編號： 274

國立成功大學 109 學年度碩士班招生考試試題

系　　所：生理學研究所

考試科目：分子生物學

考試日期：0211，節次：2

※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. What is “alternative splicing”? How to determine “alternative splicing”? (15%)
2. What is “post-translational modification”? How to detect ”post-translational modification”? (15%)
3. Please list three examples of gene mutations. How to detect these mutations? (20%)
4. Please name the two proteins which are most directly involved in iron homeostasis in mammalian cells and explain how do their levels respond to changes in iron concentration? (10%)
5. Draw gene structure with 5’UTR, 3’UTR, exon, intron, promoter region, translation start codon, translation stop codon, and explain the functions of each part. (10%)
6. Descript the steps of DNA replication in the eukaryotes. (10%)
7. Descript the mechanisms of DNA repair pathways: base excision repair (BER), nucleotide excision repair (NER) and non-homologous end joining (NHEJ). (10%)
8. What are the similarities and differences between siRNA and miRNA? (10%)