

## SIB2011 Program

July 12, 2011 (Tues.)

16:00-18:00 **Registration**

18:00-19:30 **Welcome attraction**

July 13, 2011 (Wed.)

09:00-09:15 **Opening Ceremony (Room A)**

09:15-09:55 **Plenary Talk (Room A)**

- 13G1. Tubular-level dispersion, continuous network construction, and permanent stabilization: Three essential steps toward utilization of carbon nanotubes as 1-dimensional additives for industrial applications  
Bunshi Fugetsu (Graduate School of Environmental Science, Hokkaido University, Japan)

**Surface patterning and vasculature (Room A)**

10:00-10:25 **Invited Talk**

- 13SA1 (S9). Surface and Interface of Bio/Blood Compatible Polymers  
- Design of 2D/3D bio-interfaces and the compatibility mechanism -  
Masaru Tanaka (Department of Biochemical Engineering, Graduate School of Science and Engineering, Yamagata University, Japan)

10:25-10:55 **Oral Presentation**

- 13A1 (SIB-030). The Effect of Surface Patterning on Platelet Adhesion  
Yonghui Ding<sup>1</sup>, Yang Leng<sup>1,2,\*</sup>, Nan Huang<sup>3</sup>, Ping Yang<sup>3</sup>, Xiong Lu<sup>3</sup>, Xiang Ge<sup>2</sup>, Fuzeng Ren<sup>2</sup>, Kefeng Wang<sup>2</sup>, Lijuan Lei<sup>3</sup>, Xiang Guo<sup>3</sup> (<sup>1</sup> Bioengineering Graduate Program, Hong Kong University of Science and Technology, Hong Kong, <sup>2</sup> Department of Mechanical Engineering, Hong Kong University of Science and Technology, Hong Kong, <sup>3</sup> Southwest Jiaotong University, People's Republic of China)
- 13A2 (SIB-010). Effects of cream and rayon fibers containing particles of Rhyolite on water and blood  
Kikuji Yamashita<sup>1</sup>, Junzou Ohishi<sup>2</sup>, Shin-od Dalkksuren<sup>1</sup>, Yukari Tsukada<sup>1</sup>, Kaori Sumida<sup>1</sup>, Teruo ONO<sup>2</sup>, Seiichiro KITAMURA<sup>1</sup> (<sup>1</sup> University of Tokushima graduate school, Japan, <sup>2</sup> MATERA Inc., Japan)

**Synthesis and Surface modification (I) (Room B)**

~~10:00-10:25~~ ~~Invited Talk~~ **Canceled**

- 13SB1 (SIB-139). Surface modification of titanium for biomaterial applications  
Kyo-Han Kim (Department of Dental Biomaterials, School of Dentistry, Kyungpook National University, Korea)

10:25-10:55 **Oral Presentation**

- 13B1 (SIB-025). Local and controlled liberation of dexamethasone from nanostructured electrodes covered with polypyrrole by different electrochemical techniques  
Lucas Leprince, Vincent Callegari, Sophie Demoustier-Champagne (Université catholique de Louvain, Belgium)

- 13B2 (SIB-038). Microstructural and Mechanical Characterization of Porous Anodic TiO<sub>2</sub> Layer on Titanium  
Zhao-Xiang Chen, W.X. Wang, Y. Takao, T. Matsubara (Kyushu University, Japan)

10:55-11:10 **Intermission**

**Nano particles, nanotoxicology and nanobiomedicine (I) (Room A)**

11:10-11:35 **Invited Talk**

- 13SA2 (S10). Medical and Dental Applications of nano-Hydroxyapatite  
Hideki Aoki and T. Li (International Apatite Institute Co., Japan)

11:35-12:35 **Oral Presentation**

- 13A3 (SIB-110). Immobilization of gold nanoparticles on a sapphire substrate  
Hiroyuki Takahashi<sup>1\*</sup>, Naoto Shirahata<sup>2</sup>, Tetsu Yonegawa (<sup>1</sup>Graduate School of Engineering, Hokkaido University, Japan, <sup>2</sup>National Institute for Materials Science, Japan)
- 13A4 (SIB-031). Influence of a Non-reducing Disaccharide on the Fabrication of Calcium Phosphate Nanopowders  
Selvakumar Prakash Parthiban, I.Y. Kim and C. Ohtsuki (Nagoya University, Japan)
- 13A5 (SIB-115). On-tissue MALDI-MS Analysis with the Chemical Printer  
Masaru Furuta<sup>\*</sup> (Shimadzu Corporation, Japan)
- 13A6 (SIB-059). Toxicity effects of Graphene in the seedling stage of cabbage, tomato, red spinach, and lettuce  
Parvin Begum<sup>1\*</sup>, Refi Ikhtiar<sup>1</sup>, Bunshi Fugetsu<sup>1</sup>, Makoto Matsuoka<sup>1</sup>, Tsukasa Akasaka<sup>2</sup>, Fumio Watari<sup>2</sup> (<sup>1</sup>Graduate School of Environmental Science, Hokkaido University, Japan, <sup>2</sup>Graduate School of Dental Medicine, Hokkaido University)

**Synthesis and surface modification (II) (Room B)**

11:10-11:35 **Invited Talk**

- 13SB2 (S6). Titanium Implants Fabrication Using Selective Electron Beam Melting  
Toru Okabe and Mari Koike (Baylor College of Dentistry, USA)

11:35-12:20 **Oral Presentation**

- 13B3 (SIB-128). Three-dimensional highly porous collagen/HA scaffolds fabricated with electrohydrodynamic process  
SeungHyun Ahn, GeunHyung Kim<sup>\*</sup> (Lab. of Bio/Nanofluidics, Dept of Mechanical Engineering, Chosun University, South Korea)
- 13B4 (SIB-131). The Nano-casting Method Using an Alternative Current Electric- field and Interdigitated Electrode for Replicating Micro/Nano- surface of Superhydrophobic Plant Leaf  
HoJun Jeon, Yongbok Kim, JaeHong Park, Jiseok Lee, GeuHyung Kim<sup>\*</sup> (Lab. of Bio/nanofluidics, Dept. of Mechanical Engineering, Chosun University, South Korea)
- 13B5 (SIB-104). Surface Structure and Biocompatibility of Demineralized Dentin Matrix Granules Soaked in a Simulated Body Fluid  
Toshiyuki Akazawa<sup>1</sup>, Masaru Murata<sup>2</sup>, Jun Hino, Futami Nagano<sup>3</sup>, Tatsuhiko Shigyo<sup>1</sup>, Takafumi Nomura<sup>1</sup>, Hiroyuki Inano<sup>1</sup>, Kohji Itabashi<sup>1</sup>, Tooru Yamagishi<sup>1</sup>, Katsuo Nakamura<sup>1</sup>, Tooru Takahashi<sup>1</sup>, Shuji Iida<sup>4</sup>, Haruhiko Kashiwazaki<sup>5</sup> (<sup>1</sup>Industrial Research

Institute, Industrial Technology Research Development, Hokkaido Research Organization, Japan, <sup>2</sup> Oral and Maxillofacial Surgery, School of Dentistry, Health Sciences University of Hokkaido, Japan, <sup>3</sup> Biomaterials and Bioengineering, School of Dentistry, Health Sciences University of Hokkaido, Japan, <sup>4</sup> Department of Oral Functional Prosthodontics, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>5</sup> Department of Oral Health Science, Graduate School of Dental Medicine, Hokkaido University, Japan)

12:35-12:40 **Conference Photo (Entrance)**

12:40-14:00 **Lunch Time**

### **Cell-biomaterial interaction and tissue regeneration (I) (Room A)**

14:00-14:25 **Invited Talk**

13SA3 (S2). Employing metabonomics to evaluate biomaterials' biocompatibility on molecular level  
Wei Li, Jinglin Zhou, Chongyun Bao (State Key Laboratory of Oral Diseases, West China school of Dentistry, Sichuan University, China)

14:25-15:10 **Oral Presentation**

13A7 (SIB-073). Effect of size, shape and surface properties of gold nanoparticles on cell culture  
Chih-Wei Chou<sup>1\*</sup>, Huey-Shan Hung<sup>2</sup>, Onon Batnyam<sup>1,3</sup>, Wan-Chu Huang<sup>1</sup>, Te-Hsing Wu<sup>4</sup> (<sup>1</sup> Department of Cosmeceutic, China Medical University, Taiwan, <sup>2</sup> Graduate Institute of Basic Medical Science, China Medical University, Taiwan, <sup>3</sup> Asia University, <sup>4</sup> Institute of Nuclear Energy Research, Atomic Energy Council)

13A8 (SIB-080). The biocompatibility and antibacterial properties of chitosan-hyaluronic acid -gold nanocomposites  
Hui-Hauan<sup>1\*</sup>, Chih-Wei Chou<sup>1</sup> (<sup>1</sup>China Medical University, Taiwan)

13A9 (SIB-034). Porous Chitosan Scaffold Cross-linked by Chemical and Natural Procedure Applied to Investigate Epithelial Cell Regeneration  
Chih-Kai Yao<sup>1</sup>, Jiunn-Der Liao<sup>1,2,\*</sup>, Wei-I Sung<sup>1</sup> (<sup>1</sup>Department of Materials Science and Engineering, <sup>2</sup>Center of Micro/Nano Science and Technology, National Cheng Kung University, Taiwan)

### **Biomolecules grafting and immobilization (I) (Room B)**

14:00-14:25 **Invited Talk**

13SB3 (SIB-049). Biological responses against lipid membrane containing PEG  
Tatsuhiko Ishida<sup>1\*</sup>, Hiroshi Kiwada<sup>1</sup> (<sup>1</sup>Institute of Health Biosciences, The University of Tokushima, Japan)

14:25-15:10 **Oral Presentation**

13B7 (SIB-039). Effect of Functional Groups and Primary Sequences of Peptides for Silica Biomineralization  
Tatsuya Kuno<sup>1,2</sup>, Takayuki Nonoyama<sup>1,2</sup>, Kiyoshi Hirao<sup>1,2</sup>, Katsuya Kato<sup>2\*</sup> (<sup>1</sup>Nagoya Institute of Technology, Japan, <sup>2</sup>National Institute of Advanced Industrial Science and Technology, Japan)

13B8 (SIB-124). Designed hybrid scaffolds consisted of polycaprolactone (PCL) /fucoidan with coating process of collagen  
Gyehyun Jin, HoJun Jeon, GeunHyung Kim\* (Lab. of Bio/nanofluidics, Dept. of Mechanical Engineering, Chosun University, South Korea)

13B9 (SIB-125). Designed hierarchical scaffolds consisted of polycaprolactone(PCL) / $\beta$ -tricalcium phosphate( $\beta$ -TCP) with coating process of collagen/phlorotannin

MyungGu Yeo, GeunHyung Kim\* (Lab. of Bio/Nanofluidics, Dept of Mechanical Engineering, Chosun University, South Korea)

15:10-15:25 **Intermission**

15:25-16:05 **Plenary Talk (Room A)**

13G2. Current progress of tooth adhesion: Nano-based approach

Hidehiko Sano (Hokkaido University Graduate School of Dental Medicine, Department of Restorative Dentistry, Japan)

16:05-17:20 **Poster Oral Presentation (Room A)**

17:20-18:20 **Poster Discussion (Room C)**

18:20- **Attraction (Hall)**

### Poster Oral Presentation and Poster Discussion (July 13)

#### 1. Synthesis and surface modification (I)

13P1 (SIB-023). Surface characteristics and osteoblastic cell response to titanium-8 tantalum-3 neobium alloy

De-zhe Cui<sup>1,2</sup>, Ki-Deog Park<sup>1</sup>, Kyung-Ku Lee<sup>3</sup>, Young-Suk Chung<sup>1</sup>, Bo-Ah Lee<sup>1</sup>, Yang-Jin Lee<sup>1</sup>, Hyun-Ju Chung<sup>1</sup>, Young-Joon Kim<sup>1</sup> (<sup>1</sup> Chonnam National University, Korea, <sup>2</sup> Yanbian University, People's Republic of China, <sup>3</sup> Chonnam National University, Gwang-ju, Korea)

13P2 (SIB-044). Stability in thin films of binary mixtures

Santiago Madruga<sup>1\*</sup>, Fathi Bribesh<sup>2</sup>, Uwe Thiele<sup>2</sup> (<sup>1</sup>Polytechnic University of Madrid, Spain, <sup>2</sup>Loughborough University, Spain)

13P4 (SIB-053). Enhanced compatibility of chemically modified titanium surface with periodontal ligament cells

Takashi Kado<sup>1</sup>, Tatsuhiro Hidaka<sup>1</sup>, Hideki Aita<sup>2</sup>, Kazuhiko Endo<sup>3</sup>, Yasushi Furuichi<sup>1</sup> (<sup>1</sup>Department of Oral Rehabilitation Division of Periodontology & Endodontology School of Dentistry Health Sciences University of Hokkaido, <sup>2</sup>Department of Oral Rehabilitation Division of Occlusion and Removable Prosthodontics, <sup>3</sup>Department of Oral Rehabilitation Division of Biomaterials and Bioengineering, Dentistry Health Sciences University of Hokkaido, Japan)

13P5 (SIB-063). Surface modification of anodized titanium with Carbon Nanotubes and its in vitro compatibility

Saori Inoue<sup>1\*</sup>, Motohiro Uo<sup>2</sup>, Eri Hirata<sup>1</sup>, Min-Ho Lee<sup>3</sup>, Tae Sung Bae<sup>3</sup>, Fumio Watari<sup>1</sup>, Atsuro Yokoyama<sup>1</sup> (<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Tokyo Medical and Dental University, Japan, <sup>3</sup>Chonbuk National University, China)

#### 2. Drug release

13P6 (SIB-070). Friction and wear behavior of UHMWPE loaded with alendronate sodium for anti-osteolysis

Shuxin Qu<sup>1\*</sup>, DanYang<sup>2</sup>, Jie Huang, Linmao Qian<sup>2</sup> (<sup>1</sup> School of Material Science and Engineering, Southwest Jiaotong University, China, <sup>2</sup> School of Mechanical Engineering, Southwest Jiaotong University, China)

- 13P7 (SIB-103). Ionically crosslinked Alginate-carboxymethyl cellulose beads for delivery of therapeutic proteins  
Min Sup Kim<sup>1</sup>, Sang Jun Park<sup>1</sup>, Bon Kang Gu<sup>1</sup>, Yong Jae Jin<sup>1</sup>, Chun-Ho Kim<sup>1\*</sup>  
 (<sup>1</sup>Laboratory of Tissue Engineering, Korea Institute of Radiological and Medical Science, Korea)
- 13P8 (SIB-146). The effects of general anesthetics on ESR spectra of spin labels in phosphatidylcholine vesicles  
 Makiko Shibuya<sup>1</sup>, Toshifumi Hiraoki<sup>2</sup>, Kunie Kimura, Kazuaki Fukushima<sup>1</sup>, Kuniaki Suzuki<sup>1</sup> (<sup>1</sup>Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>2</sup>Graduate School of Engineering, Hokkaido University, Japan)
- 13P9 (SIB-148). Influence of epimedium flavonoids and fish collagen peptide on the expression of ALP, type collagen mRNA in cultured osteoblast MC3T3-E1 cell  
Song Qin<sup>1</sup>, Gou Xiao-jun<sup>1</sup>, Chen Feng-zhen<sup>1</sup>, Yan Jun<sup>1</sup>, Guo Xiao-qiang<sup>1</sup>, Shouhei Iku<sup>2\*</sup>  
 (<sup>1</sup>Chengdu University, <sup>2</sup>Medical College of XinXiang, Xinxiang 453000, China)

### 3. Biomolecules grafting and immobilization

- 13P10 (SIB-028). Development of High-Sensitivity Cholesterol Biosensor Using Dual-Enzymes Immobilization into the Mesoporous Nanospace  
Kazuki Murai<sup>1,2</sup>, Fumio Ando<sup>1</sup>, and Katsuya Kato<sup>\*2</sup> (<sup>1</sup>Chubu University, Japan, <sup>2</sup>National Institute of Advanced Industrial Science and Technology, Japan)
- 13P11 (SIB-082). Optimization of Hydroxyl Group Introduction onto PEG-Polymerized Polymer Surface and Immobilization of L-Cysteine  
Zhenyi Shao<sup>1\*</sup>, Akihisa Ogino<sup>1</sup>, Masaaki Nagatsu<sup>1</sup> (<sup>1</sup>Shizuoka University, Japan)
- 13P12 (SIB-123). Bone-Regenerative Mesoporous Bioactive Glasses with Drug Controlled Delivery  
Chi-Jen Shih<sup>1\*</sup>, Pei-Shan Lu<sup>1</sup>, Chi Sheng Chien<sup>2</sup>, Wen-Cheng Chen, Jian-Chih Chen<sup>4</sup> (<sup>1</sup>Department of Fragrance and Cosmetic Science, Kaohsiung Medical University, Taiwan, <sup>2</sup>Chi-Mei Foundation Hospital, Taiwan, <sup>3</sup>School of Dentistry, Kaohsiung Medical University, Taiwan, <sup>4</sup>Department of Orthopedics, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Taiwan)
- 13P13 (SIB-021). Thermo-Responsive Wound Dressing Films by Grafting Chitosan and Poly(*N*-isopropylacrylamide) to Plasma Modified Non-Woven Fabrics  
Jyh-Ping Chen, Wen-Li Lee (Chang Gung University, Taiwan, ROC)
- 13P14 (SIB-024) Calcium Phosphate Nucleation Ability on Titanium Surface influenced by Alkyl Chain Length of Phosphate Self-Assembled Monolayers  
Jiang Wu<sup>1, 3</sup>, Isao Hirata<sup>1</sup>, Noriyuki Nagaoka<sup>2</sup>, Yasuhiro Yoshida<sup>2</sup>, Xianghui Zhao<sup>3</sup>, Masayuki Okazaki<sup>1</sup> (<sup>1</sup>Hiroshima University, Japan, <sup>2</sup>Okayama University, Japan, <sup>3</sup>Fourth Military Medical University, China)

### 5. Cell- biomaterial interaction and tissue regeneration (I)

- 13P15 (SIB-032). Bone marrow stromal cells suppress TACE-mediated M-CSFR and RANK shedding to facilitate osteoclastogenesis and suppress DC differentiation from monocytes  
Masahiro Hiasa, Masahiro Abe, Toshio Matsumoto, Kenzo Asaoka (University of Tokushima Graduate School of Oral Sciences, Japan)
- 13P16 (SIB-064). Tri-polyphosphate treated Chitosan based nanofibers for Skin Tissue Engineering  
Saumi Dey Sarkar<sup>1\*</sup>, Santanu Dhara<sup>1</sup>, Jyotirmoy Chatterjee<sup>1</sup> (<sup>1</sup>Indian Institute of Technology, India)
- 13P17 (SIB-086). Induction of classical activation of macrophage in vitro by water soluble chitin  
 Heung Jae Chun<sup>1\*</sup>, Su Jung You<sup>2</sup>, Gue Tae Chae<sup>3</sup>, Park Young Hwan<sup>4</sup>, Kim Hyun-Joo<sup>2</sup>

(<sup>1</sup>Department of Biomedical Sciences, Medical College of Catholic University, Korea, <sup>2</sup>Institute of Cell & Tissue Engineering, Medical College of Catholic University, Korea, <sup>3</sup>Department of Pathology, Medical College of Catholic University, Korea, <sup>4</sup>Korea Institute of Industrial Technology)

- 13P18 (SIB-099). *In Vitro Study* of Cell Differentiation by Mouse Embryo Stem Cells on Nanocarbon Tubes  
Koichi Imai<sup>1\*</sup>, Tsukasa Akasaka<sup>2</sup>, Fumio Watari<sup>2</sup>, Shoji Takeda<sup>1</sup> (<sup>1</sup>D Osaka Dental University, Japan, <sup>2</sup>Hokkaido University, Japan)
- 13P19 (SIB-015). Investigation of Dendron materials and HeLa cell membrane interaction by two photon confocal microscopy  
Hsieh-Chih Tsai<sup>1\*</sup>, Toyoko Imae<sup>1,2\*</sup>, Gabriela Calderó<sup>3</sup>, Conxita Solans<sup>3</sup> (<sup>1</sup>Graduate Institute of Engineering, National Taiwan University of Science and Technology, Taiwan, ROC., <sup>2</sup> Department of Chemical Engineering, National Taiwan University of Science and Technology, Taiwan, ROC, <sup>3</sup>Institute for Advanced Chemistry of Catalonia (IQAC/CSIC), Spain.)
- 13P20 (SIB-041). Effect of Magnesium and Calcium Phosphate Coatings on Osteoblastic Cell Responses  
Ki-Deog Park<sup>1</sup>, De-zhe Cui<sup>1,3</sup>, Kyung-Ku Lee<sup>2</sup>, Kee-Sun Sohn<sup>4</sup>, Young-Suk Jung<sup>1</sup>, Bo-Ah Lee<sup>1</sup>, Yang-Jin Lee<sup>1</sup>, Hyun-Ju Chung<sup>1</sup>, Young-Joon Kim<sup>1</sup> (<sup>1</sup>Dental Research Institute, School of Dentistry, 2nd Stage of Brain Korea 21 Project for School of Dentistry, <sup>2</sup>Chonnam National University, Korea, <sup>3</sup>Yanbian University, People's Republic of China, <sup>4</sup>Sunchon National University, Korea)

## 7. Nano Particles, nanotoxicology and nanobiomedicine (I)

- 13P21 (SIB-055). TEM observation of TiO<sub>2</sub> nano particles in the oral mucosa contacted with titanium dental implant  
Motohiro Uo<sup>1\*</sup>, Fumio Watari<sup>2</sup>, Atsuro Yokoyama<sup>3</sup>, Koichi Hamada<sup>4</sup>, Somei Ohnuki<sup>4</sup> (<sup>1</sup> Tokyo Medical and Dental University, Japan, <sup>2</sup>Department of Biomedical, Dental Materials and Engineering, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>3</sup> Department of Oral Functional Prosthodontics, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>4</sup> Laboratory of Advanced Materials, Division of Materials Science, Graduate School of Engineering, Hokkaido University, Japan)
- 13P22 (SIB-069). Aggregation mechanism of Pd nanoparticles in L-cysteine aqueous solution studied by AFM  
Chie Tsukada<sup>1</sup>, Satoshi Ogata<sup>1</sup>, Tsuyoshi Mizutani, Galif Kutluk<sup>2</sup>, Hirofumi Namatame<sup>2</sup>, Masaki Taniguchi<sup>2</sup>, Shinya Yagi<sup>1,2</sup> (<sup>1</sup> Nagoya University, Japan, <sup>2</sup> Hiroshima University, Japan)
- 13P23 (SIB-077). Toxicity Studies of Multi-walled Carbon Nanotubes on Plants  
Refi Ikhtiar<sup>1</sup>, Parvin Begum<sup>1</sup>, Bunshi Fugetsu<sup>1</sup>, Tsukasa Akasaka<sup>2</sup>, Fumio Watari<sup>2</sup> (Hokkaido University, Japan)
- 13P24 (SIB-078). Fabrication of Carbon Nanotubes/Hydroxyapatite Nanocomposites via the In Situ Preparation  
Xiao Ying Lu<sup>\*</sup>, N.Y. Zhang, L. Wei, J.W. Wei, Q.Y. Deng, X. Lu, J. Weng (Southwest Jiaotong University, China)
- 13P25 (SIB-011). Biodistribution of metal/metal oxide micro-/nano-sized particles in mice  
Shigeaki Abe, Nobuki Iwadera, Chika Koyama, Mami Mutoh, Tsukasa Akasaka, Motohiro Uo, Yasutaka Yawaka, and Fumio Watari (Hokkaido University, Japan, Okayama University, Japan)
- 13P26 (SIB-026). Arrangement Technique of Proteins and Cells using Calcium Phosphate Nanofibers Template  
Takayuki Nonoyama<sup>1</sup>, T. Kinoshita<sup>1\*</sup>, M. Higuchi<sup>1</sup>, K. Nagata<sup>1</sup>, K. Sato<sup>2</sup>, K. Kato<sup>2\*</sup>

(<sup>1</sup>Nagoya Institute of Technology, <sup>2</sup>National Institute of Advanced Industrial Science and Technology)

## 9. Materials Preparation

- 13P27 (SIB-076). An effect of polarity of organically modified montmorillonite on characteristics of PMMA/montmorillonite nanocomposites  
Shuichi Yamagata<sup>1\*</sup>, Yusuke Hamba<sup>1</sup>, Tsukasa Akasaka<sup>2</sup>, Motohiro Uo<sup>2</sup>, Junichiro Iida<sup>1</sup>, Fumio Watari<sup>2</sup> (<sup>1</sup>Department of Orthodontics, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>2</sup>Department of Biomedical Materials and Engineering, Graduate School of Dental Medicine, Hokkaido University, Japan)
- 13P28 (SIB-102). Preparation of Ag-Nanoparticles Dispersed Silk Fibroin Resin  
Wei dong Yu<sup>1\*</sup>, Toshihiro Kuzuya<sup>2</sup>, Shinji Hirai<sup>1</sup>, Yasushi Tamada<sup>3</sup>, Ken Sawada<sup>1</sup>, Tatsuo Iwasa<sup>1</sup> (<sup>1</sup>Division of Engineering for Composite Functions, Muroran Institute of Technology, Hokkaido, Japan, <sup>2</sup> College of Design and Manufacturing Technology, Muroran Institute of Technology, Hokkaido, Japan, <sup>3</sup> National Institute of Agrobiological Sciences (NIAS), Ibaraki, Japan)
- 13P29 (SIB-105). Carbon nanotube-coated silicone as a flexible biomedical material  
Makoto Matsuoka<sup>1</sup>, Tsukasa Akasaka<sup>2</sup>, Takeshi Hashimoto<sup>3</sup>, Yasunori Totsuka, Fumio Watari<sup>2</sup> (<sup>1</sup>Department of Oral and Maxillofacial Surgery, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>2</sup>Department of Dental Materials and Engineering, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>3</sup>Meijo Nano Carbon Co., Ltd., Japan)
- 13P30 (SIB-144). Properties of carbon nanotubes/polycarbosilane prepared by spark plasma sintering  
Wei Wang, Yuhe Zhu, Fumio Watari<sup>1</sup>, Atsuro Yokoyama<sup>1</sup>, Tsu Akasaka<sup>1</sup>, Motohiro Uo<sup>1</sup>, Hongjun Ai (China Medical University, PR China, <sup>1</sup>Hokkaido University, Japan)
- 13P31 (SIB-017). Characterization of silica particles prepared via urease-catalyzed urea hydrolysis and activity of urease in sol-gel silica matrix  
Katsuya Kato, Shun Nakagaki, Masakazu Nishida, Kiyoshi Hirao (National Institute of Advanced Industrial Science and Technology (AIST), Japan)
- 13P32 (SIB-065). Ion-release and buffering effect by S-PRG filler-content pit and fissure sealant in lactic acid  
Masayuki Kaga<sup>1</sup>, Daisuke Kajiwara<sup>1</sup>, Hajime Minamikawa<sup>1</sup>, Saori Hirahara, Masanori Hashimoto<sup>2</sup>, Kazuhiko Endo<sup>2</sup>, Yasutaka Yawaka<sup>1</sup> (<sup>1</sup>Hokkaido University, Japan, <sup>2</sup> Health Sciences University of Hokkaido, Japan)
- 13P33 (SIB-072). Theoretical study on the mechanism of formaldehyde reduction with scallop shell ceramics  
Tomoya Takeda (Asahikawa National College of Technology, Japan)
- 13P34 (SIB-091). Configuration of Chitosan Hybridized Calcium Hydrogen Phosphate Dihydrate (DCPD) via a Solution Processing  
Takamasa Onoki<sup>1\*</sup>, Yushiyuki Hasegawa<sup>1</sup>, Tomoyuki Tago<sup>1</sup> (<sup>1</sup>Osaka Prefecture University, Japan)
- 13P35 (SIB-096). The preparation of PLLA/ calcium phosphate hybrid composite and its evaluation of biocompatibility  
Wataru Fujitani<sup>1\*</sup>, Yoshinosuke Hamada<sup>2</sup>, Takayoshi Nakano, Nariaki Matsuura<sup>2</sup> (<sup>1</sup>Graduate School of Engineering, Osaka University, Japan, <sup>2</sup>Graduate School of Medicine and Health Science, Osaka University, Japan)

## July 14, 2011 (Thu.)

### Synthesis and surface modification (III) (Room A)

#### 09:15-09:40 Invited Talk

14SA1 (SIB-068). Surface Modification of Biomedical Titanium for Antibacterial through Plasma Technologies

Xuanyong Liu (State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China)

#### 09:40-10:10 Oral Presentation

14A1 (SIB-019). DLC Coatings for Implants

Ludek Joska, Jaroslav Fojt (Institute of Chemical Technology, Czech Republic)

14A2 (SIB-027). Surface properties of electrically polarized Al<sub>2</sub>O<sub>3</sub>-YSZ ceramic composites

Akiko Nagai, Shigeki Kishi, Masahiro Inuzuka, Miho Nakamura, Naohiro Horiuchi, Keishi Nishio, Kimihiro Yamashita (Tokyo Medical & Dental University, Japan, Tokyo University of Science, Japan)

### Cell-biomaterial interaction and tissue regeneration (II) (Room B)

#### 09:15-10:00 Oral Presentation

14B1 (SIB-116). Characterization of Acid-insoluble Dentin Matrix as Immediate Graft Material for Human Bone Regeneration

Masaru Murata<sup>1\*</sup>, Toshiyuki Akazawa<sup>2</sup>, Shin Hong-In<sup>3</sup>, Tazaki Junichi, Jun Hino<sup>1</sup>, Katsutoshi Ito<sup>1</sup>, Futami Nagano<sup>1</sup>, Yasuhito Minamida<sup>1</sup>, Takanori Shibata<sup>1</sup>, Makoto Arisue<sup>1</sup> (<sup>1</sup>Health Sciences University of Hokkaido, Japan, <sup>2</sup>Hokkaido Research Organization, Japan, <sup>3</sup>Kyungpook National University, Korea)

14B2 (SIB-014). Repair of Segmental Bone Defects with a Modified Tissue Engineering Method in the Rabbit Radius

Lijia Cheng, Hong Bu (Sichuan University, Chengdu, People's Republic of China)

14B3 (SIB-013). Ectopic Bone Formation Can't Occur by Hydroxyapatite/vitricalcium Phosphate Bioceramics in Green Fluorescent Protein Chimeric Mice

Lijia Cheng, Xin Duan, Hong Bu (Sichuan University, Chengdu, People's Republic of China)

#### 10:15-10:55 Plenary Talk (Room A)

14G1 (SIB-083). Microrobots for Medical Applications: Opportunities and Challenges

Mamoru Mitsuishi<sup>1\*</sup>, Sho Nakamura<sup>1</sup>, Soichiro Tottori, Kanako Harada<sup>1</sup>, Naohiko Sugita<sup>1</sup>, Makoto Kaneko<sup>2</sup> (<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>Osaka University, Japan)

#### 10:55-11:10 Intermission

### Design and Properties of artificial organ (Room A)

#### 11:10-11:35 Invited Talk

14SA2 (SIB-048). Construction of Biomimetic Surfaces Applied For Cardiovascular Devices

Nan Huang<sup>1\*</sup>, Yajun Weng<sup>1\*</sup>, Zhuoyue Chen<sup>2</sup>, Junying Chen, Xi Wu<sup>1</sup>, Hong Sun<sup>1</sup>, Yang Leng<sup>2</sup> (<sup>1</sup>School of Materials Science and Engineering, Southwest Jiaotong University, China, <sup>2</sup>Department of Mechanicals, Science and Technology University of Hong Kong, China)



**11:35-12:35 Oral Presentation**

- 14A3 (SIB-106). Enhancement of Tensile Strength and Antifouling Property for the Heat Polymerizable Denture Material By Surface Modifications  
Chia-Min Lin<sup>1</sup>, Wen-Chien Liao<sup>2</sup>, Meng-Jiy Wang<sup>1</sup> (<sup>1</sup>National Taiwan University Science and Technology, Taiwan, <sup>2</sup>National Defense Medical Center, Taiwan)
- 14A4 (SIB-075). The effect of softness difference of occlusal splint on sleep bruxism activity  
Taro Arima<sup>1\*</sup>, Tomonaga Akio<sup>1</sup>, Wataru Yachida, Tamiyo Takeuchi<sup>1</sup>, Noboru Ohata<sup>1</sup> (<sup>1</sup>Hokkaido University, Japan)
- 14A5 (SIB-045). Carbon Nanotube-Alumina Composite in Total Joint Replacement  
Mamoru Omori, G. Yamamoto and T. Hashida (Tohoku University, Japan)
- 15A4 (SIB-043). Controlled crystallization of calcium phosphate by surface functional groups  
Hua Deng<sup>1,2\*</sup>, Qiong Wang<sup>2</sup>, Zhi-xu Liu<sup>1</sup>, Xiao-long Yu, Xiu-mei Wang<sup>2</sup>, Fu-zhai Cui<sup>2\*</sup>, Xing-can Shen<sup>1</sup>, Hong Liang<sup>1</sup> (<sup>1</sup>Guangxi Normal University, China, <sup>2</sup>Tsinghua University, China)

**Cell-biomaterial interaction and tissue regeneration (III) (Room B)**

**11:10-12:35 Oral Presentation**

- 14B4 (SIB-060). Therapeutic Effect of Transplantation of Elastin-secreting Myoblast Sheet for Cardiac Failure  
Ayako Uchinaka<sup>1\*</sup>, Naomasa Kawaguchi<sup>1</sup>, Yoshinosuke Hamada<sup>1</sup>, Nariaki Matsuura<sup>1</sup> (<sup>1\*</sup>Osaka University, Japan)
- 14B5 (SIB-037). Adhesion force between nanoparticles and a cell measured by atomic force microscope (AFM)  
Ying Yi Lin, Kai Hung Cheng, Wei En Fu, Jiunn Der Liao\* (Department of Materials Science and Engineering, National Cheng Kung University, Taiwan)
- 14B6 (SIB-046). Controlling Stem Cell Fate with Designer Chemical Functional Ligands  
Jin He<sup>1\*</sup>, Xiumei Wang<sup>1</sup>, Fuzhai Cui (<sup>1</sup>Tsinghua University, China)
- 14B7 (SIB-089). Bone formation in carbon nanotube-coated collagen sponge with cultured osteoblasts  
Eri Hirata<sup>1</sup>, Motohiro Uo<sup>2</sup>, Fumio Watari<sup>1</sup>, Atsuro Yokoyama<sup>1</sup> (<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Tokyo Medical and Dental University, Japan)
- 14B8 (SIB-020). Electrical Polarization Increases Osteoblastic Adhesion Through Improved Wettability on Hydroxyapatite  
M. Nakamura<sup>1</sup>, A. Nagai<sup>1</sup>, T. Okura<sup>2</sup>, Y. Sekijima<sup>1</sup>, K. Yamashita<sup>1</sup> (<sup>1</sup>Tokyo Medical and Dental University, Japan, <sup>2</sup>Kogakuin University, Japan)

**12:35-14:00 Lunch Time**

**Nano Particles, nanotoxicology and nanobiomedicine (II) (Room A)**

**14:00-14:25 Invited Talk**

- 14SA3 (S8). The biomimic preparation of mesoporous silica nanoparticles and their applications  
Qiang Cai, Ying Shi, Xi Chen, Fuzhai Cui, Hengde Li (Department of Materials Science & Engineering, Tsinghua University, China)

**14:25-15:10 Oral Presentation**

- 14A7 (SIB-132). Development of in vivo molecular imaging systems  
Katsumi Sekikawa\* (Shimadzu Corporation, Japan)
- 14A8 (SIB-007). Volumetric Interpretation of Protein Adsorption Kinetics  
Naris Barnthip<sup>1</sup> and Erwin A. Vogler<sup>2</sup> (<sup>1</sup>Rajamangala University of Technology Thanyaburi, Thailand, <sup>2</sup>The Pennsylvania State University, USA)
- 14A9 (SIB-113). A serum protein that interacts with the surface of titanium was identified as beta-casein precursor by chromatography and mass spectrum analysis  
Yoshinori Kuboki<sup>1</sup>, Toshitaka Furusawa<sup>2</sup>, Masaaki Satou, Yongkun Sun<sup>3</sup>, Hiderou Unuma<sup>4</sup>, Shigeaki Abe<sup>5</sup>, Tsukasa Akasaka<sup>5</sup>, Fumio Watari<sup>5</sup>, Rachel Sammons<sup>6</sup> (<sup>1</sup>Professor Emeritus, Hokkaido University, Japan, <sup>2</sup>Tohoku University, Japan, <sup>3</sup> Environmental Science, Hokkaido University, Japan, <sup>4</sup>Science and Engineering, Yamagata University, Japan, <sup>5</sup> Dental Medicine, Hokkaido University, Japan, <sup>6</sup>Birmingham University, UK)

**Cell-biomaterial interaction and tissue regeneration (IV) (Room B)**

**14:00-15:00 Oral Presentation**

- 14B9 (SIB-042). Modified hyaluronic acid scaffold with human BMSCs to repair spinal cord injury  
Mu Yao Guo<sup>1\*</sup>, Ying Wang<sup>2</sup>, Yue Teng Wei, Fu Zhai Cui<sup>1</sup>, Qun Yuan Xu<sup>2</sup> (<sup>1</sup> Tsinghua University, China, <sup>2</sup>Capital Med Univ, China)
- 14B10 (SIB-137). Cell proliferation on carbon nanotubes coated dishes in different cell lines  
Tsukasa Akasaka, Shigeaki Abe, Motohiro Uo, Fumio Watari (Hokkaido University, Japan)
- 14B11 (SIB-126). Fabrication of PCL-nanofibers/collagen/HA scaffolds for mimicking cylindrical shape bone structure  
Soongee Hong, Geunhyung Kim\* (Lab. of Bio/Nanofluidics, Dept of Mechanical Engineering, Chosun University, South Korea)
- 14B12 (SIB-112). A comparative biomechanical study of bone ingrowth in various porous bioceramics  
Li-Mei Ren<sup>1</sup>, M. Todo<sup>1</sup>, T. Arahira<sup>1</sup>, H. Yoshikawa<sup>2</sup>, A. Myoui<sup>2</sup> (<sup>1</sup>Kyushu University, Japan, <sup>2</sup>Osaka University, Japan)

**15:10-15:25 Intermission**

**15:25-16:05 Plenary Talk (Room A)**

- 14G2. Isotope Microscope – Development and Application of Isotope Imaging for Presolar Age Study  
Hisayoshi Yurimoto (Natural History Sciences, Hokkaido University, Japan)

**16:05-16:10 Conference Photo (Room A)**

**16:10-17:25 Poster Oral Presentation (Room A)**

**17:25-18:25 Poster Discussion (Room C)**

**19:00-21:00 Banquet**

## Poster Oral Presentation and Poster Discussion (July 14)

### 1. Synthesis and surface modification (II)

- 14P1 (SIB-071). Mechanical property and degradation behavior of MgZnMn alloy coated with PTMC and PCL film  
Juan Wang<sup>1</sup>, Jiaolong Chen<sup>1</sup> Jin Wang<sup>1</sup> Nan Huang<sup>1\*</sup> (<sup>1</sup> Southwest Jiaotong University, China)
- 14P2 (SIB-092). Silicone Oil Adhesion to the Surface of Intraocular Lenses: Instrumental Studies Comparing Various IOLs.  
Chun Ho Kim<sup>1\*</sup>, Choun-Ki Joo<sup>2</sup>, Heung Jae Chun, Kyu Nam Park<sup>3</sup>, Sung Bo Sim<sup>3</sup> (<sup>1</sup>Korea Institute of Radiological and Medical Sciences, Korea, <sup>2</sup>Department of Ophthalmology & Visual Science, Medical College of Catholic University, Korea, <sup>3</sup> Institute of Cell & Tissue Engineering, Korea)
- 14P3 (SIB-098). Effects of Titanium Alloy Composition and UV Exposure on Albumin Adsorption  
Mari Koike<sup>1</sup>, Richard Mitchell<sup>2</sup> and Toru Okabe<sup>1</sup> (<sup>1</sup>Baylor College of Dentistry, USA, <sup>2</sup>University of Kentucky, USA)
- 14P4 (SIB-118). Surface structure and in vivo assay of biomimetic ceramic scaffold soaked in simulated body fluid  
Junichi Tazaki<sup>1</sup>, Masaru Murata<sup>2</sup>, Toshiyuki Akazawa<sup>3</sup>, Masaya Yamamoto, Katsutoshi Ito<sup>2</sup>, Jun Hino<sup>1</sup>, Makoto Arisue<sup>2</sup>, Takanori Shibata<sup>1</sup>, Yasuhiko Tabata<sup>4</sup> (<sup>1</sup>Reconstructive Surgery for Oral and Maxillofacial Region, School of Dentistry, Health Sciences University of Hokkaido, Japan, <sup>2</sup>Oral and Maxillofacial Surgery, School of Dentistry, Health Sciences University of Hokkaido, Japan, <sup>3</sup>Industrial Technology Research Development Hokkaido Research Organization, Japan, <sup>4</sup>Kyoto University, Japan)
- 14P5 (SIB-143). Fabrication and properties of surface carbide on titanium  
Yuhe Zhu<sup>1</sup>, Fumio Watari<sup>2</sup>, Wei Wang<sup>1</sup>, Motohiro Uo<sup>2</sup>, Tsukasa Akasaka<sup>2</sup>, Xingya Jia<sup>1</sup> (<sup>1</sup> China Medical University, PR China, <sup>2</sup> Hokkaido University, Japan)
- 14P6 (SIB-018). Ti-6Al-4V alloy surface modification for medical applications  
Jaroslav Fojt, Ludek Joska (Institute of Chemical Technology, Czech Republic)

### 4. Surface patterning and vasculature

- 14P7 (SIB-006). Effects of protein micropatterns on biomaterials surfaces on human osteoblasts morphology and protein expression  
Yu-dong Nie, Chang-jiang Pan (College of bioengineering, Chongqing university, chongqing, China)
- 14P8 (SIB-119). Adsorption behavior of human blood for biomimetic functionally graded hydroxyapatite block  
Junichi Tazaki<sup>1</sup> Katsutoshi Ito<sup>2</sup>, Shintaro Yodogawa<sup>1</sup>, Masaru Murata, Toshiyuki Akazawa<sup>3</sup>, Jun Hino<sup>1</sup>, Makoto Arisue<sup>2</sup>, Takanori Shibata<sup>1</sup> Takao Hanawa<sup>4</sup> (<sup>1</sup> Reconstructive Surgery for Oral and Maxillofacial Region, School of Dentistry, Health Sciences University of Hokkaido, Japan, <sup>2</sup> Oral and Maxillofacial Surgery, School of Dentistry, Health Sciences University of Hokkaido, Japan, <sup>3</sup> Group of Polymer and Ceramics Materials Industrial Research Institute, Industrial Technology, <sup>4</sup> Group of Polymer and Ceramics Materials Industrial Research Institute, Industrial Technology Research Development Hokkaido Research Organization, Japan, <sup>4</sup>Tokyo Medical and Dental University, Japan)

### 5. Cell- biomaterial interaction and tissue regeneration (II)

- 14P9 (SIB-100). Influences of In Vitro Angiogenesis by Ultrafine Titanium Dioxide and Zinc Oxide  
Koichi Imai<sup>1\*</sup>, Tetsunari Nishikawa<sup>2</sup>, Akio Tanaka, Fumio Watari<sup>3</sup>, Hiromasa Takashima<sup>4</sup>, Shoji Takeda<sup>1</sup> (<sup>1</sup>Department of Biomaterials, Osaka Dental University, Japan,

<sup>2</sup>Department of Oral Pathology, Osaka Dental University, Japan,<sup>3</sup>Graduate School of Dental Medicine, Hokkaido University, Japan,<sup>4</sup>Hatano Research Institute, FDSC, Japan)

- 14P10 (SIB-122). Fabrication of Cell-implanted Bulky Suture with Texturing Processing  
Park Young Hwan<sup>1\*</sup>, Kim Hyun-Joo<sup>2</sup> (<sup>1</sup>Dyeing & Finishing Technology Center, Korea Institute of Industrial Technology, <sup>2</sup>Medical College of Catholic University)
- 14P11 (SIB-129). Highly improved cell-viability of cell-embedded scaffolds coated with a mixture of alginate-cells for tissue engineering  
Hyeongjin Lee, Geunhyung Kim\* (Lab. of Bio/nanofluidics, Dept. of Mechanical Engineering, Chosun University, South Korea)
- 14P12 (SIB-130). Design of a functionally gradient scaffold (FGS) consisted of alginate/ $\beta$ -tricalcium phosphate ( $\beta$ -TCP)/hydroxyapatite (HA)  
Yongbok Kim, SeungHyun Ahn, Geunhyung Kim\* (Lab. of Bio/Nanofluidics, Dept of Mechanical Engineering, Chosun University, South Korea)
- 14P13 (SIB-135). Enhancement of BMP- 2 induced hard tissue formation on dentin surface by addition of nano-hydroxyapatite  
Hiroki Tamagawa<sup>1\*</sup>, Takahide Nishio<sup>1</sup>, Atsushi Nakagawa, Tsutomu Sugaya<sup>1</sup>, Masamitsu Kawanami<sup>1</sup>-(<sup>1</sup>Hokkaido University, Japan)
- 14P14 (SIB-136). Effects of nano-hydroxyapatite-collagen/fibrin-based composite with BMP-2 application on ectopic bone formation  
Taichi Tenkumo<sup>1</sup>, Hiroki Tamagawa<sup>1</sup>, Kaori Ohtani, Atsushi Nakazawa<sup>1</sup>, Tsutomu Sugaya<sup>1</sup>, Masamitsu Kawanami<sup>1</sup>, Fumio Watari<sup>2</sup> (<sup>1</sup>Department of Periodontology and Endodontology, Division of Oral Health Science, Graduate School of Dental Medicine, Hokkaido University, Japan, <sup>2</sup>Department of Biomedical, Dental Materials and Engineering, Graduate School of Dental Medicine, Hokkaido University, Japan)
- 14P15 (SIB-145). Adhesion and proliferation of human periodontal ligament cells on biocompatible polymer scaffold  
Erika Kitakami, M. Aoki, M. Tanaka (Yamagata University, Japan)

## 6. Design and properties of artificial organ

- 14P16 (SIB-036). Improvement of Hard-Tissue compatibility of T-29Nb-13Ta-4.6Zr Alloy by Micro-Arc Oxidation Treatment  
Yusuke Tsutsumi<sup>1</sup>, M. Nakai<sup>2</sup>, H. Tsutsumi<sup>2</sup>, M. Niinomi<sup>2</sup>, H. Doi<sup>1</sup>, N. Nomura<sup>1</sup>, T. Hanawa<sup>1,3</sup> (<sup>1</sup>Tokyo Medical and Dental University, Japan, <sup>2</sup>Tohoku University, Japan, <sup>3</sup>The University of Tokyo, Japan)
- 14P17 (SIB-040). A Useful and Non-invasive Microanalysis Method for Dental Restoration Materials  
Maki Hosoki, T. Satusma<sup>1</sup>, K. Nishigawa<sup>1</sup>, H. Takeuchi<sup>1</sup>, and K. Asaoka<sup>2</sup> (Department of Fixed Prosthodontics, Institute of Health Biosciences, The University of Tokushima Graduate School, <sup>1</sup>Tokushima Univ.Hospital, <sup>2</sup>Department of Biomaterials and Bioengineering, Institute of Health Biosciences, The University of Tokushima Graduate School, Japan)
- 14P18 (SIB-087). A few measures against veneered porcelain-zirconia prosthesis tipping  
Masataka Wada (Rinku implant center wada dental clinic, Japan)
- 14P19 (SIB-097). Qualitative Characterization of Human Bone Integrated with Orthodontic Midpalatal Implant Estimated by Micro X-Ray Diffractometer and Histological Observation  
Masaru Murata<sup>1\*</sup> Toshiyuki Akazawa<sup>2</sup>, Toshihiro Yuasa<sup>1</sup>, Miki Okayama, Junichi Tazaki<sup>1</sup>, Takao Hanawa<sup>3</sup>, Makoto Arisue<sup>1</sup>, Itaru Mizoguchi<sup>1</sup> (<sup>1</sup>Health Sciences University of Hokkaido, Japan, <sup>2</sup>Hokkaido Research Organization, Industrial Research Institute, Japan, <sup>3</sup>Tokyo Medical and Dental University, Japan)

- 14P20 (SIB-035). In Vitro and Consistency Evaluation of Strontium Apatite Bone Cement  
Kazumitsu Sekine, K. Hamada, E. Uyama, K. Yamashita, F. Kawano<sup>1</sup>, K. Asaoka (Institute of health biosciences, University of Tokushima graduate school, Japan, <sup>1</sup>Tokushima Medical and Dental Hospital, University of Tokushima, Japan)

## 7. Nano Particles, nanotoxicology and nanobiomedicine (II)

- 14P21 (SIB-093). Alendronate decorated Nano Hydroxyapatite in Mesoporous Silica: Cytotoxicity and Osteogenic Properties  
Xuetao Shi<sup>1\*</sup>, Wei Huang<sup>2</sup>, Zhengding She<sup>2</sup>, Weiqiang Liu (<sup>1</sup> WPI Advanced Institute for Materials Research, <sup>2</sup> Center for Advanced materials and Biotechnology, China)
- 14P22 (SIB-117). Water dispersible Silver Nanoparticles with New Ligands as Antibacterial Agent  
Koji Kawai<sup>1\*3</sup>, Kotaro Kaneko<sup>3</sup>, Hayato Kawakami<sup>3</sup>, Takashi Narushima, Miyuki Matumoto<sup>1</sup>, Atsushi Hyono<sup>1</sup>, Hiroshi Nishihara<sup>2</sup>, Testu Yonezawa<sup>1</sup> (<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>The University of Tokyo, Japan, <sup>3</sup> Miyoshi Oil and Fat Co. Ltd., Japan)
- 14P23 (SIB-120). Application of high frequency radio wave generator in direct pulp capping  
Keisuke Honda<sup>1</sup>, Toshiyuki Koike<sup>1</sup>, Keijiro Hayashi<sup>1</sup>, Takashi Saito<sup>1</sup> (<sup>1</sup>Health Sciences University of Hokkaido, Japan)
- 14P24 (SIB-133). The new technique for risk assessment of ultrafine particles in lung tissues by means of EPMA  
Kouichi Watanabe<sup>1\*</sup>, Masayoshi Kobayashi<sup>2</sup>, Hiroshi Moriyama, Toshinori Takada<sup>3</sup> (<sup>1</sup>Division of Biomaterials, Graduate school of Medical Dental Science, Niigata University, Japan, <sup>2</sup>Center for Instrumental Analysis, Niigata University, Japan, <sup>3</sup>Division of Respiratory Medicine, Graduate school of Medical Dental Science, Niigata University, Japan)
- 14P25 (SIB-127). Functional evaluation of bisphosphonate-lipid conjugates with polyethylene glycol linker  
Anada Takahisa<sup>1</sup>, Takeda Yoichi<sup>2</sup>, Sakurai Kazuo<sup>2</sup>, Suzuki Osamu (<sup>1</sup>Craniofacial Function Engineering, Tohoku University Graduate School of Dentistry, Japan, <sup>2</sup>Department of Chemical Process & Environments, The University of Kitakyushu, Japan)
- 14P26 (SIB-079). Preparation of Foam-Like Carbon Nanotubes/Hydroxyapatite Composite Scaffolds with Supermagnetical Properties  
Xiao Ying Lu<sup>\*</sup>, Q.Q Qu, Q Liu, Z.Y Zhou, L. Wang, X. Lu, J. Weng (Southwest Jiaotong University, China)

## 8. Dental materials

- 14P27 (SIB-051). Rapid and non-destructive analysis of dental prostheses using X-ray fluorescence spectra and light-element sampling tools  
Kazunori Furuhashi, Motohiro Uo, Fumio Watari, Yoshimasa Kitagawa (Hokkaido University, Japan)
- 14P28 (SIB-074). Adsorption Behavior of L-cysteine on Ag Nanoparticles under water Environment Studied by S K-edge NEXAFS  
Sinya Yagi<sup>12\*</sup>, Chie Tsukada<sup>1</sup>, Toyokazu Nomoto, Tsuyoshi Mizutani, Satoshi Ogawa<sup>1</sup>, Hirofumi Nameki<sup>3</sup>, Yuki nakanishi<sup>3</sup>, Kutluk Galif<sup>2</sup>, Hirofumi Namatame<sup>2</sup>, Masaki Taniguchi<sup>2</sup> (<sup>1</sup>Nagoya University, Japan, <sup>2</sup>Hiroshima University, Japan, <sup>3</sup>Aichi Industrial Technology Institute, Japan)
- 14P29 (SIB-084). Morphology, size distribution and elemental analysis of several dental working debris  
Shigeaki Abe, Nobuki Iwadera, Mitsue Esaki, Ken-Ichi Aoyama, Tsukasa Akasaka, Motohiro Uo, Manabu Morita, Yasutaka Yawaka, and Fumio Watari (Hokkaido University, Japan, Okayama University, Japan, Tokyo Medical and Dental University, Japan)

- 14P30 (SIB-094). SEM observation of variously processed and fractured surface of dental zirconia  
Naoyoshi Tarumi<sup>1,2</sup>, Motohiro Uo<sup>3</sup>, Fumio Watari<sup>1</sup> and Eiji Yamaga<sup>2</sup> (<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Sapporo Dental Laboratory, Japan, <sup>3</sup>Tokyo Medical and Dental University, Japan)
- 14P31 (SIB-101). Effects of several ions released from surface pre-reacted glass-ionomer fillers on dentin remineralization  
Shuichi Ito<sup>1</sup>, Fumiko Motai<sup>1</sup>, Takashi Saito (<sup>1</sup>Health Sciences University of Hokkaido, Hokkaido, Japan)
- 14P32 (SIB-121). Micro morphological study of reparative dentin induced by phosphophoryn in rats  
Toshiyuki Koike<sup>1</sup>, Keisuke Honda<sup>1</sup>, Keijiro Hayashi<sup>1</sup>, Takashi Saito (<sup>1</sup>Health Sciences University of Hokkaido, Japan)
- 14P33 (SIB-142). Analysis of bonding performance and adhesive interface between self-adhesive resin composite and dentin substrate  
Yasuko Nakaoki<sup>1</sup>, Anri Fukuoka<sup>1</sup>, Yutaka Igarashi<sup>1</sup>, Jiale Fu<sup>1</sup>, Shinichi Kakuda<sup>1</sup>, Yasuhiro Matsuda<sup>1</sup>, Katsushi Okuyama<sup>1</sup>, Chiharu Kawamoto<sup>1</sup>, Takatsumi Ikeda<sup>1</sup>, Toru Tanaka<sup>1</sup>, Satoshi Inoue<sup>1</sup>, Hisanori Komatsu<sup>1</sup>, Hidehiko Sano<sup>1</sup> (<sup>1</sup>Hokkaido University Graduate School of Dental Medicine, Japan)
- 14P34 (SIB-047). To Evaluate the Biodegradable Polylactic acid Film as Gastro-Jejunal Tube for Duodenal Exclusion  
Hao-Ming Chang<sup>1</sup>, Hsieh-Chih Tsai<sup>2\*</sup>, Toyoko Imae<sup>2,3</sup> (<sup>1</sup>National Defense Medical Center, Taiwan, ROC. <sup>2</sup>National Taiwan University of Science and Technology, Taiwan, ROC. <sup>3</sup>National Taiwan University of Science and Technology, Taiwan, ROC)

## July 15, 2011 (Fri)

### 09:15-09:55 **Plenary Talk (Room A)**

15G1. Measuring the distribution of cell adhesion strength  
Michael Grunze, Christof Christophis, and Axel Rosenhahn  
 (Applied Physical Chemistry, University of Heidelberg, 69120 Heidelberg, and Institute of Functional Interfaces, Karlsruhe Institute of Technology, 76021 Karlsruhe, Germany)

### 9:55-10:10 **Intermission**

### **Biomolecules grafting and immobilization (II) (Room A)**

#### 10:10-10:35 **Invited Talk**

15SA1 (SIB-088). Micro/Nano Structures on Biomaterial Surfaces: from Experimental to Theoretical Studies  
Xiong Lu<sup>1,2\*</sup>, Hongping Zhang<sup>1</sup>, Yanan Guo<sup>1</sup>, Fumio Watari<sup>2</sup>, Yang Leng<sup>3</sup> (<sup>1\*</sup> Southwest Jiaotong University, China, <sup>2</sup>Hokkaido University, Japan, <sup>3</sup>Hong Kong University of Science and Technology, China)

### 10:35-11:50 **Oral Presentation**

15A1 (SIB-033). Enhancement of Amino Group Addition onto Graphite Encapsulated Magnetic Nanoparticles for Biomolecules Immobilization by Plasma Processing  
Teguh Endah Saraswati<sup>1,2</sup>, Akihisa Ogino<sup>3</sup>, Masaaki Nagatsu<sup>1</sup> (<sup>1</sup>Shizuoka University, Japan, <sup>2</sup>Sebelas Maret University, Indonesia)

- 15A2 (SIB-066). Improved biocompatibility of Titanium surfaces modified by covalent linking PEG-CD34  
Jialong Chen<sup>1</sup>, Jianjun Cao<sup>1</sup>; Juan Wang<sup>1</sup>; Zhuoyue Chen<sup>1</sup>; Quanli Li<sup>2\*</sup>; Nan Huang <sup>1\*</sup>  
 (<sup>1</sup>Southwest Jiaotong University, China, <sup>2</sup> Anhui Medical University, China)
- 15A3 (SIB-012). Non-covalent immobilization to a stable and high bioactive heparin functionalized interface material and its effects on hemocompatibility, endothelial and smooth muscle cells  
Zhilu Yang, Qiufen Tu, Ying Zhu, Xin Li, Jin Wang,\* Hong Sun, Nan Huang (Southwest Jiaotong University, China)
- 15A5 (SIB-022). Preparation and Characterization of HAP/Gelatin Composite Thin Films for Immunoisolation  
Jyh-Ping Chen, Feng-Nian Chang (Chang Gung University, Taiwan, ROC)
- 15A6 (SIB-004). The Structure of Calcium Alginate Hydrogels at the Molecular Level. A Computer Simulation Study.  
Wojciech Plazinski (Polish Academy of Sciences, Poland)

#### Drug release (Room B)

10:10-10:35 **Invited Talk**

- 15SB1 (SIB-114). Cosmetics and Nanomaterials  
Takuji Masunaga (Fundamental Research Laboratories, KOSE Corporation, Japan)

10:35-11:50 **Oral Presentation**

- 15B2 (SIB-029). Investigation of cellular uptake mechanism of drug carrier nanoparticles for targeted drug delivery using transferrin  
Takuma Tsuji<sup>1</sup> and J Usukura<sup>1,2</sup> (<sup>1</sup>Graduate school of Engineering, Nagoya University, Japan, <sup>2</sup>EcoTopia Science Institute, Nagoya University, Japan)
- 15B3 (SIB-067). Drug Release and Biocompatibility of UHMWPE Carrying Estradiol Wear Debris  
Shuxin Qu<sup>1</sup>, Aiqin Liu<sup>1</sup>, Xiaomin Liu<sup>1</sup>, Jie Weng, Zhongrong Zhou<sup>1,2</sup>-(<sup>1</sup>School of Material Science and Engineering, Southwest Jiaotong University, China, <sup>2</sup>School of Mechanical Engineering, Southwest Jiaotong University, China)
- 15B4 (SIB-090). Dual pH-Responsive Micellar Nanoparticles for siRNA Delivery with Amphotericin B Enhanced Endosome Escape Capacity  
Yu Haijun<sup>1\*</sup>, Gao Jinming<sup>2</sup>, Wu Hongkai<sup>3</sup> (<sup>1\*</sup>Tohoku University, Japan, <sup>2</sup>University of Texas Southwestern Medical Center at Dallas, USA, <sup>3</sup>Hong Kong University of Science and Technology, China)
- 15B5 (SIB-107). The Design of Control-Release System by Integrating Sol-Gel with Plasma Modified Porous Membranes  
Chao-Ting Chen<sup>1\*</sup>, Meng-Jiy Wang<sup>1</sup> (<sup>1</sup>National Taiwan University Science and Technology, Taiwan)
- 15B1 (SIB-005). Multifunctionalized Nanotubes As Candidates For Drug Delivery Applications  
Cecile J. Roy, A.M. Jonas, S. Demoustier-Champagne (Université catholique de Louvain, Belgium)

11:55-12:05 **Closing remarks (Room A)**