

Preface

I am delighted to introduce the proceedings of the 28th Annual Meeting of the International Society for Ceramics in Medicine (Bioceramics 28) held October 18 to 21, 2016, in Charlotte North Carolina, USA.

The title of Bioceramics 28 is “Multifunctional Bioceramics for Innovative Therapy” which highlights the multi-faceted application potentials of bioceramics. For the last four decades, bioactive ceramics have exceeded over polymeric materials in the area of bone reconstruction primarily due to the unique bioactivity property that stimulates bone cell function and tissue formation. The extensive research efforts on the mechanism of bioactivity have led to a clear understanding of how bioactive ceramics interact with tissue fluids and signal the cells to make natural tissue. Understanding the elements of bioactivity has provided guidance to several new designs of bioactive ceramics with improved biological performance. Almost all chapters of Bioceramics 28 report on new designs and fabrication methods of bioceramic medical devices for tissue engineering and disease treatments.

The successful reconstruction of bone defects using bioceramics has been taken as a stepping stone to a more ambitious goal; to use the bioactive ceramics as a drug delivery system to treat diseases. It is intriguing that disease treatment using bioactive ceramic drug delivery systems crossed the borders of bone to include soft tissue applications. Data in the literature shine the lights on successful multifaceted applications of bioceramics in treatments of organ cancer, infection and soft tissue augmentation in urology and other fields. Of prime importance is the observation that implantation of bioactive ceramics in soft tissue supports natural soft tissue formation indicating that the activation of cell function by the material takes place without changing the original cell phenotype. This opens the horizon for engineering new generation of bioactive ceramics for augmentation and treatment of soft tissue and organ diseases.

I wanted to thank all members of the Organizing Committee in particular the administrative staff for the significant efforts to make the Bioceramics 28 a success. I would like to extend my deep appreciation and thanks to the Scientific Committee and reviewers for their efforts to review the articles presented in the Bioceramics 28 proceedings.

Ahmed El-Ghannam, PhD.
President of Bioceramics 28

Committees

Scientific Committee

Ahmed El-Ghannam, PhD
Department of Mechanical Engineering and Engineering Science
University of North Carolina at Charlotte,
Charlotte, NC USA

Anna Tampieri, PhD
CNR - Institute of Science and Technology for Ceramics
Methodist Hospital Research Institute, Houston (Texas, USA)
Via Granarolo, 64 I-48018 FAENZA (RA), Italy

Anthony Macon, PhD
Department of Frontier Materials
Nagoya Institute of Technology, Japan

Chia-Wen Wu, PhD
Department of Chemical Engineering
National Taiwan University, Taiwan

Chikara Ohtsuki, PhD
Graduate School of Engineering
Department of Crystalline Materials Science
Nagoya University, Japan

Christophe Drouet, PhD
CIRIMAT Carnot Institute
“Phosphates, Pharmacotechnics,
Biomaterials”; Research Group
Toulouse, France

Guy Daculsi, PhD
ISCM General Secretary, International Society for Ceramic in Medicine
Chief Editor Bioceramics Development and Applications
LIOAD Inserm Université de Nantes UMR U791
Faculté de Chirurgie Dentaire
Pl A. Ricordeau
44042 Nantes Cedex, France

Hamed Benguzzi, PhD
Department of Diagnostic and Clinical Health Sciences,
Director of Clinical Health Sciences Program
University of Mississippi Medical Center, Mississippi, USA

Ika Dewi Ana, PhD
Director of Center for Academic Innovation and Policy
Universitas Gadjah Mada
Bulaksumur, Yogyakarta 55281 Indonesia

Iulian Vasile Antoniac, PhD
Materials Science and Engineering Department
Polytechnic University of Bucharest
Bucharest, Romania

Julian R. Jones, PhD
Department of Materials
Imperial College London, London, UK

Kimihiro Yamashita, PhD
Institute of Biomaterials and Bioengineering,
Tokyo Medical and Dental University,
Chiyoda, Tokyo, Japan

Kunio Ishikawa, PhD
Chair Department of Dental Science
Kyushu University, Fukuoka, Japan

Maria P. Ginebra, PhD
Department of Materials Science and Metallurgy,
Technical University of Catalonia (UPC)
Barcelona, Spain

Miho Nakamura, PhD
Institute of Biomaterials and Bioengineering,
Tokyo Medical and Dental University,
Chiyoda, Tokyo, Japan

Paul Ducheyne, PhD
Department of Bioengineering
University of Pennsylvania
Philadelphia, PA, USA

Toshihiro Kasuga, PhD
Department of Frontier Materials,
Nagoya Institute of Technology,
Nagoya, Japan

Organizing Committee

Ahmed El-Ghannam, PhD
University of North Carolina at Charlotte

Charles Lee, PhD
University of North Carolina at Charlotte

Elaine Duncan
Paladin Medical, Inc. Stillwater, MN

Jennifer Eklund
University of North Carolina at Charlotte

Juan L. Vivero-Escoto, Ph.D.
University of North Carolina at Charlotte

Hansang Cho, PhD
University of North Carolina at Charlotte

Harish Cherukuri, PhD
University of North Carolina at Charlotte

Kunio Ishikawa, PhD
Kyushu University, Fukuoka, Japan

Mary Cook
University of North Carolina at Charlotte

Nataly Tapper
University of North Carolina at Charlotte

Paul Ducheyne, PhD
University of Pennsylvania

Scott Smith, PhD
University of North Carolina at Charlotte

Sponsors

Charlotte Research Institute - UNC Charlotte
National Science Foundation (NSF)
North Carolina Biotechnology Center
Society for Biomaterials
The International Society for Ceramics in Medicine
The William states Lee College of Engineering - UNC Charlotte