

## 國立清華大學 105 學年第 2 學期新開課程課程大綱

科號	LSMC	組別		學分	1	人數限制	20
修課年級	<input checked="" type="checkbox"/> 大學部 四 年級以上 <input type="checkbox"/> 碩士班一年級以上(含博士班) <input type="checkbox"/> 碩士班二年級以上(含博士班)						
上課時間	W6			教室	二館 107 教室		
科目中文名稱	進階細胞生物實驗技術						
科目英文名稱	Advanced Experimental Approaches in Cell Biology						
任課教師	王慧菁						
擋修科目				擋修分數			

### ※下列各欄由任課教師提供※

一、課程說明	This course aims to provide fundamental knowledge in experimental techniques in the field of cell biology. Each lecture will focus on one or two specific experimental approaches and provide with background information and implication.
二、指定用書	Online information <a href="http://cshprotocols.cshlp.org/site/Taxonomy/cell_biology_11.xhtml">http://cshprotocols.cshlp.org/site/Taxonomy/cell_biology_11.xhtml</a>
三、參考書籍	1. Cold Spring Harbor Protocols in Cell Biology <a href="http://cshprotocols.cshlp.org/site/Taxonomy/cell_biology_11.xhtml">http://cshprotocols.cshlp.org/site/Taxonomy/cell_biology_11.xhtml</a> 2. Current Protocols in Cell Biology (Wiley)
四、教學方式	Each lecture will have 40 minutes lecture time plus 10 minutes discussion.
五、教學進度	Provided in the following table.
六、成績考核	出席 20%, 口頭報告 40%, 紙本報告 40%
七、講義位址 <a href="http://">http://</a>	

教學進度(Syllabus)

Date	Lecture	Techniques	Student report
02/15	Paul Kubes	In vivo Imaging	
02/22	Cell culture	Knowledge about medium component, growth factors, extracellular matrix, environmental factors and culture accessories in 2D and 3D culture	
03/01	Nucleic acid delivery	Transfection, virus transduction, nanoparticles, and other methods for gene delivery	
03/08	Analysis of gene expression	RT-PCR, Northern blotting, cDNA microarray, and deep sequencing	
03/15	Analysis of protein expression	Western blotting, Affinity purification, Proteomics	
03/22	Metabolic labeling	Metabolic labeling and protein modification	李天能 吳苡瑄
03/29	Growth and differentiation	Control of growth speed, measure cell viability, stem cell culture and differentiation	陳粲然 曾琳蘆
04/05	Suspended (Lily abroad)		
04/12	Cell cycle	Flow cytometry, synchronization, sorting	高敏雄 廖宏鈞
04/19	Immunostaining	Immunohistochemical and immunofluorescence staining	洪敏倫 陳品媛
04/26	Cell behavior	Migration, invasion, attachment, particle tracking	辜昱嘉 王依婷
05/03	Microscopy	Microscope, objects, device setting, light path, and camera	謝季恩 翁琬婷
05/10	Live cell imaging I	Time-lapse setting, 3D and 4D imaging	楊奕 杜語軒
05/17	Live cell imaging II	FRET, FLIM, FRAP, Quantum dots	薛諱陽 陳宥倫
05/24	High speed and content	Spinning disk, light sheet, label-free technology	陳筱茜 林庭好
05/31	Super resolution	SIM, STED, STROM, PALM, and SOFI	蔡居霖 李紹郁
06/07	Final report	Final sum-up	