

江苏大学 2008 年硕士研究生入学考试试题

科目代码: 862

科目名称: 细胞生物学

考生注意: 答案必须写在答题纸上, 写在试卷、草稿纸上无效!

一、名词解释 (每题5分, 共50分):

1. 内含子 (intron) 和外显子 (exon)
2. 持家基因 (house-keeping gene)
3. 增强子 (enhancer)
4. 克隆 (clone)
5. 限制性内切酶 (restriction endonuclease)
6. 端粒酶 (telomere)
7. 错义突变 (missense mutation)
8. 蛋白质感染因子 (prion)
9. 细胞程序性死亡 (programmed death)
10. 信号序列 (signal sequence)

二、问答题 (共80分):

1. 简述细胞生物学发展的3个主要阶段及细胞学说的主要内容。(15分)
2. 简述细胞生物学研究常用的方法 (回答3种方法即可)。(15分)
3. 简述细胞有哪些主要的细胞器组成? 各有何主要功能? (回答5种细胞器即可) (15分)
4. 原癌基因在肿瘤的发生中起主要作用, 该类基因有哪些被激活的机制? (15分)
5. 什么是细胞通讯? 主要采用什么方式? 与细胞通讯相关的化学信号分子有哪些? (20分)

三、翻译 (20 分)

The ability to study cells depends largely on how readily they can be grown and manipulated in the laboratory. Although the process is technically far more difficult than culture of bacteria or yeasts, a wide variety of animal and plant cells can be grown and manipulated in culture. Such *in vitro* cell culture systems have enabled scientists to study cell growth and differentiation, as well as to perform genetic manipulations required to understand gene structure and function.

Animal cell cultures are initiated by the dispersion of a piece of tissue into a suspension of its component cells, which is then added to a culture dish containing nutrient media. Most animal cell types, such as fibroblasts and epithelial cells, attach and grow on the plastic surface of dishes used for cell culture. Because they contain rapidly growing cells, embryos or tumors are frequently used as starting material. Embryo fibroblasts grow particularly well in culture and consequently are one of the most widely studied types of animal cells. Under appropriate conditions, however, some specialized cell types can also be grown in culture, allowing their differentiated properties to be studied in a controlled experimental environment.