Zurich University
of Applied Sciences

School of Health Professions

After Work Lecture

Novel Use of Biomaterials in a Clinical Setting: One Surgeon's Journey From the Clinic to the Laboratory and Back Again

Prof. Dr. George Dias

Professor in Clinical Anatomy, Department of Anatomy, School of Medical Sciences, University of Otago, New Zealand

Thursday, 21 August 2014, 5.30 to 6.30 pm
Room TN E0.46, Technikumstrasse 71, 8401 Winterthur

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Prof. Dr. George Dias

George Dias is a clinical anatomist and head of the Clinical Anatomy Research Group in the Department of Anatomy, University of Otago, New Zealand, and a Management Committee member at the Centre for Bioengineering & Nanomedicine at the University of Otago. His background also includes a clinical career in oral and maxillofacial surgery. He has published extensively in clinical anatomy, paleopathology and biomaterials, and also holds one US and two international patents. His current focus is translational research related to degradable natural polymeric bone substitute and dental tissue regeneration materials, magnesium-based biodegradable orthopedic devices, and absorbable suture materials with wound healing properties. He also works in the areas of biological anthropology and paleopathology of the skull, clinical anatomy of the craniofacial region, and forensic facial reconstruction.

Biological Response of a Resorbable Keratin-Based Biopolymer as a Bone Regeneration Scaffold and Novel Absorbable Suture with Wound Healing Properties

Prof. Dias will present his work on the development of keratin-based bone substitute material and a novel absorbable suture. Keratin, a structural protein abundant in wool, hair, and other biological tissues, is ideally suited for biomedical use because of its tough physical properties and rich chemical functionality *in vivo*. His research has shown keratin materials to be biocompatible, supporting cell proliferation *in vitro* and *in vivo*. Furthermore demonstrated keratin to be a versatile biopolymer that can be used to produce matrices with a wide range of forms and potential functions. A novel processing method was established to produce a protein-based bio-absorbable hybrid medical suture, which possesses favorable wound healing properties. These exhibited significant increase in wound strength (compared to a control suture) in an *in vivo* skin closure investigation.

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