

15th Annual Meeting of Nano biomedical Society (online) Nov.4th and 5th Program

1st Day (November 4th)

9:35-9:45 Opening Remark : Akiyoshi Taniguchi (NIMS) President

【General session 1】

(8 min presentation, 7 min questions) Chairman : Yukiko T. Matsunaga (Univ. of Tokyo)

9:45-10:00 1-1 Immuno-histochemical analyses of drug transporters in HepG2-NIAS cells after the oxygenation culture via a collagen vitrigel membrane

Ayumi Oshikata-Miyazaki, Toshiaki Takezawa
(National Agriculture and Food Research Organization)

10:00-10:15 1-2 Controlled Cell Sheet Structures Using Patterned Smart Surfaces via Polymer Stamping

Masamichi Nakayama, Junichi Tonegawa, Akihiko Kikuchi, Masayuki Yamato, Teruo Okano
(Tokyo Women's Med. Univ., Tokyo Univ. of Science)

10:15-10:30 1-3 Synthesis and characterization of temperature-responsive polymer, poly(N-acryloylnipecotamide)

Yoshikatsu Akiyama(Tokyo Women's Medical Univ.)

10:30-10:45 1-4 Development of a hydrophobically modified Alaska pollock derived gelatin sheet for the treatment of pulmonary air leaks

Hiroaki Ichimaru, Yosuke Mizuno, Xi Chen, Akihiro Nishiguchi, Tetsushi Taguchi
(Univ. of Tsukuba, NIMS)

10:45-10:00 Coffee Break

【General session 2】

(8 min presentation, 7 min questions) Chairman : Keitaro Yoshimoto (Univ. of Tokyo)

11:00-11:15 2-1 Development of endoscopic injection material with cushion and sealing effect

Xi Chen, Akihiro Nishiguchi, Tetsushi Taguchi (NIMS)

11:15-11:30 2-2 Design of shape-memory polymeric device for fetoscopic surgery

Ailifeire Fulati, Koichiro Uto, Mitsuhiro Ebara
(NIMS, Univ. of Tsukuba, Tokyo Univ. of Science)

11:30-11:45 2-3 Apoptotic Cell Membrane-Mimetic Polymers as a Reagent for Blood Coagulation Test
Liang YUE, Mitsuhiro Ebara (Univ. of Tsukuba, NIMS, Tokyo Univ. of Science)

11:45-12:00 2-4 The Potential of Fluidic Material as an Anticancer Drug Screening Platform
Mazaya Najmina, Koichiro Uto, Mitsuhiro Ebara
(Univ. of Tsukuba, NIMS, Tokyo Univ. of Science)

12:00-13:00 Lunch Break

【General session 3】

(8 min presentation, 7 min questions) Chairman : Koki Kanehira (TOTO)

13:00-13:15 3-1 Impact of Extracellular Matrix Ligand Density on Appearance of Leader Cells Using Photoactivatable Substrates
Shimaa A. Abdellatef, Jun Nakanishi (NIMS)

13:15-13:30 3-2 Forming Monomeric Guanine-Quadruplex Structure for enhancing CpG oligodeoxynucleotides-mediated immunostimulatory properties
Anh Thi Tram Tu, Kazuaki Hoshi, Kazunori Ikebukuro, Tomohiko Yamazaki
(Hokkaido Univ., NIMS, Tokyo Univ. of Agriculture and Technology)

13:30-13:45 3-3 Acceleration of proliferation and calcification of MC3T3-E1 cells by titanium with surface periodic nano-grooves patterns fabricated by femtosecond laser irradiation
Peng Chen, Naoki Shinohara, Togo Shinonaga, Maki Ashida, Yuji Sato, Masahiro Tsukamoto, Yusuke Tsutsumi, Takao Hanawa
(Tokyo Medical and Dental Univ., Osaka Univ., Okayama Univ., NIMS)

13:45-14:00 3-4 Biomimetic porous precursor calcium phosphate nanoparticles for bone tissue engineering
Sara Romanazzo, Rakib Sheikh, Kang Lin, Iman Roohani
(Univ. of New South Wales)

14:00-14:15 3-5 The teratogenic effects of oral administration of silver nanoparticles in female albino rats
Eman Abdelraheem¹, Mahmoud Elalfy¹, Mamdouh AbouelMaged¹, Alaa Fehaid
(Mansoura Univ.)

14:15-14:30 Coffee Break

【Symposium 1】 ~Nanobio for Medical and Device~

(12 min presentation, 8 min questions) Chairman : Toshiaki Takezawa

(National Agriculture and Food Research Organization)

14:30-14:50 S1-1 Mimicking the Renal disease: From *in vivo* to *in vitro* Disease models

Chia-Jung Chang (NIMS)

14:50-15:10 S1-2 Cell fusion method using a microfluidic device toward organelle studies

Ken-Ichi Wada (Kyushu Univ.)

15:10-15:30 S1-3 Weird apoptotic activities of epidermal growth factor upon conjugation
to nanoparticles

Jun Nakanishi (NIMS)

15:30-15:50 S1-4 3D *in vitro* model visualizing age-related changes in tissue

Yukiko T. Matsunaga (Univ. of Tokyo)

【Primary Lecture 1】

(20 min presentation, 10 min questions) Chairman : Akiyoshi Taniguchi (NIMS)

16:00-16:30 Regenerative medicine with cell sheets fabricated on temperature-responsive culture
surfaces having nano-biointerfaces

Masayuki Yamato (Tokyo women's medical Univ.)

【Primary Lecture 2】

(20 min presentation, 10 min questions) Chairman : Akiyoshi Taniguchi (NIMS)

16:30-17:00 V-ATPase in ameloblasts play a role for trafficking of secretory lysosome as a nanomotor

Hidemitsu Harada (Iwate Medical Univ.)

17:00-17:10 Closing Address for the 1st Day : Akiyoshi Taniguchi (NIMS) President

2nd Day (November 5th)

【General session 4】

(8 min presentation, 7 min questions) Chairman : Koki Kanehira (TOTO)

- 9:30-9:45 4-1 Development of angiogenic G-quadruplex DNA aptamers
Toru Yoshitomi, Takumi Oguro, Misako Hayashi, Keiko Kimura¹, Fumiya Wayama,
Hitoshi Furusho, Keitaro Yoshimoto
(Univ. of Tokyo, Nissan Chemical Industries, Ltd., JST)
- 9:45-10:00 4-2 Fine-tuning of nucleic acid structures for enhanced blood circulation of single
oligonucleotide-loaded ultrasmall nanocarriers
Hiroyuki Chaya, Mitsuru Naito, Kazuko Toh, Beob Soo Kim, Kotaro Hayashi,
Shigeto Fukushima, Kazunori Kataoka, Kanjiro Miyata
(Univ. of Tokyo, iCONM)
- 10:00-10:15 4-3 Preparation of macrophage adhering microparticles for immunological evaluation of
biomaterials
Toda Shota, Yoshihide Hashimoto, Tsuyoshi Kimura, Akio Kishida
(Tokyo Medical and Dental Univ.)
- 10:15-10:30 4-4 Pulmonary effect of exposure to Fe₃O₄-PEG-PLGA nanoparticles in wild type and
Nrf2 knockout mice
Harue Sato, Cai Zong, Sahoko Ichihara, Ken Itoh, Masayuki Yamamoto,
Sonja Boland, Armelle Baeza, Gaku Ichihara
(Tokyo Univ. of Science, Jichi Medical Univ., Hirosaki Univ., Tohoku Univ., Univ. of Paris)
- 10:30-10:45 Coffee Break

【General session 5】

(8 min presentation, 7 min questions) Chairman : Koichi Imai (Osaka Dental Univ.)

- 10:45-11:00 5-1 Fabrication of Engineered 3D Gut Tissue by Air-liquid Interface Culture Using
Dual-layered Scaffold of Paper and Microfibers.
Mai ONUKI, Mari NAGASAWA, Yuji TSUCHIDO, Naoya TAKEDA
(Waseda Univ.)

- 11:00-11:15 5-2 Fabrication of Luminal Blood Vessels using Biomass-derived Three-dimensional Culture Scaffold
Takamasa Tsunoda, Haruka Nishida, Yuji Tsuchido,
Tetsushi Sekiguchi, Shuichi Shoji, Naoya Takeda (Waseda Univ.)
- 11:15-11:30 5-3 Cytotoxicity of two types of nano carbon materials in Three-dimensional culture
M. Nakai, T. Yokoyama, Y. Hashimoto, K. Imai
(Osaka Dental Univ.)
- 11:30-11:45 5-4 Adjuvacity of heme containing polymer in mouse
Tomohiko Yamazaki, Kazuaki Hoshi, Anh Thi Tram Tu, Chiaki Yoshikawa,
Kazuhisa Sugai, Yoji Hakamata
(NIMS, Hokkaido Univ., Nippon Veterinary and Life Science Univ.)
- 11:45-12:00 5-5 Improvement of biocompatibility on Co-Cr-Mo alloy using solid binding peptide
Satoshi Migita, Keita Wakabayashi, Tomohiko Yamazaki
(Yamagata Univ., NIMS)
- 12:00-13:00 Lunch Break
- 【Presidential Lecture】** Chairman : Gaku Ichihara (Tokyo Univ. of Science)
- 13:00-13:30 My happy retirement as a scientist Akiyoshi Taniguchi (NIMS)
- 13:30-13:40 Coffee Break
- 【Symposium 2】** ~Nanobio for Drugs and Treatment~
(12 min presentation, 8 min questions) Chairman : Keitaro Yoshimoto (Univ. of Tokyo)
- 13:40-14:00 S2-1 Biomedical application of decellularized ECM
Tsuayoshi Kimura (Tokyo Medical and Dental Univ.)
- 14:00-14:20 S2-2 Development of smart mechano-biomaterials for pharmaceutical and therapeutical applications
Koichiro Uto (NIMS)

- 14:20-14:40 S2-3 Sequence-dependent gene expression induced by cysteine- installed PEGylated oligolysines
Yuichi Yamasaki (Univ. of Tokyo)
- 14:40-15:00 S2-4 Development of NanoBiomaterials for Enhanced Oligonucleotide Delivery
Kanjiro Miyata (Univ. of Tokyo)
- 15:00-15:10 Coffee Break

【Primary Lecture 3】

(20 min presentation, 10 min questions) Chairman : Akiyoshi Taniguchi (NIMS)

- 15:10-15:40 Biofunctionalization of metals with nanometer-level surface structure
Takao Hanawa (Tokyo Medical and Dental Univ.)

【Primary Lecture 4】

(20 min presentation, 10 min questions) Chairman : Akiyoshi Taniguchi (NIMS)

- 15:40-16:10 Development of sprayable adhesive particles that suppress complications after removal of early-stage gastrointestinal cancer
Tetsushi Taguchi (NIMS)

【Primary Lecture 5】

(20 min presentation, 10 min questions) Chairman : Akiyoshi Taniguchi (NIMS)

- 16:10-16:40 Research approaches for over 30 years as a cell culture scientist: Aiming at practical application from the creation of basic technologies
Toshiaki Takezawa (National Agriculture and Food Research Organization)
- 16:40-16:50 Presentation of Annual Conference Award and Encouragement Award
and Closing Address : Akiyoshi Taniguchi (NIMS) President