Haematology and Oncology

The Lady Pao Children's Cancer Centre, the largest paediatric oncology unit in Hong Kong, conducts clinical research in leukaemia and stem cell transplantation. Our Centre is also the local coordinating centre for various multinational collaborative studies and has recently established a close link with a network of paediatric oncology centres in mainland China. Ongoing research includes (i) multi-centre clinical trials on leukaemia and lymphoma as well as haemophilia; (ii) the pharmacogenetics of chemotherapy tolerance; (iii) biomarkers of chemotherapy-induced neuropathy; (iv) molecular mechanisms of haematopoietic stem cell homing, engraftment and mobilisation; and (v) development of a novel targeted therapy for childhood leukaemia.

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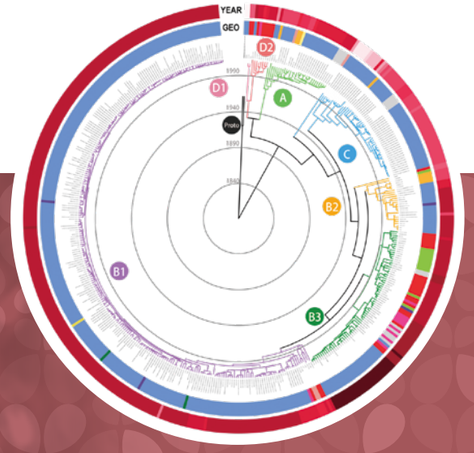
Clinical haematology and oncology

Kam Tong LEUNG | ktleung@cuhk.edu.hk
Basic and translational oncology



Virology and Respiratory Epithelial Cell Biology

On-going research projects under this theme include (i) the investigation of human rhinovirus diversity in non-asthmatic and asthmatic children and the associated outcomes; (ii) tissue tropism and the pathogenesis of human rhinovirus C in the human respiratory tract (an *in vitro* and *ex vivo* study); (iii) the role of rhinovirus in remodelling human airway epithelial and immune cells; and (iv) the establishment of animal models for human rhinovirus in collaboration with the Pulmonary Center of Boston University School of Medicine in the United States.

In collaboration with University Medical Center Utrecht (UMCU), our team established the CUHK-UMCU Joint Research Laboratory of Respiratory Virus and Immunobiology in March 2017. This joint laboratory focuses on the development of human respiratory epithelial spheroid and well-differentiated nasopharyngeal epithelial cell models for studying respiratory viral infections and, thereafter, performing translational research on personalised medicine.

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Paediatrics

Our Department has twelve clinical academic staff with research interests in paediatric and child health topics, which range from the basic science of stem cells and respiratory viruses to clinical research on neonatology, clinical genetics, allergic diseases and sleep-disordered breathing. Our flagship research programmes include allergy and clinical immunology, pulmonology and sleep medicine, neonatology and childhood cancers. These areas of study regularly attract substantial research funding from the Research Grants Council, Food and Health Bureau, Innovative and Technology Commission, non-governmental organisations such as the Children's Cancer Foundation and Children's Thalassaemia Foundation, as well as pharmaceutical and nutritional companies. Our staff have published their cutting-edge research findings in high-impact journals such as *The Journal of Clinical Investigation, The Journal of Allergy and Clinical Immunology, Annals of Surgery, Thorax, Allergy, Clinical Chemistry and Environmental Research*. The Department plans to invest in translational research of stem cell biology, genomics and undiagnosed diseases to be conducted mainly in the Hong Kong Children's Hospital.

DEPARTMENT OF PAEDIATRICS

"The mission of this Department is to gain novel scientific knowledge through robust clinical, translational and basic research, and to utilise such knowledge to establish the highest quality of care for children. We are also committed to providing outstanding education for medical students and paediatricians in disease management, research and advocacy for children. Our Department welcomes postgraduate students of all ethnicities to participate in our internationally recognised research themes under a wide array of clinical and basic science topics in paediatrics and child health."

Ting Fan LEUNG
Chairman

Neonatology

Our Department has developed significant strengths in neonatal research over the past two decades. The neonatal unit at Prince of Wales Hospital is the largest Level III neonatal intensive care unit in Hong Kong and one of three neonatal surgery referral centres. On our research team are both clinical and basic science researchers who have been focusing on important areas in neonatology. CUHK Neonatology is known to be one of the most academically active neonatal units in Asia and across the world. In particular, our unit is renowned for its work in (i) sepsis and biomarker research, (ii) pathogenesis of necrotising enterocolitis, (iii) prenatal and early-life heavy metal exposure and neurodevelopmental outcomes, and (iv) randomised control studies.

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Sleep and Respiratory Medicine

Our research in Sleep Medicine began in 2003 with the establishment of a cohort of children along the sleep-disordered breathing (SDB) spectrum. In the years since then, we have investigated the epidemiology, basic mechanisms, complications and treatment outcomes of SDB. Recently, we have also begun to focus on the importance of adequate sleep both in children with special needs and neurological individuals. Having received world-wide recognition for their work, our team continues to attract funding support from major grant agencies.

Our work in Respiratory Medicine includes the surveillance of pneumococcal carriage in the paediatric community, burden of bronchiolitis, evaluation of efficacy of Respiratory Syncytial Virus (RSV) prophylaxis in at-risk infants, infant wheeze and its association with nutritional status, and lung function deficits in various medical conditions as well as the establishment of a normal reference of spirometry and peak oxygen consumption in children and adolescents.

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Sleep medicine

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Respiratory research

Clinical Genetics

In collaboration with the Departments of Obstetrics and Gynaecology and Chemical Pathology, we established a clinical genetics centre in 2013 – the first-ever, self-financed expanded newborn screening programme for over 30 inborn errors of metabolism. This programme quickly attracted wide recognition from local doctors and the public. We are currently receiving 500 referrals for this innovative programme every month, which allows us to generate funding for expanding our work in this emerging research theme of our Department.

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Clinical genetics and metabolic diseases

Tak Yeung LEUNG (O&G) | tyleung@cuhk.edu.hk
Prenatal diagnosis and clinical genetics

Allergy

Our asthma and allergy team has established one of the largest biobanks for archiving human DNA, serum, plasma, urine, stool, exhaled breath and environmental dust samples collected from thousands of subjects in the Chinese population. The team carries out laboratory and analytical work to unravel genetic and environmental determinants of longitudinal changes in lung function and airway inflammation in asthmatic children. From this cohort of children, they are also obtaining clinical materials for a series of genomic and genetic projects for asthma and eczema. Additionally, we are among the pioneers in Asia-Pacific monitoring asthma via exhaled breath analysis.

Our team is also active in researching an improved diagnosis and immunotherapy treatment for food allergies and has identified a number of seromarkers, biophysical and psychological assessment tools and therapeutic options for childhood eczema. Beyond this, we are lead collaborators in several large international research consortia, such as The International Study of Asthma and Allergies in Childhood (ISAAC) and the EuroPrevall study group, with the goal of uncovering the environmental and genetic determinants of asthma, food allergies and related atopic conditions.

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General and molecular allergy, biobank and allergy genetics/genomics

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