

系所組別：生物化學暨分子生物學研究所甲組

考試科目：生物技術概論

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. Please describe the definition and application of stem cells and inducible pluripotent stem cells. (10%)
2. Compare the advantage and application of protein drugs and DNA drugs. (10%)
3. Describe personalized medicine. (10%)
4. Please compare the advantages and disadvantages of purifying recombinant proteins from prokaryotic cell, yeast, and mammalian cells. (10%)
5. How is epigenetics associated with the pathogenesis of cancer? (10%)
6. What is telomerase? How can it be used as a target for cancer drug development? (10%)
7. What is micro RNA ? How can it be used in therapeutics? (10%)
8. Overexpression of the Interleukin-A is involved in the pathogenesis of autoimmune disease. Please describe the strategies to develop new drug targeting the Interleukin-A? (10%)
9. You analyze the nucleotide sequence of a novel gene and find it encodes a protein with a signal peptide without a transmembrane domain. Where is the location of the protein after it is synthesized (i.e. cytosol, membrane, secreted)? (5%)
10. Please describe the methods you can use to study tissue distribution ( gene expression) of a novel gene (5%).
11. What is DNA microarray? What can this technique be used for? (5%)
12. You knock out a novel gene and discover that the knock-out mice are born with low bone density. Please hypothesize the potential biological functions of the novel gene. (5%)