

國立嘉義大學九十七學年度
微生物與免疫學系碩士班招生考試試題

科目：生物化學

一、申論題：（每題 25 分，共 100 分）

1. Autophagy can induce by endoplasmic reticulum (ER) stress. During autophagy, the ER membrane can produce vacuoles in cytosol. Salubrinal is an ER stress inhibitor. Peptide A reacts with primary amino groups such as those of phosphatidylethanolamine on ER membrane, but peptide B is impermeable to ER membrane. Both peptide A and peptide B are available in fluorescence substances labeled form. Describe a simple experiment by which you might determine reagent C can induce autophagy through ER stress. Be brief and use diagrams to support your answer.
2. What is calmodulin? Please describe five proteins which regulate by calmodulin.
3. Scientists suggest that early in the history of life may be a "RNA world" inhabited by life forms dependent on RNA molecules to play major roles. Please explain it.
4. What is the acetyl-CoA? Please describe the key enzyme for acetyl-CoA production and the roles of acetyl-CoA in the biomolecules metabolism as much as possible.