

中研院轉譯醫學學程／中研院癌症生物與藥物研發學程／國防醫學院  
／陽明大學／海洋大學／中興大學／成功大學

幹細胞生物學課程簡介

一、課目名稱：(中文) 幹細胞生物學

(英文) Stem Cell Biology Lecture Series

二、課程編號：

三、學分數：3 學分

四、開課系所：國防 生命科學研究所／陽明 醫學生物技術暨檢驗學系、微免研究所與生化研究所跨領域博士班／海大 生物科技研究所／中研院癌症生物與藥物研發博士學位學程／中研院&七校 轉譯醫學 博士學位學程

五、授課老師：沈家寧 老師等

六、開課學期：第一學期

104 年 9 月 17 日 - 105 年 1 月 14 日 週四 下午 3:00 - 6:00

中央研究院 TIGP 視訊教室

七、課程目標(綱要)

本課程著重胚胎和組織幹細胞的研究與應用，除了介紹胚胎萬能幹細胞外，本課程也討論造血、間葉、生殖、神經、心臟、角膜、肝臟及胰臟等組織幹細胞及腫瘤幹細胞。同時本課程將加強基礎觀念的建立與了解，在課程中也將介紹細胞生長調節、幹細胞研究方法、幹細胞分化以及組織發育機制，同時配合指定文獻的閱讀與報告中，以建立學生對幹細胞研究思考判斷的能力。

The Stem Cell Biology Course is primarily consisted of a series of lectures which covers from basics of the general biology of stem cells to a more in-depth discussion on various stem cell types: embryonic stem cells, adult somatic stem cells and cancer stem cells, and finally to some of their potential clinical application/implication. For evaluation, students are required to write a review essay on designated research topics so that they can hone their skills in the search, organization and critical assessment of literatures.

八、授課方式：講授，指定文獻閱讀

九、成績評量：

(i) A written essay on a selected topics	40 %
(ii) A short presentation on a selected topics (10 min)	40%
(ii) Attendance	20 %

十、課程內容：

09/17	<i>Introduction of stem cell biology</i>	Dr. Chia-Ning Shen (沈家寧)	GRC/AS
	<i>Ethical issues in stem cell research</i>	Dr. Thai-Yen Lin (林泰元)	NTU
09/24	<i>Key determinants of stem cell fate and stem cell niche</i>	Dr. Jean Lu (呂仁)	GRC/AS
10/01	<i>Epigenetic controls of cell fate</i>	Dr. Li-Jung Juan (阮麗蓉)	GRC /AS
10/08	<i>Molecular genetics and development of mouse</i>	Dr. Yu-Ting Yan (顏裕庭)	IBMS/AS
10/15	<i>Embryonic stem cells &amp; induced pluripotency</i>	Dr. Hung-Chih Kuo (郭紘志)	ICOB/AS
10/22	<i>Derivation of ES cells from somatic cell nuclear transfer</i>	Dr. Li-Ying Sung (宋麗英)	NTU
	<i>Germ line stem cells</i>	Dr. Yen-Hua Huang (黃彥華)	TMU
10/29	<i>Expansion &amp; differentiation of hematopoietic stem cells</i>	Dr. Chao-Ling Yao (姚少凌)	YZU
	<i>Hematopoietic stem cells and their fate determination</i>	Dr. Po-Min Chiang (江伯敏)	NCKU
11/05	<i>Mechanisms &amp; Application of Mesenchymal Stem Cell Immunomodulation</i>	Dr. Betty Yen (顏伶汝)	NHRI
	<i>Bioengineering for hair follicle regeneration</i>	Dr. Sung-Jan Lin (林頌然)	NTU
11/12	<i>Interrogating neural development by stem cells</i>	Dr. Jun-An Chen (陳俊安)	IMB/AS
	<i>Stem cell therapy for neurodegenerative diseases</i>	Dr. Hong-Lin Su (蘇鴻麟)	NCHU
11/19	<i>Stem cells in digestive system</i>	Dr. Chia-Ning Shen (沈家寧)	GRC/AS
11/26	<i>Limbal stem cell for ocular surface reconstruction</i>	Dr. Ray Tsai (蔡瑞芳)	TMU
	<i>Clinical use of mesenchymal stem cells</i>	Dr. Jennifer Ho (何慧君)	TMU
12/03	<i>Stem cell therapy for cardiac regeneration</i>	Dr. Patrick Hsieh (謝清河)	IBMS/AS
12/10	<i>Cancer stem cells and cancer metastasis</i>	Dr. Muh-Hwa Yang (楊慕華)	NYMU
12/17	<i>Hypoxia, mesenchymal stem cells &amp; cancer</i>	Dr. Shih-Chieh Hung (洪士杰)	NYMU
12/24	<i>Phage display technique to search for stem cell markers</i>	Dr. Han-Chung Wu (吳漢忠)	ICOB
	<i>Stem cell manipulation in GTP/GMP facilities</i>	Dr. Peter Pang (馮清榮)	TCU
12/31	<i>Lecture Discussion</i>	Drs Patrick Hsieh, Jean Lu, HC Kuo & CN Shen	
01/07	<i>Stem cell culture and preservation</i>	Dr. Shiaw-Min Hwang (黃效民)	FIRDI
	<i>Student Presentation</i>	Drs Patrick Hsieh, Jean Lu, HC Kuo & CN Shen	
01/14	<i>Student Presentation</i>	Drs Patrick Hsieh, Jean Lu, HC Kuo & CN Shen	