

Invitation to a Guest Lecture



UNIVERSITY
of NICOSIA | MEDICAL
SCHOOL

Title: ANTIBIOTIC MODIFICATION OF NATIVE BONE GRAFTS: IMPROVING UPON NATURE'S SCAFFOLDS

Speaker: DR CONSTANTINOS KETONIS, Asst Prof of Orthopaedics, School of Medicine and Dentistry, Univ. of Rochester, NY

Date: Thursday, 14 September 2017

Time: 18:30-19:30

Venue: Lecture Room, Block B, Medical School, 93 Agiou Nikolaou Street, Engomi



Summary

Bone allograft is, after blood, the second most common transplanted tissue, and is used mainly in orthopaedic procedures to help restore defects and provide structural stability. Of the various methods of failure, infection remains the most devastating, with a reported incidence of 4-12%. Attempts have been made to decrease infection rates by soaking the allograft in antibiotic solutions but inconsistent elution kinetics, fostering of resistance and toxicity limit the utility of this technique. We propose a new technology that allows for the covalent addition of antibiotics to allografts and other substrates that do not release into the surrounding environment. We show that tethered antibiotics more effectively inhibit *S. aureus* colonization and demonstrate that they are more stable and predictable than current elution technologies with respect to dissolution characteristics and long-term protection. Furthermore, these grafts are biocompatible to skeletal cells as shown by cell attachment, toxicity, visualization and expression profile studies. These grafts offer a new alternative to currently available allografts and hold promise for eliminating bacterial colonization associated with transplanted orthopaedic tissues.

About the Speaker

After completing a BS in Biomedical Engineering from Rutgers University in NJ Dr Ketonis went on to earn both an MD and a PhD from Thomas Jefferson Medical College in Philadelphia, PA. There, he combined engineering and medicine to develop new surgical implant surfaces and successfully defended his thesis titled "Engineering of Implant Surfaces with Antibiotics and Other Bioactive Molecules". He then completed an Orthopaedic Surgery Residency at The Rothman Institute in Philadelphia and a sub-specialization in Upper Extremity and Microsurgery at the Curtis National Hand Center in Baltimore, MD, which is widely regarded as the most prestigious hand fellowship program in the country. More recently he has been dually appointed as an Assistant Professor of Orthopaedics in the School of Medicine and Dentistry as well as in the Center for Musculoskeletal Research at the University of Rochester in NY. There he will hold the position of physician-scientist where he will head translational research projects in the musculoskeletal center that has been ranked in the top 5 NIH-funded programs within the United States for nearly a decade.

His main area of interest is the development of new methods and implants to prevent periprosthetic infection and bacterial biofilm formation on prosthetic devices, with particular focus on orthopaedic implants such as total joint prosthetics as well as biologic substrates such as bone allografts.

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Communications office, Medical School