香港中文大學
The Chinese University of Hong Kong

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Thank you for supporting the collaboration on regenerative immunology between the Chinese University of Hong Kong (CUHK) and the University of Manchester (UoM). This e-newsletter aims to keep you abreast of some of the joint projects between the two universities in regenerative immunology, the latest development of our universities in the field and some funding opportunities.

You are most welcome to provide updates on your joint work for sharing in the future issues. Please also feel free to engage other colleagues who may be interested in joining the collaboration. For enquiries, please contact Olivia Kwok at CUHK (oliviakwok@cuhk.edu.hk) or Annette Barber at UoM (Annette.Barber@manchester.ac.uk).

Spotlight on Researchers

Professor Sarah Cartmell

Professor Dai Fei Elmer Ker

Professor Sarah Cartmell
Professor of Bioengineering, Department of Materials, UoM
and
Professor Dai Fei Elmer Ker
Assistant Professor, Institute for Tissue Engineering and Regenerative Medicine (iTERM) / School of Biomedical Sciences, and Department of Orthopaedics and Traumatology (courtesy), Faculty of Medicine, CUHK

With a deeply shared interest in orthopaedic biomaterials, researchers from UoM and CUHK have teamed up to study the effect of biomechanical loading on novel biomaterials engineered with tendon-like topography.

Professor Sarah Cartmell has long standing interests in musculoskeletal tissue engineering including biomaterial development and design as well as the application of drugs, mechanical conditioning, and electrical stimulating regimes to enhance stem cell-based regeneration. Professor Elmer Ker is deeply interested in studying and engineering complex tissue-like microenvironments using artificial intelligence-based cell tracking and 3D-printed, bioactive

musculoskeletal scaffolds. Following last December’s joint symposium in regenerative immunology, Professor Cartmell and Professor Ker have commenced work to study the effects of biomechanical conditioning on stem cells grown on biomaterials with tendon-like mechanical properties.

Tendons connect muscle to bone and play a crucial role in efficient force transmission to facilitate body movement. However, following severe injury, tendon healing is typically incomplete. This failure to recapitulate native tendon results in mechanically-weaker scar tissue that increases the risk of re-injury. In the project, the two researchers will engineer tendon-like topography on a novel biomaterial and study the combined effects of physiologically-relevant biomechanical loading and biophysical patterns on mesenchymal stem cell growth and differentiation, with a view that these factors may synergistically contribute to enhanced tendon regeneration.

The images below show human mesenchymal stem cells grown on a novel biomaterial with flat or tendon-like topographical surfaces. A high degree of collagen alignment was observed on tendon-like patterns. The new collaboration will make use of the new Royce Institute facilities at UoM in biomechanical testing. Physiological regimes will be applied to the cell seeded biomaterials. This work is expected to elucidate the interactions between biomechanical forces and biomaterial topography, and aid development of novel tendon-like grafts for tissue repair and regeneration.

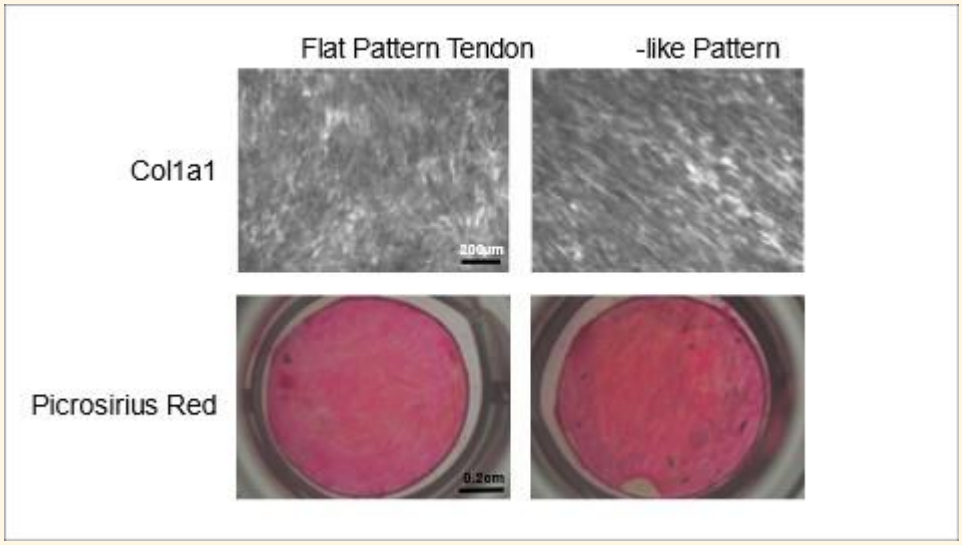

Figure 1

Figure 2

Updates

Professor Dennis Lo

First Chinese Scientist Awarded Royal Medal in Biological Sciences

Professor Dennis Lo from CU Medicine was recently awarded the Royal Medal 2021 for making a major impact on prenatal diagnosis by discovering fetal DNA in maternal plasma, developing non-invasive prenatal testing, and making foundational contributions for other types of liquid biopsies. He is the first Chinese scientist ever to receive the Medal in biological sciences.

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Signing of the Kenya UK Healthcare Alliance led by the University of Manchester

Manchester Partnership to Oversee Kenyan Cancer Care Revolution

The healthcare partnership between Kenya and the UK government has been strengthened through the signing of a Memorandum of Understanding (MoU). The MoU, signed at the Royal College of Physicians by Health and Social Care Secretary Sajid Javid and Kenya's Cabinet Secretary for Labour Cooperation, Simon Chelugi, was also attended by President Uhuru Kenyatta.

As part of the agreement, prevention and management of cancer in Kenya will be improved through a partnership between Kenyatta University Teaching Referral and Research Hospital (KUTRRH) and the University of Manchester, Christie NHS Foundation Trust and Manchester University NHS Foundation Trust. This will see the promotion of KUTRRH as a regional hub for cancer treatment, linking to eleven regional cancer centres across Kenya and The

Christie hospital through telemedicine. It will also monitor clinical outcomes to support innovation and improvement in cancer treatment.

The hub and spoke model will mirror the clinical service in Greater Manchester, which has seen cancer outcomes improve faster than anywhere else in the UK.

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Funding Opportunities

CUHK-UoM Research Fund – Seed-corn Fund for Early Career Researchers 2021

The joint seed-corn fund is now open for application. It has been tailored this year to seed new partnerships between the two universities by providing initial support for high-quality research collaborations that include Early Career Researchers as active members. The aim of the fund is to lead to long-term collaborative research projects that can access external funding sources for the next phase of their research. Up to three projects will be supported in this call with a maximum award of £10,000 per project. The application deadline is 25 October.

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Wellcome Trust - New Discovery Research Funding Schemes

Wellcome has announced calls for their new funding schemes for 2021. Get information about Wellcome's research funding including schemes, guidance, what we offer at key career stages, and our funded people and projects. UoM researchers are welcome to apply as PIs and invite CUHK researchers for collaboration.

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Funding Opportunities Offered by Hong Kong University Grants Committee

The University Grants Committee in Hong Kong is inviting applications for the Areas of Excellence (AoE) Scheme and Theme-based Research Scheme (TRS). The AoE scheme supports both basic and applied research of high academic merit that addresses inter-disciplinary issues, while the TRS focuses on themes of strategic importance to the long-term development of Hong Kong. Both schemes welcome collaborators from abroad.

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