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| • 計畫中文名稱 | 補益類中藥對於癌症療程中對保護及修復正常體幹細胞之功能性基因體分析研究 | | |
| • 計畫英文名稱 | A Functional Genomic Study of Some Bu-Yi Chinese Herbs Pharmacologic Effect on Protection and Repair of Tissue Stem/Progenitor during Cancer Therapy | | |
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| • 執行機構 | 台北醫學大學細胞及分子生物研究所 | | |
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| • 研究人員 | 施子弼 | | |
| • 中文關鍵字 | 人體組織幹/母細胞；補益類中藥方劑；組織再生修復；造血及間質幹細胞；能性基因體研究 | | |
| • 英文關鍵字 | Human tissue stem/progenitor cell；Bu-Chi Chinese medicine；Tissue repair and regeneration；Hematopoietic/Mesenchymal stem cell；Functional genomic study | | |
| • 中文摘要 | 在臨床上，傳統中藥對人體疾病已有廣泛應用，而在許多重大疾病的西醫治療上，中藥亦具有輔助效果，例如目前已知，中藥對於輔助癌症化療後的生理系統恢復，效果明顯。然而到目前爲止，對於中藥在細胞組織生理的影響，了解仍非常有限。而近年來，幹細胞的研究已顯示成體幹細胞具多組織修復再生功能，小自身體日常組織細胞之更新，大至提供個體受傷之組織再生功能，都由幹細胞主導。在人體生理恢復過程中，幹細胞之增殖分化調節顯得格外重要，特別是在組織細胞面對環境壓力時，其幹細胞更是扮演著重要角色。 本計畫旨在以系統分子醫學的角度，應用藥物基因體醫學之分析，探討補益類中藥在癌醫療過程中，對人體組織幹原細胞受損之保護及修復藥理，並藉而建立補益類中藥對人體組織幹原細胞基因體表達功能影響之資訊。 在過去的研究中，本實驗室已建立數種人體組織幹細胞分離鑑定及培養之平台──從骨髓、脂肪、臍帶血、包皮、頭皮、羊膜等組織來源分離取得幹細胞，有效率地提供各組織幹細胞之生長、分化及分析檢測，並已初步針對單方藥材如黃耆、西洋參、三七、柴胡、紅景天及複方中藥如人蔘養榮湯、十全大補湯及生脈散等活血化瘀藥材，分析此類中藥對於保護造血功能及促進間質幹細胞生長及分化等細胞活性之藥效分析。本計劃擬進一步針對其他類似效能之補益類中藥，例如三七、何首烏、四物湯、生脈散或其他補血養氣、增進細胞生理機能之單複方藥材，進行修復及調節幹細胞活性之影響進行研究，此外將針對所篩選出之具調節幹細胞活性的中藥材，分析其有效成份於調控幹細胞活性機制之功能性基因體研究。本計畫引用造血幹細胞及間葉幹細胞生長分化之培養系統，研究補益類複方藥材作用於造血及間質細胞生長及分化潛能影響，將利用細胞激素蛋白微陣列、螢光免疫染色及基因晶片對於中藥對於各血球系或間質細胞分化及生長的影響。觀察在中藥作用下，多種幹原組織前驅或幹細胞蛋白激素表達之變化、藥物環境刺激引發的分子相互作用，做出系統分析，並配合動物模式驗證，藉此建立評估中藥對於細胞生理與功能 | | |

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| | 影響之資訊。 由目前執行中之初步成果得知補益類中藥對幹細胞生長及血球種類調節有明顯效果爲進一步應證人體微環境下補益類中藥方劑之基礎幹細胞調節與損傷修復之藥理將分二年時間對於補益類中藥作深入探討 本計畫如能順利執行，將對中藥在個體幹細胞生理調節上有更完整了解，提供中藥醫療作用於人體組織幹細胞之分子生理系統效用評估範例，建立一現代化中藥藥理鑑定的新方向，以助中藥之國際化發展。 |
| • 英文摘要 | Traditional Chinese herbs have been widely prescribed for human diseases in clinic. They also exhibit great potential in treatment of many major illnesses. For an example, Chinese drugs have been found significant effect on the recovery rate of chemotherapeutically treated cancer patients health. To date, however, the physical-pharmacological understanding of their effects is very limited. Recent studies on stem cells have shown that many adult tissue stem cells are not only capable of maintaining and renewing the catabolized tissue cells in organs but also responsible for our body tissue injury repairs. Most stem cells are normally situated in quiescent state and activated only when stressed by their normal environmental changes. Our body tissue stem cells are therefore very important in protection and maintenance of tissue health, particularly when they were stressed and damaged by physical and chemical environmental pressures. The objective of this proposal study is to investigate the molecular pharmacologic effect of the traditional chinese Bu-Yi medicine on protecting and repairing of cancer therapeutically damaged normal tissue stem/progenitor cells by means of pharmacogenomic analytical approaches, and at mean time, to initiate the molecular data collection for establishing a human tissue stem cell pharmacologic informatics of Chinese drugs. We have previously established several human tissue stem/progenitor cell primary cultures for molecular studies on their lineage specific differentiation potentials. In vitro cell lineage specific differentiation culture studies on hematopoietic stem/ progenitor cells (peripheral blood, umbilical cord blood, and fetal liver) and on mesenchymal stem/progenitor cells derived from various tissues (bone marrow, peripheral blood, fat, scalp, foreskin, and amniotic membrane tissue) have been examining. We have also initiated a series of test on some selected chinese drugs such as Astragalus membranaceus Bge., Panax quinqueflium L., Panax notoginseng F.H.Chen, Bupleurum chinense DC., Coix lachryma-jobi L. and Rhodiola kirilowii., and analyzing their influences on hematopoietic erythroid maturation, mesenchymal tissue cell differentiations and proliferation for determining their tissue protection and repairing functions. In this proposal study we plan to pursue a completly study focusing on investigating the molecular pharmacology of other Bu-Yi prescriptions which are well known their components in promoting human body physiological performance by the neutralizing and tonifying tissue organ cells. We will further focusing on study the pharmagenomic mechanism of effective Bu-Yi prescriptions by comparison and substractional analyses of gene expression and protein profile changes under influences of Bu-Yi drugs. The drug effect on the molecular basis of proliferation and differential patterns in the primary culture of hematopoietic and mesenchymal stem/progenitor cells will be qualitatively and quantitatively evaluated by cytokine protein array, immunofluence stain, and cDNA expression microarray. The molecular influences of the drug effect on tissue specific stem/progenitor cell function will be further evaluated by animal model. In vitro and in vivo data will be collected and precisely interpreted. These informations will be organized and served as a pharmacogenomic evaluation reference. Upon completions of the proposal study will enhance our better insights into the Chinese drug prescription function by means of the molecular pharmacological understanding on their influences to the targeting tissue stem/progenitor cells. The successful of this study may show the feasibility of using tissue progenitor based primary cell culture drug testing system as an additional usef |