

## Haematology and Oncology

In Mar 2019, the clinical service of paediatric oncology unit at Prince of Wales Hospital has been entirely relocated to the new Hong Kong Children's Hospital. Our team conducts cutting-edge clinical and translational research in childhood leukaemia and stem cell transplantation. We have been the local coordinating centre for various multinational collaborative studies in the past two decades and extended the multicentre research network with paediatric oncology centres in mainland China in recent years. Ongoing research includes (i) multi-centre clinical trials on childhood leukaemia; (ii) precision oncology and functional genomics; (iii) molecular basis of leukaemogenesis and leukemia immunology; (iv) novel targeted therapies and CAR-T cells; and (v) mechanisms of haematopoietic stem cell homing.

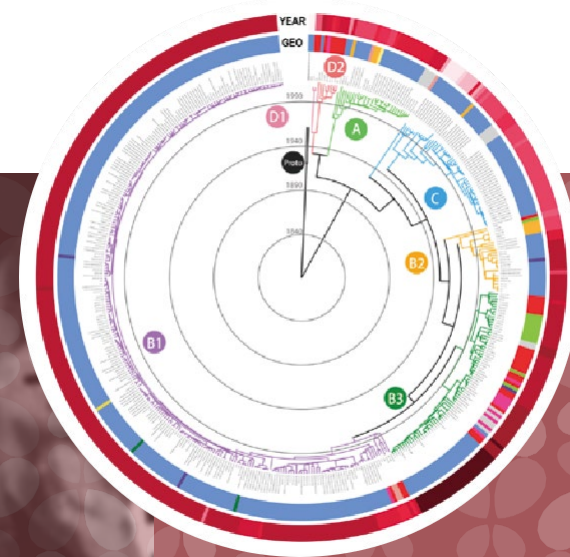
### Clinical haematology and oncology

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## Paediatrics

Our Department has nine clinical academic staff with research interests in paediatric and child health topics, ranging from the basic science of stem cells, microbiome and respiratory viruses to clinical research on neonatology, allergic diseases and sleep-disordered breathing. Our flagship research programmes regularly attract substantial research funding from the Research Grants Council, Food and Health Bureau, Innovative and Technology Commission, non-governmental organisations as well as pharmaceutical and nutritional companies. The Department is a core member of the Hong Kong Hub of Paediatric Excellence (HK HOPE), which is the university-level, multi-faculty and interdisciplinary research institute for coordinating paediatric and child health research. Key basic, translational and clinical research activities of HK HOPE take place at the Hong Kong Children's Hospital, Prince of Wales Hospital and the CUHK main campus.

## DEPARTMENT OF PAEDIATRICS

## 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) the development of non-invasive respiratory mucosal sample collection tools for the analyses of virus, antibody, microbiota and immune mediators; (iii) the development and application of human primary respiratory epithelial cell models, including the air-liquid interface and the organoid cultures, to perform risk assessment for emerging infectious airway pathogens and research on the disease pathogenesis; (iv) the understanding of the biology of viral interference observed in the epidemiological study, rhinovirus infection in the paediatric population and mucosal verse circulating immunoglobulins diversity.

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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“Our clinical, teaching and research facilities are located within the Prince of Wales Hospital, the main teaching hospital affiliated with the Chinese University of Hong Kong, and the recently opened Hong Kong Children's Hospital. As a department, we strive to improve the health and well-being of infants, children and adolescents through providing comprehensive health care, educating health professionals at both the undergraduate & postgraduate levels, and advancing knowledge through innovative research. Our Department is an internationally recognised centre for research in Allergy, Haematology & Oncology, Neonatology, Sleep Disorders and Virology in particular. We are committed to participating in the growth of world-class research through interdisciplinary & international collaboration, aimed at translating knowledge into better health outcomes & quality of life.”

**Albert Martin LI Man Chim**  
Chairman





## Neonatology

Our neonatal research programme is based at the neonatal unit of the Prince of Wales Hospital, which includes the largest level III neonatal intensive care unit in Hong Kong. We have clinical and research collaborations with overseas units, and are a member of the Australian New Zealand Neonatal Network. Our clinical and basic science researchers collaborate closely on several important areas in neonatology. The main areas of research include (i) neonatal sepsis and necrotising enterocolitis diagnostics and pathogenesis, (ii) microbiome of the preterm infant, (iii) data-driven neonatal clinical research, and (iv) prenatal and early-life heavy metal exposure and clinical outcomes.

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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. Utilising the sleep cohort, we have obtained important data regarding natural history and long-term outcomes from childhood SDB. We aim to develop new diagnostics, phenotyping and personalized treatment for childhood and adolescent sleep disorders, with a special focus on childhood SDB and cardiometabolic complications. Recently, we have also started to focus on the importance of adequate sleep in pre-schoolers, adolescents and children with special needs. Having received world-wide recognition for our work, our team continues to attract funding support from major grant agencies.

### *Sleep medicine*

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## 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 for allergic diseases in children. Our team has been collaborating with other disciplines within the Faculty and with other universities to conduct several birth cohorts to unravel maternal factors and early-life exposome that modulate allergy susceptibility.

Our team is also active in researching an improved diagnosis and immunotherapy treatment for food allergies. We make use of the next-generation sequencing platform to investigate the evolution of microbiome at different body sites in early-life and their interactions with the host to modulate the susceptibility for various allergic diseases. The team has also identified a number of seromarkers, biophysical and psychological assessment tools and therapeutic options for childhood eczema. We are also studying biotherapy as an emerging precision medicine treatment 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.



### *General allergy, microbiome, biobank and genetics/genomics*

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### *Asthma and allergy epidemiology*

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