

List of 2018 Summer Research Programmes
(as at 2018-01-26)

Faculty/ Institutes	Ref No.	Project Title in English	Project Title in Chinese	Project Description	Application Requirement	Contact Points		
						Contact Person(s)	Contacts	Consultation hours (29 Jan - 2 Mar 2018)
FHS	MYRG2016-00251-FHS	Investigating the function and mechanism of GSK3β in contributing to development of obesity and its associated insulin resistance via modulating adipogenesis, energy metabolism and adipose tissue inflammation	研究調查GSK3β 通過調控脂肪分化, 能量代謝以及炎症反應而介導的促進肥胖及肥胖相關的胰島素抵抗的功能以及發生機製		- Not eligible for Year 4-to-be students	Dr. Li Wang	Email: liwang@umac.mo	Monday 12:00 - 13:00 Wednesday 16:00 - 17:00
FHS	MYRG2016-00249-FHS	Deciphering Molecular Pathogenesis of Marfan Syndrome in Petri Dish	通過體外細胞培養解析馬凡綜合症的致病機理	Marfan syndrome (MFS) is caused by a mutation in Fibrillin-1 (FBN1) gene, which triggers a hyperactige TGFb signaling in connective tissues. A genome-wide gene expression analysis showed that MFS-iPSC- and mutant corrected mcMFS-iPSC-derived vascular smooth muscle cells (vSMC) have an inverse expression for contractile- and synthetic-SMC markers. One aim of the research project is to elucidate the mechsanism by which MF-SMC confers synthetic-SMC phenotypes.	- Not eligible for Year 4-to-be students	Dr. Jung Woo Park	Email: JungWPark@umac.mo	Tuesday 16:00 - 18:00
FHS	MYRG2016-00211-FHS	Systematic Characterization of Transcription Factors	轉錄調控因子的特征分析	Transcription is the first and essential step to retriving gene information from the genome for all living organisms. Understanding how transcription is controlled is of paramount importance, and mis-regulation of gene expression is the basis for many human diseases including cancers. Transcription regulatory mechanisms are highly conserved from fungi to humans. In fact, many discoveries were first made in fungi and subsequently shown for humans. In this project, we will use various advanced Genomics techniques and Bioinformatics to study how transcription factors regulate their target genes and to identify what physiological functions they control in the cell at the genome-wide level.	- Not eligible for Year 4-to-be students	Dr. Koon Ho Wong	Email: KoonHoWong@umac.mo	Tuesday 10:00 - 11:00 Friday 10:00 - 11:00
FHS	MYRG2016-00199-FHS	Genome-wide Identification of Bacterial Virulence Factors in V. parahaemolyticus as Target for Novel Antimicrobials	鑑定副溶血性弧菌毒力因子用以作為新型抗菌藥物的靶點	toxin-antitoxin systems have widely been used by bacterial for cooperation and conflict in the community, persistence formation upon stress. We have identified a novel toxin-antitoxin system and the mechanism of action await for study	- Not eligible for Year 4-to-be students	Dr. Jun Zheng	Email: JunZheng@umac.mo	Monday 15:30 - 17:30
FHS	MYRG2016-00139-FHS	Insertional mutagenesis to identify networks of cooperating genes for tumorigenesis in Brca1 mammary tissue specific knockout mice using the sleeping beauty system	使用睡美人系統介導的插入突變在BRCA1乳腺組織特異性基因敲除小鼠中鑑定促癌發生的基因合作網絡	Insertional mutagenesis to identify networks of cooperating genes for tumorigenesis in Brca1 mammary tissue specific knockout mice using the sleeping beauty system	- Not eligible for Year 4-to-be students	Prof. Chuxia Deng	Email: cxdeng@umac.mo	Monday 14:30 - 16:30
FHS	MYRG2016-00138-FHS	Identification of driver mutations for Brca1 associated mammary cancer by single cell genome sequencing	用單細胞基因組測序鑒定 與BRCA1相關的乳癌驅動突變	This study will identify the driver mutations from single cell in Brca1 mutant mice mammary gland at different development stages .	- Not eligible for Year 4-to-be students	Prof. Xiaoling Xu	Email: Xiaolingx@umac.mo	Friday 10:00 - 12:00
FHS	MYRG2016-00132-FHS	Identification of genes that are involved in cancer metastasis mediated by TGF-β signaling pathway and antagonized by cisplatin	鑒定 與TGF-β信號通路介導的, 順鉑抑制的癌症轉移有關之 基因	Identification of genes that are involved in cancer metastasis mediated by TGF-β signaling pathway and antagonized by cisplatin	- Not eligible for Year 4-to-be students	Prof. Chuxia Deng	Email: cxdeng@umac.mo	Monday 14:30 - 16:30
FHS	MYRG2016-00110-FHS	Structural and functional in vivo imaging of the bone-implant systems by multiscale photoacoustic tomography	使用多尺度光聲斷層成像實現骨- 植入物系統的活體結構和功能成像	Photoacoustic tomography (PAT) is the fastest-growing area of biomedical imaging technology because PAT enables anatomical, functional and metabolic imaging with high resolution, high contrast and satisfactory penetration depth. PAT also promises in vivo imaging at multiple length-scales, which can image subcellular organelles to organs with the same contrast origin. The goal of this proposal is to develop and validate a multiscale PAT system for structural and functional in vivo imaging of the bone-implant systems. Success in this project should provide us novel tools to reveal why certain synthetic materials adhere to bone and others don't, which will pave the way to understanding the bonding mechanism between bones and implants at different length scales so that we can improve the life quality of patients in Macau.	- Not eligible for Year 4-to-be students - We focus on the development of various biomedical imaging for brain imaging and cancer imaging and welcome students with all kinds of background to join us.	Dr. Zhen Yuan	Office: E12-4008 Email: zhenyuan@umac.mo	Tuesday 10:00 - 12:00 Friday 09:00 - 16:00
FHS	MYRG2016-00102-FHS	Novel Multi-targeting compounds for the treatment of Alzheimer’s disease	新穎的多靶向化合物為阿爾茨海默病的治療	The project seeks to develop dual-target inhibitors with a potential for treating Alzheimer's disease (AD). We will synthesize novel compounds in our laboratory. The compounds will be evaluated against the inhibitions of acetylcholinesterase (AChE) and beta-amyloid aggregation in in vitro and in vivo systems.	- Not eligible for Year 4-to-be students	Prof. Kin Yip Tam	Email: KinTam@umac.mo	Wednesday 11:30 - 12:30 Thursday 11:30 - 12:30
FHS	MYRG2016-00101-FHS	Database Building, Expression Analysis, and Biomarker Mining of Noncanonical Noncoding miRNAs	非經典非編碼小RNA的數據庫構建,表達分析與生物標誌物挖掘	Use bioinformatic, computational, and programming tools to discover novel small noncoding RNAs	- Not eligible for Year 4-to-be students; - Cumulative GPA at least 2.0	Prof. Gary Wong	Email: garrywong@umac.mo	Tuesday 16:00 - 17:00 Fridays 16:00 - 17:00
FHS	MYRG2016-00075-FHS	Assessment of the role of G protein-coupled receptor (GPCR) heterodimerization in gonadotropin-releasing hormone (GnRH) and gonadotropin release regulation	G蛋白偶聯受體的雜二聚化在促性腺激素釋放激素和促性腺激素的釋放調節的角色之研究	The hypothalamic–pituitary–gonadal (HPG) axis is richly endowed with GPCRs. The signaling mechanisms of these receptors are an important aspect of the physiologic roles of sex hormones and of diseases that affect the reproductive system. However, current knowledge about GPCR dimerization in the reproductive system is very limited. Therefore, we propose to study how GPCR dimerization could contribute to reproductive system regulation. In this project, we will focus on the gonadotropin-releasing hormone (GnRH) and its receptor (GnRHR) to discover unknown GPCR interactions in the HPG axis and assess the potential effects of GPCR dimerization on regulation of the synthesis and release of GnRH and gonadotropins. The results from this project will identify new research directions in reproductive biology and further clarify how different hormones cooperate to regulate the reproductive system.	- Not eligible for Year 4-to-be students	Dr. Tsz On Lee	Email: LTOLee@umac.mo	Tuesday 16:30 - 17:30 Friday 16:30 - 17:30
FHS	MYRG2016-00073-FHS	Mechanism Studies of Antibiotics Mediated Killing and Development of New Antibiotics Targeting Drug Resistant Acinetobacter baumannii	抗生素介導的細菌死亡機制的研究及對抗抗藥性鮑曼不動桿菌新型抗生素的開發	A small portion of bacteria will not be killed upon antibiotic treatment, which lead to treatment failure and infection relapse. We have discovered a new mechanism of bacterial tolerance to antibiotics. The work need to be completed.	- Not eligible for Year 4-to-be students	Dr. Jun Zheng	Email: JunZheng@umac.mo	Monday 15:30 - 17:30
FHS	MYRG2016-00072-FHS	Functional and Genetic Analysis of the Roles of Erk1/2 Signaling Cascade in Oocyte Maturation and Ovulation in the Zebrafish	ERK1/2 信號傳導在斑馬魚卵巢卵母細胞成熟和排卵過程中作用的功能及遺傳學分析	Oocyte maturation and ovulation are two closely related but different events in the final stage of follicle development. Our previous studies suggested that ERK1/2 in the oocyte and somatic follicle cells could be involved in the two processes respectively. This study aims to dissect the funcnacional importance of each in the final stage of egg production.	- Not eligible for Year 4-to-be students	Prof. Wei Ge	Email: WeiGe@umac.mo	Tuesday 14:00 - 15:00
FHS	MYRG2016-00070-FHS	Genetic engineering to produce universal, senescence-resistant, and safety-enhanced mesenchymal stem cells from human embryonic stem cells	通過基因工程從人胚幹細胞構建廣泛通用、不易衰老和更加安全的間充質幹細胞	To test immune response of genome-edited stem cells	Interested in stem cell engineering and therapy, and willing to learn genome editing and immune response analyses	Prof. Ren-He Xu	Email: RenheXu@umac.mo	Monday 16:00 - 18:00
FHS	MYRG2016-00066-FHS	A role of myosin phosphorylation in microvillus inclusion disease and related syndromes	肌球蛋白磷酸化在微絨毛包涵體病及相關症狀中的作用	The project is proposed to (1) determine the roles of these presumed myosin modulators in a novel apical polarity pathway; (2) identify their substrates; (3) examine the putative role of phosphorylating myosin (their presumed substrate) in controlling myosin activity, and, subsequently apical polarity.	- Not eligible for Year 4-to-be students	Dr. Hongjie Zhang	Email: HJZhang@umac.mo	Monday 16:00 - 17:00 Thursday 16:00 - 17:00

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FHS	MYRG2016-00065-FHS	Developing multicellular pancreatic endoderm clusters for cell replacement therapies in diabetes	建立胰腺內胚層多細胞團簇用於糖尿病的細胞治療	The aims of this project is to (1) identify co-culture condition for human embryonic stem cell (hESC)-derived pancreatic progenitors and mesenchymal stem cells; (2) establish 3D system for endodermal differentiation from hESCs. Students will learn many biological experimental techniques particularly stem cell culture and differentiation. Students will also gain hand-on experiences on performing liver and pancreas differentiation.	- Not eligible for Year 4-to-be students	Dr. Ruiyu Xie	Email: ruiyuXie@umac.mo	Monday 09:00 - 12:00
FHS	MYRG2016-00058-FHS	Design of semiconducting polymer nanosensor for monitoring biological microenvironment	半導體高分子納米傳感器的設計及生物微環境檢測	To fabricate fluorescent polymer nanoparticles (Pdot); to use Pdot as platform for the detection of biology related molecules, and monitor biological microenvironment, including reactive oxygen species, local temperaure change, hypoxia, enzyme, toxic molecules degerated in biological processes. Students have chance to learn molecular design and basic chemical synthesis as well as fluorescence sensing.	- Not eligible for Year 4-to-be students	Dr. Xuanjun Zhang	Email: XuanjunZhang@umac.mo	Monday 14:00 - 16:00
FHS	MYRG2016-00052-FHS	Role of FOXO3a in the inhibitory effect of glucocorticoid on NPW expression: significance in stress response	FoxO3a 轉錄因子在糖皮質激素負性調控神經肽蛋白 NPW 表達的作用: 在應激反應的意義	The project will look at the effect of FoxO3a on the expression of Neuropeptide W (NPW) using cells line PC12 cells and primary cultured neurons.	Know some basic cell culturing skills as well as the cell biology and biochemistry ; - Have enough time in lab and obey the regulations of the lab and university. Respect lab members and teachers, not eligible for Year 4-to-be students	Prof. Wenhua Zheng	Email: Wenhua Zheng@umac.mo	Thursday 16:00 - 18:00
FHS	MYRG2016-00005-FHS	Research on Asian Psychotropic Prescription Patterns (REAP): the fourth survey	亞洲精神分裂症患者藥物使用合理性研究：第四次調查	The project will look at clinical features of major psychiatric disorders, such as major depression, psychosis, and bipolar disorders, and also use of medications for patients with these disorders.	- Not eligible for Year 4-to-be students	Prof. Yutao Xiang	Email: YTXiang@uamc.mo	Tuesday 09:00 - 10:00 Wednesday 09:00 - 10:00
FHS	MYRG2017-00123-FHS	Transgenerational inheritance of epigenetic marks after environmental toxicant exposure in Caenorhabditis elegans	環境毒素誘導下秀丽隱桿線蟲表觀遺傳標記的跨代遺傳	The mechanism by which epigenetic marks are passed from one generation to the next will be explored and essential genes identified that underly this process. The model organism C. elegans will be used to follow and to test the variety of epigenetic changes inherited from one generation to the next.	- Not eligible for Year 4-to-be students	Prof. Gary Wong	Email: GarryGWong@umac.mo	Monday 16:00 - 17:00
FHS	MYRG2017-00088-FHS	Functional study of BRCA1 and Its Interacting Proteins during Pregnancy and tumorigenesis	BRCA1及其作用蛋白在妊娠期間和乳腺癌发生发展中的功能研究	The project will identify the driver and biomarkers for for the Brca1 related breast cancer formation	- Not eligible for Year 4-to-be students	Prof. Xiaoling Xu	Email: Xiaolingx@umac.mo	Friday 10:00 - 12:00