

系所組別：微生物及免疫學研究所甲、乙、丙、丁組

考試科目：分子生物學概論

考試日期：0307，節次：3

※ 考生請注意：本試題 可 不可 使用計算機

1. What are "Telomere" and "Telomerase"? Please describe their roles in biology and pathology. (15 points)
2. Epidermal Growth Factor Receptor (EGFR) is a receptor tyrosine kinase. Deregulation of its activity leads to the development of several types of cancers, such as breast cancer and lung cancer. If you are a cancer biologist, you aim to target the deregulated EGFR for cancer treatment. How can you develop the strategies for this goal? (15 points)
3. Please describe or define the following terms: (1) Small Interfering RNA (siRNA); (2) Apoptosis; (3) Post-Translational Modification; (4) Chromatin Remodeling. (Total 20 points, 5 points for each)
4. 請詳細敘述三種在可以分辨一般季節性感冒病毒和 H1N1 病毒的實驗方法。(15 points)
5. 請敘述 central dogma 的內容。(10 points)
6. 在某個實驗中將相同數目的 A 細胞 和 B 細胞各別培養在 PRMI 培養基中 (不同試管) 48 個小時，結果發現 A 細胞 的數目比 B 細胞多。請說明，A 細胞 的數目為什麼比 B 細胞多？請設計兩個不同的實驗來驗證你的理由。(15 points)
7. 請簡述五種分子生物學有用的技術。(Total 10 points, 2 points for each)