

Oral Session | Friday, 26th October

15:00 – 15:15 Opening Remarks (Room: Auditorium)

Plenary Lecture 1

15:15 – 16:00

Room: Auditorium

Chair: Masakazu Kawashita

PL-01: Understanding Cellular Response to Bioactive Scaffolds: Effects of Calcium Phosphate Composition and Topography

Serena M. Best, Maria Isabella Gariboldi

University of Cambridge, United Kingdom

16:00 – 16:15 Break

Oral Session 1: Composites

16:15 – 17:45

Room: Auditorium

Chairs: Ika Dewi Ana, Masanori Kikuchi

KN-01: Synthesis of Bioactive Tellurite-Lanthanide Reinforced Hydroxyapatite Composites for Biomedical and Luminescence Applications

Sooraj H. Nandyala¹, Pedro Gomes^{2,3}, Graham Hungerford⁴, Liliana Grenho^{2,3},

Maria H. Fernandes^{2,3}, Artemis Stamboulis¹

¹ *School of Metallurgy and Materials, University of Birmingham, United Kingdom*, ² *Laboratory for Bone Metabolism and Regeneration, Faculty of Dental Medicine, University of Porto, Portugal*,

³ *REQUIMTE/LAQV, University of Porto, Portugal*, ⁴ *HORIBA Jobin Yvon IBH Ltd, United Kingdom*

O-01: Preparation of Composite Hydrogels Consisting of Elastin-like Polypeptides and Hydroxyapatite Nanoparticles

Kanki Uchida¹, Ayae Sugawara-Narutaki¹, Jin Nakamura¹, Chikara Ohtsuki¹, Tatsuya Miyajima², Fukue Nagata²

¹ *Nagoya University, Japan*, ² *National Institute of Advanced Industrial Science and Technology, Japan*

O-02: Investigation of Phosphate Glasses and PLLA/PLCL-PEG Blends for the Development of Novel Bioresorbable Composite Cardiac Stents

Reece N. Oosterbeek¹, Xiang C. Zhang², Serena M. Best¹, Ruth E. Cameron¹

¹ *University of Cambridge, United Kingdom*, ² *Lucideon Ltd., United Kingdom*

O-03: Control of Cellular Arrangement by Siloxane-Poly(lactic acid)-Vaterite Composite Fibermats

Sungho Lee¹, Yuriko Kiyokane¹, Toshihiro Kasuga², Takayoshi Nakano¹

¹ *Osaka University, Japan*, ² *Nagoya Institute of Technology, Japan*

O-04: Microstructure of Chitosan-Siloxane Hybrid Mono-Fiber

Takuma Okada, Toshiki Miyazaki, Yuki Shiroasaki

Kyushu Institute of Technology, Japan

Oral Session 2: Cements

16:15 – 17:45

Room: Symposion

Chairs: Elise Verron, Tomohiro Uchino

KN-02: Manipulating Injection Behavior of Brushite Bone Cement via Control over the Plastic Limits of Starting Powder

Kyung-Sik Oh, Hyun-Ho Jo

Andong National University, South Korea

O-05: Biomimetic Bone Cement as Antibacterial Drug Delivery System: From Microparticles Preparation to a Composite with Optimized Properties

Christèle Combes¹, Sylvaine Jacquart¹, Sophie Girod-Fullana², Fabien Brouillet², Christine Roques³, Reine Bareille⁴, Françoise Bosc¹, Christian Rey¹

¹ *CIRIMAT, Université de Toulouse, CNRS, ENSIACET, France*, ² *CIRIMAT, Université de Toulouse, CNRS, Faculté des Sciences Pharmaceutiques, France*, ³ *LGC, Université de Toulouse, Faculté des Sciences Pharmaceutiques, France*, ⁴ *Biotis - Inserm U1026, Université Bordeaux Segalen, France*

O-06: Enhancing Calcium Phosphate Cements Properties by Forming Organic/Inorganic Hybrid Materials

Jean-Michel Bouler¹, Charlotte Mellier², Florian Boukhechba², François-Xavier Lefevre¹, Olivier Gauthier¹, Bruno Bujoli¹

¹ *University of Nantes, France*, ² *GRAFTYS, France*

O-07: Inhibitory Effects of Zoledronic Acid-Loaded Bioresorbable Cement on Osteosarcoma

Michiyo Honda, Norihiro Suzuki, Kohei Nagata, Mamoru Aizawa

Meiji University, Japan

O-08: Neutral Containing Chitosan and Polyol for Calcium Phosphate Cement

Yoshiyuki Yokogawa, Kentaro Fujii, Ryota Izumiki, Seiya Shibata, Tasuku Takayasu

Osaka City University, Japan

17:45 – 18:00 Break

18:00 – 19:30 Welcome Reception (Toyoda Auditorium)

Plenary Lecture 2
9:00 – 9:45
Room: Auditorium
Chair: Kunio Ishikawa

PL-02: Bioceramics for Bone Regeneration and Beyond

Jiang Chang

Shanghai Institute of Ceramics, China

9:45 – 10:00 Break

Oral Session 3: Processing Routes

10:00 – 11:45

Room: Auditorium

Chairperson: Kyung-Sik Oh, Christèle Combes

KN-03: Sol-Gel Derived Inks for 3D Biofabrication

Gowsihan Poologasundarampillai¹, Gil Machado², Jin He³, Julian R. Jones⁴

¹ University of Birmingham, United Kingdom, ² University of Birmingham, United Kingdom, ³ Hebrew University of Jerusalem, Israel, ⁴ Imperial College, United Kingdom

O-09: Preparation of PLA/45S5 Bioglass Composite Scaffolds Via Nonsolvent Thermally-Induced Phase Separation Method for Applications in Bone Tissue Engineering

Ena Athenea Aguilar-Reyes, Nora Janeth Lúa-Gómez, Carlos Alberto León-Patiño

Universidad Michoacana de San Nicolás de Hidalgo, Mexico

O-10: Implantable Composite Devices with Marbling Dispersion of Fibrous Poly-L-Lactide and Hydroxyapatite/Poly-L-lactide to Enhance Bioactivity and Bioresorbability

Kazuaki Morizane¹, Yasuo Shikinami², Shunsuke Fujibayashi¹, Koji Goto¹, Bungo Otsuki¹, Toshiyuki Kawai¹, Shuichi Matsuda¹

¹ Kyoto University, Japan, ² Shikinami Yasuo Institute, Japan

O-11: Evaluating Pore Forming Mechanisms of the Freeze Foaming Process for Manufacturing Bone Mimicking Scaffolds

Matthias Ahlhelm¹, David Werner¹, Johanna Maier², Thomas Behnisch², Tassilo Moritz¹, Alexander Michaelis¹, Maik Gude²

¹ Fraunhofer IKTS, Germany, ² Technische Universität Dresden, Institute of Lightweight Engineering and Polymer Technology, Germany

O-12: Pure and Sr-Doped β -TCP Synthesis

Bastien Le Gars Santoni¹, Christoph Stähli¹, **Nicola Döbelin**¹, Paul Bowen², Marc Bohner¹

¹ RMS Foundation, Switzerland, ² EPFL, Switzerland

O-13: Electrochemically Assisted Sol-Gel Deposition of Bioactive Films

Tomohiko Yoshioka, Naoki Miyamoto, Satoshi Hayakawa

Okayama University, Japan

Oral Session 4: Cells/Materials Interactions

10:00 – 11:45

Room: Symposion

Chairs: Jean-Michel Bouler, Michiyo Honda

KN-04: Understanding of Cell-Bioceramic Interactions in Terms of Materials Science

Miho Nakamura^{1,2}, Teuvo Hentunen², Jukka Salonen², Kimihiro Yamashita¹

¹ *Tokyo Medical and Dental University, Japan*, ² *University of Turku, Finland*

O-14: Osteoblast-Like Cell Responses to Silicate Ions with Different Ion Structures

Akiko Obata¹, Yamato Goto¹, Gavin Jell², Toshihiro Kasuga¹

¹ *Nagoya Institute of Technology, Japan*, ² *University College London, United Kingdom*

O-15: Understanding Silicon Nitride's Biological Properties: From Inert to Bioactive Ceramic

Elia Marin^{1,2}, Alfredo Rondinella¹, Francesco Boschetto¹, Matteo Zanocco¹, Bryan J. McEntire³, Sonny B. Bal³, Giuseppe Pezzotti^{1,4,5,6}

¹ *Ceramic Physics Laboratory, Kyoto Institute of Technology, Japan*, ² *Department of Dental Medicine, Graduate School of Medical Science, Japan*, ³ *Amedica Corporation, United States*, ⁴ *Department of Orthopedic Surgery, Tokyo Medical University, Japan*, ⁵ *Center for Advanced Medical Engineering and Informatics, Osaka University, Japan*, ⁶ *Department of Molecular Cell Physiology, Graduate School of Medical Science, Japan*

O-16: Effects of Silicate or Phosphate Ions on Osteoblast-Like Cell Mineralization and Collagen Synthesis

Riku Furuya¹, Azadeh Rezaei², Gavin Jell², Akiko Obata¹, Toshihiro Kasuga¹

¹ *Nagoya Institute of Technology, Japan*, ² *University College London, United Kingdom*

O-17: Responses of Immune Cells to Hydroxyapatite Ceramics Loaded with Immunostimulators

Sanae Kagami¹, Rihoko Kizukuri¹, Shigenori Nagai², Mamoru Aizawa¹

¹ *Meiji University, Japan*, ² *Graduate School of Medical and Dental Sciences, Japan*

O-18: Biomimetic Apatite Coating as Bioactive Molecule Carrier and Their Influence on Cell Behavior

In-Seop Lee¹, Cen Chen², Ya Hao², Xue Bai², Shichao Ruan²

¹ *Yonsei University, South Korea*, ² *Zhejiang Sci-Tech University, China*

11:45 – 12:45 Lunch & Poster Viewing

12:45 – 14:15 Poster Session (1) Odd Numbers

Oral Session 5: Biomimetics

14:15 – 15:45

Room: Auditorium

Chairs: Gowsihan Poologasundarampillai, Takuya Matsumoto

KN-05: Bio-inspired Nano-ceramics Instructing Cells for Tissue Regeneration

Anna Tampieri, Simone Sprio, Monica Sandri, Alessio Adamiano, Monica Montesi, Silvia Panseri
National Research Council, Italy

O-19: Bioactivity Assessment of PVDF-Precursors of Apatite Composite Thin Films

Hasnat Zamin, Takeshi Yabutsuka, Shigeomi Takai

Kyoto University, Japan

O-20: Artificial Cross-Lamellar Structures Similar to Calcareous Shells

Mihiro Takasaki¹, Tohru S. Suzuki², Yuya Oaki¹, Hiroaki Imai¹

¹ Keio University, Japan, ² National Institute for Materials Science, Japan

O-21: Comparative Study of Apatite Formation on Copolymer Modified with Different Anionic Functional Groups in Simulated Body Environment

Ryo Hamai^{1,2}, Osamu Suzuki¹, Yuki Shiroasaki³, Yukari Shiwaku¹, Toshiki Miyazaki²

¹ Tohoku University, Japan, ² Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Japan, ³ Faculty of Engineering, Kyushu Institute of Technology, Japan

O-22: Impartation of Apatite-Forming Ability to Hydrophobicized Cellulose Nanofiber by Combination with Apatite Nuclei

Takuya Yoshioka, Takeshi Yabutsuka, Sigeomi Takai, Takeshi Yao

Kyoto University, Japan

Oral Session 6: Drug Delivery

14:15 – 15:45

Room: Symposion

Chairs: Miho Nakamura, In-Seop Lee

KN-06: CpG DNA Complexed with Apatite Nanoparticles as a Potent Vaccine Adjuvant via Microneedle Technology

Min-Hua Chen¹, Takashi Minowa², Xianglan Li², Nobutaka Hanagata²

¹ Chung Yuan University, Taiwan, ² National Institute for Materials Science, Japan

O-23: Gallium Stimulates in vivo Calcium Phosphate-Mediated Bone Reconstruction

Ivana Strazic², Sébastien Schaub², Pascal Janvier¹, Jean-Michel Bouler¹, Jean-Claude Scimeca²,

Elise Verron¹

¹ CEISAM CNRS UMR 6230, France, ² University of Nice, France

O-24: Multifunctional-Dual Drug Delivery PLA Coating for Bone Implants

Ipek Karacan¹, Joshua Chou¹, Besim Ben-Nissan¹, Sophie Cazalbou², Bruce Milthorpe¹

¹ University of Technology Sydney, Australia, ² University of Toulouse, France

O-25: Calcium Phosphates Nanoparticles for the Delivery of Cardiovascular Therapeutic Agents through Inhalation

Michele Iafisco¹, Lorenzo Degli Esposti¹, Francesca Carella¹, Alessio Adamiano¹, Anna Tampieri¹, Michele Miragoli^{2,3,4}, Marco Vacchiano^{3,4}, Maria Sobrados Barandalla^{3,4}, Daniele Catalucci^{3,4}

¹ National Research Council (CNR), Italy, ² University of Parma, Italy, ³ National Research Council (CNR), Italy, ⁴ Humanitas Research Hospital, Italy

O-26: Ceramic Core and Polymer Shell Nanoparticles as Bone Substitute Material for Sequential Delivery of Therapeutic agents

Ram Prasad Sekar^{1,2}, Sampath Kumar T.S.², Jayakrishnan A.¹

¹ Biomaterials Laboratory, Department of Biotechnology, Indian Institute of Technology Madras, India,

² Medical Materials Laboratory, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, India

15:45 – 16:00 Break

Oral Session 5-2: Surface Engineering and Coatings

16:00 – 17:00

Room: Auditorium

Chairs: Masami Hashimoto, Elia Marin

O-27: Antibacterial Sol-Gel Coating for Bone Scaffolds Based on the Dark Catalytic Effect of Titanium Dioxide

David Wiedmer, Chen Cui, Fernanda C. Petersen, **Hanna Tiainen**

University of Oslo, Norway

O-28: Hydroxyapatite Coatings on Mg-Zn-Mn Magnesium Alloys for Potential Orthopaedic Applications using Electrophoretic Deposition

Iulian Antoniac, Aurora Antoniac, Camelia Tecu

University Politehnica of Bucharest, Romania

O-29: XPS Study on Preparation of Bioactive Apatite Nuclei Precipitated Fiber Reinforced PEEK

Takeshi Yabutsuka, Tomoko Hiruta, Shigeomi Takai, Takeshi Yao

Kyoto University, Japan

O-30: Chemical Growth and Apatite-Forming Ability of Rod-Like Rutile Titania Layers with Tailored Facets on Titanium Substrate

Xingzhu Liu, Tomohiko Yoshioka, Satoshi Hayakawa

Okayama University, Japan

Oral Session 6-2: Calcium Phosphate Bioceramics

16:00 – 17:00

Room: Symposium

Chairs: Sooraj H. Nandyala, Akiko Obata

O-31: Effect of OCP on the Crosstalk between Osteoclasts and Osteoblasts

Yukari Shiwaku, Linghao Xiao, **Osamu Suzuki**

Tohoku University Graduate School of Dentistry, Japan

O-32: Conversion of Fish Bone into Calcium Phosphate Based Materials for Biomedical Applications

Alessio Adamiano¹, Clara Piccirillo², David Tobaldi³, Marco Montalti⁴, Jeannette Manzi⁴, Paula M. L. Castro⁵, Silvia Panseri¹, Monica Montesi¹, Simone Sprio¹, Michele Iafisco¹, Anna Tampieri¹

¹ Italian National Research Council - ISTE, Italy, ² Italian National Research Council - NANOTEC, Italy, ³ University of Aveiro, Portugal, ⁴ University of Bologna, Italy, ⁵ Universidade Católica Portuguesa, Portugal

O-33: Compressive Strength Evaluation and Phase Analysis of Pulp Capping Materials based on Carbonate Apatite-SCPC using Different Concentration of SCPC and Calcium Hydroxide

Arief Cahyanto¹, Muga Restunaesha¹, Myrna Zakaria², Andri Rezano¹, Ahmed El-Ghannam³

¹ Universitas Padjadjaran, Indonesia, ² Universitas Jenderal Achmad Yani, Indonesia, ³ The University of North Carolina at Charlotte, United States

O-34: Comparison of alpha-TCP Scaffolds Fabricated by Binder Jetting Method and Commercially Available TCP Substitutes in Vivo

Shintaro Oyama^{1,2}, Masaki Watanabe³, Yuki Tsujimura¹, Kenji Yamazawa¹, Hideo Yokota¹

¹ RIKEN Center for Advanced Photonics, Japan, ² Nagoya University Hospital Department of Hand Surgery, Japan, ³ Ricoh Company Ltd., Japan

Plenary Lecture 3

9:00 – 9:45

Room: Auditorium

Chairperson: Hitoshi Hirata

PL-03: Electrical Polarization of Apatite Ceramics and Living Bones to Facilitate New Bone Formation - From the Principle to the Practical -

Soichiro Itoh^{1, 2}, Kazuhiro Kohata², Masato Obara³, Naohiro Horiuchi², Hiroyoshi Fujiwara³, Kimihiro Yamashita²

¹ Sakurakai Hospital, Japan, ² Tokyo Medical and Dental University, Japan, ³ Kyoto Prefectural University of Medicine, Japan

9:45 – 10:00 Break

Oral Session 7: Calcium Phosphate Bioceramics

10:00 – 11:45

Room: Auditorium

Chairs: Rui L. Reis, Ayako Oyane

KN-07: Low Temperature Calcium Phosphate Processing: a New Path to Face Biomedical Challenges

Christophe Drouet¹, David Grossin¹, Ghislaine Bertrand¹, Eric Champion², Camille Ortali^{2, 1}, Marina Luginina^{3, 1}, Ambra Paterlini¹, Geoffroy Chevallier⁴, Isabelle Julien², Roberto Orru³, Giacomo Cao³, Sergi Dosta⁵, Irene Garcia⁵, Fabien Brouillet¹, Christian Rey¹

¹ CIRIMAT - CNRS / University of Toulouse, France, ² IRCER / Université de Limoges, France, ³ Università degli Studi di Cagliari, Italy, ⁴ PNF², France, ⁵ Thermal Spray Center (CPT), Universitat de Barcelona, Spain

O-35: Novel EPD Coating of HAp/Col Realizes Strong Adhesion to Substrate Metal

Kaori Iwanami-Kadowaki^{1, 2}, Tetsuo Uchikoshi², Masayoshi Uezono¹, Masanori Kikuchi², Keiji Moriyama¹

¹ Tokyo Medical and Dental University, Japan, ² National Institute for Material Science, Japan

O-36: Preparation of Calcium Phosphate Glasses Containing Nb₂O₅ and TiO₂

Patricia Sato, Akiko Obata, Hiroataka Maeda, Toshihiro Kasuga

Nagoya Institute of Technology, Japan

O-37: The Race between Tissue Integration and Bacteria Colonisation on Silver, Silicon Co-Substituted Apatite

Poon Nian Lim¹, Shi Yun Tong¹, Zixuan Zhao¹, Bow Ho², Wilson Wang¹, Eng San Thian¹

¹ National University of Singapore, Singapore, ² Singapore Precision Medical Centre Pte. Ltd., Singapore

O-38: Innovative Solutions in order to Produce Multi Bioceramic Implants by 3D Printing

Maxence Bourjol, Richard Gaignon

3DCERAM Sinto, France

O-39: Microstructural Investigation of Calcium Phosphate to Fluoroapatite in the Different Precursor Solution under Hydrothermal Process

Reedwan B. Auniq, Wisarat Ngoenthong, **Upsorn Boonyang**

Functional Materials and Nanotechnology Center of Excellence, School of Science, Walailak University, Thailand

Oral Session 8: Nanomaterials
10:00 – 11:45
Room: Symposion
Chairs: Min-Hua Chen, Tomohiko Yoshioka

KN-08: Cell Nanofragment Inspired from Bone Mineralization in Secondary Ossification Center

Takuya Matsumoto, Emilio Satoshi Hara
Okayama University, Japan

O-40: Enzyme Immobilization on Silica Nanoparticle Vesicles

Daiki Takata, Ayae Sugawara-Narutaki, Jin Nakamura, Chikara Ohtsuki
Nagoya University, Japan

O-41: Interaction of Calcium Phosphate with Gold Nanocrystals Coated with Polyethylene Glycol

Maki Nakamura¹, Kiyoko Kuroiwa¹, Ayako Oyane¹, Hisanori Kosuge²

¹ *National Institute of Advanced Industrial Science and Technology (AIST), Japan*, ² *University of Tsukuba, Japan*

O-42: Elucidating the Osteoinductive Effect of Extracellular Phosphate on Stem Cells by Using β -Tricalcium Phosphate Nanoparticles Model

Xiaopei Wu¹, Honglian Dai^{1,2}, Shipu Li^{1,2}

¹ *Wuhan University of Technology, China*, ² *Biomedical Materials and Engineering Research Center of Hubei Province, China*

O-43: Synthesis of Spherical Phosphate-containing Mesoporous Silicas for Improving Their Reaction Behaviors in Simulated Body Fluid

Shang Yucheng, **Shota Yamada**, Motohiro Tagaya
Nagaoka University of Technology, Japan

O-44: Quantitative Detection of Hydroxyapatite Nanoparticles in Vitro and in Vivo

Yingchao Han, Qingguo Xing, Honglian Dai, Xinyu Wang
Wuhan University of Technology, China

11:45 – 12:45 Lunch & Poster Viewing

12:45 – 14:15 Poster Session (2) Even Numbers

Oral Session 9: Scaffolds/Tissue Engineering

14:15 – 16:00

Room: Auditorium

Chairs: Christophe Drouet, Osamu Suzuki

KN-09: Quantitative Assessment of MRC-5 Cellular Membrane Integrity Upon Exposure to Hydroxyapatite Sintered at Various Temperatures

Hamed Benghuzzi, Michelle Tucci
University of Mississippi Medical Center, United States

O-45: High Chemical Reactivity of HA/ β -TCP Smart Calcium Phosphate Bioceramic for Tissue Engineering

Cyril d'Arros^{1,2}, Thierry Rouillon², Pascal Borget¹, Guy Daculsi^{1,2}

¹ *Biomatlante, France*, ² *INSERM, UMR 1229, RMeS, France*

O-46: Biomedical Potential of Organic/Inorganic Hybrid Microgel for Bone Tissue Engineering

Honghyun Park¹, Kyubin Byun^{1,2}, Jueun Kim^{1,2}, Hui-suk Yun^{1,2}

¹ Korea Institute of Materials Science (KIMS), South Korea, ² Korea University of Science and Technology (UST), South Korea

O-47: Enzymatically Crosslinked SF/SF- β -TCP Scaffolds Incorporating Sr- and Zn-ions as Hierarchical Structures for Osteochondral Tissue Engineering Applications

Viviana P. Ribeiro^{1,2}, Sandra Pina^{1,2}, João B. Costa^{1,2}, Ibrahim Fatih Cengiz^{1,2},

Luís García-Fernández^{3,4}, Mar Fernández-Gutierrez^{3,4}, Ana L. Oliveira⁵, Julio San-Román^{3,4}, Joquim M. Oliveira^{1,2,6}, Rui L. Reis^{1,2,6}

¹ 3B's Research Group, University of Minho, Portugal, ² ICVS/3B's - PT Government Associate Laboratory, Portugal, ³ Institute of Polymer Science and Technology, Polymeric Nanomaterials and Biomaterials Department, Spanish Council for Scientific Research (ICTP-CSIC), Spain, ⁴ Centro de Investigación Biomédica en Red. Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Spain, ⁵ CBQF - Center for Biotechnology and Fine Chemistry, Portuguese Catholic University, Portugal, ⁶ The Discoveries Centre for Regenerative and Precision Medicine, Headquarters at University of Minho, Portugal

O-48: Preparation and Characterization of HA/Gel/ β -TCP Microspheres Composite Porous Scaffold

Zhao Yangzi, Youfa Wang

Wuhan University of Technology, China

O-49: Comparison of Bioactive Property of Bone Substitute Materials by 3D Culture and in Vivo Implantation

Tomoya Sato¹, Takahisa Anada^{1,2}, Yukari Shiwaku¹, Kaori Tsuchiya¹, Keiichi Sasaki¹, Osamu Suzuki¹

¹ Tohoku University Graduate School of Dentistry, Japan, ² Institute for Materials Chemistry and Engineering, Japan

Oral Session 10: Calcium Phosphate Bioceramics

14:15 – 16:00

Room: Symposion

Chairs: Iulian Antoniac, Masanobu Kamitakahara

KN-10: Tissue Engineering and Precision Medicine Strategies to Regenerate Mineralized Human Tissues

Rui L. Reis^{1,2,3}

¹ University of Minho, Portugal, ² ICVS/3B's-PT Government Associate Laboratory, Portugal, ³ The Discoveries Centre for Regenerative and Precision Medicine, Portugal

O-50: Hydration Structure of Apatite and Its Relation to Bone Mineral Formation

Masahiro Okada¹, Emilio Satoshi Hara¹, Masaru Tanaka^{2,3}, Takuya Matsumoto¹

¹ Okayama University, Japan, ² Yamagata University, Japan, ³ Kyushu University, Japan

O-51: Functionalized Bioceramics towards Regeneration of Musculoskeletal Disorders

Sandra Pina^{1,2}, Viviana P. Ribeiro^{1,2}, Luís García-Fernández^{3,4}, Julio San-Román^{3,4},

Rui L. Reis^{1,2,5}, J. Miguel Oliveira^{1,2,5}

¹ 3B's Research Group, University of Minho, Portugal, ² ICVS/3B's - Associate Laboratory, Portugal, ³ Institute of Polymer Science and Technology, CSIC, Spain, ⁴ Centro de Investigación Biomédica en Red. Bioingeniería, Spain, ⁵ The Discoveries Centre for Regenerative and Precision Medicine, Portugal

O-52: Area-Selective Osteoconduction of HAp-Patterned Tough Hydrogel by Acidic Gel Stamping

Takayuki Nonoyama^{1, 5}, Ryuji Kiyama², Susumu Wada³, Lei Wang^{4, 5}, Masumi Tsuda^{4, 5}, Nobuto Kitamura³, Kazunori Yasuda^{3, 5}, Takayuki Kurokawa^{2, 5}, Shinya Tanaka^{4, 5}, Jian Ping Gong^{1, 5}

¹ Faculty of Advanced Life Science, Hokkaido University, Japan, ² Graduate School of Life Science, Hokkaido University, Japan, ³ Department of Sports Medicine, Graduate School of Medicine, Hokkaido University, Japan, ⁴ Department of Cancer Pathology, Faculty of Medicine, Hokkaido University, Japan, ⁵ Global Station for Soft Matter, Global Institution for Collaborative Research and Education, Hokkaido University, Japan

O-53: Fabrication of Porous β -TCP Block by Heating β -TCP Granules Bridged with DCPD

Tansza Putri¹, Melvin L. Munar¹, Koichiro Hayashi¹, Kanji Tsuru^{1, 2}, Kunio Ishikawa¹

¹ Kyushu University, Japan, ² Fukuoka Dental College, Japan

O-54: Fluoride-Incorporated Apatite Coating for Tooth Surface Modification by Laser Irradiation in Supersaturated Solutions

Ayako Oyane¹, A. Joseph Arputharaj¹, Maki Nakamura¹, Kanako Shitomi², Hirofumi Miyaji²

¹ National Institute of Advanced Industrial Science and Technology (AIST), Japan, ² Hokkaido University, Japan

16:00 – 16:15 Break

Oonishi Award Ceremony/Award Lecture

16:15 – 17:15

Room: Auditorium

Chairs: Guy Daculsi, Takashi Nakamura

Cellular Differentiation onto the Surface of Bioceramics

Hajime Ohgushi

Dept. of Orthopedics, Ookuma Hospital, Japan

18:30 – 20:30 Banquet/Dinner (ANA Crowne Plaza Hotel Grand Court Nagoya)

Oral Session | Monday, 29th October

Oral Session 11: In vivo Evaluation

9:00 – 10:00

Room: Auditorium

Chairs: Michelle Tucci, Sandra Pina

KN-11: A Histological Assessment of the Mechanism of Early-Stage Healing of a Biphasic Calcium Phosphate in an *In Vivo* Rabbit Model

Ian R. Dunkley¹, Scott M. Vickers¹, Jeffrey Badura¹, Jeffrey Toth²

¹ Medtronic, United States, ² Medical College of Wisconsin, United States

O-55: Bone Morphogenetic Protein-2 Incorporated Beta-tricalcium Phosphate Enhanced Bone Regeneration in Critical-sized Bone Defects in Rats

Lingfei Wei^{1,2}, Yuelian Liu¹

¹ Academic Center for Dentistry Amsterdam, Netherlands, ² Yantai Stomatological Hospital, China

O-56: *In vivo* Evaluation of Apatite-fiber Scaffolds with Enhanced Mechanical Property Using a Rat Calvarial Defect Model

Rie Ohno¹, Kohei Nagata¹, Tomohiro Yokota¹, Jotaro Yuza¹, Tadaaki Morotomi², Noritaka Isogai², Riichi Kajiwara¹, Mamoru Aizawa¹

¹ Meiji University, Japan, ² Kinki University, Japan

Oral Session 12: Glass/Glass-Ceramics

9:00 – 10:00

Room: Symposium

Chairs: Hamed Benghuzzi, Mamoru Aizawa

KN-12: Bone Tissue Engineering with Si and Co Releasing Bioactive Glasses: Moving The Focus Away From Mineralization

Yutong Li¹, Azadeh Rezaei¹, Riku Furuya², Akiko Obata², Toshihiro Kasuga², Gavin Jell¹

¹ University College London (UCL), United Kingdom, ² Nagoya Institute of Technology, Japan

O-57: Silver-Doped Bioactive Glasses with Cotton-Wool-Structure for Skin Wound Healing

Takuya Zenji¹, Elizabeth Norris², Gowsihan Poologasundarampillai³, Julian R. Jones², Akiko Obata¹, Toshihiro Kasuga¹

¹ Nagoya Institute of Technology, Japan, ² Imperial College London, United Kingdom, ³ University of Birmingham, United Kingdom

O-58: Sintering Temperature Effect on Hardness of Self-Synthesized Porcelain Made from Natural Sumatran Sand Without Kaolin

Sianny Kurnia¹, Dede Taufik², Veni Takarini¹, Zulia Hasratiningsih¹

¹ University of Padjadjaran, Indonesia, ² Balai Besar Keramik Bandung, Indonesia

10:00 – 10:15 Break

Oral Session 11-2: Bioinert Ceramics & Porous Material

10:15 – 11:00

Room: Auditorium

Chairs: Ian R. Dunkley, Satoshi Hayakawa

O-59: Bioceramics are Not Bioinert: The Role of Oxide and Non-Oxide Bioceramics on the Oxidation of UHMWPE Components in Artificial Joints

Alfredo Rondinella¹, Elia Marin^{1,2}, Bryan J. McEntire³, Ryan Bock³, B. Sonny Bal³, Wenliang Zhu¹, Giuseppe Pezzotti^{1,4,5,6}

¹ Ceramic Physics Laboratory, Kyoto Institute of Technology, Japan, ² Department of Dental Medicine, Graduate School of Medical Science, Kyoto Prefectural University of Medicine, Japan, ³ Amedica Corporation, United States, ⁴ Department of Orthopedic Surgery, Tokyo Medical University, Japan, ⁵ The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan, ⁶ Department of Immunology, Graduate School of Medical Science, Kyoto Prefectural University of Medicine, Japan

O-60: Transparent, Superflexible Doubly Cross-linked Polyvinylpolymethylsiloxane Aerogels and Xerogels for Superinsulation

Kazuki Nakanishi¹, Kazuyoshi Kanamori¹, Guoqing Zu¹, Ryota Ueoka¹, Jun Shen¹

¹ Kyoto University, Japan, ² Tongji University, China

O-61: Material Design and Creation of New FRP Artificial Bone Material Using Biodegradable Resin and Bone Induction Material

Kazuo Yagi^{1,2}, Takuya Kurimoto², Tomoaki Hamada², Seiichi Sugimoto³, Tadashi Inaba²

¹ Tokyo Metropolitan University, Japan, ² Mie University, Japan, ³ Tokyo Metropolitan College of Industrial Technology, Japan

Oral Session 12-2: Surface Engineering

10:15 – 11:00

Room: Symposion

Chairs: Gavin Jell, Toshiki Miyazaki

O-62: Cytotoxicity of Antibacterial Metal-Doped Raw Silk Fabric

Hiroki Chigama, Hiroyasu Kanetaka, Maiko Furuya, Kotone Yokota, Masakazu Kawashita
Tohoku University, Japan

O-63: Wettability and Durability of Si-O Coatings on Zirconia Substrate by rf-Magnetron Plasma Sputtering

Yoshiyuki Yokogawa¹, Taishi Morishima¹, Mitsunori Uno², Masakazu Kurachi², Hajime Ishigame², Yutaka Doi², Harumi Kawaki², Masato Hotta²

¹ Osaka City University, Japan, ² Asahi University, Japan

O-64: Nano Coating with Silicate-substituted Strontium Apatite (SrSiP) Improve Osteogenesis around Artificial Ligament

Yusuke Inagaki, Takuya Egawa, Manabu Akahane, Akira Furukawa, Tsutomu Kira, Kazuya Inoue, Yasuhito Tanaka

Nara Medical University, Japan

11:00 – 11:15 Break

Plenary Lecture 4

11:15 – 12:00

Room: Auditorium

Chairperson: Toshihiro Kasuga

PL-04: Therapeutic Silica Nanoparticles

Julian R. Jones, Alexandra E. Porter

Imperial College London, United Kingdom

12:00 – 12:30 General Assembly
 Student Award Ceremony
 Closing Remarks

Poster Session |
Saturday, 27th October (Odd Numbers) & Sunday, 28th October (Even Numbers)

P-01: Surface Influence on Deposition of Hydroxyapatite on Zirconia

Andrei Victor Sandu^{1,2}, Sergiu Ciprian Focsaneanu^{1,3}, Petrica Vizureanu^{1,4}, Dragos Cristian Achitei^{1,4}, Mohd Mustafa Al Bakri Abdullah⁴

¹ Gheorghe Asachi Technical University of Iasi, Romania, ² Romanian Inventors Forum, Romania, ³ Grigore T. Popa University of Medicine and Pharmacy, Romania, ⁴ Centre of Excellence Geopolymer and Green Technology (CeGeoGTech), Universiti Malaysia Perlis, Malaysia

P-02: Template Effecting on Morphology of Hydroxyapatite and Template-Mediated Mechanism Study

Jing Luo¹, Yu Wang²

¹ Wuhan University of Technology, China, ² Wuhan University of Technology, China

P-03: Evaluation of Spherical Porous Hydroxyapatite/Octacalcium Phosphate Granules Loaded with Ascorbic Acid Phosphate

Masanobu Kamitakahara, Airi Ishii, Hideaki Matsubara, Masakazu Kawashita, Maiko Furuya, Hiroyasu Kanetaka

Tohoku University, Japan

P-04: Avidin-Immobilized Peptide-Calcium Phosphate Composites Exhibiting High Binding Activity to Biotin

Suzuka Kojima^{1,2}, Fukue Nagata², Masahiko Inagaki², Shinichi Kugimiya¹, Katsuya Kato²

¹ Aichi Institute of Technology (AIT), Japan, ² National Institute of Advanced Industrial Science and Technology (AIST), Japan

P-05: Isotope Microscopic Evaluation of Osteogenesis Penetration into Hydrogel

Yuki Suzuki¹, Takayuki Nonoyama^{2,4}, Lei Wang^{3,4}, Masumi Tsuda^{3,4}, Ryuji Kiyama¹, Kazunori Yasuda^{4,5}, Jian Ping Gong^{2,4}

¹ Graduate School of Life Science, Japan, ² Faculty of Advanced Life Science, Japan, ³ Department of Cancer Pathology, Graduate School of Medicine, Japan, ⁴ Global Station for Soft Matter, Global Institution for Collaborative Research and Education, Hokkaido University, Japan, ⁵ Yagi Orthopedic Hospital, Sapporo, Japan

P-06: Adhesion and Scratch Testing of Antibiotic-Loaded HAP/PLA Biocomposite Thin Films on Metallic Implants

Ipek Karacan¹, Joshua Chou¹, Besim Ben-Nissan¹, Innocent Macha², Arion Juritza³, Andy Wang⁴, Wolfgang Muller³, David Grossin⁵, Michael Swain⁴

¹ University of Technology Sydney, Australia, ² University of Dar es Salaam, Tanzania, ³ Technical University of Berlin, Germany, ⁴ University of Sydney, Australia, ⁵ University of Toulouse, France

P-07: Investigation of Hydroxyapatite/Poly(lactic acid) Composite Particles Formation by Emulsion Diameter Measurement

Motoharu Hanasaki^{1,2}, Fukue Nagata¹, Tatsuya Miyajima¹, Ayase Sugawara-Narutaki³, Kenichi Imaeda², Katsuya Kato¹

¹ National Institute of Advanced Industrial Science and Technology (AIST), Japan, ² Chubu University, Japan, ³ Nagoya University, Japan

P-08: Formation of Calcium Phosphate Particles in the Presence of Hyaluronic Acid and Adsorption Capacity for Protein

Aoi Suzuki^{1,2}, Fukue Nagata¹, Tatsuya Miyajima¹, Kenichi Imaeda², Katsuya Kato¹

¹ National Institute of Advanced Industrial Science and Technology, Japan, ² Chubu University, Japan

P-09: Fabrication of Hydroxyapatite/Cellulose-fiber Composite with Sheet-like Structure

Shota Watanabe^{1,2}, Fukue Nagata¹, Tatsuya Miyajima¹, Makoto Sakurai², Aio Suzuki^{1,2}, Katsuya Kato¹

¹ National Institute of Advanced Industrial Science and Technology (AIST), Japan, ² Chubu University, Japan

P-10: Fabrication and *in Vitro* Properties of Starfish-Derived Porous β -Tricalcium Phosphate/Gelatin Composite

Toshiki Kudo¹, Akari Takeuchi¹, Masanori Kikuchi²

¹ Graduate School of Science and Technology, Shinshu University, Japan, ² Bioceramics Group, National Institute for Materials Science, Japan

P-11: Multi-doped Biomimetic Apatites as 3-D Porous Scaffolds Obtained by Low-temperature Fabrication Processes

Simone Sprio¹, Lorenzo Preti¹, Barbara Lambiase¹, Monica Montesi¹, Silvia Panseri¹, Nicola Pugno², Anna Tampieri¹

¹ Institute of Science and Technology for Ceramics, National Research Council, Italy, ² Civil, Environmental and Mechanical Engineering, University of Trento, Italy

P-12: Morphology Dependence of Dicalcium Phosphate Dihydrate in the Powder Operability

Takeshi Toshima, Yuki Sato, Saori Takamatsu, Masamoto Tafu

National Institute of Technology, Toyama College, Japan

P-13: Plate-shaped Hydroxyapatite Synthesis Using Sebacic Acid

Naohiro Horiuchi¹, Hironori Saito², Kazuaki Hashimoto², Kimihiro Yamashita¹

¹ Tokyo Medical and Dental University, Japan, ² Chiba Institute of Technology, Japan

P-14: In vitro Cytotoxicity Test of Poly(lactic acid)/Hydroxyapatite Core-shell Nanoparticles

Fukue Nagata, Tatsuya Miyajima, Katsuya Kato

National Institute of Advanced Industrial Science and Technology (AIST), Japan

P-15: The Evaluation of Setting Time and FTIR Spectroscopy of Carbonate Apatite Cement as Endodontic Sealer

Elfira Megasari¹, Hendra Dian Adhita Dharsono¹, Richata Fadil¹, Myrna Nurlatifah Zakaria², Arief Cahyanto¹

¹ Universitas Padjadjaran, Indonesia, ² Universitas Jenderal Achmad Yani, Indonesia

P-16: Preparation and Evaluation of Nano-hydroxyapatite/saccharide Complex Spray-dried Particles for Oral Administration

Yuya Honda¹, Yuji Lin¹, Hideki Aoki², Takayuki Terukina¹, Yusuke Hattori¹, Makoto Otsuka¹

¹ Musashino University, Japan, ² Internatinal Apatite Institute Co. Ltd., Japan

P-17: Low Temperature Fabrication of Self-setting Calcium Phosphate Scaffold using 3D Printing Technology

Naren Raja^{1,2}, Honghyun Park¹, Hui-suk Yun^{1,2}

¹ Korea Institute of Material Science, South Korea, ² Korea University of Science and Technology (UST), South Korea

P-18: Unique Dicarboxylate Ion Incorporation in Octacalcium Phosphate

Taishi Yokoi

Japan Fine Ceramics Center, Japan

P-19: Biological Evaluation of Active Ingredient Controlled-Release Calcium Phosphate Cement

Tomohiro Uchino, Shota Un-no, Toshiyuki Susa, Yuto Chubachi

Nihon University, Japan

P-20: Fabrication of Strontium-Substituted Hydroxyapatite Ceramics Preferred Orientation to c-plane by Reactive Templated Grain Growth Method

Shuhei Yoshida, Mamoru Aizawa
Meiji University, Japan

P-21: Adsorption Property of Dye on Needle-shaped Hydroxyapatite Synthesized by Solvothermal Treatment

Tomoyo Goto¹, Sung Hun Cho¹, Chikara Ohtsuki², Tohru Sekino¹
¹ *Osaka University, Japan*, ² *Nagoya University, Japan*

P-22: The Influence of Microstructure on the Polarization of Hydroxyapatite

Karlis A. Gross, Darta Ubele, Liene Pluduma
Riga Technical University, Latvia

P-23: A Novel Validation Concept for Phase Quantification by XRD

Nicola Doebelin^{1,2}, Martin Fisch²
¹ *RMS Foundation, Switzerland*, ² *Institute of Geological Sciences, University of Bern, Switzerland*

P-24: Fabrication of Micro-Sized Calcium Deficiency Hydroxyapatite Beads for Bioapplications

Kyubin Byun^{1,2}, Honghyun Park², Hui-suk Yun^{1,2}
¹ *Korea University of Science and Technology(UST), South Korea*, ² *Korea Institute of Material Science(KIMS), South Korea*

P-25: Insight into Cellular Uptake Mechanism and Gene Delivery of Hydroxyapatite Nanoparticles in Cardiomyocytes

Hiroaki Komuro^{1,2,3}, Tetsuo Sasano¹, Kimihiro Yamashita², Akiko Nagai²
¹ *Department of Cardiovascular Physiology, Tokyo Medical and Dental University, Japan*, ² *Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Japan*, ³ *Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Japan*

P-26: Modification of Continuous Pore Structures in α -Tricalcium Phosphate Ceramics

Jonathan Li, Takaharu Katsu, Jin Nakamura, Aya Narutaki, Chikara Ohtsuki
Nagoya University, Japan

P-27: CO₂ Laser Bonding of Silicate-substituted Strontium Apatite on PEEK and Osteointegration on Its Surface

Akira Furukawa, Manabu Akahane, Yasuhito Tanaka
Nara Medical University, Japan

P-28: Bioactivity of Precursor of Apatite on polyetheretherketone (PEEK)

Kazutaka Masamoto¹, Shunsuke Fujibayashi¹, Takeshi Yabutsuka², Bungo Otsuki¹, Tomoko Hiruta², Yaichiro Okuzu¹, Toshiyuki Kawai¹, Koji Goto¹, Shuichi Matsuda¹
¹ *Department of Orthopaedic Surgery, Graduate School of Medicine, Kyoto University, Japan*,
² *Graduate School of Energy Science, Kyoto University, Kyoto, Japan*

P-29: Hydroxyapatite Deposition on Poly(ether ether ketone) Substrate Surfaces Utilizing Solution Processes

Mineo Hashizume, Takashi Zemba, Kazutoshi Iijima
Tokyo University of Science, Japan

P-30: Apatite Formation on Titania Powders with Different Valences

Toshiki Miyazaki, Jun Akaike
Kyushu Institute of Technology, Japan

P-31: Particulate Titania Coating on Poly(dimethylsiloxane) Films for Improving Osteoconductive Ability

Peñaflor Galindo Tania Guadalupe¹, Kota Shiba², Motohiro Tagaya¹

¹ Nagaoka University of Technology, Japan, ² National Institute for Materials Science, Japan

P-32: Enzyme Immobilization Behavior on Hydroxyapatite Microcapsules Under Alkaline Condition

Takeshi Yabutsuka, Masaya Yamamoto, Shigeomi Takai, Takeshi Yao

Kyoto University, Japan

P-33: Titanium Nitride Film on Titanium Film by Magnetron DC Sputtering Method

Akira Watazu, Kay Teraoka, Tsutomu Sonoda

National Institute of Advanced Industrial Science and Technology (AIST), Japan

P-34: Synthesis of Titanium Phosphate Compound on Titanium Substrate in Reflux Environment

Hiroaki Kanaoka, Jin Nakamura, Ayae Sugawara-Narutaki, Chikara Ohtsuki

Nagoya University, Japan

P-35: Visible Light-induced Antimicrobial Activity of Nitrogen-doped TiO₂ on Ti Treated with NaOH, Hot Water, and Ammonia Atmospheric Heat Treatment

Misato Iwatsu¹, Takayuki Mokudai², Masakazu Kawashita³, Tomoaki Watanabe⁴, Toru Ogawa⁵, Hiroyasu Kanetaka⁶, Keiichi Sasaki⁷

¹ Tohoku University, Japan, ² Tohoku University, Japan, ³ Tohoku University, Japan, ⁴ Meiji University, Japan, ⁵ Tohoku University, Japan, ⁶ Tohoku University, Japan, ⁷ Tohoku University, Japan

P-36: Preparation of Layered Zirconium Phosphates Modified with Phenyl Groups and Characteristics on Incorporation of Zinc Ions

Ryoya Ito, Jin Nakamura, Ayae Narutaki, Chikara Ohtsuki

Nagoya University, Japan

P-37: Synthesis of Layered Calcium Silicate Modified with Amino- and Phenyl Groups with Improved Chemical Stability

Jin Nakamura, Ayae Sugawara-Narutaki, Chikara Ohtsuki

Nagoya University, Japan

P-38: Bioactive Co-Cr Alloy Obtained by Incorporation of Apatite Nuclei after Sandblasting Process

Aurora Antoniac¹, Camelia Tecu¹, Corneliu Munteanu², Claudia Milea¹, Mirabela Minciuna², Iulian Antoniac¹

¹ University Politehnica of Bucharest, Romania, ² Gheorghe Asachi" Technical University of Iasi, Romania

P-39: Synthesis of Europium(III) Complex-based Hydroxyapatite Nanocrystals for Biolabeling Applications

Takuya Kataoka¹, Shigeaki Abe², Motohiro Tagaya¹

¹ Nagaoka University of Technology, Japan, ² Hokkaido University, Japan

P-40: Effect of Different Amino-Functionalized Mesoporous Silica Characteristics on Nucleic Acids Selective Adsorption

Katsuya Kato¹, Ryoichi Hikosaka², Fukue Nagata³, Masahiko Inagaki⁴

¹ National Institute of Advanced Industrial Science and Technology, Japan, ² National Institute of Advanced Industrial Science and Technology, Japan, ³ National Institute of Advanced Industrial Science and Technology, Japan, ⁴ National Institute of Advanced Industrial Science and Technology, Japan

P-41: Morphological Controlled Synthesis of Mesoporous Silica Particles

Takamasa Kaneko^{1,2}, Fukue Nagata², Shinichi Kugimiya¹, Katsuya Kato²

¹ Aichi Institute of Technology (AIT), Japan, ² National Institute of Advanced Industrial Science and Technology (AIST), Japan

P-42: Magnetic Property and Heat-Generatin Ability of Iron Nitrides

Misaki Shibata, Tomoyuki Ogawa, Hiroyasu Kanetaka, Maiko Furuya, Kotone Yokota, Masakazu Kawashita

Tohoku University, Japan

P-43: Chitosan-catechol as a Direct Writable Bioink under Cell Culture Medium

Daiheon Lee, Haeshin Lee

KAIST(Korea Advanced Institute of Science and Technology), South Korea

P-44: Mechanical Properties of Dental Composite Prototype with Addition of Acetone when Preparing Dental Composite Prototype on Filler Volume Variations

Elin Karlina, Nina Djustiana, Renny Febrida, Yanwar Faza, Seniyah -, Camellia Panatarani, I Made Joni

Universitas Padjadjaran Bandung Indonesia, Indonesia

P-45: VSC Adsorptive Property of Zinc or Iron Oxide in Comparison with that of Layered Double Hydroxide containing Zinc of Iron

Yoshiyuki Yokogawa¹, Kodai Kakehashi¹, Hidemitsu Wakabayashi¹, Yuki Morita², Kazuki Oike², Kazuo Fujii², Masato Hotta², Yutaka Doi²

¹ Osaka City University, Japan, ² Asahi University, Japan

P-46: Loading of Fluvastatin onto Gelatin-coated Titanium Implants

Shinji Takemoto¹, Kaori Sasaki¹, Shiho Sugawara¹, Setsuo Saitoh¹, Tomofumi Sawada¹, Masayuki Taira¹, Koji Tanabe¹, Masao Yoshinari², Masayuki Hattori², John Jansen³, Sander Leeuwenburgh³

¹ Iwate Medical University, Japan, ² Tokyo Dental College, Japan, ³ Radboud University Medical Center, Netherlands

P-47: Controlled Drug Release Property of Nano-porous Silica Micro Particles and Their Cytocompatibility

Eri Seitoku¹, Yuko Era^{1, 2}, **Shigeaki Abe**¹, Mariko Nakamura³, Teruo Kusaka¹, Satoshi Inoue¹, Yasuhiro Yoshida¹, Hidehiko Sano¹

¹ Hokkaido University, Japan, ² Saitama Prefectural University, Japan, ³ Kyushu University of Health and Welfare, Japan

P-48: Dental Porcelain Surface From Sumatera Natural Sand Characterization

Veni Takarini¹, Sianny Surya Putri Kurnia¹, Dede Taufik², Arief Cahyanto¹, Zulia Hasratiningsih¹

¹ University of Padjadjaran, Indonesia, ² Balai Besar Keramik, Indonesia

P-49: Synthesis and Characterization of Calcium Hydroxide from Indonesian Limestone as Endodontic Intra-canal Medicament

Atia Nurul Sidiqa¹, Myrna Nurlatifah Zakaria¹, Ira Artilia¹, Arief Cahyanto²

¹ Universitas Jenderal Achmad Yani, Indonesia, ² Universitas Padjadjaran, Indonesia

P-50: Surface Characterization of a New TiMoSi Alloy with Medical Applications

Petrica Vizureanu¹, Andrei Victor Sandu^{1,2}, Simona Madalina Baltatu¹, Victor Geanta³, Adriana Savin⁴

¹ Gheorghe Asachi Technical University of Iasi, Romania, ² Romanian Inventors Forum, Romania, ³ Politehnica University of Bucharest, Romania, ⁴ National Institute of Research and Development for Technical Physics, Nondestructive Testing Department, Iasi, Romania

P-51: Structural Characterization of Mg-0.5Ca-xY Biodegradable Alloys

Bogdan Istrate¹, Corneliu Munteanu¹, Stefan Lupescu¹, Iulian-Vasile Antoniac², Eusebiu Sindilar³
¹ Gheorghe Asachi Technical University of Iasi, Romania, ² University POLITEHNICA of Bucharest, Romania, ³ Ion Ionescu de la Brad University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania

P-52: Some Tribological Aspects of Mg-0.5Ca-xY Biodegradable Materials

Corneliu Munteanu¹, Stefan Lupescu¹, Bogdan Istrate¹, Vasile-Iulian Antoniac², Marcelin Benchea¹, Adriana Savin³
¹ Gheorghe Asachi Technical University of Iasi, Romania, ² University POLITEHNICA of Bucharest, Romania, ³ National Institute of Research and Development for Technical Physics, Romania

P-53: Iodine-loaded Bioactive Titanium Metal and Its Alloys by Chemical and Heat Treatment

Seiji Yamaguchi¹, Morihiro Ito¹, Seine Shintani¹, Takashi Nakamura², Hiroaki Takadama¹
¹ Chubu University, Japan, ² Emeritus Professor of Kyoto University, Japan

P-54: MC3T3-E1 Cellular Response and Protein Detection on Surface Potential-Controlled TiO₂ Scale in Serum-Containing Medium

Masami Hashimoto¹, Takafumi Ogawa¹, Satoshi Kitaoka¹, Shunsuke Muto², Maiko Furuya³, Hiroyasu Kanetaka³, Masayuki Abe⁴, Hayato Yamashita⁴
¹ Japan Fine Ceramics Center, Japan, ² Nagoya University, Japan, ³ Tohoku University, Japan, ⁴ Osaka University, Japan

P-55: Effect of Crystalline Calcium Phosphate Coating Prepared in an Aqueous Solution on Corrosion Resistance of Bioabsorbable Magnesium Alloy

Shin Watanabe, Takeshi Yabutsuka, Shigeomi Takai
Kyoto University, Japan

P-56: Surface Structure and In Vitro Apatite-Forming Ability of Copper-, Zinc-, or Silver-Doped Titanium

Masakazu Kawashita, Yuta Iwabuchi, Kanae Suzuki, Maiko Furuya, Kotone Yokota, Hiroyasu Kanetaka
Tohoku University, Japan

P-57: Bone Metastases Treatment by a Local Delivery of Gallium

Ivana Strazic², Heidy Schmid², Annie Schmid², Jean-Michel Bouler¹, Jean-Claude Scimeca²,
Elise Verron¹
¹ University of Nantes, France, ² University of Nice, France

P-58: Graphene Reinforced Titania as a Keratoprosthesis Skirt Material

Zhong Li¹, Gwendoline T. W. Goh², Gary H.-F. Yam^{2,3}, Brianna C. Thompson¹, Melina Setiawan², Huanlong Hu¹, Donald Tan^{2,3,4}, Jodhbir S. Mehta^{1,2,3,4}, **Khiam Aik Khor**¹
¹ Nanyang Technological University, Singapore, ² Singapore Eye Research Institute, Singapore, ³ Duke-NUS Graduate Medical School, Singapore, ⁴ Singapore National Eye Centre, Singapore

P-59: Citrate-Based Biomaterials Reducing the Oxidative Damage of Stem Cells via Regulating Cellular Redox Signaling Pathways for Oxidative Stress-Induced Diseases Therapy

Honglian Dai^{1,2}, Xiaopei Wu¹, Yingchao Han^{1,2}, Shipu Li^{1,2}
¹ Wuhan University of Technology, China, ² Biomedical Materials and Engineering Research Center of Hubei Province, China

P-60: Hydroxyapatite Ceramics with Preferred Orientation to *a(b)*-plane Promote Differentiation of Mesenchymal Stem Cells into Osteoblasts

Yuta Yamada, Masaki Tamazawa, Mamoru Aizawa
Meiji University, Japan

P-61: Significant Wound Healing of Simonkolleite Powder Using a Pig Model

Miki Nagashima¹, Yoshimi Nakata², Etsuro Udagawa², Osamu Yamamoto¹

¹ Yamagata University, Japan, ² JFE MINERAL Co., LTD., Japan

P-62: Phase Separation Effect in Gelation of 53S 3DOM Bioactive Glass

Reedwan B. Auniq, Upsorn Boonyang

Functional Materials and Nanotechnology center of excellence, School of Science, Walailak University, Thailand

P-63: Shear Bond Strength of Zirconia to Titanium Implant Using Glass Bonding

Sang-Won Park^{1,2}, Van Thi Vu¹, Gye-Jeong Oh², Hyun-Pil Lim¹, Kwi-Dug Yun¹, John G. Fisher³

¹ School of Dentistry, Chonnam National University, South Korea, ² RIS Foundation for Advanced Biomaterials, School of Dentistry, Chonnam National University, South Korea, ³ School of Materials Science and Engineering, Chonnam National University, South Korea

P-64: The Role of Si in Bone Nodule Formation

Azadeh Rezaei¹, Yutong Li¹, Riku Furuya², Joel Turner¹, Akiko Obata², Toshihiro Kasuga², Gavin Jell¹

¹ University College London, United Kingdom, ² Nagoya Institute of Technology, Japan

P-65: Grain Boundary Corrosion in Sr and Ca doped TiO₂ Bone Scaffolds

Anne Klemm¹, Patricia Almeida Carvalho², Håvard J. Haugen¹, Hanna Tiainen¹

¹ University of Oslo, Norway, ² SINTEF Materials and Chemistry, Norway

P-66: Synthesis of Hierarchically Porous MgO Monoliths with a Co-Continuous Structure

Xuanming Lu, Kazuyoshi Kanamori, Kazuki Nakanishi

Kyoto University, Japan

P-67: Iron(III) Oxyhydroxide and Oxide Monoliths with Controlled Multiscale Porosity: Synthesis and their Adsorption Performance

Yosuke Hara, Kazuyoshi Kanamori, Kazuki Nakanishi

Kyoto University, Japan

P-68: NH₃ Adsorption Property of Calcium Phosphate Granules With Morphology Originated From Shell Structure

Kota Kaga, Jin Nakamura, Ayae Sugawara-Narutaki, Chikara Ohtsuki

Nagoya University, Japan

P-69: A Novel Mechanically Blended Biodegradable Composite with Antibacterial Efficiency

Shi Yun Tong¹, Poon Nian Lim¹, Zuyong Wang², Eng San Tian¹

¹ National University of Singapore, Singapore, ² Hunan University, China

P-70: Evaluation of Elution Behavior of Silver Ions from Silver Containing Carbonate Hydroxyapatite Composites

Takayuki Murakami¹, Iwao Noda¹, Junji Ikeda¹, Atsushi Nakahira²

¹ KYOCERA Corporation, Japan, ² Osaka Prefecture University, Japan

P-71: Cotton-wool-like Resorbable Bone Void Fillers Containing β -TCP and Calcium Carbonate Particles

Naoki Osada^{1,2}, Masashi Makita², Yasutoshi Nishikawa², Toshihiro Kasuga¹

¹ Nagoya Institute of Technology, Japan, ² ORTHOREBIRTH Co., Ltd., Japan

P-72: Optimum Blend of Poly(ϵ -caprolactone)/Chitosan-based Antibacterial Composite

Kaiying Wang¹, Poon Nian Lim¹, Zuyong Wang², Eng San Thian¹

¹ National University of Singapore, Singapore, ² Hunan University, China

P-73: Fabrication of Bioactive Polycaprolactone by Incorporation of Precursors of Apatite

Hasnat Zamin, Takeshi Yabutsuka, Shigeomi Takai

Kyoto University, Japan

P-74: Fabrication of Novel Hemostatic Film with Oxidized Cellulose and Sugar-Containing Hydroxyapatite

Yeonjeong Noh¹, Tomohiro Umeda¹, Yoshiro Musha², Kiyoshi Itatani¹

¹ Sophia University, Japan, ² Toho University, Japan

P-75: Rf-magnetron Sputtered Silica Interlayer on β -TCP Granules for Mesoporous Silica Coating

Yoshiyuki Yokogawa¹, Astumasa Shishido², **Yudai Sigarami**¹

¹ Osaka City University, Japan, ² Olympus Termo Biomaterials Co, Japan

P-76: Shear-induced Viscosity Increase of Silica Nanoparticle Suspensions in the Presence of Amphiphilic Block Copolymer

Seito Katayama, Ayae Sugawara-Narutaki, Jin Nakamura, Chikara Ohtsuki

Nagoya University, Japan

P-77: Evaluation for the Mechanical Properties of the PBS-HAp-AF Composite

Kazuo Yagi^{1,2}, **Takuya Kurimoto**², Tomoaki Hamada², Tadashi Inaba²

¹ Tokyo Metropolitan University, Japan, ² Mie University, Japan

P-78: Properties of Starch-reinforced Calcium Phosphate Bone Paste Incorporated with Strontium Ion

Yuka Igarashi, Yasuhiro Watarai, Chikako Yokoyama, Takahiro Kawai

Yamagata University, Japan

P-79: Composition and Functional Groups Evaluation of Indonesian Portland Cement as Material for Dental Application

Indra Primathena, Denny Nurdin, Rahmi Alma Adang, Arief Cahyanto

Universitas Padjadjaran, Indonesia

P-80: The Nanofiller Effect on Adhesion and Shear Bond Strength of Experimental Graphene Dental Orthodontic Cements

Codruta Sarosi¹, Stela Pruneanu², Mihaela Pastrav³, Cristina Prejmerean¹, Aurora Antoniac⁴, Diana Sucala⁵, Doina Prodan¹, Marioara Moldovan¹

¹ Babes Bolyai University, Romania, ² National Institute for Research and Development of Isotopic and Molecular Technologies, Romania, ³ University of Medicine and Pharmacy Iuliu Hațieganu, Faculty of Dental Medicine, Cluj-Napoca, Romania, ⁴ University Politehnica of Bucharest, Romania, ⁵ Technical University of Cluj-Napoca, Romania

P-81: What Should We Focus on the Evaluating Durability of Ceramic for Artificial Joint?

Junji Ikeda, Taito Nakamura, Kumi Nakamura, Takayuki Murakami

Kyocera corporation, Japan

P-82: *In vitro* Evaluations of Cation-substituted Hydroxyapatite Ceramics Fabricated by Ultrasonic Spray-Pyrolysis Process using Osteoblasts

Rina Ito¹, Tomohiro Yokota², Mamoru Aizawa¹

¹ Meiji University, Japan, ² Organization for the Strategic Coordination of Research and Intellectual Property, Meiji University, Japan

P-83: Kinetic Control of Silicic Acid Polycondensation and Synthesis of Porous Silica by Using Peptides

Takahiro Shimizu, Ayae Sugawara-Narutaki, Jin Nakamura, Chikara Ohtsuki
Nagoya University, Japan

P-84: Synthesis of Porous Calcium Phosphate Using Bacteria as a Template

Kazuki Ojio, Jin Nakamura, Ayae Sugawara-Narutaki, Chikara Ohtsuki
Nagoya University, Japan

P-85: Effect of Pore Structure of Apatite-fiber Scaffold on Differentiation of P19.CL6 Cells into Cardiomyocytes

Yuzuha Ichikawa¹, Kei Yasuda¹, Masahiro Takahara¹, Mamoru Aizawa², Nobuyuki Kanzawa¹
¹ *Sophia Univ, Fac Sci &Tech, Japan*, ² *Meiji Univ, Dept Appl Chem, Japan*

P-86: The Synthesis and Properties of PLGA/PRGD/β-TCP Porous Composites

Xu Wenlei, **Youfa Wang**
Wuhan University of Technology, China

P-87: Deposition of Nanohydroxyapatite Particles on Electrospun Fibers for Tissue Engineering

Julia Rogowska-Tylman^{1, 2}, Bartosz Woźniak¹, Agnieszka Chodara¹, Giuseppino Fortunato³, Alex Dommann³, Witold Łojkowski¹
¹ *Institute of High-Pressure Physics, Polish Academy of Sciences, Poland*, ² *Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland*, ³ *Swiss Federal Laboratories for Materials Science and Technology (EMPA), St. Gallen, Switzerland*

P-88: Hafnium-doped Hydroxyapatite Nanoparticles with Ionizing Radiation for Lung Cancer Treatment

Min-Hua Chen¹, Toshiyuki Ikoma², Feng-Huei Lin³
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P-89: Incorporation of Protein Ovalbumin into Carbonate Apatite

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P-90: Formation of Plant-Inspired Polyphenol Complex for Ophthalmic Drugs

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P-91: Preparation of Calcium Phosphate Coated Simvastatin-loaded PLGA Microspheres Dispersed Alginate Hydrogel Beads As a Controlled Drug Delivery Carrier

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P-92: New Strategy for Introducing Bioactive Species in Modified Porous Biphasic Ceramic Scaffold

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