyvinyl alcohol feeding waste water	Siao-Jhen Chen, Jeff Hsu, Hsun-Yin Hsu, Po-Hung Wu, <u>Yen-Lin Chen</u>
P-I-09	0120	Isolation and identification of palladium resistant bacteria from heavy metal contaminated soils	<u>Zi-Yi Liao</u> , Chih-Ching Chien
P-I-10	0121	Cultivation of <i>Acidithiobacillus</i> spp. and its potential application in metal bioleaching from chip carrier board	<u>Wing-Sze Ho</u> , Chih-Ching Chien

P-I-11	0160	Lactic acid Production from Glycerol by Genetically Engineered <i>Lactobacillus Plantarum</i>	Naomi Oktarina, Dillirani Nagarajan, <u>Jo-Shu Chang</u>
P-I-12	0166	Extraction of Silica from Agricultural Biomass and Its Application in the Adsorption of Tannic Acid by Functional Modification	<u>Tzong-Horng Liou</u> , Bin-Zhun Cai, Hao-Siang Syu, Teng-Yuan Zhang
P-I-13	0171	Fixed-bed biosorption of gold using extracellular proteins released from a thermophilic bacterium	Pong-Yee Wu, Yin-Lung Han, <u>Jo-Shu Chang</u>
P-I-14	0238	Optimizing Lactic Acid Fermentation with an isolated <i>Lactobacillus plantarum</i> strain	Ming-Jhan Syu, Chih-Yu Huang, <u>Jo-Shu Chang</u>

Micro- and Nano-biotechnology			
Poster No.	Abstract No.	Title	Authors
P-I-15	0018	Homogeneously alloyed nanoparticles of immiscible Ag-Cu with ultrahigh antibacterial activity	<u>Pin I Huang</u> , Liliang Chen, Chia-Hua Lin *
P-I-16	0115	Optimization of complexation process for quercetin and curcumin with cyclodextrins	<u>Guan-Wei Lee</u> , Chi-Hsien Liu*
P-I-17	0125	Fabrication, Physical and Biochemical Characterizations of Polyhydroxybutyrate-cellulose Based Matrix for Protein Recovery	<u>Jing-Hua Huang</u> , John Chi-Wei Lan*
P-I-18	0138	Fabrication and Characterization of Metal Affinity Cellulose-based Adsorbent for Protein Recovery	<u>Russell Tan</u> , John Chi-Wei Lan, Miao Huang*
P-I-19	0142	Controlled Release of Theophylline-Chitosan Composite Particles Prepared Using Supercritical Assisted Atomization	Hou-Cyuan Chen, Hong-Ming Tsai, Hsien-Tsung Wu*
P-I-20	0145	Characterization and Antibacterial Activity of PVA/Chitosan Nanocomposite Membrane Prepared by Electrospinning Technique	Yan-Jun Zhuang, Pin-Xuan Chen, Jia-Ting Zeng, Jie Chen, Yu-Hui He, Jane-Yii Wu*
P-I-21	0185	A Carbon Nanodot-based Electrochemical Immunosensor for Hepatoma-Derived Growth Factor	Yau-Bin Yue, <u>Jau-Yann Wu*</u>
P-I-22	0189	Colorimetric detection of bisphenol A based on anti-aggregation of gold nanoparticles	Ren-Hao Guo, Chia-Yu Chang, Gui-Bing Hong*
P-I-23	0190	Preparation and characterization of solid lipid nanoparticles, nanostructured lipid carriers, and lipid nanoemulsions for encapsulation of the black rice extract	<u>Hsin-Ping Shih</u> , Tzung-Han Chou*

P-I-24	0195	Examining the Influence of Surface-Modified Nanoparticles on Amyloid Fibril Formation of Human Insulin	Chien-Yu Lin, Ning-Hui Lu, Su-Chun How, Zuzana Gazova, Josephine W. Wu, Steven S.-S. Wang*
P-I-25	0217	Preparation of thermosensitive nano-structured hydrogels of poly(N-isopropyl acrylamide) with chlorogenic acids	<u>Tzu-Ting Yu</u> , Chiung-Cheng Huang, Shiow-Ling Lee*

Biocatalysis and Protein Engineering			
Poster No.	Abstract No.	Title	Authors
P-I-26	0021	Effect of Corncob Powder Culture Solution pH on Hemicellulase Production of Microbe CT12	Tse-Chun Lin, Chinshuh Chen, Gee-Kaiteyu
P-I-27	0038	Lipase-Catalyzed Synthesis Of Optically Pure 2-Phenylcyclopropylcarboxylic Acid	Yan-Ru Ye, Shau-Wei Tsai*
P-I-28	0053	Identification of a Tyrosinase Gene from Environmental Bacteria, <i>Bacillus</i> sp. ER1	Kie-Jie Liao, Douglas J. H. Shyu*
P-I-29	0067	Recombinant production thermostable trehalose synthase in <i>Escherichia coli</i> Nissle 1917	<u>Po-Chang Su</u> , Yi-Fen Lin, Po Ting Chen*
P-I-30	0117	Development of Microfluidic-Based Valve Controlling Platform for Continuous Protein Purification	I-Wei Chen, Jen-Huang Huang*
P-I-31	0128	Screening of microorganisms for Duloxetine optically pure intermediate production	Hsin-Hua Chan, Man-Yi Lang, Ya-Ru Lee, Sheng-Yun Chen, Chao-Hung Kao*
P-I-32	0141	Kinetics of heterogeneous esterification for the synthesis of butyl levulinate	Chang-Ju Yu, Chun-Chieh Fan, Hsien-Tsung Wu*
P-I-33	0188	Surface-Independent Enzymatic Antibiofilm Coating Based on 6xDOPA Fused Dispersin B	Zi-Han Liao, Kuan-Jung Chen, Cheng-Kang Lee*
P-I-34	0196	Seeking the Inhibitory Molecules Toward the Ultraviolet C-Induced Aggregation of Human γ D-Crystallin Protein	<u>Jian-Hong Lu</u> , Steven S.-S. Wang*, Josephine W. Wu*
P-I-35	0200	Structure related Hemostatic Property of Human Hair Derived Keratins at Different Temperature	Lu-Ping Huang, Kai-Yi Wang, Yong-Hong Chen, Yang Wei*
P-I-36	0202	Conformational changes of mussel adhesive proteins on biomaterial surfaces at different protein-protein interactions	Kuan-Lin Chen, Chi-Fong Lin, Pei-Hsuan Chiang, Yang Wei*

P-I-37	0220	The study of tyrosinase production by Recombinant E. coli	Syu Jia Yu
P-I-38	0231	Preliminary Study on Separation and Purification of Bromelain	Jheng-Kun Luo, Bing-Lan Liu*

Agro-biotechnology and Natural Products			
Poster No.	Abstract No.	Title	Authors
P-I-39	0007	Evaluation of <i>In-vivo</i> Skin-whitening Activity of 3'-Hydroxygenistein	An-Ni Ke, Jiumn-Yih Wu*, Te-Sheng Chang*
P-I-40	0012	Screening for High Hispidin Production of <i>Phellinus</i> Strain and Its Suitable Grain Substrate	Zeng-Chin Liang*, <u>Chin-Hao Ou</u> , Chih-Hung Liang, Chiu-Yeh Wu
P-I-41	0013	Effect of Different Grain Media on the Production of Fruiting Bodies, Cordycepin and Adenine of <i>Cordyceps militaris</i>	Zeng-Chin Liang*, <u>Chun-Yi Chang</u> , Po-Hung Chen, Chih-Hung Liang, Chiu-Yeh Wu
P-I-42	0015	The effects of garlic-derived allyl sulfides on allergen-induced asthma	Shih-cheng, Huang, Chia-Chen Hsieh, Keng-Fan Liu, Shan-yuan, Liang, Wen-Huang Peng, Jen-Chieh Tsai*
P-I-43	0023	Antioxidant Properties of Different Carnations	Gee-Kaite Yu, Tse-Chun Lin*
P-I-44	0024	Angiotensin-Converting Enzyme Inhibitory Activity and γ -Aminobutyric Acid Content of Compounded Fermented <i>Tilapia</i> Fillet By-Products and <i>Monostroma nitidum</i> Oligosaccharides	Yu-Hsin Lin, Chung-An Tien, Li-Wen Huang, Meng-Hsuan Yang, Chorng-Liang Pan, Zwe-Ling Kong, Guan-Wen Chen*
P-I-45	0031	Ermentation of black soybean water extracts by <i>Lactobacillus fermentum</i>	<u>Ni-Sin Li</u> , Yaw-Nan Chang*
P-I-46	0044	A study on the optimization of extraction conditions of terpenes and other bioactive compounds from <i>Antrodia camphorata</i> and <i>Vernonia amygdalina</i> using ethanol solution	<u>Sheng Hsiang Lin</u> , Ching Yi Lee*, Wen Lu Weng
P-I-47	0051	Anti-inflammatory components of solid-state fermented <i>Antrodia cinnamomea</i> mycelium	Chih-Hung Liao, Shih-Yu Lee, Li-Shian Shi*
P-I-48	0052	Isolation and characterization of <i>Salmonella</i> -specific bacteriophages from sewage samples in Thailand	<u>Napakhwan Imklin</u> , Rujikan Nasanit*

P-I-49	0064	Reusing soybean dregs in solid state fermentation of medicinal mushrooms and antioxidant properties study	Shun-Wei Wang, Tzu-Jun Fu, Te-Wei Ma, Fan-Chiang Yang*
P-I-50	0065	Effect of the cultivation conditions on the formation of erinacines in the submerged culture of <i>Hericium erinaceus</i>	Yu-Chen Kuo, Shih-Jen Yang, Chih-Hua Chao, Fan-Chiang Yang*
P-I-51	0066	Effect of adding acetate ion on the formation of triterpenoids in the shaking flask cultures of <i>Antrodia cinnamomea</i>	Jun We Ren, Ting Chao, Te-Wei Ma, Fan-Chiang Yang*
P-I-52	0070	Combination of the carbon-nitrogen system and additives to increase the production of recombinant protein in transgenic rice cell suspension culture	<u>Hsiang-Ju Li</u> , Yu-Kuo Liu*
P-I-53	0073	Studies on the Antioxidant Activity of Weeds by Various Extracted Methods	<u>Dong-Sheng Yao</u> , Dong-Hao Li, Jun-Hong Lin*
P-I-54	0075	Fermentation of Black Soybean Water-Extracts by <i>Leuconostoc citreum</i> BCRC 910226	Chia-Ying Tsai, Chi-Chiang Yang, Yaw-Nan Chang*
P-I-55	0076	Optimization of microwave assisted extraction of cordycepin from <i>Cordyceps militaris</i>	<u>Ying-Yin Kuo</u> , Zhong-Wen Lu, Chih-Hung Liang*
P-I-56	0077	Optimization of microwave-assisted extraction of ergothioneine from <i>Pleurotus citrinopileatus</i>	<u>Zhong-wen Lu</u> , Chih-Hung Liang*
P-I-57	0084	The effect of sorghum distillers grains / cow manure mixed compost on earthworm growth	<u>Huang, Zi-Hsin</u> , Huang, Kuan-Wu, Wu, Yin-Wen*
P-I-58	0085	Optimization of heat reflux extraction of Tyrosinase inhibition extract from <i>Cordyceps Militaris</i> rice medium	Cheng-hsuan Chen, Xue-Wei Xue, Tai-Hao Hsu, Wen-Kuang Hsu*
P-I-59	0086	<i>Glossogyne tenuifolia</i> extracts exhibit inhibitory effects on the proliferation and migration of vascular smooth muscle cells	<u>Tzu-Hsien Chang</u> , Chin-Feng Hsuan, Hsia-Fen Hsu, Chi-Chang Chang, Ya-Ling Chen, Jer-Yiing Houg*
P-I-60	0087	Luteolin inhibits proliferation of human endometrial cancer cells via induction of cell cycle arrest and apoptosis	Chi-Chang Chang*, <u>Tzu-Hsien Chang</u> , Ya-Ling Chen, Hsia-Fen Hsu, Jer-Yiing Houg*
P-I-61	0088	UVB-protective and anti-inflammatory effects of banana peel extracts	Yao-Cheng Liou, <u>Xin-Haw Zhou</u> , Yong-Han Hong, Jei-Fu Shaw, Wei-Yi Cheng, Tzu-Hsien Chang, Jer-Yiing Houg*

P-I-62	0089	Comparison of bioactivities and bioactive ingredient contents of <i>Glossogyne tenuifolia</i> produced from different areas in Taiwan	Hsia-Fen Hsu, Shu-Ru Cheng, Chun-Chein Shih, <u>Yi Fang</u> , Jer-Yiing Houng*
P-I-63	0091	Effect of alternating current electric field (ACEF) on inhibiting the browning effect of <i>Pleurotus ostreatus</i> during postharvest storage	Chun-Chi Hsieh, Yun-Chien Chen, Chao-Kai Chang, Chung-Chi Hu, Shih-Wen Fang, Chang-Wei Hsieh*
P-I-64	0093	Surface modification of polylactic acid (PLA) films by plasma treatment and its' preservative effect on <i>Pleurotus ostreatus</i>	Wong Li Wah, Chao-Kai Chang, Chun-Chi Hsieh, Yun-Chien Chen, Shih-Wen Fang, Chang-Wei Hsieh*
P-I-65	0100	Bioconversion of sorghum distillery grains and cattle mauner by <i>Musca domestica</i> (Diptera)	<u>Chun-Yung Chang</u> , Kuan-Lin Huang, Sin-Wei Lin, Yin-Wen Wu*
P-I-66	0110	The ResDE two component system control DegU and γ -PGA expression	I-Chi Chou, Yi-Huang Hsueh*
P-I-67	0111	Zinc ion induces γ -PGA production in <i>Bacillus subtilis</i>	Ting-An Zhang Cai, Yi-Huang Hsueh*
P-I-68	0113	Random Mutagenesis of <i>resE</i> gene in <i>Bacillus subtilis</i> affects Poly- γ -glutamic acid synthesis	<u>Sikhumbuzo Charles Kunene</u> , Yi-Huang Hsueh*
P-I-69	0119	Propolis protects the activity of DNA homologous recombination repair from oxidative DNA damage in 4-aminobiphenyl-treated HepG2 cells	<u>Huey- Nuo Wu</u> , Chih-Ching Chien*
P-I-70	0129	Bioflavonoid Rutin Can Mitigate Ethephon-Induced Leaf Senescence via Multiple Diverse Mechanisms in Sweet Potato Detached Leaves	Yu-Fang Chen, Tin-No Tsai, Hsien-Jung Chen*
P-I-71	0140	Direct shoot regeneration from nodal explants of <i>Cyclocodon lancifolius</i> (Roxb.) Kurz	Li-Kai Deng, Yi-Ling Li, Chin-Wen Ho*
P-I-72	0144	Comparison of Bioactive Components and Antioxidant Activities of Aqueous Extracts From Natural and Cultured Mycelia of The Isolated Cordyceps Cicadae Wu-BFP14	<u>Kun-Wei Li</u> , Ssu-Yun Kao, Jia-Jin Lin, Yue-Horng Yen, Jane-Yii Wu*
P-I-73	0152	Study on the Antimicrobial, Antioxidant, and Protease Inhibition Activities of Sesame Seed Storage Proteins and Their Enzymatic Hydrolysates	Yu-Kai Liao, Douglas J. H. Shyu*
P-I-74	0157	Development of snow lotus cell suspension for cultured and scale up	<u>Chia-Wei, Lu</u> , Li-Fen Huang, Yu-Kuo Liu

P-I-75	0158	Optimizing growth conditions of <i>Pavlova lutheri</i> for the production of fucoxanthin	Chun-Yen Chen, <u>Ping-Yun Liu</u> , Yu-Han Chang, Jo-Shu Chang*
P-I-76	0161	Co-fermentation of <i>Bacillus</i> sp. with <i>Chlorella sorokiniana</i> for disintegration of the microalgal cells	<u>Chen-Yu Chien</u> , Yu-Han Chang, Chun-Yen Chen, Jo-Shu Chang
P-I-77	0162	Co-fermentation of protein-rich microalgae grown on swine wastewater with <i>lactic acid bacteria</i> to develop effective swine feed supplements	<u>Winny Margareta</u> , Dillirani Nagarajan, Chun-Yen Chen, Jo-Shu Chang*
P-I-78	0167	Enzymatic hydrolysis of Liucheng peel to produce fermentable sugars	Chia-Hung Kuo*, Che-Li Wang
P-I-79	0172	Optimizing extrusion processing of <i>Gynura bicolor</i> petiole and chemopreventive effects of its extract on inflammation	Ya-Ting Chen, Chih-Chung Wu, Jyh-Jye Wang, Shu-Ling Hsieh*
P-I-80	0174	Study on Supercritical CO ₂ Extraction of <i>Daphne genkwa</i>	Chih Kai Shu, Wei Zhi Chen, Chiao Sung Wu*
P-I-81	0201	The Study of Separating 6-gingerol and 10-shogol by Simulated Moving Bed Chromatography	Chih-Hsiung Lin, So-Siou Shu, Yu-Ying Lin, Ming-Tsai Liang*
P-I-82	0209	Effects of drying parameters on physical properties and antioxidant activities of non – centrifugal granulated palm sugar from <i>borassus flabellier</i>	Dung Thi Le Huynh*, Po-Hsien Li
P-I-83	0218	Utilization of biological treated spent coffee ground as medium supplement for rearing black soldier fly	<u>Hong-Kai Huang</u> , Yu-Sheng Cheng*
P-I-84	0219	Enhancement of 2-Phenylethanol Production Via Oxygen Supply Control and Extractive Fermentation Using PDMS Sponge	Wa Ode Cakra Nirwana, Yi-Jun Chen, Chin-Hang Shu*
P-I-85	0233	A novel isolated <i>Streptomyces</i> spp. cs526 is able to secrete multiple fungus-inhibition antibiotics	Shao-Chung Liu, Pu-Chieh Chang, Chih-Hung Huang*
P-I-86	0236	Degradation of aflatoxin B1 by <i>Bacillus amyloliquefaciens</i> BF1	Yi-Jyun Chan, Jhong-Cheng Luo, Chien-Yan Hsieh
P-I-87	0237	Study on toxin complex and protease activity of <i>Photobacterium luminescens</i> ATCC29999 with nitrogen source for <i>Plutella xylostella</i> test	Yu-Ting Wang, Chiou-Lian Chen, Feng-Chia Hsieh, Chien-Yan Hsieh
P-I-88	0240	Development of combinatorial effect of biopesticide against <i>Plutella xylostella</i>	Tzu-Hsin Kuo, Feng-Chia Hsieh, Chien-Yan Hsien
P-I-89	0241	Simultaneous Enzymatic Process for Collagen Peptide and Natural Calcium Hydroxylapatite Extraction from Fish Scale	I-Ping Lin, I-Fan Lin*

P-I-90	0245	Evaluation the stability and biological activity of liposomes	Hui-Yu Chuang, Wen-ling Shih
P-I-91	0247	Enhanced ectoine production with a moderately halophilic strain <i>Halomonas salina</i>	Ching-Cha Hsu, Wei-Chuan Chen, Yu-Hong Wei*
P-I-92	0249	Effects of various cultural conditions on the production of ectoine and hydroxyectoine using the halophilic bacterium <i>Corynebacterium glutamicum</i>	<u>Yuan-Gang Syu.</u> Yu-Hong Wei*
P-I-93	0250	Simultaneous production of ectoine and polyhydroxyalkanoates with a halophilic strain <i>Halomonas salina</i> BCRC 17875	<u>Xu-Qin Zhan,</u> Yu-Hong Wei*
P-I-94	0251	Exploring the useful fermentation strategies for producing 1,3-propanediol using <i>Klebsiella pneumoniae</i>	<u>Wei-Chuan Chen,</u> Ya-Lian Ciou, Yin-Chen Lina, Ho-Shing Wu, Yu-Hong Wei*
P-I-95	0252	Ba1-2(2) peptide induced defense responses in <i>Solanum lycopersicum</i> via salicylic acid or methyl jasmonate	<u>Li-Yang Chen,</u> Yu-Chi Chen

Poster Session II

10:00–11:00, Saturday June 30, 2018

Hong-Yue Technology Research Building, Lobby, 1F

Topics: Bioenergy and Biorefinery; Metabolic Engineering and Synthetic Biology;
Biomedical Science and Engineering; Cell Culture and Bioprocessing

Bioenergy and Biorefinery			
Poster No.	Abstract No.	Title	Authors
P-II-01	0022	Expression of carbonic anhydrase to enhance biomass and chemical production in <i>Chlorella</i> species	<u>Yu-Cheng Lai</u> , Po-Kuei Sung, Way-Rong Lin, I-Son Ng
P-II-02	0039	Removal of toluene and production of electricity by microbial fuel cell using packed anodes	<u>Chen-Han Lin</u> , <u>Guo-Xun Lin</u> , Cheng-Fang Wu, Shu-Hui Liu, Chi-Wen Lin
P-II-03	0043	Biosafety evaluations of the microalgal biomass produced by cultivating <i>Chlorella</i> with aquaculture wastewater and boiler flue gas used for feed additives	<u>Wen-Xin Zhang</u> , Chiu-Mei Kuo, Yi-Chun Yang, Yung-Chun Huang, Hung-Ju Liang, Jian-Shun Huang, Chih-Sheng Lin
P-II-04	0057	Growth and astaxanthin induction of <i>Haematococcus pluvialis</i> and evaluation of the antioxidant activity of the extracted astaxanthin	<u>Yi-Xiu Huang</u> , Chiu-Mei Kuo, Hung-Ju Liang, Chih-Sheng Lin
P-II-05	0060	Arachidonic Acid Production from <i>Mortierella alpina</i> by Using Taro Peel Waste Hydrolysate	Chang Chng Ong, Ting-Yao Lin, <u>Yen-Hui Chen</u>
P-II-06	0112	Production of short-chain alcohols from the corresponding fatty acids	<u>Jung-Heng Wen</u> , Chung-Jen Chiang, Yun-Pegn Chao
P-II-07	0126	Seasonal Characteristics Of Ethonal Production From Miscanthus Juice	<u>Yao-Duo Chang</u> , Fu-Yao Liu, Che-Chi Shu
P-II-08	0134	Addition of glycerol to enhance the production of succinic acid by fermentation of <i>Actinobacillus succinogenes</i> on hydrolysate of Napier grass	<u>Jhih-Sing Lee</u> , Hsin-Yi Teng, Wen-Chien Lee
P-II-09	0170	Production Of High-Value Biodegradable Polyester From Non-Food Biomass	<u>Ting-Yen Huang</u> , Shang-Cheng Lian, Yu-Zhen Wu, C. Will Chen
P-II-10	0181	Production of methane by co-digestion using chicken manure and SMS	<u>Heyao Chang</u> , Shu CH
P-II-11	0187	Enzymatic synthesis of biodiesel from insect	<u>Hoang Chinh Nguyen</u> , Chia-Hung Su
P-II-12	0192	Evaluation of thermal crosslinking of pectinous polysaccharide extracted from the seed of <i>Ficus awkeotsang</i> Makino	<u>Cheng-Hsuan Hsu</u> , Yu-Shen Cheng

P-II-13	0193	<i>In vitro</i> co-biosynthesis of 3-hydroxypropionic acid and 1,3-propanediol from glycerol	<u>Han-Yun Wu</u> , Yu-Shen Cheng
P-II-14	0209	Effect of dissolved oxygen (DO) concentration on COD removed efficiencies and power production capabilities in bacteria-algae fuel cells	<u>Yu-Chang Jiang</u> , Jia-You Wang, Jun-Yu Yao, Yi-Rong Lin, Yi-Yun Liao, Jane-Yii Wu
P-II-15	0210	Microencapsulation of oil within polysaccharides extracted from the seeds of <i>Ficus pumila</i> var. <i>awkeotsang</i> using a milli-fluidic device	<u>Ren-Fang Yang</u> , Yu-Shen Cheng
P-II-16	0221	Effects of surfactants on biodiesel production from wet <i>Rhodotorula glutinis</i> by direct transesterification	<u>Yu-Feng Tu</u> , Chi-Yang Yu
P-II-17	0235	A Study of The Optimal condition for the Growth of <i>Aspergillus niger</i> (BCRC31494, ATCC 10864)	<u>Yu-Lon Chan</u> , Jun-Hsien Wang
P-II-18	0242	Primary recovery of Gamma-aminobutyric acid from cell broth using aqueous-two phase system	<u>Sona Jabang</u> , John Chi Wei Lan

Metabolic Engineering and Synthetic Biology			
Poster No.	Abstract No.	Title	Authors
P-II-19	0094	Engineering of <i>Escherichia coli</i> for succinate production from acetate	<u>Hong-Lin Hou</u> , Chung-Jen Chiang, And Yun-Peng Chao
P-II-20	0102	The <i>resDE</i> regulon affects biofilm formation in <i>Bacillus subtilis</i>	Yi-Huang Hsueh, <u>Ping-Han Tsai</u>
P-II-21	0122	NprRX regulation on surface spreading motility in <i>Bacillus cereus</i>	Yan-Shiang Chiou, Yi-Huang Hsueh
P-II-22	0127	A New Method of Buffering Protein Noise in Gene Expression by Protein-Ligand Interactions	<u>Feng-You Liu</u> , Shih-Chiang, Wun-Sin Jhang, Che-Chi Shu
P-II-23	0131	Construct a bimodal distribution in biochemical system without bistability via the addition of inhibitor	<u>Chao-Xuan You</u> , Shih-Chiang Lo, Che-Chi Shu
P-II-24	0153	Expression of Recombinant Glutamate Decarboxylase (GAD) for Enhancing GABA Production in Beer-Producing Yeast	<u>Pik Kuan Low</u> , John Chi-Wei Lan
P-II-25	0225	The study of methyltransferase production by recombinant <i>E. coli</i>	Yi-Shiuan Chen, Sheng-Chi Wu
P-II-26	0243	The supply of energy for reductive tricarboxylic acid cycle in <i>Escherichia coli</i> for <i>in situ</i> CO ₂ recycling	I-Ting Tseng, Sho-Chen Lo, <u>Ching-Hsun Chen</u> , Chia-Hua Yu, Chu-Han Huang, Dong-Yan Wu, Chieh-Chen Huang, Si-Yu Li

Biomedical Science and Engineering			
Poster No.	Abstract No.	Title	Authors
P-II-27	0027	Differentiation of Human Pluripotent Stem Cells into Cardiomyocytes Cultured on Thermo-Responsive Polymer Coated with Extracellular Matrix	<u>Huan-Chiao Su</u> , Yeh-Chia Tseng, Tzu-Cheng Sung, Akon Higuchi
P-II-28	0033	Flux balance analysis predicts Warburg-like effects of hepatocyte deficient	Shao-Chuan Chang, Feng-Sheng Wang*
P-II-29	0034	Constraint-based modeling and human protein atlas toward inferring oncogenes of colorectal cancer	Kuan-Wei Chuang, Feng-Sheng Wang*
P-II-30	0035	Constraint-based modeling with patient clinical RNA-seq towards inferring oncogenes of oral mucosa squamous epithelial cell	Yi-Chen Shu, Feng-Sheng Wang*
P-II-31	0055	Developed an elastic scaffold by Poly(glycerol sebacate) and Ectoine Copolymer for Vascular Tissue Engineering	<u>Chun-Hui Li</u> , Chao-Ling Yao*
P-II-32	0059	Systems Biology Approaches for Deciphering Genome-scale Metabolic Model of Head and Neck	Fang-Yu Li, Feng-Sheng Wang *
P-II-33	0061	Metabolic reprogramming of the genome-scale metabolic network of Liver deficient.	Hsiao-Hsien Tai, Feng-Sheng Wang *
P-II-34	0063	Characterization of Human Hair Keratin for the Biomedical Application	<u>Meng-Yow Hsierh</u> , Hsin-Chen Lin, Huan-Cheng Lee, Ming-Tse Lin*
P-II-35	0095	High glucose induced the oxidative stress and inflammatory response of RAW264.7 macrophage exposure with PM2.5	Shu-Han Chen, Ching-Chang Cho, Chih-Sheng Lin*
P-II-36	0104	Use of Cross-linking and Plasticization to Diversify the Material Properties of Membranes Based on Chitosan and Pectin	<u>Che-Min Lin</u> , Chia-Wei Lee, Hsyue-Jen Hsieh*
P-II-37	0105	Ameliorative effect of Cordyceps cicadae polysaccharide on the progression of diabetic renal damage by regulating MMP-2/TIMP-2	<u>Mei-Chin Mong</u> , Charng-Cherng Chyau, Chin-Chu Chen, Chun-Hung Chiu*
P-II-38	0108	Multi-Unit Cell Culture Platform for High-Throughput Screening	Wei-Han Lai, Jen-Huang Huang*
P-II-39	0114	Curcumin loaded nanoemulsion encapsulated by polyelectrolyte layer-by-layer deposition on the oil core	<u>Ting-Yu Wu</u> , Chi-Hsien Liu*
P-II-40	0116	The functionalization of multi-walled carbon nanotubes with BSA and PEI for gene delivery system	<u>Monika Kumari</u> , Chi-Hsien Liu*
P-II-41	0124	Synthesis and blue-light photopolymerization of branched polyurethane acrylates	Wei-Chih Chen, Kuo-Chung Cheng*
P-II-42	0148	Effects Of Culture Supernatant Of E.Coli Nissle On Colorectal Cancer	Hong-Yan Hong, Yun-Peng Chao, Chung-Jen Chiang*

P-II-43	0175	Triterpenoids produced from the callus suspension culture of <i>Alnus formosana</i> Makino for the apoptosis of cancer cells	Wen-Ta Su, Chun-Yi Hsu
P-II-44	0182	Using EPA to regulator microRNA-378 to increase the targeting drug response rate in KRAS and BRAF mutant colorectal cancer	De-Yi Ji, Cheng-Chi Wang, Wen-Hui Weng, Wai-Hung Leung*
P-II-45	0184	The thermodynamic aspects of the roles of Na ⁺ on the formation of double stranded DNA containing site-specific methyl phosphotriester linkages	<u>Meng-Wei Wu</u> , Tai-Chih Kuo, Wen-Yih Chena*
P-II-46	0186	Facile Antifouling Coating on Microfiltration Membrane Using Comb-shaped Poly(N-vinylpyrrolidone) with Multivalent Catechol	Trong-Nghia Le, Cheng-Kang Lee*
P-II-47	0191	Improvement of GC-rich RNA detection specificity by phosphate methylated DNA probe design on nanowire field effect transistor	<u>Wei-Cheng Chou</u> , Wen-Yih Chen*
P-II-48	0194	Characteristics of keratin hydrogels using purified protein from human hair	Wen-Chuan Huang, Yang Wei*
P-II-49	0197	Discovery of novel N-glycoside and non-glycoside SGLT2 inhibitors for the treatment of type 2 diabetes mellitus	<u>Chun-Yi Chang</u> , Yih Ho, Hsuan-Liang Liu*
P-II-50	0198	Structure-based virtual screening to identify novel CDK9 inhibitors for the treatment of hepatitis B	Yu-Ru Wang, Yih Ho, Hsuan-Liang Liu*
P-II-51	0211	The senescent-related gene expression analysis in mice	Ya-Han Hsu, Ching-Hua Yeh
P-II-52	0213	Hemoglobin-beta(67Val→Trp)-alpha-1-microglobulin fusion protein as an oxygen carrier	Ting-Wei Wang, Ru-Ya Yang, Kuang-Tse Huang*
P-II-53	0214	High-glucose-induced cell aging establishes an anti-renal aging herbal medicine screening platform	Yu-Jung Liu, Ching-Hua Yeh*
P-II-54	0216	Improved pre-analytical process for miRNA isolation from culture cells by using silica membrane column	<u>Yu-Chi Chen</u> , Wen-Yih Chen*
P-II-55	0222	Engineering Of Escherichia Coli Protein Expression Process	Neng-Hsien Chang, Yue-Chang Chou, Chih-Hsi Fan, Jen-Wei Chang, Wei-Hong Cheng, Ming-Hong Cyue, Wei-Kuang Chi*
P-II-56	0223	High Level scFV Expression Platform Of Pichia Pastoris	Jen-Wei Chang, Dalton Chen, Chih-Hsi Fan, Wei-Hong Cheng, Ming-Hong Cyue, Neng-Hsien Chang, Wei-Kuang Chi*
P-II-57	0234	Developing a Surface Display System for Animal Vaccination by a Protein from Streptomyces spp. with a Cell Wall Binding Ability	Pu-Chieh Chang, Shao-Chung Liu, Chih-Hung Huang*

P-II-58	0183	Evaluation of the Inhibitory Effect of Tetracycline-Alginate Floating Beads on the Growth of <i>H. pylori</i> in a Simulated Gastric Environment.	<u>Y.T. Hsu</u> , Peng-Peng Ip, Fang Liao, Chen-Yu Kao*
P-II-59	0206	Brownian Dynamics Simulations on Spontaneous extension of Adsorbed DNA on cationic Lipid Bilayers along grooved structures	Ming-Yi Chang, Chih-Chen Hsieh*

Cell Culture and Bioprocessing			
Poster No.	Abstract No.	Title	Authors
P-II-60	0019	Periodic Counter-Current Chromatography for Continuous Purification of Monoclonal Antibody	<u>Yue-Chang Chou</u> , Ho-Lung Jiang, Shih-Lung Hse, I-Fen Liu, Wei-Kuang Chi*
P-II-61	0020	Preparation of Polyethyleneimine Modified Hydroxyapatite Composite for C-Phycocyanin Adsorption	Yu Pei Chang, Shu-Jen Chen*
P-II-62	0025	Optimization of Fermentation Conditions for Lincomycin Production by Submerged Culture of <i>Streptomyces lincolnensis</i>	Guan-Hua Chu, Chih-Chuan Tseng, Dey-Chyi Sheu*
P-II-63	0026	A Hybrid-Membrane Migration Method To Isolate High-Purity Of Adipose-Derived Stem Cells From Fat Tissues Through Membranes Coated With Extracellular Matrices	Yu-Chun Lee, Nien-Ju Ku, Akon Higuchi
P-II-64	0030	Continuous Culture of hESCs on Thermoresponsive Polymer Surface	<u>Kuan-Ju Lin</u> *, Jia-Sin Yang, Akon Higuchi
P-II-65	0037	Establishment of Patient-Specific Cancer Cell Lines from Colon Cancer Tissues by Membrane Filtration Method via Nylon Mesh Filter and PLGA-Silk Screen Membranes	<u>Wei-Lun Huang</u> *, Ting-Yeh Chen, Akon Higuchi
P-II-66	0045	The Effect Of Culture Parameter On The Cell Growth and Production In DASGIP 250 Ml Mini-Bioreactorion	Sheng-Jie Huang, Chining-Jen Yang, Chi-Chen Hsu, Chun-En Yang, Bo-Ting Yu, Wei-Kuang Chi*
P-II-67	0046	Screening and Establishment of Platform for DXB11 Cell Culture and Feeding Strategy	Chun-En Yang, Chining-Jen Yang, Sheng-Jie Huang, Bo-Ting Yu, Chi-Chen Hsu, Wei-Kuang Chi*
P-II-68	0047	Optimization of continuous perfusion culture medium by DoE	Bo-Ting Yu, Chining-Jen Yang, Sheng-Jie Huang, Chun-En Yang, Chi-Chen Hsu, Wei-Kuang Chi*

P-II-69	0049	The effect of pH on cell growth and production in 5L-Bioreactor	Mung-Ming Hsu, Chi-Chen Hsu, Chining-Jen Yang, Sheng-Jie Huang, Chun-En Yang, Bo-Ting Yu, Wei-Kuang Chi
P-II-70	0056	Developed a serum-free induction medium for dendritic cells differentiation from human monocytes	<u>Yu-Ting Wang</u> , Chao-Ling Yao*
P-II-71	0068	Studies on the Effects of Antioxidant Activities and Whitening Active Ingredient from the Extracts of Weeds and Its Fermented Products	<u>Ya-Ling Wang</u> , Jun-Hong Lin*
P-II-72	0072	The Fermentation of Weeds for Antioxidant Activities and Total Polyphenols	<u>Chun-Weng Chiu</u> , Shang-Yu Liou, Ya-Ling Wang, Jun-Hong Lin*
P-II-73	0074	Differentiation of Human Amniotic Fluid Stem Cells Cultured on Biomaterials Having Nanosegments	Yu-Ru Huang*, Nien-Ju Ku, Akon Higuchi
P-II-74	0080	A study of gamma-aminobutyric acid production by <i>Lactobacillus spp.</i>	<u>María Janina Carrera Espinoza</u> , Shan-Yu Chen*
P-II-75	0083	Efficient production of ectoine using <i>Sinobaca</i> sp. H24	<u>Ying-Chun Chen</u> , Shan-Yu Chen*
P-II-76	0098	CRISPR/CAS9 Mediated Target Integration of CHO Genome for the Generation of High Producer Cells	Ying-Jie Wu, Hsueh-Lin Lu, Dalton Chen, Wei-Kuang Chi*
P-II-77	0099	Whole Genome Sequencing of High Production Cell Line Reveal a Promising Region for Target Integration.	<u>Ta-Chun Kao</u> , Dalton Chen*
P-II-78	0106	Analysis of Integration Sites in High-Yield Chinese Hamster Ovary (CHO) Cell Clones with Low Copy Integration of Antibody Gene	<u>Hsin-Ru Chan</u> , Hsin-Lin Lu, Han-Yuan Liu, Wei-Kuang Chi*
P-II-79	0109	Formation of Hanging Drop Arrays Using Pressure-Assisted Network for Droplet Accumulation System (PANDAS)	Chin-Yi Cho, Jen-Huang Huang
P-II-80	0146	Repairing of human aortic endothelial cell (HAEC) by exosomes secreted by human mesenchymal stem cell (hMSC)	<u>Yieng-Liang Chen</u> , Wen-Chien Lee*
P-II-81	0151	Enhancement of hMSC proliferation by transduction of Notch 1 intracellular domain-coupled magnetic nanoparticle	<u>Yu-Hsin Kuan</u> , Wen-Chien Lee*
P-II-82	0155	A Serum-free Induction Medium for Monocytes Differentiated from Human Hematopoietic Stem Cells	<u>Yi-Ting Lai</u> , Chao-Ling Yao*
P-II-83	0176	Purification of lysozyme using strong acidic nanofiber membrane	Chien-Yi Lo, <u>Sung-Ta Lin</u> , Yu-Kaung Chang*

P-II-84	0177	Rapid and Efficient Recovery of G6PDH from Highly Turbid Yeast Cell Homogenate Using Dye-Ligand Affinity Chromatography in a Stirred Fluidized Bed	Guan-Yu Lin, <u>Guan-Ting Lin</u> , Yu-Kaung Chang*
P-II-85	0178	Method development for purification of lysozyme using dye-ligand affinity nanofiber membrane	Jia-Lin Hsu, <u>Sung-Ta Lin</u> , Yu-Kaung Chang*
P-II-86	0179	Fluidization and axial liquid mixing characteristics in a stirred Fluidized Bed column	<u>Yu-Jia Tu</u> , Yuan-Chun Pan, Yu-Kaung Chang*
P-II-87	0207	Antifouling Polymer as Size Screening Layer for Size-selective Purification of Hepatitis B core Antigen Virus-like Particle	Hon Wei Ng, Micky Fu Xiang Lee, Chien Wei Ooi, Eng Seng Chan, <u>Beng Ti Tey*</u>
P-II-88	0226	Characterization of polysaccharides purified from a local-isolated marine diatom	Hsing-Li Lai, Ping-Ting Lin, Zheng-Fong Tsai, Wei-Ting Lin, Su-Yuan Lai, Min-Ying Wang*
P-II-89	0228	Production and Purification of Recombinant Infectious Bursal Disease Viruses D78 by Using Microcarrier Culture DF-1 Cell Line	Yu-Hsuan Hsieh, Kai-Syuan Wu, Sheng-Tse Liu, Kuan-Yin Cho, Su-Yuan Lai, Ming-Ying Wang*
P-II-90	0229	A serum-free microcarrier-based cell culture process for the production of infectious bursal disease virus P3009	Kai-Syuan Wu, Yu-Hsuan Hsieh, Kuan-Yin Cho, Su-Yuan Lai, Min-Ying Wang*
P-II-91	0232	Production of infectious bursal disease virus mutants with surficial histidine substitution and purification with immobilized metal-ion affinity chromatography	Kuan-Yin Cho, Sheng-Tse Liu, Kai-Syuan Wu, Yu-Hsuan Hsieh, Min-Ying Wang, Su-Yuan Lai*
P-II-92	0253	Preparation of Fe ₃ O ₄ /Hydroxyapatite Composite for Allophycocyanin and C-Phycobiliprotein Adsorption	Jang-Jung Wang, Shu-Jen Chen*