

# 5<sup>th</sup> International Bio/Medical Interface Symposium 2024

## IBMI 2024

*March 9-10<sup>th</sup>, 2024*

*Taipei Medical University, Taipei, Taiwan R.O.C.*



*Hosted by*

Taipei Medical University (TMU)

*Cooperated by*

Tokyo University of Science (TUS), Taipei Medical University (TMU)

National Yang Ming Chiao Tung University (NYCU) and University of the Ryukyus (U. Ryukyus),

Organizing Chair: Kohei SOGA(TUS)

Organizing Co-Chairs:

Tsungrong KUO (TMU), Bing-Shiang YANG (NYCU), Hidehiro KISHIMOTO (U. Ryukyus)

Symposium Web Site: <https://ksoga.com/ibmi>

### **Local Chair and Co-Chair**

Prof. Jen-Chang YANG (TMU)

Prof. Tsung-Rong KUO

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- National Chiao Tung University (NCTU)

\*Prof. Bing-Shiang YANG (Device and Robotics)

(NCTU/ITRI)

# SCHEDULE

<i>Schedule</i>	
Sat. Mar 9 <sup>th</sup>	
9:00	Registration
9:20	Opening Remarks
9:30-11:30	Session A. Materials
13:30-15:30	Session B. Device and Robotics
15:45-17:45	Session C. Pharmaceuticals
Sun. March 10 <sup>th</sup>	
9:30-11:30	Session D. Medicals
11:30	Closing Remarks

# PROGRAM

## Session A Materials (9:30-11:30, Sat. Mar 9<sup>th</sup>)

Chairs: Prof. Akihiko KIKUCHI (TUS), Prof. Jen-Chang YANG (TMU)

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<b>A1</b> <b>9:30</b>	Prof. Jen-Chang YANG “The biocompatibility and hemostatic efficacy of silk fibroin nanofibrils fabricated by shear-Induced phase separation process”	<i>TMU</i>	2
<b>A2</b> <b>9:50</b>	Prof. Yi-Ping CHEN “Mesoporous Silica Nanomedicine: Targeting Tumor Metastasis and Angiogenesis”	<i>TMU</i>	3
<b>A3</b> <b>10:10</b>	Prof. Chih-hsin LIN “A machine learning liver-on-a-chip system for safer drug formulation”	<i>TMU</i>	5
<b>A4</b> <b>10:30</b>	Prof. Akihiko KIKUCHI “Thermo-sensitive particles as biomaterials”	<i>TUS</i>	9
<b>A5</b> <b>10:50</b>	Prof. Shuuhei KOMATSU “Organic-inorganic capsules based on liquid-liquid phase separation for treatment of bone defects”	<i>TUS</i>	11
<b>A6</b> <b>11:10</b>	Prof. Masao KAMIMURA “Stimuli-Responsive Polymer Nanomaterials Based Cell Manipulation”	<i>TUS</i>	13

## Session B. Device and Robotics (13:30-15:30, Sat. Mar 9<sup>th</sup>)

Chairs: Prof. Hiroshi TAKEMURA (TUS), Prof. Bing-Shiang YANG (NYCU/ITRI), Prof. Yu-Jui FAN (TMU)

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<b>B1</b> <b>13:30</b>	Dr. Curtis KUAN “The Development of Precision Medical Robot System”	<i>ITRI</i>	16
<b>B2</b> <b>13:50</b>	Prof. Bing-Shiang YANG “Development of Human-Robot Collaboration to Facilitate Care”	<i>NYCU/ITRI</i>	18
<b>B3</b> <b>14:10</b>	Prof. Takuya Hashimoto “Musculoskeletal Model for Analysis of Swallowing Function”	<i>TUS</i>	20
<b>B4</b> <b>14:30</b>	Prof. Takumi ASAKURA “Numerical simulation of vibroacoustic transmission characteristics via human middle ear”	<i>TUS</i>	22

<b>B5</b> <b>14:50</b>	Prof. Yu-Jui FAN “Development of thrombosis-on-a-chip for drug testing”	<i>TMU</i>	24
<b>B6</b> <b>15:10</b>	Prof. Tzu-En LIN “Micro-Robotic Arm Integrated Electrode and Microchannel for Bacteria Sensing and on-Demand Drug Delivery”	<i>NYCU</i>	25

### Session C. Pharmaceuticals (15:45-17:45, Sat. Mar 9th)

Chairs: Prof. Masakazu UMEZAWA (TUS), Prof. Er-Yuan CHUANG (TMU)

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<b>C1</b> <b>15:45</b>	Prof. Ching Li TSENG “Nano-formulation Development for Ocular Disease Treatment”	<i>TMU</i>	28
<b>C2</b> <b>16:05</b>	Dr. Taiga TAKAHASHI “Multi-scale in vivo two-photon imaging in a mouse brain through a large-scale cranial window utilizing fluoropolymer nanosheet and light-curable resin”	<i>TUS</i>	30
<b>C3</b> <b>16:25</b>	Prof Chia-Wen WU “Water-based Synthesis of Metal-Organic Frameworks for Biomedical Applications: Enzyme Immobilization, Dopamine Sensing, and Drug Delivery Systems”	<i>NHRI</i>	32
<b>C4</b> <b>16:45</b>	Prof David Jon LUNDY “Harnessing extracellular vesicles for cardiovascular therapy”	<i>TMU</i>	33
<b>C5</b> <b>17:05</b>	Prof. Masakazu UMEZAWA “Size fractionation method for extracellular vesicles and its application in biomedical research”	<i>TUS</i>	35
<b>C6</b> <b>17:25</b>	Prof. Er-Yuan CHUANG “Biomedical Applications of Platelet-Derived Therapeutics”	<i>TMU</i>	37

### Session D. Medicals (9:30-11:30, Sun. March 10th)

Chairs

Prof. Hidehiro KISHIMOTO (U. Ryukus), Prof. Jiunn-Horng KANG (TMU)

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<b>D1</b> <b>9:30</b>	Prof. Akio YAMASHITA “SMG1 and DNA-PK directly phosphorylate and stimulate NRF2 to inhibit ferroptosis.”	<i>U.</i> <i>Ryukus</i>	39
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<b>D2</b> <b>9:50</b>	Prof. Si-Han WU “Nano-Ninjas in Action: Mastering Size, Surface, and Stealth with Protein Coronas to Defeat Glioblastoma”	<i>TMU</i>	41
<b>D3</b> <b>10:10</b>	Prof. Tsung-Rong KUO “Copper Sulfide with Morphology-Dependent Photodynamic and Photothermal Antibacterial Activities”	<i>TMU</i>	43
<b>D4</b> <b>10:30</b>	Prof. Tetsu YAMASHIRO “The effect of Monascus Fermented Rice Extract on the pathogenicity of <i>Vibrio cholerae</i> ”	<i>U.</i> <i>Ryukus</i>	45
<b>D5</b> <b>10:50</b>	Prof. and Dr. Chen-Yuan CHIANG “Molecular diagnosis of tuberculosis”	<i>TMU</i>	48
<b>D6</b> <b>11:10</b>	Prof. Yukuto SATO “Host animal estimation of zoonotic pathogens using environmental DNA metabarcoding analysis”	<i>U.</i> <i>Ryukus</i>	49