朝陽科技大學 098學年度第2學期教學大綱
Stem Cell and Tissue Engineering 幹細胞與組織工程

當期課號	7256	Course Number	7256
授課教師	李孟真	Instructor	LEE,MENG JEN
中文課名	幹細胞與組織工程	Course Name	Stem Cell and Tissue Engineering
開課單位	生化科技研究所碩士班二A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	幹細胞(stem cells)是一群尚未完全分化的細胞，同時具有分裂增殖成另一個與本身完全相同的細胞，以及分化成爲多種特定功能的體細胞兩種特性。人類多功能性的胚胎幹細胞已可在體外培養與繁殖，且在體外能夠分化成爲二百多種器官與組織的細胞，其在器官與組織的移植、新藥開發、基因療法、治療癌症等方面具有無限的發展潛力。組織工程是整合細胞學、生醫材料、生化學、基因體學等多項科學應用，由細胞層次進行醫療，製備具有功能之組織或器官，以修復、替換、再生因疾病、創傷或老化而損壞的組織或器官。組織工程的應用範圍除了涵蓋組織及器官替換，還延伸到細胞治療與藥物傳輸等領域。本課程目的在於教授了解此兩個領域的基礎科學並介紹幹細胞及組織工程在各種組織器官之再生及多種疾病的應用。	Objectives	Stem cells are a group of undifferentiated cells that has ability to proliferate indefinitely and, when specifically stimulated, differentiated to various types of somatic cells. Multipotent embryonic stem cells are now being cultured in vitro successfully, and could be differentiate to more than 200 different types of cells in various organs and tissues. These types of cells can be used in organ transplantation, drug development, gene therapy, and cancer therapy. Tissue engineering is an interdisciplinary subject that integrating the fields of cell biology, biomedical material, biochemistry, genomic. The research aims at preparation of functional organ or tissue that would replace or repair diseased ones. The purpose of this course is to teach basic science for the understanding of these two principles, and to introduce their application in the repair and regeneration of various tissue and organs.
教材	自編教材	Teaching Materials	teacher's own material
成績評量方式	出席 文獻報告	Grading	class attending paper report
教師網頁			
教學內容	簡介 細胞分化之決定 生長因子 血液幹細胞 嚴正幹細胞 細胞間質及支架 組織工程 中樞神經修復 胰臟細胞修復 其他器官修復 文獻報告	Syllabus	stem cell introduction fate determination growth factors blood stem cells cancer stem cells ECM and scafold tisseu engineering stem cell therapy for nervous system stem cell therapy for beta cells stem cell therapy for other organs paper report