

千葉大学大学院医学薬学府 修士課程

Chiba University Graduate School of Medical and Pharmaceutical Sciences Master's Program

医科学専攻

Division of Medical Sciences

令和7年10月入学

Entry in October 2025

令和8年4月入学第1回

Entry in April 2026. 1st

入学試験問題

The questions for the entrance examination

【英語】

English

注意事項 (Notes :)

1. この冊子は、監督者から解答を始めるよう合図があるまで、開いてはいけません。

You do not open this booklet until there are directions of the starting test by a test proctor.

2. すべての解答用紙に受験番号を忘れずに記入してください。

Please fill in all the answer sheets with your examinee's number.

3. この問題冊子は、試験終了後、持ち帰って結構です。

You may take this booklet with you after the examination.

令和7年10月入学・令和8年4月入学第1回
医学薬学府修士課程医科学専攻入学試験問題 Question Sheet

英 語 English

2025.8.6 (Wed) 実施

Read the text below and answer the questions in English.

著作権の都合上、公開できません。

出典：Schiller, M., Ben-Shaanan, T.L. & Rolls, A. Neuronal regulation of immunity: why, how and where?. *Nat Rev Immunol* 21, 20–36 (2021).

著作権の都合上、公開できません。

Figure 1. The main pathways that connect the brain with peripheral immunity. (Adapted from the reference)

Questions:

- A) Summarize the key differences between acute and chronic stress in their effects on immunity. Your answer should be within 80 words.
- B) Which of the following statements is **NOT** supported by the text?
1. Chronic stress is linked to increased pro-inflammatory leukocyte production.
 2. Relaxation techniques may reverse stress-induced gene expression patterns.
 3. The timing of stress exposure does not affect immune responses.
 4. The field of neuroscience is reframing the concept of stress.
- C) What kind of axis plays a central role in the hormonal stress response and leads to glucocorticoid secretion?
- D) Figure 1 shows three major stress-related pathways (a–c):
- D-1) Select the pathway in which noradrenaline is mainly involved. Answer using the corresponding letter (a–c).
- D-2) Then, briefly explain how this pathway acts from stress signals. Your answer should be within 40 words.
- E) Fill in the blanks in the following paragraph using words that appear in the text. Use each word only once. Do not use external sources.

"In the context of cancer research, chronic stress affects the tumor microenvironment. It induces structural changes in (1)_____ networks around tumors, which can promote the (2)_____ of cancer cells. This effect is partly mediated by stress-related (3)_____ signalling pathways. Pharmacological (4)_____ of these pathways, such as adrenergic blockers, are currently being tested in (5)_____ trials."

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「英 語」

< 解答例 >

- A) Acute stress enhances immune activity by mobilizing immune cells and increasing their infiltration. It can boost natural killer (NK) and CD8+ T cell activity. In contrast, chronic stress suppresses immunity, promotes pro-inflammatory gene expression, and impairs antiviral responses. It can also increase hematopoietic stem cell proliferation, leading to immune imbalance.
- B) 3
- C) Hypothalamic–pituitary–adrenal axis
- D) D-1 : b) または Sympathetic nervous system pathway
- D-2: The sympathetic nervous pathway secretes noradrenaline, which acts on adrenergic receptors of immune cells or endothelial/epithelial cells. This modulates inflammation and cell trafficking.
- E) (1) lymphatic (2) escape (3) adrenergic (4) manipulation(s) (5) clinical

< 出題意図 >

ストレスと免疫に関する英語論文から出題した。「病は気から」という言葉があり、メンタルヘルスにおいて、ストレスが内分泌系や自律神経系を通じて心身の恒常性に影響することが知られている。さらに本論文では、身体が多様な機能系を通じてストレスが免疫にまで影響することが記述されている。そのため、出題された英語論文を正確に理解して読み解くには、一般的な英語力および生物学の基礎知識に裏付けられた広い視野と柔軟な思考力を必要とする。また、論理的に思考・分析する力および英語で表現する力を測ることを意図している。