

系所組別： 微生物及免疫學研究所乙、丁組

考試科目： 免疫學

考試日期：0220，節次：2

※ 考生請注意：本試題 可 不可 使用計算機**Note: Answer the following questions in English or Chinese**

1. Read the following abstract of an article entitled "Innate immunity defines the capacity of antiviral T cells to limit persistent infection" by DM Andrews et. al. (J. Exp. Med. 207:1333-1343) and answer the questions. (40 points)

Effective immunity requires the coordinated activation of innate and adaptive immune responses. Natural killer (NK) cells are central innate immune effectors, but can also affect the generation of acquired immune responses to viruses and malignancies. How NK cells influence the efficacy of adaptive immunity, however, is poorly understood. Here, we show that NK cells negatively regulate the duration and effectiveness of virus-specific CD4<sup>+</sup> and CD8<sup>+</sup> T cell responses by limiting exposure of T cells to infected antigen-presenting cells. This impacts the quality of T cell responses and the ability to limit viral persistence. Our Studies provide unexpected insights into novel interplays between innate and adaptive immune effectors, and define the critical requirements for efficient control of viral persistence.

- (1) The authors came up with what conclusion from their study.
- (2) What experiments the authors had done to approach their question.
- (3) State another example how the innate immunity affects the generation of acquired immunity.

2. Describe the possible immunopathogenic mechanisms responsible for the development of autoimmune diseases (10 points)

3. Explain the following terms (5 points each)

- (1) MHC restriction
- (2) Antibody-dependent enhancement
- (3) Thymus education
- (4) Isotype switching
- (5) Original antigenic sin
- (6) Immunologically privileged sites
- (7) Atopy
- (8) Isotypes, allotypes, and idiotypes
- (9) Activation-induced cell death
- (10) Delayed-type hypersensitivity