



**Master of Research in Medicine (MRes[Med]) 2021-22  
Research Topics**

Research Topic	Supervisor(s)
<b>Department of Anaesthesiology</b>	
1. Effects of spinal cord stimulation on epigenetic regulation in an animal model of neuropathic pain	Professor CW Cheung
2. Elucidating the role of fasting mimicking diet in reactive astrocytes polarization of neuropathic pain: Mechanistic Insight and Preclinical Translation	Professor CW Cheung
3. Effects of Mode of Anaesthesia in Hepatocellular Carcinoma Surgery - A Randomised Controlled Trial	Professor MG Irwin
4. Emergency Laparotomy Organizational Audit - looking at perioperative (anaesthetic and surgical) risk factors and morbidity outcomes in patients undergoing emergency laparotomy	Professor MG Irwin Professor SWK Cheng (Surgery)
<b>School of Biomedical Sciences</b>	
5. Understanding progenitor cells in the formation of the skeleton for regenerative medicine	Professor D Chan
6. Adult-born neurons re-open plasticity of neural circuitry for rescuing dysfunctions in motor learning and navigation	Professor YS Chan
7. Molecular mechanism of synaptic plasticity on motor learning and navigation	Professor YS Chan
8. Mechanistic insights into intervertebral disc degeneration by single cell transcriptomics and lineage tracing	Professor KSE Cheah
9. The role of the integrated stress response in the pathogenesis of fibrosis	Professor KSE Cheah
10. Functional characterization of patient-derived aberrated genes in gynecological cancers	Dr LWT Cheung
11. A study of the expression and therapeutic potential of DLC1 isoform 1 in spinal muscular atrophy	Dr MCH Cheung
12. Small Rho GTPases in cancer metastasis	Dr YP Ching
13. Artificial intelligence, mHealth and big data in medicine	Dr JWK Ho
14. Metagenomics and cancer	Dr JWK Ho
15. Comparison of analytical tools for somatic mutation identification in precision medicine	Dr A Javed
16. Molecular basis of hepatitis B virus cccDNA transcription and maintenance	Professor DY Jin
17. Molecular mechanism of Epstein-Barr virus persistence and transformation	Professor DY Jin
18. The role of kinesin in experience-dependent dendritic spine plasticity in neurodevelopment	Dr CSW Lai
19. A knock-in strategy to study protein localization and transport in human neuron through genome editing	Dr KO Lai
20. Investigating the regulatory role of protein arginine methylation in dendritic spine development in neurons	Dr KO Lai
21. Effects of social enrichment on stress resilience and vulnerability	Dr LW Lim
22. Investigation of neuroplasticity-dependent and –independent mechanisms of electrical deep brain stimulation in animal models of dementia and depression	Dr LW Lim
23. Expanded potential stem cells for studying human disease and for regenerative medicine and cancer	Professor PT Liu
24. Development of Nucleic Acid Aptamers for Therapeutics and Diagnostics	Professor JA Tanner

<b>Research Topic</b>	<b>Supervisor(s)</b>
25. Cellular and molecular biology of nasopharyngeal cancer	Professor GSW Tsao
26. Molecular basis of cell immortalization and malignant transformation	Professor GSW Tsao
27. In search for novel combination therapies for cancers	Dr ASL Wong
28. Evaluation of commercial next-generation sequencing mutation testing for targeted cancer therapy	Dr JWH Wong
29. Chemical and optogenetical approaches to investigate cellular phosphatidylinositol biogenesis	Dr CH Yu
30. Integrin-mediated signaling in cell adhesion, migration and invasion	Dr CH Yu
31. Contribution of stem cell maintenance to aging	Professor ZJ Zhou
32. Stem cell decline in SIRT6 deficient aging mice	Professor ZJ Zhou
<b>Department of Clinical Oncology</b>	
33. Identification and characterization of metastatic associated genes in gastric cancer	Professor XY Guan
34. Blood immune biomarkers to guide personalized adjuvant immunotherapy in lung cancer	Professor SFM Kong
35. Blood immune biomarkers to guide personalized immunotherapy in solid tumors	Professor SFM Kong
36. Understanding the interplay between host immunity and tumor cells in Nasopharyngeal Carcinoma	Professor DLW Kwong Dr YNW Kam
37. Genomics approaches to the study of inherited genetic susceptibility to nasopharyngeal and esophageal carcinomas development and the study of tumor suppressor genes (TSGs) contributing to cancer pathogenesis	Professor ML Lung
<b>Department of Family Medicine &amp; Primary Care</b>	
38. Effectiveness of Routine Measurement of Health-Related Quality of Life in Improving the Outcomes of Patients with Musculoskeletal Problems – A Cluster Randomized Controlled Trial	Professor CLK Lam Dr ETY Tse
39. Health, health-related quality of life and primary care services utilization of low-income families	Professor CLK Lam
40. Optimization in Hong Kong Public Health Service using Big Data research	Dr EYF Wan Dr ETY Tse Dr EYT Yu Professor CLK Lam
41. Health utility valuation and measurement for paediatric population	Dr CKH Wong Dr JPY Cheung (Orthopaedics & Traumatology) Dr P Ip (Paediatrics & Adolescent Medicine)
<b>Department of Medicine</b>	
42. Immuno-pathogenetic mechanisms in kidney disease of systemic lupus erythematosus	Professor TM Chan Dr SSY Yung
43. Pathogenic mechanisms of fibrosis in the kidney and other organs	Professor TM Chan Dr SSY Yung
44. Obesity, metabolic syndrome, cardiovascular and non-cardiovascular complications	Professor BMV Cheung Dr CL Cheung (Pharmacology & Pharmacy)
45. Functional brain mapping using high resolution electroencephalography	Professor RTF Cheung
46. Neuroprotection in rodent stroke models	Professor RTF Cheung

Research Topic	Supervisor(s)
47. Molecular basis of neuronal mitochondria functions in normal aging and Parkinson's disease using in vitro and in vivo experimental models	Professor SL Ho Dr PWL Ho
48. Adjuvant antivirals therapy for influenza	Professor IFN Hung
49. Influenza vaccination	Professor IFN Hung
50. Inflammasomes and Systemic Lupus Erythematosus	Professor CS Lau Dr VSF Chan
51. Secondary immunodeficiencies in Hong Kong	Professor CS Lau Dr P Li
52. Role of the gut microbiome in vascular and brain health	Dr GKK Lau Professor IFN Hung
53. Use of digital health platforms, wearables and machine learning to improve the management and prognosis of stroke and dementia	Dr GKK Lau
54. In search for novel treatments for acute myeloid leukaemia	Professor AYH Leung
55. Zebrafish model of human leukaemia	Professor AYH Leung
56. Cost-effectiveness of biologics in patients with established rheumatoid arthritis: an application of real-world big data and disease simulation modeling	Dr X Li
57. Artificial intelligence in liver cancer, liver imaging, liver histology and beyond	Dr WK Seto Professor MF Yuen Dr LY Mak
58. Determinants of liver fibrosis and cirrhosis: viral hepatitis, steatosis and the gut microbiome	Dr WK Seto Professor MF Yuen Dr LY Mak
59. Frontline oral arsenic trioxide-based induction in newly diagnosed acute promyelocytic leukaemia in adults – a multicentre phase 2 study	Dr GHH Singh
60. The Asian myelodysplastic syndrome (MDS) and secondary acute myeloid leukaemia (AML) project	Dr GHH Singh
61. 1. Circulating stem cells in cardiovascular medicine 2. Outcome prediction of cardiac arrhythmias 3. Heart and hormones 4. Vascular function and diet 5. Genetic basic of cardiac arrhythmias and cardiomyopathy 6. Cardiac stem cell therapy 7. Modeling of heart disease with stem cell	Professor HF Tse Professor DCW Siu
62. Adipokines as diagnostic markers and therapeutic targets for cardiovascular complications of obesity and diabetes	Professor AM Xu
63. Predictors of adverse events following valvular heart surgery: Chinese Valvular Heart Disease Study	Dr KH Yiu
64. Impact of feeding mode on advanced dementia patients with feeding problems	Dr JKY Yuen
65. Measuring the quality of patient-centered advance care planning communication	Dr JKY Yuen
<b>Department of Microbiology</b>	
66. Discovery and mechanistic evaluation of novel antivirals for emerging and re-emerging viral infections	Dr JFW Chan
67. AIDS Vaccine and Immunological Cure of HIV Infection	Professor ZW Chen
68. Functional cure of HIV infection	Professor ZW Chen
69. Emerging and zoonotic infectious diseases	Professor SKP Lau
70. Novel pathogen discovery and microbial genomics	Professor PCY Woo
71. Study of a novel cell entry pathway for enterovirus infection	Dr PML Yeung

Research Topic	Supervisor(s)
<b>Department of Obstetrics &amp; Gynaecology</b>	
72. Regulation and mechanistic studies on endometrial receptivity: in vitro screening and characterization of small molecules	Dr CKF Lee Professor WSB Yeung
73. Cardiometabolic parameters in women with polycystic ovary syndrome	Dr RHW Li
74. Perception of menopause-related symptoms and hormone replacement therapy in the Hong Kong Chinese population	Dr RHW Li
75. Biomolecular studies in gynaecological cancers	Professor HYS Ngan Dr DW Chan
76. Roles of microRNAs in endometrial cells during implantation	Professor WSB Yeung
<b>Department of Ophthalmology</b>	
77. Point-of-Care Diagnostic Kit for Microbial Keratitis	Dr JYK Chan Dr KC Shih
78. The protective effect of <i>Lycium Barbarum</i> Polysaccharide on Cornea Epithelial-Stromal Injury	Dr JYK Chan Dr KC Shih
79. Immune modulatory effects of the traditional Chinese medicine Lycium barbarum in Alzheimer's disease-related vision loss	Dr K Chiu
80. Trans-scleral electrical stimulation in traumatic optic neuropathy, retinal ischemia reperfusion injury, and chronic glaucoma models	Dr K Chiu
81. Photobiomodulation in the treatment of glaucoma	Professor JSM Lai Dr JKW Wong
<b>Department of Orthopaedics &amp; Traumatology</b>	
82. Clinical research in scoliosis and other spinal disorders	Dr JPY Cheung
83. Spine imaging	Dr JPY Cheung
84. Clinical and basic research in low back pain	Professor KMC Cheung Dr KYH Kwan Dr JPY Cheung
85. Clinical and basic research in scoliosis	Professor KMC Cheung Dr KYH Kwan Dr JPY Cheung
86. Clinical electrophysiology in orthopaedics	Dr Y Hu
87. Intraoperative spinal evoked potential monitoring	Dr Y Hu
88. Bone cement and biomaterial application	Professor WW Lu
89. Application of nanomedicine in orthopaedic trauma; Immune modulating therapy in spinal cord regeneration	Dr GKH Shea Dr MKT To
90. Use of autologous bone marrow-derived neural progenitors for cell therapy in the injured CNS and PNS	Dr GKH Shea Professor YS Chan (Biomedical Sciences)
<b>Department of Paediatrics &amp; Adolescent Medicine</b>	
91. Biology of human mesenchymal stem cells (hMSCs)	Professor GCF Chan
92. Evaluate the efficacy and mechanisms of novel cytotoxic agents on neurogenic tumours	Professor GCF Chan
93. Genetic manipulation in vivo and in vitro to study function of novel genes	Dr SY Chan
94. Novel 4-dimensional Echocardiographic Evaluation of Cardiac Function in Children with Congenital and Acquired Heart Diseases	Professor YF Cheung
95. Next generation sequencing of Epstein-Barr virus genomes in cancer tissues and saliva	Dr AKS Chiang
96. Translational research in novel therapy for EBV-associated lymphoproliferative diseases and epithelial cancers	Dr AKS Chiang
97. Whole exome sequencing in Paediatric Rare Diseases	Dr BHY Chung

<b>Research Topic</b>	<b>Supervisor(s)</b>
98. Primary immunodeficiencies	Professor YL Lau
99. Analysis of genomic data for clinical diagnosis and personalized treatment	Dr WL Yang Professor YL Lau
<b>Department of Pathology</b>	
100. Molecular biology of endocrine-resistant/chemo-resistant breast cancer	Professor US Khoo
101. Identification of novel oncogenes and tumour suppressor genes involved in gastrointestinal cancer development and stem cell regulation based on gene expression profiling, chromosomal copy number profiling and epigenetic studies in genomics scale	Professor SY Leung
102. Lymphopoiesis and apoptosis in the development of autoimmune diseases	Professor LW Lu
<b>Department of Pharmacology &amp; Pharmacy</b>	
103. Vascular protective functions of the anti-aging protein SIRT1	Professor Y Wang
104. Epidemiology, first-line and second-line treatment for graves' disease	Dr CKH Wong Professor CLK Lam (Family Medicine & Primary Care) Professor BHH Lang (Surgery) Dr WWL Chan (Clinical Oncology)
105. The role of Cytochrome P450 system in Pharmacomicrobiomics	Dr CWH Woo
<b>Department of Psychiatry</b>	
106. First-episode Bipolar Disorder & Schizophrenia – neuro-social cognitive assessment, experience-sampling and digital phenotyping for symptom trajectory evaluation	Dr WC Chang
107. Youth Mental Health – subclinical psychotic symptoms in a territory-wide epidemiological youth cohort in Hong Kong	Dr WC Chang
108. Cognitive neuropsychology and psychopathology of psychotic disorders	Professor EYH Chen
109. Early intervention for psychosis	Professor EYH Chen
110. Mindfulness intervention for relapse in psychosis	Dr CLM Hui
111. Genetic analysis of complex diseases	Professor PC Sham
<b>School of Public Health</b>	
112. Unraveling the causes of cardiovascular disease and type 2 diabetes using nature's randomized trial	Dr RSL Au Yeung
113. Characterization of host factors involved in virus infections	Professor R Bruzzone
114. Targeting deubiquitylases as therapeutic strategies against viral infections	Professor R Bruzzone
115. Risk assessment of influenza virus and coronavirus using experimental models derived from human respiratory tract	Dr MCW Chan Dr KPY Hui
116. The impact of the Hong Kong AMR action plan on the prevalence of anti-microbial resistance in the community	Dr KA Grépin Dr OSK Chan
117. Obesity and physical activity in students	Dr DSY Ho
118. Lifestyle, lifecourse and molecularepidemiology study in Guangzhou	Professor TH Lam Dr CQ Jiang
119. Tobacco and alcohol control in Hong Kong and China Mainland	Professor TH Lam
120. Cancer rehabilitation – how to prevent lost in transition	Dr WWT Lam

<b>Research Topic</b>	<b>Supervisor(s)</b>
121. Optimization of cancer care	Dr WWT Lam
122. Behavioural economics-based incentives in adults with diabetes: randomized control trial	Professor GM Leung Dr JC Quan
123. The economic cost of diabetes	Professor GM Leung Dr JC Quan
124. Study on the anti-viral effect of amantadine modified drug in cell model	Dr KP Mok
125. 1. Emerging determinants of mental health: COVID-19 and others 2. Developing the World Health Organization World Mental Health Composite International Diagnostic Interview-5 (WHO WMH-CIDI-5) for Hong Kong 3. Social media and mental health 4. Biological markers of stress and their association with depression 5. How to improve detection of depression 6. Contributions of social and built environment to mental health 7. Social dynamics, resilience, and mental health	Dr MY Ni Professor GM Leung
126. Exploring upstream factors related to physical, mental and social well-being: leveraging a ten-year large prospective cohort	Dr MY Ni Professor GM Leung
127. Life course influences on health	Dr CM Schooling
128. Exercise for obesity and metabolic syndrome in children and young adults	Dr PMF Siu
129. Exercise for sleep and mental health in elderly	Dr PMF Siu
130. Promotion of respiratory health by improving awareness of environmental exposure to air toxics among school children	Dr LW Tian Dr DKM Ip
131. Public health effects of air pollution on mortality and admissions to hospitals	Dr LW Tian Dr TQ Thach
132. Immune correlates of protection to influenza: role of adaptive immunity	Dr S Valkenburg
<b>Department of Surgery</b>	
133. Prospective evaluation of outcomes of HBV-related acute-on-chronic liver failure in Hong Kong	Dr KSH Chok
134. Biomarkers and chemoresistance in esophageal squamous cell carcinoma (ESCC)	Professor SYK Law
135. Neuroprotection for ischaemic and haemorrhagic stroke	Professor GKK Leung
136. Novel treatment approach for chemoresistant malignant glioma	Professor GKK Leung
137. Preventing and improving outcomes of small-for-size syndrome after living donor liver transplantation (LDLT)	Professor CM Lo Dr TCL Wong
138. Genomics - Stem cell biology of biliary atresia (BA)	Dr VCH Lui Professor PKH Tam
139. Molecular signatures linked to graft injury and tumour recurrence after liver transplantation	Professor K Man
140. Novel therapies for liver cancer recurrence after transplantation	Professor K Man
141. Genomics of Hirschsprung disease	Professor PKH Tam Dr CSM Tang
142. Molecular diagnosis and treatment of head and neck cancers	Dr TS Wong Dr W Gao

December 1, 2020

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