

2018 IEEE 12th International Conference on Nano/Molecular Medicine and Engineering (NANOMED 2018)

**Waikiki Beach, Hawaii, USA
2-5 December 2018**



**IEEE Catalog Number: CFP18NMM-POD
ISBN: 978-1-5386-7580-9**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18NMM-POD
ISBN (Print-On-Demand):	978-1-5386-7580-9
ISBN (Online):	978-1-5386-7579-3
ISSN:	2159-6964

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Mo-A1: Micro/Nanotechnologies for Diagnostic Biosensing

Powering point-of-care diagnostic devices with disposable biobatteries <i>Seokheun "Sean" Choi</i>	N/A
EGFR dynamics are different in breast cancer cell lines with distinct metastatic potential <i>Tim(Hsin-Chih) Yeh</i>	N/A
Diagnosis of malaria in saliva via a new biomarker: the activity of topoisomerase I <i>Yi-Ping (Megan) Ho</i>	N/A
Lab on a Smartphone (LOS): A low-cost, portable platform for light-driven biological sample preparation and on-chip microscopic detection of water quality <i>Sung-Yong Park</i>	N/A
Wearable, wireless strain sensors for real-time intraocular pressure monitoring <i>Wen Li</i>	N/A

Mo-A2: Micro-engineered Platform for Soft Matters and Cell Research

Surface Patterning on Hydrogels for Cell Research <i>Jiandong Ding</i>	N/A
Ultrafast Single-Cell Level Enzymatic Tumor Profiling <i>Chia-Hung Chen</i>	N/A
Nano-patterned RGD-membranes Control Adhesion Transformation and Integrin Signaling <i>Cheng-han Yu</i>	N/A
A platform technology on multiphoton biofabrication of protein microstructures and micropatterns with sub-micron features <i>Barbara Pui Chan</i>	N/A

Mo-A3: Integrative Studies of Image and Information Processes for the Bio/nano Engineering and Medicine

Responsive and theranostic contrast agents for MRI <i>Ichio Aoki</i>	N/A
Nanofluorides as nano-sized tracers for in vivo ¹⁹ F-magnetic resonance imaging <i>Amnon Bar-Shir</i>	N/A
Image and data processing for liposome-based expendable bio-sensing system <i>Masayuki Fukuzawa</i>	N/A
Oxygen nanobubbles for the reverse of hypoxia and delivery of therapeutic molecules with ultrasound imaging modalities <i>Jonghoon Choi</i>	N/A
Radio-X-omics: Multidisciplinary collaboration on radiology <i>Koji Sakai</i>	N/A

Mo-A4: Cancer Nanotechnology

Enhanced Cancer Hyperthermia using Superradiant Quantum Dot Assemblies <i>Sudaraka Mallawaarachchi, Malin Premaratne</i>	15
Orally Absorbed Milk Protein-Shelled Gold Nanoparticle For Glioblastoma Multiforme Photo-Thermal Therapy <i>Hyunghik Kim, Dong Yun Lee</i>	N/A
Thermoresponsive Nanohybrids for Tumor Imaging <i>Harini Hapuarachchi, Malin Premaratne</i>	20
Exploring Cancer Cell Metastasis by Micro Channel Observation System <i>Chun-Hao Huang, Kin-Fong Lei</i>	N/A
Characterizing A549 Cell Line as an Epithelial Cell Monolayer Model for Pharmacokinetic Applications <i>Timothy S. Frost, Linan Jiang, Yitshak Zohar</i>	27

Mo-B1: Peptides in Nanomedicine and Biomedical Applications

Design of Thermally-Responsive Proteins to Control Cellular Uptake and Signaling <i>J. Andrew MacKay</i>	N/A
Adapting peptide assembly to integrate proteins and carbohydrates into supramolecular biomaterials <i>Gregory A. Hudalla</i>	N/A
Fabrication of Self-assembling Antimicrobial Nanofibers Via Peptide Self-assembly <i>He Dong</i>	N/A
Multimodal Imaging Enabled Citrate Biomaterials and Their Applications <i>Jian Yang</i>	N/A
Electrostatically Driven Peptide Based Materials in Nanomedicine <i>Lorraine Leon</i>	N/A

Mo-B2: Printed Sensors and Flexible Microdevices for Biomedical Applications

Point-of-use sensors for rapid medical diagnosis and environmental health <i>Zhugen Yang</i>	N/A
Selection of highly specific antibodies for Zika virus detection on flexible impedance sensor <i>Waseem Asghar</i>	N/A
Transfer-printed biosensors for wearable biomedical applications <i>Chi Hwan Lee</i>	N/A
Wearable biosensors for wound diagnosis and monitoring <i>Peter B. Lillehoj</i>	N/A
Flow control tools for paper-based microfluidic devices <i>Hideaki Tsutsui</i>	N/A

Mo-B3: Advanced Materials for Translational Medicine

Photocrosslinkable Gelatin for Regenerative Medicine: Manipulating Interactions between Cells, Drugs and Scaffolds <i>Xin Zhao</i>	N/A
Silk-Based Biomaterials for Cardiovascular Tissue Engineering <i>Xiaohui Zhang</i>	N/A
Microphysiological Systems for Emulating Human Tissues and Diseases <i>Yu Shrike Zhang</i>	N/A

Mo-B4: When Physicians Meet Engineers

The Development of Personalized Best-fit Stimulation Screening Platform Facilitating Tenocytes Proliferation <i>Chih-Hao Chiu</i>	N/A
A novel implantable sensor for perioperative monitoring of rotator cuff repair surgeries <i>Chia-Wei Lin</i>	N/A
Biodesign in surgical field – unmet need definition and application <i>Chien-Hung Liao</i>	N/A
How to make Robot smarter and surgery safer? Incorporate AI to complicated surgeries in the future <i>Kai-Jie Yu</i>	N/A
Back to laboratory: Novel applications of biomaterials in Orthopedics <i>Yi-Hsun Yu</i>	N/A

Mo-Po: Poster Group I

Enhanced shear thickening effect of nanoparticle suspension using polystyrene with poly(HEMA) shell <i>Kwan Yoon, Young Lee</i>	N/A
Immuno-Wall Device for Highly Sensitive Detection of Disease Markers <i>Keine Nishiyama, Toshihiro Kasama, Masatoshi Maeki, Akihiko Ishida, Hirofumi Tani, Manabu Tokeshi</i>	N/A

Development of Microfluidic Devices for Precise Size Control of Lipid Nanoparticles <i>Masatoshi Maeki, Niko Kimura, Yusuke Sato, Nana Okabe, Akihiko Ishida, Hirofumi Tani, Hidevoshi Harashima. Manabu Tokeshi</i>	N/A
Chemical Synthesis of Neo-Glycolipids and Analysis of Their Cytotoxic Mechanisms <i>Toru Mizuki, Keisuke Hirata, Yoshikata Nakajima, Takashi Uchida, Toru Maekawa</i>	N/A
Small-Size Low-Cost High-Throughput Fluorescence Polarization Analyzer for Multisample Immunoassay in Food Testing <i>Osamu Wakao, Ayano Nakamura, Ken Satou, Chikaaki Mizokuchi, Ken Sumiyoshi, Masatoshi Maeki, Akihiko Ishida. Hirofumi Tani. Koji Shioemura. Akihiko Hihara. Manabu Tokeshi</i>	N/A
Electrochemical Detection of Influenza Virus using a Zinc Oxide Nanostructures-based DNA Immunosensor <i>Abhinav Sharma, Daesoon Lee, Jyoti Bhardwaj, JAESUNG JANG</i>	N/A
NANO-COATING OF METRONIDAZOLE ON DENTAL IMPLANTS FOR ANTIBACTERIAL APPLICATION <i>Norased Nasongkla, Chayanan Tanesanukul, Sirawit Nilyok, Nattarat Wongsuwan, Salunya Tancharoen, Supassara Nilanont</i>	59
Measurement of Bubble Cavitation Signal by Using Color Doppler Ultrasound <i>Ren Koda, Toshitaka Nakajima, Yoshiki Yamakoshi</i>	N/A

Mo-C1: Best Conference Paper

Access to cytoplasm of living single cells by nanofluidic technology <i>Kazuma Mawatari, Ling lin, Takehiko Kitamori</i>	63
A Novel Centrifugal Device for Mass-Production of Healthy Mitochondria <i>Gou-Jen Wang, Sung-Tzu Chen, Jui-Chih Chang, Chin-San Liu</i>	67
A Portable and Visual Electrochemical Sensor for Lactate Monitoring in Sweat <i>Maedeh Mohammadifar, SEOKHEUN CHOI</i>	73
Ultra-Low Power NIR Laser-Triggered Phototherapy and μ CT Imaging of Breast Cancer In Vivo <i>M. Sheikh Mohamed, Srivani Veerananarayanan, Aby Cheruvathoor Poulose, Masuko Rinya, Yasushi Sakamoto, Toru Maekawa. Sakthi Kumar D</i>	78

Mo-C2: Nanomaterials for Stimuli-Responsive Biomedical Applications

Controlled nanoparticle release from stable magnetic microbubble oscillations <i>Yu Gao</i>	N/A
Biocompatible Nanoparticles for Cellular Delivery of Macromolecules <i>Chester Lee Drum</i>	N/A
Stimuli-Responsive Dendritic Polymer-Drug Conjugates as Nanomedicines <i>Kui Luo</i>	N/A
Stimuli-regulated Cancer Theranostics Based on Multifunctional Nanoparticles <i>Yanglong Hou</i>	N/A

Mo-C3: Microfluidics for Biomedical Applications

A light-sheet illumination based microfluidic method for high-throughput cell culture and insitu 3-D imaging <i>Peng Fei</i>	N/A
Droplet Digital PCR Reaction Enabled by Microfluidic Printing <i>Yongfan Men</i>	N/A
3D printed microfluidic device for deciphering tumor microenvironment and 3D tumor culturing <i>Liang Zhao</i>	N/A
Beyond Conventional Medicine with Micro/Nano Technology <i>Yi Zhang</i>	N/A

Mo-C4: Nano- and Microdevices for Bio-object Manipulation and Sensing

Targeted delivery and release of lipid-encapsulated molecules via sequential solution exchange <i>Sangwoo Shin</i>	N/A
Multiscale Additive Manufacturing of Biomedical Devices <i>Yong Lin Kong</i>	N/A

High Performance Biological Analysis for Environmental Health with ABE-Stat, a Palm- Sized, Open-Source Wireless Potentiostat <i>Daniel McKewn Jenkins</i>	N/A
An Ultrasonic Sensor System for Early Detection of Loosening in Orthopedic Implants <i>Jeffrey A. Weldon</i>	N/A
Robust Control of Optically Controlled Bubble Microrobots <i>Zhidong Wang</i>	N/A

Mo-D1: Best Student Paper

Colorimetric Contact Lens based on Cerium Oxide Nanoparticles for Detecting Glucose Levels in Tear <i>Sijin Park, Woo Ri Bae, Dong Yun Lee</i>	N/A
Mechanics of Microneedle-Based Fluid Injection into Skin Tissue <i>Pranav Shrestha, Boris Stoeber</i>	95
Large Area Precision Cell Traction Force Measurements Using Gold Disk Mounted Micro-Pillars <i>Xing Haw Marvin Tan, Angelyn V. Nguyen, Amy C. Rowat, Pei-Yu Chiou</i>	100
Cell Chiral Orientation Enhanced by Intercellular Alignment <i>Hoi Kwan Kwong, Yaozhun Huang, Yuanye Bao, Miu Ling Lam, Ting-Hsuan Chen</i>	104
Application of a Microfluidic-Based Model of a Human Prostate Gland for Cancer Research <i>Fernando Ivich, Meagan Tran, Shekha Tahsin, Frank Sander, Andrew Kraft, Cindy Miranti, Yitshak Zohar, Linan Jiana</i>	109

Mo-D2: Micro Nano and Molecular System for Diagnostics and Therapeutics

Nanoplasmonic Sensor Technologies for Virus Detection and Analysis <i>Nam-Joon Cho, Juha Song</i>	N/A
Nanostructured Antimicrobial Technology <i>Yugen Zhang</i>	N/A
Single-Cell RNA and Mutation Analysis in Circulating Cells of Non-Small Cell Lung Cancer Patients <i>Jamie Mong</i>	N/A
Cost-effective Plasmonic Sensors for Food, Environmental and Biomedical Applications <i>Dehui Wan</i>	N/A
Semiconducting Polymer Nanoparticles for Biological Activation <i>Kanyi Pu</i>	N/A

Mo-D3: Micro/nanofabricated Biomedical Systems for Sensing and Biomimicry

A Biomimetic Blood-Brain Barrier Model for Studying Drug Delivery into the Brain Tissue <i>Hong Nam Kim</i>	N/A
Microfluidic gut-liver chip for modeling hepatic steatosis <i>Jong Hwan Sung</i>	N/A
Microfluidic investigation of trans-epithelial fluidic pumping and the mechanical basis of polycystic kidney disease <i>Sean X. Sun</i>	N/A
On-chip vascular network for three-dimensional disease model <i>Ryuji Yokokawa</i>	N/A
A microengineered human cornea-on-a-chip <i>Jungkyu (Jay) Kim</i>	N/A

Tu-A1: Microfluidics Enabled Single-cell Studies / Encompassing a Wide Range of Microfluidics-based Technologies for Single-cell Studies

Biophysical Phenotyping for High-throughput and Label-free Single Cell Analysis <i>Ye Ai</i>	N/A
Robust Biochips for Dielectrophoretic Sorting and Mechanical Poration of Cells <i>Levent Yobas</i>	N/A
Affordance microfluidics, redesigning microfluidics with intuitive user experiences <i>Sungyoung Choi</i>	N/A

A Novel Workflow for Circulating Tumor Cells Analysis <i>Seung-min Park</i>	N/A
Intracellular delivery from inertial microfluidics <i>Aram Chung</i>	N/A
Tu-A2: Nanomaterials for Immunotherapy	
Chemically engineering T cell therapies for cancer <i>Darrell J. Irvine</i>	N/A
Mesoporous Silica as a Versatile Tool for Cancer Vaccine <i>Jaeyun Kim</i>	N/A
Macroporous scaffolds for Cancer Vaccination: from Concept to Clinical Testing <i>OA Ali, D White, S Lewin, E Doherty, A Stafford, H Daley, O Sturtevant, DJ Mooney</i>	N/A
Biomaterial Immune Niches for Generating Strong and Persistent Humoral Immune Response <i>Luo Gu</i>	N/A
Tu-A3: Cell Biology in Microfluidics	
Microfluidic Synthesis of Polymer Nanoparticles for the Delivery of Curcumin <i>Mandy Hei Man Leung, Amy Shen</i>	N/A
Novel Fabrication of Nonplanar Microfluidic Chip toward Artificial Organ <i>Pin-Chuan Chen</i>	N/A
EWOD on In Vitro Fertilization (IVF) and Embryo Diagnostic <i>Yao-Hsien Huang, Yi-Wen Wang, Hong-Yuan Huang, Da-Jeng Yao</i>	N/A
Proliferation of Tumor Spheroids Inhibited by Alternating Electric Field <i>Kin Fong Lei</i>	N/A
Tu-B1: Micro/nanofabricated Biosensing Platforms for Point-of-care Diagnostics	
An Optical Cavity-based Biosensor for Point-of-care (POC) Medical Diagnostics <i>Seunghyun Kim</i>	N/A
Rapid and Dynamic Switching of Diffusiophoresis for Particle Manipulation on a Chip <i>Taesung Kim</i>	N/A
Colorimetric contact lens biosensor for tear glucose detection <i>Dong Yun Lee</i>	N/A
Bioseparation in Microflows by Diffusiophoresis <i>Jesse T. Ault</i>	N/A
A capillary-driven microfluidics for integrated biosensing platforms <i>Jungkyu (Jay) Kim</i>	N/A
Tu-B2: Nanomedicine for Drug Delivery and Therapy	
3D Human Brain models and Nanoplatfroms for Prognostics and Therapeutics of Neurological Disorders <i>Hansang Choi</i>	N/A
Nanoparticle delivery of CRISPR into the brain rescues behavioral phenotypes of a mouse model of fragile X syndrome <i>Bumwhae Lee, Kunwoo Lee, Shree Panda, Rodrigo Gonzales-Rojas, Anthony Chong, Vladislav Bugay, Hye Min Park, Robert Brenner, Niren Murthy, Hye Youn Lee</i>	N/A
Silk is a therapeutic metamaterial <i>Young Kim</i>	N/A
Tu-Po: Poster Group II	
Effects of mesothelial cells and Collagen-1 on adhesion and proliferation of gastric cancer cells <i>Zhixing Ge, Haibo Yu, Wenguang Yang, Lianqing Liu</i>	N/A
Nanometer Scale Coating Using Atomic Layer Deposition Technique To Enhance Performance of Bio-Medical Devices <i>Aju Jugessur, Andrew Textor, Connor Grierson</i>	146
Porphyrin Metal-organic Framework: Attenuation of the Aggregation and Neurotoxicity of Amyloid-β <i>Jiuhai Wang, Mo Yang</i>	N/A

Nanopatterned Polycaprolactone/Cellulose Nanocrystal Composite Scaffold for Cardiovascular Tissue Engineering <i>Jeffery Henson, Joseph Batta-Mpouma, Woochan Kim, Cody Chivers, Arvind Sinha, Hanna Jensen, Morten Jensen. Janaho Kim. Jin-Woo Kim</i>	N/A
Synchronous Cooperative Relaying Technique for Three-Dimensional Diffusion-Based Molecular Nano Communication Networks <i>Ghalib Alshammri, Walid Ahmed, Victor Lawrence</i>	154
Quantitative Analysis of Tris-HCl Buffer using THz Time Domain Spectroscopy <i>Gyuseok Lee, Soonsung Lee, Jinha Lim, Jonggeon Lee, Haewook Han</i>	N/A
THz Vibration Spectroscopy of Crystalline α -Lactose Monohydrate <i>Jinha Lim, Euna Jung, Gyuseok Lee, Jonggeon Lee, Kisu Park, Haewook Han</i>	N/A
Study of Human Articular Cartilage for THz Biomedical Sensing <i>Jonggeon Lee, Euna Jung, Hyuck Jae Choi, Byung-hyun Min, Jinga Lim, Haewook Han</i>	N/A

Tu-C1: Micro/Nano Systems for Biomedical Applications

Digital diffraction diagnostics for point-of-care cancer detection <i>Cesar M. Castro</i>	N/A
Hyperpolarized Micro-NMR for Metabolic Flux Analysis in Cancer Stem Cells and Rapid Assessment of Therapeutic Response <i>Sangmoo Jeong</i>	N/A
Elastomeric focusing enables portable microfluidic valves <i>Nate Cira</i>	N/A
Nanoplasmonic exosome (nPLEX) analysis for cancer diagnosis <i>Hyungsoon Im</i>	N/A
Nanosensor platforms for molecular analyses of circulating biomarkers <i>Huilin Shao</i>	N/A

Tu-C2: Nanoparticles for Imaging and Therapy A

Mechanogenetics to interrogate operating principles of biomolecular machines in cells <i>Kaden M. Southard, Hyun-Jung Lee, Daeha Seo, Justin Farlow, Zev J. Gartner, Young-wook Jun</i>	N/A
Molecular Imaging Endoscopy using Nanomaterials for the Early Detection of Colon Tumors <i>Seung-Jae Myung</i>	N/A
Multiphoton tissue imaging by using clinically compatible moxifloxacin labeling <i>Ki Hean Kim</i>	N/A
Liver specific MRI contrast agents based on Mn ²⁺ containing nanoparticles <i>In Su Lee</i>	N/A
Quantum Dot Conjugates for Imaging Applications <i>Sungjee Kim</i>	N/A

Tu-C3: Micro/Nanosystems Mechanobiology A

Mechanobiology of cell collectives on 2- and 3-D substrata <i>Chwee Teck Lim</i>	N/A
Visualization of motions and forces in cellular collectives <i>Jennifer H. Shin</i>	N/A
Autonomous alignment of mesenchymal cells mediated by cell-cell and cell-matrix interactions <i>Yubing Sun</i>	N/A
Topotaxis: a new mechanism of directed cell migration in topographic gradients of extracellular matrix <i>JinSeok Park</i>	N/A

Tu-D1: Nanoscale Hybrid Composite Materials in Bio/Nano medicine: Design, Assembly and Application

A Model for Controlled Growth of Self-Assemblies through Harmonic Potentials <i>Russell Deaton</i>	N/A
---	-----

Bio-Inspired Configurable Multiscale Topographical Cues for Guided Orientation of Cells and Tissue Regeneration <i>Jangho Kim</i>	N/A
Natural Resource-derived Biomaterials with Nanotechnology and 3D Printing Techniques <i>Seonwoo Hoon, Ki-Taek Lim, Jangho Kim, Kyongje Jang, Jong Hoon Chung</i>	N/A
THz Biomolecular Spectroscopy <i>Haewook Han, Jin-Woo Kim</i>	N/A
Multifunctional Hybrid Nanomaterials in Bio/Nano Medicine: Design and Assembly <i>Jin-Woo Kim, Haewook Han</i>	N/A

Tu-D2: Nanoparticles for Imaging and Therapy B

In vivo oncophotonics with endoscopic approaches for translational medicine <i>Euiheon Chung</i>	N/A
Biocompatible Carbon Nanoparticles for Diagnostics and Therapeutics <i>Woosung Kwon</i>	N/A
Human ferritin nanocage for cancer therapeutic delivery <i>Jung Soo Suk</i>	N/A
Self-Powered Healthcare Sensing System for Humidity, Sweat, and Gait Phase Detection <i>Zong-Hong Lin</i>	N/A

Tu-D3: Micro/Nanosystems Mechanobiology B

Engineering porous membranes to optimize in vitro cellular barrier models <i>Thomas Gaborski</i>	N/A
Mechanobiological approach into the subcellular nuclear mechanics <i>Dong-Hwee Kim</i>	N/A
Probing cross-family signaling <i>Princess I. Imoukhuede</i>	N/A
Microphysiological systems for studying lymphatic biology <i>Esak (Isaac) Lee</i>	N/A
Transplantable nano cellular matrices for scaled-up culture of human ES/iPS cells <i>Ken-ichiro Kamei</i>	N/A

We-A1: Multidimensional Responsive Tool in Nano/biotechnology

Engineering tissue interfaces by nanobiomaterials and microfluidic bioprinting <i>Hae Lin Jang</i>	N/A
Ultrasensitive mechanical crack-based sensor inspired by the spider sensory system <i>Daeshik Kang</i>	N/A
Programmable Soft Matter with Magnetic Nanoparticle Assembly for Biological Application <i>Ji Yun Kim</i>	N/A
Protein diffusion and aggregation kinetics in low electric-field frequency modulations <i>Kyongok Kang</i>	N/A

We-A2: Microfluidic Platforms for NanoMed

Vortex-integrated Bioeditor for personalized therapy <i>Soojung Claire Hur</i>	N/A
New Tools and New Exosome Biology for Nanomedicine <i>Jong Wook Hong</i>	N/A
Chip calorimeters for cellular metabolic rate measurements and cell-based assay <i>Wonhee Lee</i>	N/A
Investigation of Cancer Cell Metastasis in Microfluidic System <i>Jessie S. Jeon</i>	N/A

We-A3: Emerging Nanomaterials and Nanotechnologies for Engineering Bio-integrated Devices and Systems

Physical Biology at the Semiconductor-based Biointerfaces <i>Bozhi Tian</i>	N/A
Bio-inspired theranostic nanomedicine for cancer and inflammatory diseases <i>Sangyong Jon</i>	N/A
Fabricating Bio-responsive Devices for Effective Biochemical Reaction <i>Dong Rip Kim</i>	N/A
Scalable, Functional Nanomeshes for Next Generation, Transparent and Stretchable Bioelectronics <i>Hui Fang</i>	N/A
Smart Contact Lens for Theranostic Applications <i>Sei Kwang Hahn</i>	N/A

We-B1: Portable or Wearable Bio-medical Sensor Systems

Stretchable Ionics – A promising candidate for oncoming wearable devices <i>Jeong-Yun Sun</i>	N/A
Hydrogels and e-Textiles in Wearable Healthcare and Energy Device Applications <i>Hyun-Joong Chung</i>	N/A
Wearable Mobile Healthcare Emergency Sensor <i>Ui Hyun Jung, Srinivas Gandla, Naqi Siddiqi, Hyeok Ju Chae, SunJu Kang, Sunkook Kim</i>	N/A
Nanoparticle Building-blocks for Bio-functional Structures and Biosensors <i>Youngdo Jeong</i>	N/A
3D-printed Portable Sensor Systems <i>Woo Soo Kim</i>	N/A

We-B2: Nanomedicine for Drug Delivery and Immunotherapy

Image Guided Cancer Nano-Immunotherapy in Interventional Radiology <i>Dong-Hyun Kim</i>	N/A
Biomedical Application of Polypeptide for Cancer Therapy <i>Yeu-Chun Kim</i>	N/A
Efficient In vivo Phage Therapy via Immunological Cloaking <i>Yoon Sung Nam</i>	N/A
Oral Delivery of Macromolecules Using Lactoferrin-Based Platform Technology <i>Dong Yun Lee</i>	N/A
Oral Therapeutic Agents Delivery Using Transport System <i>Yong-kyu Lee</i>	N/A

We-B3: Nanobiomanufacturing

Reconstitution of Inherent Left-Right Asymmetry in Skeletal Myogenesis <i>Hin Sum Man, Siying Wu, Tiffany Ng, Fu Kin Ho, Ting-Hsuan Chen</i>	214
Measurement of Impedance Changes Associated with Developmental Phases in Artemia Cysts <i>M Arifur Rahman, Kainalu Matthews, Maurice Garcia, Aaron Ohta</i>	218
Carbon Nanowalls as Prospective Cell Attachment and Proliferation Substrates <i>Vimal Kumar, Sheikh Mohamed Mohamed, Srivani Veeranaryanan, Toru Maekawa, Sakthi Kumar D</i>	N/A
Pneumatic Microfluidic Device by 3D Printing Technology for Insulin Determination <i>Ping Yao, Tongyu Xu, Steve Tung</i>	224

We-C2: Functional Nanomaterials for 3D Bioprinting

Plant Seed-Inspired Cytoprotection and Germination for Large-Scale Biofabrication <i>Houwen Matthew Pan, Hyun-Do Jung, Juha Song</i>	N/A
Synthetic Hydrogel Inks for Direct-Write 3D Printing <i>Alshakim Nelson</i>	N/A
Bioinspired “growing” cardiovascular implant devices by 3D printing <i>Sung Hoon Kang</i>	N/A

Remote transdermal hydrogel formation and cell delivery using electromagnetically responsive nanomaterials <i>Jae Young Lee</i>	N/A
Integrating Advanced 3D Bioprinting and Nanotechnology for Neural Engineering <i>Se-jun Lee, Lijie Grace Zhang</i>	N/A

We-C3: Multiplexing Imaging at Nano- and Micron- scale

Mechanobiology in 3D: Combined Light Sheet Microscopy/AFM for insights into Phagocytosis and Cell Nuclear mechanics <i>Richard Superfine</i>	N/A
Versatile and High-throughput Microfluidics Platform for Dorsal Cell Mechanics <i>Yun Chen</i>	N/A
Motility, Mechanics and Microscopes: Local activation of calcium signaling at focal adhesions mediates cell mechanosensing and migration <i>Sergey Plotnikov</i>	N/A
Myosin II governs intracellular pressure and traction by distinct tropomyosin-dependent mechanisms <i>Ryan J. Petrie</i>	N/A
Characterization of Biologically Related Systems with Imaging TOF-SIMS and Complementary Techniques <i>Lara J. Gamble</i>	N/A

We-D1: Nanobiosensing

The development of ferrocene-containing multifunctional redox copolymer for application of electrochemical sensor <i>Daekyung Sung</i>	N/A
Collection and Sensing of PM2.5 in Microfluidic Devices <i>Taisuke Shimada, Hirotooshi Yasaki, Takao Yasui, Noritada Kaji, Yoshinobu Baba</i>	240
A Paper-based Enzymatic Sensor Array for Visual Detection of Glucose Levels in Urine <i>Maedeh Mohammadifar, SEOKHEUN CHOI</i>	244
A quantitative bead-immunosensing technique by using smartphone <i>Yu-Jui Fan, Yi-Fan Fang, Pao-Wei Tseng, Horn-Jiunn Sheen</i>	N/A

We-D2: Nanomedicine I

Dendronized Semiconducting Polymer as the Gene Carrier and Expression Activator <i>Yan Lyu, Kanyi Pu</i>	N/A
Feasibility of X-ray Fluorescence Computed Tomography (XFCT) Imaging of Human Lung Tumors loaded with Gold Nanoparticles: A Monte Carlo Study <i>Md Foiez Ahmed, Sandun Jayarathna, Sang Hyun Cho</i>	250
Determine the Binding Epitope of the Low Affinity Interaction between Dengue Virus and CLEC5A by a Multivalent-Interaction-Reinforcing Sensor Surface <i>Yen-Ting Tung, Ruei-Ning Jhang, Gou-Jen Wang, Yi-Ling Lin</i>	255
Characterization of Biological Cell Viability by Electrophoretic Coulter Method <i>Yoshikata Nakajima, Tomofumi Ukai, Toru Mizuki, M. Sheikh Mohamed, Tatsuro Hanajiri</i>	N/A

We-D3: Nanomedicine II

Atomic Force Microscopy Study of Surfactant Treated CVD Graphene <i>Abayomi Omolewu, Bradley Martsching, Guangyi Shi, Ryan Tian, Xiangbo Meng, Uchechukwu Wejinya</i>	261
Micro/nano-technologies for Management of Abnormal Scarring <i>Chenjie Xu</i>	N/A
Controlled release of vancomycin from bone plate via layer-by-layer coating <i>Norased Nasongkla, Komgrit Eawsakul</i>	264