



June 23, 2019

The Japan Society of Mechanical Engineers
Hokkaido Branch
“Biomechanics Research Meeting”
35th Seminar

Chairman: Toshiro Ohashi

The Biomechanics Research Meeting will sponsor presentations by Prof. Ganbat Danaa from Mongolian University of Science and Technology (MUST), Mongolia and Prof. Peter Lee from University of Melbourne, Australia. Faculty members, graduate students, and undergraduates are encouraged to participate in the seminar.

Date&Time: July 2, 2019, 16:00 - 17:30

Place: Room A6-63, Faculty of Engineering, Hokkaido University

16:00 - 16:45

Title: Study of keratin from Mongolian camel hair and goat cashmere for biocompatible materials

Speaker: Prof. Ganbat Danaa

Mongolian University of Science and Technology (MUST), Mongolia

Abstract:

Keratin, a fibrous structural protein, that is available from a constituent of Mongolian animals, is a potential candidate for the fabrication of scaffolds for tissue engineering. While several sources of keratin can be considered, the bioactivity of the keratins obtained can be different. In this study we discuss the processing, and characterization of keratin from camel hair and goat cashmere. The camel hair and cashmere were dissolved in an ionic liquid, and the characteristics of the soluble and insoluble keratin were evaluated. The structure and properties of the raw material, soluble and insoluble keratin were studied. Compared to the starting material, the soluble keratin showed chemical changes, decrease of cysteine, and minor structural changes. Preliminary in vitro biological properties performed by a lactate dehydrogenase (LDH) assay and scratch test showed good bioactivity in keratin from both sources. In particular, cell migration was observed to be faster when cells were cultured in the presence of soluble keratin extracted from camel hair and cashmere [1].

Acknowledgement

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Reference

- [1] Y.J. Yang, D. Ganbat, P. Aramwit, A. Bucciarelli, J. Chen, C. Migliaresi, A. Motta. Processing keratin from camel hair and cashmere with ionic liquids. *eXPRESS Polymer Letters*. Vol.13, No2 (2019) 97-108.

16:45 - 17:30

Title: Engineering limbs: Helping amputees walk in Vietnam

Speaker: Prof. Peter Lee

The University of Melbourne, Australia

Abstract:

Over 25 million people in the world need prosthetic orthotic devices, many of whom come from developing countries where access to specialised personnel and services is a major challenge. Demand for artificial limbs is even more urgent in countries where land mines from wars are still prevalent. Professor Peter Lee from the Department of Biomedical Engineering at the University of Melbourne, will discuss his biomechanical engineering research in developing low –cost artificial limbs, using the Pressure Cast (PCAST) technique, a portable and easy to use prosthetic socket fitting system that requires less technical skill and labour to administer. He will also discuss his experience working with patients and clinics in Vietnam to implement PCAST.

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