AVVISO DI SEMINARIO

Giovedì 03 Maggio 2018
ore 14:00 – 17:00

Aula A4 – via Rasi e Spinelli 176, Cesena

"The use of platelet lysate in biomaterial research"

Prof. Ólafur E. Sigurjónsson

-O-

"Analysing bone mineral density in the proximal femur in total hip arthroplasty"

Prof. Magnús K. Gíslason

-O-

"From medical imaging to surgical planning: new directions for bone and muscle assessment"

Prof. Paolo Gargiulo

From the Inst. f. Biomed. and Neural Engineering/ Biomed. Technology Centre
Reykjavik University & Landspitali University Hospital, Reykjavik, Iceland

The seminar will introduce projects and activities ongoing at Reykjavik University & Landspitali, with special emphasis to the Institute of Biomedical and Neural Engineering http://en.ru.is/sse/bne.

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" The use of platelet lysate in biomaterial research "

Prof. Ólafur E. Sigurjónsson

Platelet lysate is a revolutionary bioproduct enabling efficient cell culturing under **animal serum-free conditions** for research and clinical applications. The list of approved cell therapies for patients has grown over the past decade, when the first one was approved. The most advanced ones involve the collection, expansion and engineering of patients' cells before being implanted back. However, the current state of the art for culturing these valuable cells mostly involves the use of serum inhumanely extracted from calf foetuses (FBS). This is a high-risk practice because of cross-species immune reactions (which can be lethal) and the transmission of animal borne diseases. Here I will discuss the use of platelet lysate from expired platelet concentrates in tissue engineering and biomaterial research.

Biographical Sketch:
Professor Ólafur E. Sigurjónsson holds a PhD in stem cell biology and immunology from the University of Oslo. He is a Professor in Tissue Engineering at the School of Science and Engineering, Reykjavik University and a clinical Professor at the Department of Medicine, School of Health Sciences, University of Iceland. Sigurjónsson is the director of research and development at the Blood bank, Landspitali University Hospital, Iceland and the laboratory director for the clinical hematopoietic stem cell program at the same institute. He is the founder and CSO of Platome biotechnologies and is the current president of the Scandinavian Society for Biomaterials. Professor Sigurjónsson research group focuses research in tissue engineering of bone, GMP culture of mesenchymal stem cells and storage of blood components.

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AVVISO DI SEMINARIO

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Aula A4 – via Rasi e Spinelli 176, Cesena

" Analysing bone mineral density in the proximal femur in total hip arthroplasty "

Dr. Magnús Kjartan Gíslason

When deciding upon to carry out a total hip arthroplasty the surgeon needs to determine the type of implant used and how to fixate it. For the fixation it is possible either to use bone cement or to use so called press fitting, where the prosthesis is hammered into the femoral canal and the fixation is dependent on the interference forces between the prosthesis and the bone. Patients undergoing press fitting need to have a good mechanical strength in their femurs as the high impact forces during surgery may lead to periprosthetic fracture. The press fitting method has improved benefits long term for the patients, as revision surgery is easier to carry out than for the cemented fixation. This project studies the bone quality and the material distribution of subjects undergoing primary total hip arthroplasty in Iceland. Analysis was carried out on the three dimensional bone mineral density distribution in various regions of the proximal femur to determine whether or not the patient is a candidate for press fitting fixation.

Biographical Sketch:
Dr. Magnus K. Gislason is a Mechanical Engineer and has B.Sc. in Technical Physics from the University of Iceland. He received his M.Sc. in Biomedical Engineering and PhD in Biomechanics in 2008 from the University of Strathclyde, Glasgow. Since 2013 he's been an Assistant Professor at the Department of Biomedical Engineering at Reykjavik University. His main research interests are biomechanics, computational orthopaedics and bone quality assessment.

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AVVISO DI SEMINARIO

Giovedì 03 Maggio 2018
ore 16:00 – 17:00

Aula A4 – via Rasi e Spinelli 176, Cesena

" From medical imaging to surgical planning: new directions for bone and muscle assessment "

Prof. Paolo Gargiulo

This seminar outlines the methods and applications of X-ray Computed Tomography (CT) imaging to analyze soft tissue, bone and skeletal muscle density and volume in the context of modern challenges in the field of translational myology. The approaches described here use medical imaging processing techniques and computational methods to: quantify muscle morphology, illustrate changes with 3D models, develop numerical profiles specific for each individual, and assess muscle and bone changes due to targeted medical treatment. Applications of these methodologies are employed: to depict subject specific muscle profiling associated with age, to illustrate and quantify muscle degeneration and its partial reversal via Functional Electrical Stimulation (FES), and to highlight recovery following total hip arthroplasty (THA). The seminar will also describe new directions for surgical planning based on patient specific imaging and 3D modelling.

Biographical Sketch:
Paolo Gargiulo is an Associate Professor and works at the Medical Technology Center - Reykjavik University /University Hospital Landspitali. He studied at TU Wien and finished his PhD in 2008. He has been active in the field of Clinical Engineering, Medical Image Processing and 3-D Modeling and Tissue Engineering. He developed a rapid prototyping service to support surgical planning at Landspitali with over 200 operation planned. He has published 59 papers in peer reviewed international journals and chapters in academic books. He is a consultant of MedEl for the development of larynx pacemaker, he co-operating with Össur on the use of EEG to evaluate cortical reorganization in lower limb amputees, with Hjartavernd and NIH to study muscle atrophy or degeneration in aging associated to life styles and co-morbidities, and with Washington University (US) in Brain Modeling projects. Since December 2013 Paolo Gargiulo is the Director of the Institute of Biomedical and Neural Engineering and the Icelandic Center of Neurophysiology and manages the Medical Technology Center at the Landspitali University Hospital.

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