

南方科技大学

2024 年硕士生入学考试大纲

考试科目代码：811

考试科目名称：细胞生物学

一. 考试要求

1. 掌握细胞生物学的基础概念和理论 (To understand the essential concepts and theories of cell biology)
2. 懂得如何运用细胞生物学基础概念、理论分析、及一定的细胞生物学技术解决细胞相关生物学问题 (To be capable of resolving cell-related biological questions by applying essential cell biology concepts and theories, and some basic experimental skills)

二. 考试内容

1. 细胞生物学发展历史 (History of cell biology)
2. 细胞的基本结构 (Basic structures of a cell)
3. 细胞生物学研究基本技术 (Essential cell biology techniques)
4. 细胞器的结构与功能 (Organelles and their functions)
 - 4.1. 内膜系统 (Endomembrane system)
 - 4.2. 内质网 (Endoplasmic reticulum)
 - 4.3. 高尔基体 (Golgi apparatus)
 - 4.4. 溶酶体 (Lysosome)
 - 4.5. 微体 (Microsome)
 - 4.6. 线粒体 (Mitochondrion)
 - 4.7. 叶绿体 (Chloroplast)
 - 4.8. 细胞骨架 (Cytoskeleton)
 - 4.9. 微丝 (Microfilament)
 - 4.10. 微管 (Microtubule)
 - 4.11. 中间纤维 (Intermediate filament)

- 4.12. 核糖体 (Ribosome)
5. 细胞基质及其功能 (Cell matrix and its functions)
 6. 细胞核与染色体 (Nucleus and chromosome)
 7. 细胞膜和跨膜运输 (Cell membrane and trans-membrane transportation)
 8. 蛋白质分选与膜泡运输 (Protein sorting and vesicle trafficking)
 9. 细胞通讯和信号转导 (Cell communication/signaling)
 10. 细胞的连接 (Cell junction and adhesion)
 11. 细胞增殖、分化及多细胞生物胚胎发育 (Cell proliferation, differentiation, and development of multicellular organisms)
 12. 各类主要细胞类型简介: 干细胞, 生殖细胞, 肿瘤细胞, 免疫细胞, 神经细胞等(Introduction of main cell types: stem cells, germ cells, cancer cells, immune cells, neural cells, and so on)
 13. 细胞死亡与细胞衰老 (Cell senescence and death)

三. 试卷结构

1. 选择题, 简答题, 综合论述题 (Type of questions: choices, short answer and comprehensive questions/short essays)
2. 答卷方式: 闭卷, 笔试 (Way of answering questions: closed book/written examination)
3. 语言: 中文试题, 可中、英文答题 (Language: the test paper is in Chinese, yet answering questions in either Chinese or English is permitted)
4. 答题时间: 180 分钟 (Exam duration:180 minutes)

四. 参考书目

1. 《细胞生物学》2020 年 5 月第五版, 丁明孝、王喜忠、张传茂、陈建国主编, 高等教育出版社出版
2. Molecular Biology of the Cell, 2014, 6th edition, Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts and Peter Walter. Garland Science