KBCS (사)한국바이오칩학회 The Korean BioChip Society

2023

한국바이오칩학회 추계학술대회

Biochips beyond Fundamental Research

KBCS-CHEMINAS Joint Symposium

일시 | 2023년 11월 15일(수)~11월 17일(금)

장소 | 제주 신화월드

주최 / 주관 (사)한국바이오칩학회

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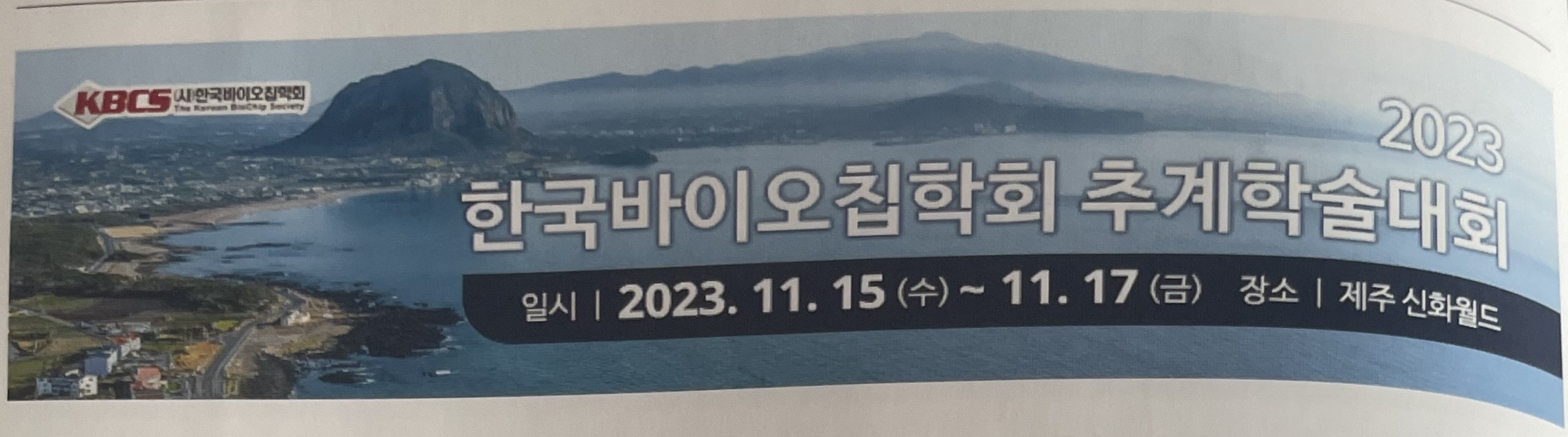

Time	Program
16:00~16:40	**Tutorial Session** 손한길 박사 (한국투자파트너스) Understanding Venture Capital and Early Stage Investments
16:40~18:00	**Poster Session I.** 좌장: 이원화 교수(성균관대학교), 이택 교수(광운대학교), 최진하 교수(전북대학교)
18:00~18:10	Break time
18:10~18:40	확대이사회 및 평의원회
	11월 16일 (목)
08:00~09:00	**Registration**
09:00~09:20	**Opening Ceremony**
09:20~10:00	**Plenary Session I. 김동표 교수(POSTECH)** Perspectives on Microfluidic-Based Chemistry Systems 좌장: 이창수 교수(충남대학교)
10:00~10:10	Break time
10:10~10:50	**Plenary Session II. Prof. Manabu Tokeshi(Hokkaido University)** Microfluidic-Based Preparation of Engineered Lipid Nanoparticles Chair: Prof. Yun Suk Huh(Inha University)
10:50~11:00	Break time
11:00~11:30	**Keynote Session I. Prof. Daeyeon Lee(Univ. of Penn)** Factory-on-a-Chip: Scaling-up Microfluidics for Large-Scale Biomaterials Synthesis Chair: Prof. Jun-Sang Doh(Seoul National University)
11:30~13:00	LUNCH
13:00~14:00	**Session IV.** **BioMEMS** 좌장: 이상훈 교수(한밭대학교)
	KBCS-CHEMINAS **Joint Symposium I.** Chair: Jong Wook Hong (Hanyang University)
	Session V. **Organ on a Chip** 좌장: 이승환 교수(한양대학교)
13:00~13:20	박진성 교수(성균관대학교) Development of Sensor Platform for Detection of Biomarkers and Environmental Toxicants
	[13:00~13:05] **Opening Remark** Pres. Joon Myong Song(KBCS), Korea Pres. Akihide Hibara(CHEMINAS), Japan
	신우정 교수(KAIST) Employing Engineering Principles to Investigate Host-Microbiome Crosstalk
13:20~13:40	김성진 교수(건국대학교) Automated Filtration and Detection of Bioparticles
	[13:05~13:35] **Prof. Akihide Hibara,** **Tokyo Institute of Technology, Japan** Water Activity in Water-in-Oil Microdroplets and in Aerosol Droplet
	윤정빈 교수(POSTECH) Advancing in vitro Organ Models for Integrative Disease Analysis and Exploration
13:40~14:00	노동기 박사(NNFC) Development of Optical Cavity-based Biosensor for Point-of-Care Testing
	[13:35~14:00] **Prof. Sungsu Park,** **Sungkyunkwan University, Korea** Microfluidic Device for Mechanobiology and Cancer Biology [14:00~14:10] Break Time
	고지훈 교수(가천대학교) High-Throughput Vascularized Microfluidic Scaffolds for Clinical Utility

Invited Presentation (SV-2)

Jungbin Yoon, Ph.D.
Professor
Department of Mechanical Engineering
POSTECH

Advancing in Vitro Organ Models for Integrative Disease Analysis and Exploration

The emerging domain of advanced *in vitro* organ modeling has catalyzed notable breakthroughs in deciphering disease progression and therapeutic responses by authentically mirroring native organ structure and function. Utilizing genetically modified human cells and patient-derived organoids, this field enhances precise disease study and supports personalized medicine through targeted therapy planning and minimized *in vitro* research risks. In our research, we have delved into the interactions between organs, particularly focusing on the kidney-gut axis, by utilizing microfluidic systems and 3D bioprinting technology. This enables us to highlight integrative diseases that emerge from multiorgan interactions, with *in vitro* secondary hyperoxaluria serving as a key example. Furthermore, by utilizing lung-derived dECM bioinks and patient-derived lung cancer organoids, we've developed personalized *in vitro* vascularized lung cancer models. The intricately enhanced vasculature of these lung cancer organoids underscores their potential as powerful tools for targeted drug delivery in cancer therapy. The ongoing expansion of 3D bioprinting technology necessitates seamless collaboration among biomedical engineers, cell biologists, and clinicians. Together, they can refine, validate, and broaden the application of *in vitro* organ models in comprehensive disease research and therapeutic development, guiding us toward a future where predictive, personalized, and precise medicine becomes a reality.

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Keywords: Biofabrication, tissue engineering, in vitro disease modeling, *in vitro* multiorgan model, 3D bioprinting technology