

**BIOMATERIALS FOR IMPLANTABLE MEDICAL DEVICE DEVELOPMENT: THE CURRENT STATUS**

**Organizer**

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Session 1: (Focus on Biomaterials, Cell-Biomaterial Interactions and Clinical Perspective)

**Theme**

A medical device includes a range of implants used for the diagnosis, cure and prevention of diseases in man and animals. In this Symposium we will focus on the Biomaterials required for the development of implantable medical devices including Biodegradable Drug Eluting Stents, Peripheral Nerve Conduits, Cardiac Patches, Wound Healing Patches, Semiartificial pancreas and Heart valves.

There is a huge need in the Biomaterials world for the development of suitable biomaterials for a range of medical devices which are biocompatible, have required mechanical properties, have the desired degradation rate for resorbable implants and are processable. Few biomaterials have reached the clinic and medical practitioners feel the need for new innovative functional biomaterials to meet their surgical needs.

This Symposium will include synthetic biomaterials such as Polylactic acid, Polyglycerol sebacate, Polyethylene Glycol and natural biomaterials such as Alginate, Polyhydroxyalkanoates, Bacterial Cellulose and  $\gamma$ -Polyglutamic acid. Currently, development of microbial infections via implantable medical devices is a huge clinical problem. Hence there will also be a focus on antimicrobial biomaterials for implantable devices. Finally, the Symposium will include Hybrid Biomaterials with bioactive/antimicrobial fillers such as Bioglass®, Titanium oxide and phosphate glass. Selected talks will include the academic, industrial and clinical perspectives.

**Chair**

Lucy Di-Silvio, ESB Secretary, Kings College London, UK, [lucy.di\\_silvio@kcl.ac.uk](mailto:lucy.di_silvio@kcl.ac.uk)  
Ipsita Roy, Faculty of Science and Technology, University of Westminster, London, UK,  
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Jochen Salber (Clinician) University Hospital Knappschaftskrankenhaus Bochum, Germany,  
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**Invited Speakers**

Conductive polymer patches for the damaged heart

Sian Harding, Faculty of Medicine, Imperial College London, UK, [sian.harding@imperial.ac.uk](mailto:sian.harding@imperial.ac.uk)

Hydrogels for 3D neural network

Hua Ye, Department of Engineering Sciences, University of Oxford, UK, [hua.ye@eng.ox.ac.uk](mailto:hua.ye@eng.ox.ac.uk)

Biological Evaluation of Novel Polymer-based Biomaterials Intended for Interventional and Surgical Applications-A Clinical Perspective

Jochen Salber, University Hospital (Universitätsklinikum), Knappschafts-krankenhaus Bochum, Germany, [jochen.salber@kk-bochum.de](mailto:jochen.salber@kk-bochum.de)

Natural Bacteria Derived Polymers for the development of a range of medical devices: Biodegradable Drug Eluting Stents, Cardiac Patches and Nerve conduits

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Session 2: (Focus on Hybrid Biomaterials and Industrial Perspective)

### **Chair**

Aldo Boccaccini, ESB Council Member, University of Erlangen-Nuremberg, Germany, [aldo.boccaccini@fau.de](mailto:aldo.boccaccini@fau.de)

Serena Best, University of Cambridge, UK, [smb51@cam.ac.uk](mailto:smb51@cam.ac.uk)

Xiang Zhang (Industry), Lucideon Ltd, UK, [Xiang.Zhang@lucideon.com](mailto:Xiang.Zhang@lucideon.com)

### **Invited Speakers**

Mesoporous bioactive glasses: attractive drug and ion delivery vehicles for medical devices

Aldo R. Boccaccini, University of Erlangen-Nuremberg, Germany, [aldo.boccaccini@fau.de](mailto:aldo.boccaccini@fau.de)

Biomaterials in ear prosthetics: New opportunities from 3D printing and nanotechnology

Serena Danti, Dept. of Civil and Industrial Engineering, University of Pisa, Italy, [s.danti@med.unipi.it](mailto:s.danti@med.unipi.it)

Aligned nanofibrous mats based on hyaluronan and polyhydroxyalkanoates with potential application in peripheral nerve regeneration

Huerta-Angeles Gloria, Contipro a.s., Czech Republic, [Gloria.Huerta-Angeles@contipro.com](mailto:Gloria.Huerta-Angeles@contipro.com)

Biointelligent scaffolds for wound healing

Julian Dye, Department of Engineering Science, University of Oxford, [Julian.dye@eng.ox.ac.uk](mailto:Julian.dye@eng.ox.ac.uk)