

科目課程簡介

課目名稱：(中文) 幹細胞在再生醫學及癌症治療上的運用

(英文) Implications of Stem Cell for Regenerative Medicine and Cancer
Therapy

授課老師：(課程負責人) 李佳霖

學分數： 2 學分

修課資格：大學部四年級以上

課程目標：

- (1) 上課主要將以深入淺出方式講解目前幹細胞在再生醫學上的運用及癌幹細胞在癌症治療上所扮演的角色，使學生不但能獲得更高階的幹細胞生物學知識及研究方法，並激發其思考發展未來研究的洞察能力。

授課方式：

- (1) 演講
- (2) 討論
- (3) 專題報告: 同學按本身之專長或研究興趣，挑選 SCI 相關領域前 10 % 之論文，提出口頭報告，師生和同學間藉此多向充分討論，以期達到學識分享、教學相長的目的。

授課進度表

週次	授課內容	
1	Section I: General Issues	1. Introduction 2. Characterization of Human Embryonic Stem Cells 3. Stem Cells and Their Developmental Potential
2		1. Cell Cycle Control, Checkpoints, and Stem Cell Biology 2. Senescence of Dividing Somatic Cells 3. Transcriptome Profiling of Embryonic Stem Cells
3	Section II: Early Development	1. The Biology of Human Mesenchymal Stem Cells 2. Hematopoietic Stem Cells: Molecular Diversification and Developmental Interrelationships
4		1. Isolation of Human Mesenchymal Stem Cells from Bone and Adipose Tissue 2. Pluripotent Stem Cells from Umbilical Cord Blood 3. Culture of Mesenchymal Stem/Progenitor Cells in Adhesion-

		Independent Conditions
5		<ol style="list-style-type: none"> 1. Mesenchymal Stem Cells of Human Adult Bone Marrow 2. Fate Mapping of Stem Cells 3. Isolation of Human Mesenchymal Stem Cells from Bone and Adipose Tissue
6		<ol style="list-style-type: none"> 1. Stem Cells and Neurogenesis 2. Epidermal Stem Cells
7		<ol style="list-style-type: none"> 1. Liver Stem Cells 2. Pancreatic Stem Cells 3. Stem Cells in the Epithelium of the Small Intestine and Colon
8	Section III: Stem Cell Repair and Regeneration	1. Regenerative Medicine for Macular Degeneration
9		<ol style="list-style-type: none"> 1. Progress Towards Full Nerve Regrowth 2. Prospects for Brain Regenerative Medicine 3. Reprogrammed Stem Cells to Repair the Retina
10		1. Evaluating Autologous Stem Cell Heart Therapies
11		1. Towards Liver Regeneration
12		<ol style="list-style-type: none"> 1. Towards a Regenerative Cure for Deafness 2. Cartilage Regeneration Versus Arthritis
13		<ol style="list-style-type: none"> 1. Engineering Bone Regrowth 2. Tissue Engineered Teeth
14		<ol style="list-style-type: none"> 1. Producing Replacement Skin to Order 2. Early Regenerative Medicine For Hair
15		Section IV: Cancer Stem Cell
16	2. Cancer stem cells as breakthrough targets of cancer gene therapy	

成績評量：

計分項目	評分次數	配分比%
Attendance	18	30%
Presentation	1	50%
Questions		20%
Total		100%