

# 國立嘉義大學九十四學年度

## 生物藥學研究所碩士班招生考試試題

### 科目：專業英文

1. Please read the following text and answer the questions (1a, 1b and 1c). You can answer in Chinese. (25 points)

[Stem cells have been isolated from peripheral blood when the donor is first injected with G-CSF and GM-CSF, which stimulate the marrow to release more stem cells. Another recent technology involves the storage, or “banking,” of hematopoietic stem cell obtained from the placenta or umbilical cord blood of a neonate. These cells may then be used later in life if the person needs them for transplantation.]

- 1a. Please translate the last three rows (Another .....transplantations) of the text into Chinese. (10 points)
- 1b. What does the “banking” mean here? (5 points)
- 1c. According to the above text, where can we collect stem cells? (10 points)

2. Please read the following text and answer the questions (2a, 2b and 2c). You can answer in Chinese. (25 points)

[The influence of higher brain centers on the pituitary-gonad axis helps to explain the “dormitory effect”—that is, the tendency for the menstrual cycles of female roommates to synchronize. The synchronization will not occur in a new roommate if her nasal cavity is plugged with cotton, suggesting that the dormitory effect is due to the action of chemicals called **pheromones**. These chemical are excreted to the outside of the body and act through the olfactory sense to modify the physiology or behavior of another member of the same species. Pheromones are important regulatory molecules in the urine, vaginal fluid, and other secretions of most mammals, and help to regulate their reproductive cycles and behavior. The role pheromones in humans is difficult to assess.]

- 2a. Please translate the last four rows (Pheromones are important... difficult to assess.) of the text into Chinese. (13 points)
- 2b. According to the top five rows of the text, what is the function of **pheromones**? (6 points)
- 2c. What is the pathway that pheromones act between the same species? (6 points)

3. The following paragraph was printed in the Nature. Please translate and criticize the following paragraph : (50%)

#### ESSAY A (10%)

B cells, also known as B lymphocytes, are a crucial weapon in our immune armoury. When these cells meet a particular foreign molecule (antigen), they enter a microenvironment known as the germinal centre in lymphoid organs. There, they divide prolifically and diversify their antigen receptors by a specialized 'hypermutation' mechanism. The process produces some B cells whose receptors have a particularly high affinity for their cognate antigen; these cells are selected for differentiation into plasma cells — the cellular factories that secrete antigen-specific protective antibodies.

#### ESSAY B (20%)

The idea that changes in the epigenetic regulation of gene expression may contribute to the initiation or progression of tumour development was initially viewed with scepticism. But this view has changed radically, particularly in the past decade. Three kinds of frequent epigenetic changes have been identified in tumours. The first is genome-wide hypomethylation, which leads to the activation of many genes that are normally silenced in adult tissues. Second, tumour-suppressor genes can be inactivated by dense hypermethylation of their upstream regulatory sequences, with consequences that are similar to those resulting from inactivation of the same genes through mutation or deletion. Finally, loss of parental imprinting can occur. This is a specific form of epigenetic modification that involves inactivating either the maternally derived or the paternally derived copy of a particular gene in the offspring.

#### ESSAY C (20%)

In the late 1960s the battle against bacterial infections was considered won, in the developed world at least. By the time of Woodstock, antibiotics were curing previously lethal infections in a matter of days. Infected cuts and food poisoning were no longer life-threatening, diseases such as syphilis and gonorrhoea seemed to be on the way to eradication, and ancient scourges such as plague and cholera could now be controlled.

Now antimicrobial resistance threatens to turn back the clock. Resistance is spreading rapidly, particularly in hospitals, where many different bacterial strains can come into contact with each other and where antibiotics are heavily used. The catch is that the more an antibiotic is used, the more resistance to it spreads, forcing doctors to try other antibiotics. Even drugs that once served as a last resort are losing their potency.