國立清華大學_109_學年第_1_學期新開課程課程大綱

科號		組別		學分	2	人數限制	8
修課年級	☑ 大學部　3　年級以上 ☑ 碩士班一年級以上(含博士班) ☑ 碩士班二年級以上(含博士班)						
上課時間	M5M6			教室			
科目中文名稱	染色體同源重組 _ 特論 _ (一)						
科目英文名稱	Special Topics (I) in Homologous Recombination of Chromosomes						
任課教師	李政昇						
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 class will introduce the major concepts and methods in homologous recombination of chromosomes. The students will learn how DNA double strand breaks are repaired by homologous recombination mainly in budding yeast. Both conceptual background in yeast genetics and detailed molecular approaches to analyze chromosomes will be covered.
二、指定用書	DNA Recombination Editor(s): Tsubouchi, Hideo ISBN: 978-1-61779-129-1 Humana Press
三、參考書籍	Selected papers from high profile journals
四、教學方式	All students are required to read all assigned chapters and papers and then participate in classroom discussion.

五、教學進度	1-2. Methods to Study Mitotic Homologous Recombination and Genome Stability 3-4. Characterizing Resection at Random and Unique Chromosome Double-Strand Breaks and Telomere Ends 5. Characterization of Meiotic Recombination Initiation Sites Using Pulsed-Field Gel Electrophoresis . 6. Genome-Wide Detection of Meiotic DNA Double-Strand Break Hotspots Using Single-Stranded DNA 7. Detection of Covalent DNA-Bound Spo11 and Topoisomerase Complexes 8-9. Molecular Assays to Investigate Chromatin Changes During DNA Double-Strand Break Repair in Yeast 10. Analysis of Meiotic Recombination Intermediates by Two-Dimensional Gel Electrophoresis 11. Mapping of Crossover Sites Using DNA Microarrays 12. Using the Semi-synthetic Epitope System to Identify Direct Substrates of the Meiosis-Specific Budding Yeast Kinase, Mek1 13. Genetic and Molecular Analysis of Mitotic Recombination in Saccharomyces cerevisiae 14. In Vivo Site-Specific Mutagenesis and Gene Collage Using the Delitto Perfetto System in Yeast Saccharomyces cerevisiae 15. Detection of RNA-Templated Double-Strand Break Repair in Yeast . 16. Tracking of Single and Multiple Genomic Loci in Living Yeast Cells 17. Cell Biology of Homologous Recombination in Yeast 18. Live Cell Imaging of Meiotic Chromosome Dynamics in Yeast
六、成績考核	Class discussion: 40%. Assigned presentation: 40%. Attendance: 20%.
七、講義位址 http://	