LEUNG Kim Hung, George (梁劍雄)

Teaching Fellow

EDUCATION

1999 – 2005	PhD (project working on Human Genetics)
	The Hong Kong Polytechnic University
1998 – 1999	BSc (Hons) in Biomedical Science (Second upper class Honours),
	Kingston University (London, UK)
1996 – 1998	Higher Diploma in Biomedical Science (Passed with credit),
	The Hong Kong Polytechnic University

WORKING EXPERIENCE

Aug 2022 – Present Teaching Fellow

The Hong Kong Polytechnic University

June 2021 – July 2022 Research Fellow

The Hong Kong Polytechnic University

- Development of a novel liquid biopsy-based molecular assay for the diagnosis tuberculosis with the use of NGS and ddPCR
    - The *M. tuberculosis* bacterial cell-free DNA in plasma of TB patients is detected by using Miseq NGS system from Illumina
- Supervising undergraduate and postgraduate project students to carry out experiments in the laboratory

Jan 2015 – May 2021 Research Associate

The Hong Kong Polytechnic University

- Development of a novel single-tube molecular assay for detecting *JAK2*, *MPL* and *CALR* mutations in myeloproliferative neoplasms (MPNs), which are types of blood cancer
    - Thirteen mutation sites that are in association with MPNs are tested in a single-tube tube assay
    - The assay is validated by testing 292 MPNs patients recruited from Hong Kong Hospital
- Identification of Myopia susceptibility genes with the use of Massarray iplex platform
- Investigation of the association between copy number variants (CNV) and high myopia with the use of Multiple Ligation-dependent Probe Amplification (MLPA) approach

- Supervising undergraduate and postgraduate project students to carry out experiments in the laboratory

Jan 2012 – Dec 2014 Research Associate

The Hong Kong Polytechnic University

- Investigation of the association between copy number variants (CNV) and high myopia with the use of Multiple Ligation-dependent Probe Amplification (MLPA) approach
- Supervising undergraduate and postgraduate project students to carry out experiments in the laboratory

Feb 2008 – Dec 2011 Postdoctoral Fellow

The Hong Kong Polytechnic University

- Identification of susceptibility genes for high myopia using candidate gene approach and hypothesis-free approach, the genome-wide association study (GWAS) strategy
- Supervising undergraduate and postgraduate project students to carry out experiments in the laboratory

Feb 2007 – Feb 2008 Research Associate

The Hong Kong Polytechnic University

- Population based case-control association approach was employed with the use of DNA pooling strategy. The allelic frequencies of different genetic markers in case- and control-DNA pools were estimated and compared.
- Supervising undergraduate and postgraduate project students to carry out experiments in the laboratory

Nov 2001 – July 2006 Research Assistant

The Hong Kong Polytechnic University

- Screening and genotyping single nucleotide polymorphisms in susceptibility genes predisposing humans to complex eye disease- use of case-control strategy
- Supervising undergraduate and postgraduate project students to carry out experimentals in the laboratory

Jul 1999 – Sep 1999 Medical Laboratory Technologist II

Hong Kong Red Cross Blood Transfusion Service

- Performing hepatitis C screening test in donor's blood samples

OTHER QUALIFICATION

1998 - Present Part II of the Register of Medical Laboratory Technologists

Medical Laboratory Technologists Board of Hong Kong

AWARDS

1. **Health and Medical Research Fund**, 2019 (Co-Investigator)
    - Project title: Evaluating the diagnostic yield of using low-pass whole-genome sequencing to identify chromosome abnormalities in paediatric patients with developmental defects

2. **Awardee of Ida Martinson Doctoral Education Scholarship**, PolyU (2003)
    - HK$20,000.

SELECTED RESEARCH PUBLICATIONS

1. **Kim Hung Leung**, Shumeng Luo, Regina Kwarteng, Sin-Guang Chen, Maurice K.H. Yap, Chien-Ling Huang, Shea Ping Yip. The myopia susceptibility locus vasoactive intestinal peptide receptor 2 (*VIPR2*) contains variants with opposite effects . *Scientific Reports*. 2019; **9**:18165. **(IF 2018: 4.011)**

2. Liao X , Yap MKH, **Leung KH**, Kao PYP, Liu LQ, Yip SP. Genetic Association Study of *KCNQ5* Polymorphisms with High Myopia. *Biomed Res Int*. 2017; **2017**: 3024156. **(IF 2018: 2.197)**

3. Kao PY, **Leung KH**, Chan LW, Yip SP, Yap MK. Pathway analysis of complex diseases for GWAS, extending to consider rare variants, multi-omics and interactions. *Biochim Biophys Acta Gen Subj*. 2017; **1861**: 335-353. **(IF 2018: 3.681)**

4. Miyake M, Yamashiro K, Tabara Y, Suda K, Morooka S, Nakanishi H, Khor CC, Chen P, Qiao F, Nakata I, Akagi-Kurashige Y, Gotoh N, Tsujikawa A, Meguro A, Kusuhara S, Polasek O, Hayward C, Wright AF, Campbell H, Richardson AJ, Schache M, Takeuchi M, Mackey DA, Hewitt AW, Cuellar G, Shi Y, Huang L, Yang Z, **Leung KH**, Kao PY, Yap MK, Yip SP, Moriyama M, Ohno-Matsui K, Mizuki N, MacGregor S, Vitart V, Aung T, Saw SM, Tai ES, Wong TY, Cheng CY, Baird PN, Yamada R, Matsuda F; Nagahama Study Group, Yoshimura N. Identification of myopia-associated WNT7B polymorphisms provides insights into the mechanism underlying the development of myopia. *Nat Commun.* 2015; 6:6689 doi: 10.1038/ncomms7689. **(IF 2018: 11.878)**

5. Zaki HY, **Leung KH**, Yiu WC, Gasmelseed N, Elwali NE, Yip SP. Common polymorphisms in *TLR4* gene associated with susceptibility to pulmonary tuberculosis in the Sudanese. *Int J Tuberc Lung Dis*. 2012; **16**: 934-40. **(IF 2018: 2.024)**

6. Yip SP, **Leung KH**, Ng PW, Fung WY, Sham PC, Yap MK. Evaluation of proteoglycan gene polymorphisms as risk factors in the genetic susceptibility to high myopia. *Invest Ophthalmol Vis Sci*. 2011; **52**: 6396-403. **(IF 2018: 3.812)**

7. Jiang B, Yap MK, **Leung KH**, Ng PW, Fung WY, Lam WW, Gu YS, Yip SP. PAX6 haplotypes are associated with high myopia in Han chinese. *PLoS One*. 2011; **6**: e19587. **(IF 2018: 2.776)**

8. Yip SP, **Leung KH**, Fung WY, Ng PW, Sham PC, Yap MK. A DNA pooling-based case-control study of myopia candidate genes *COL11A1*, *COL18A1*, *FBN1*, and *PLOD1* in a Chinese population. *Mol Vis*. 2011; **17**: 810-21. **(IF 2018: 2.174)**

9. **Leung KH**, Yiu WC, Yap MK, Ng PW, Fung WY, Sham PC, Yip SP. Systematic investigation of the relationship between high myopia and polymorphisms of the *MMP2*, *TIMP2* and *TIMP3*

genes by a DNA pooling approach. *Invest Ophthalmol Vis Sci*; 2011; **52**: 3893-900. **(IF 2018: 3.812)**

10. Han W, **Leung KH**, Fung WY, Mak JY, Li YM, Yap MK, Yip SP. Association of *PAX6* polymorphisms with high myopia in Han Chinese nuclear families. *Invest Ophthalmol Vis Sci* 2009; **50**: 47-56. **(IF 2018: 3.812)**

11. Zha Y, **Leung KH**, Lo KK, Fung WY, Ng PW, Shi MG, Yap MK, Yip SP. *TGFB1* as a susceptibility gene for high myopia: a replication study with new findings. *Arch Ophthalmol* 2009; **127**: 541-8. **(IF 2014: 4.399)**

12. **Leung KH**, Yip SP, Wong WS, Yiu LS, Chan KK, Lai WM, Chow EYD, Lin CK, Yam WC, Chan KS. Sex- and age-dependent association of *SLC11A1* polymorphisms with tuberculosis in Hong Kong Chinese: a case control study. *BMC Infect Dis* 2007; **7**:19. **(IF 2018: 2.565)**

13. Yip SP, Choi PS, Lee SY, **Leung KH**, El-Zawahri MM, Luqmani Y. ABO blood group in Kuwaitis: detailed allele frequency distribution and identification of novel alleles. *Transfusion* 2006; **46**: 773-9. **(IF 2018: 2.565)**

14. Yip SP, Pun SF, **Leung KH**, Lee SY. Rapid simultaneous genotyping of five common Southeast Asian β-thalassemia mutations by multiplex minisequencing and denaturing HPLC. *Clin Chem* 2003; **49**: 1656-1659. **(IF 2018: 6.916)**

15. Yip SP, **Leung KH**, Lin CK. Extent and distribution of linkage disequilibrium around the *SLC11A1* locus. *Genes Immun* 2003; **4**: 212-221. **(IF 2018: 2.631)**

OTHER PUBLICATIONS

1. Yip SP, **Leung KH**, Ngan PM, Tang WC, Yap MKH. Use of DNA chromatography for sequence analysis. *J H K Med Technol Assoc* 2006.

2. **Leung KH,** Yip SP. Single strand conformation polymorphism (SSCP) analysis. In: Rapley R, Walker JM, eds. *Molecular Biomethods Handbook,* 2nd ed. Humana Press, Totowa 2008.

3. **Leung KH,** Yip SP. Denaturing high-performance liquid chromatography (DHPLC) for genetic analysis. In: Rapley R, Walker JM, eds. *Molecular Biomethods Handbook,* 2nd ed. Humana Press, Totowa 2008.

CONFERENCES AND INVITED SPEECH

1. **Leung KH**, Yap M, Yan Fung WY, Ng PW, Yip SP. Common polymorphisms in the *COL11A1*, *PLOD* and *FBN1* genes are not associated with susceptibility to high myopia – Use of a DNA pooling approach (Abstract) The 13th International Myopia Conference, 26-29 July, 2010, Tübingen, Germany.

2. **Leung KH**, Yip SP, Wong WS, Yiu LS, Chan KK, Lai WM, Chow EYD, Lin CK, Yam WC, Chan KS. Sex- and age-dependent association of *SLC11A1* polymorphisms with tuberculosis. (Abstract) The 1st Asian Pacific Symposium on Advanced Molecular Technologies, 20-23 October, 2006, Hong Kong, China.

3. **Leung KH**, Yip SP, Wong WS, Yiu LS, Chan KK, Chan KS, Lai WM, Chow EYD, Yam WC, Lin CK. Identification of novel TB susceptibility genes by DNA pooling strategy. (Abstract) The 8th International Meeting on Human Genome Variation and Complex Genome Analysis, 14-16 September 2006, Hong Kong, China.

4. **Leung KH**, Yip SP, Wong WS, Yiu LS, Chan KK, Chan KS, Lai WM, Chow EYD, Yam WC, Lin CK. Variants in the *SLC11A1* gene and susceptibility to tuberculosis in Hong Kong

Chinese. (Abstract) The 6th International Meeting on Single Nucleotide Polymorphism and Complex Genome Analysis, 20-23 November 2003, Chantilly, Virginia, USA.

5. **Leung KH**, Yap M, Yip SP. Identification of single nucleotide polymorphisms in a myopia candidate gene cellular retinoic acid binding protein 1 (*CRABP1*). (Abstract) 9th International Conference on Myopia, 10-14 November 2002, Hong Kong & Guangzhou, China.

6. **Leung KH**, Lin CK, Yip SP. Extent of linkage disequilibrium around the *SLC11A1* locus. (Abstract) Human Genome Meeting 2002, 14-17 April 2002, Shanghai, China.

7. **Leung HK.** Susceptibility to tuberculosis in Chinese subjects. Invited Speaker in Hong Kong Epidemiology Association Annual Scientific Meeting, "Old Diseases, New Challenges and Solutions" organised by Hong Kong Epidemiology Association, 27 Oct 2006, Hong Kong.

LABORATORY SKILLS

Human genomic, Plasmid and Chromsomal DNA extraction, Primer design, Polymerase Chain Reaction (PCR), Real-time PCR, DNA sequencing, Genotyping, Restriction Fragment Length Polymorphism (RFLP), PCR-DHPLC (Denatured High Performance Liquid Chromatography), High Resolution Melting Analysis (HRM), Unlabelled Probe Melting Analysis, Multiple Ligation Probe Assay (MLPA), SNaPshot Multiplex System, Agena Massarray, Pyrosequencing, Cell culture, Chromatin Conformation Capture (3C), Cloning, CRISPR-CAS9 gene Editing, Next generation sequencing (NGS), NGS library preparation, NGS data analysis and interpretation.