

共五題，全部作答，每題 20 分。

1. 人體對抗病毒和細菌的免疫力(immunity)分別有那些？試說明。
2. 某人的 HLA 表現型是 A1、A2、B7、B13、DR1、DR4。在感染 A 型流行性感冒病毒後，由於身體產生 Cytotoxic T cells 最後痊癒。這些 Cytotoxic T cells 毒殺表現病毒抗原和 A1 的細胞，原因為何？
3. 一血型為 Rh⁻ 的孕婦，她的第二胎嬰兒在出生後發生肝脾腫大、皮下出血斑等病狀，此疾病是何種過敏反應所造成？
4. 試解釋下列名詞(10 選 5)
 - (1) C5a
 - (2) IL-2
 - (3) P-selectin
 - (4) CD3
 - (5) MHC class II molecules
 - (6) Clonal selection
 - (7) Post-thymic tolerance
 - (8) Antigen presentation
 - (9) Graft-versus-host reaction
 - (10) Immunopathology
5. Read the following Abstract section of a paper from Shoshan Y et al. (The Journal of Immunology, 2001, 167:5963) and answer the questions in English.

Impaired handling of apoptotic cells has been suggested as an important factor in the development of systemic lupus erythematosus (SLE, 紅斑性狼瘡), and a role for complement in the removal of apoptotic cells was shown recently. We studied the in vitro function of macrophages from 40 patients with SLE and their matched controls in the removal of heterologous apoptotic cells opsonized by iC3b. Interaction index of apoptotic cells opsonized by iC3b was significantly lower in patients with SLE than in healthy individuals. SLE patients had increased apoptosis of both freshly isolated monocytes and maturing macrophages that led to decreased density of monocyte-derived macrophages. Apoptosis was inhibited by adding soluble Fas receptor indicating Fas-mediated apoptosis. We concluded that impaired in vitro interaction of iC3b-opsonized apoptotic cells with macrophages from patients with SLE was mainly associated with Fas-dependent accelerated apoptosis of the monocytes/macrophages.

- (1) What did the authors suggest for the pathogenesis of SLE?
- (2) To your knowledge why soluble Fas receptor can inhibit Fas-mediated apoptosis?