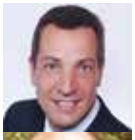
ROOM 2 — 12:20-13:20

S28 SYMPOSIUM
HIP & KNEE REVISION ARTHROPLASTY - CLINICAL DEMANDS AND ADVANCED BIOMECHANICAL TESTING METHODOLOGIES

Chair: **Thomas M. Grupp** *(Tuttlingen - Germany)*



Co-chair: **Luca Cristofolini** *(Bologna - Italy)*

In total hip arthroplasty a major cause of hip revision is aseptic loosening of the acetabular component. Such failure is typically accompanied with defects in and around the acetabulum that must be restored during revision surgery. Morselized bone graft represents the golden standard for the reconstruction. Due to its limited availability, synthetic bone graft substitutes are adopted as an alternative material In the treatment of severe contained defects bone graft substitutes were tested in human donor pelvises and bone/implant motions were measured by digital image correlation. In complex knee revision cases accompagnied by instable ligaments or for patients with severe varus or valgus deformities, a rotating hinge knee prosthesis is a viable clinical option. Hybrid fixation with cementless stems to enable a stem revision without extended bone removal is a method of choice in case of peri-prosthetic joint infection. End-of-Stem Pain is localized pain in the region around the tip of the stem of a prosthesis after revision total knee arthroplasty. Surface deformations were measured on human femora under dynamic load using digital image correlation. High deformations were detected at the tip of the stem during simulated stair climbing and chair raising activities, which may be relevant for End-of-Stem Pain.

12:20 **S28.1** Hip revision arthroplasty – clinical demands and strategies in acetabular reconstruction
Francesco Traina *(Bologna - Italy)*

12:32 Discussion

12:35 **S28.2** Advanced biomechanical evaluation of primary and revision hip acetabular implants including defect models in human pelvises
Luca Cristofolini *(Bologna - Italy)*

12:47 Discussion

12:50 **S28.3** Knee revision arthroplasty – principals, clinical demands and strategies. Status and results of rotating hinge knees using hybrid fixation
Alexander Giurea *(Vienna - Austria)*

13:02 Discussion

13:05 **S28.4** End-of-Stem Pain - A biomechanical analysis based on 3D CT scans and optical surface strain measurements under dynamic load on human femora
Thomas M. Grupp *(Tuttlingen - Germany)*

13:17 Discussion

ROOM 3 — 12:20-13:20

S29 SYMPOSIUM
DEEP PHENOTYPING IN OSTEOARTHRITIS; CURRENT STATE OF THE ART AND FUTURE POTENTIAL

Chair: **Ali Mobasheri** *(Oulu - Finland)*

Co-chair: **Holger Jahr** *(Aachen - Germany)*

Osteoarthritis (OA) is the most common form of arthritis with significant healthcare costs and unmet needs in terms of early diagnosis and treatment. Many of the drugs that have been developed to treat OA failed in phase 2 and phase 3 clinical trials. High throughput omics technologies are a powerful tool to better understand the mechanisms of the development of OA and other arthritic diseases. In this speakers outline the strategic reasons for increasingly applying deep phenotyping in OA for the benefit of gaining a better understanding of disease mechanisms and developing targeted treatments. High throughput omics technologies are increasingly being applied in mechanistic studies of OA and other arthritic diseases. Applying multi-omics approaches in OA is a high priority and will allow us to gather new information on disease pathogenesis at the cellular level, and integrate data from diverse omics technology platforms to enable deep phenotyping. This symposium is intended to raise further interest and awareness in the application of omics technologies for deep phenotyping in OA. New knowledge in this area will unleash the power of Big Data Analytics and resolve the extremely complex cellular taxonomy of OA and potentially reveal "druggable pathways", thus facilitating future drug development.

12:20 **S29.1** Identifying biomarkers of early osteoarthritis using large-scale OA biobanks
Mohit Kapoor *(Toronto - Canada)*

12:33 Discussion

12:35 **S29.2** The importance of phenotyping in highthrough-put omics studies of osteoarthritis
Shabana Amanda Ali *(Detroit - USA)*

12:48 Discussion

12:50 **S29.3** Using gene expression signatures and transcriptional approaches to understand chondrocyte biology and fracture repair in bone
Annemarie Lang *(Berlin - Germany)*

13:03 Discussion

13:05 **S29.4** Omics phenotyping in osteoarthritis; perspectives from the APPROACH IMI consortium
Ali Mobasheri *(Oulu - Finland)*

13:18 Discussion