乾燥兔化豬瘟疫苗及豬瘟E2次單位疫苗誘發免疫反應之不同機制探討

製劑研究組

謝政橘 助理研究員

摘要

豬瘟病毒對免疫細胞具有特殊之親和性，造成白血球減少症及淋巴細胞之流失，因此免疫系統之傷害是該疾病最重要的致病機制。而免疫反應中特異性免疫反應對疾病的防禦極為重要。動物給予疫苗免疫後，能夠促使體內產生多種的細胞激素，進而提升免疫力，增強抗感染的能力。根據之前的文獻，多種細胞激素具有免疫協同效應，例如 IL-1、IL-4、IL-6、IL-12、IFN-γ、GM-CSF、TNF-α 等數十種。因此，細胞激素於疫苗免疫過程中可能扮演著極為重要的角色，欲進一步探討乾燥兔化豬瘟疫苗及豬瘟 E2 次單位疫苗誘發免疫反應之機制差異。我們的結果顯示，檢測血液中 IL-1、IL-4、GM-CSF 及 TNF-α 各組濃度，沒有顯著的差異；檢測血液中 IL-6 濃度，於施打乾燥兔化豬瘟疫苗組第 4 天及第 7 天有顯著的增加。檢測血液中 IL-12 濃度，於施打乾燥兔化豬瘟疫苗組、次單位 E2 蛋白疫苗組及組織培養豬瘟疫苗組第 1 天均有顯著的增加；檢測血液中 IFN-γ 濃度，於施打次單位 E2 蛋白疫苗組第 2 天有顯著的增加，另於施打乾燥兔化豬瘟疫苗組第 3 天亦有顯著的增加。施打不同的豬瘟疫苗會有不同細胞激素的產生，而其是否具有活化其他免疫細胞的能力，或其他調控路徑以調理抗體之產生？則有待進一步的驗證。

Comparison of the Immune Response of Pigs Vaccinated with Frozen Dried Lapinized Hog Chloera Vaccine and E2 Subunit Vaccine

Cheng-chu Hsieh

Abstract

Classical swine fever virus has a special affinity with immune cells, resulting in leukopenia, and lymphocytopenia. Thus immune system damage leads to becomes the most important pathogenic mechanism of classical swine fever. The specific immune response is of fundamental importance for disease prevention. After vaccination, different kinds of cytokines will be produced to enhance immune response and the ability to resist infection. Previous researches showed that the synergistic effect among the cytokines, such as IL-1, IL-4, IL-6, IFN-γ, IL-12, GM-CSF, TNF-α, etc. Therefore, cytokines may play pivotal roles in vaccination. In this project, we plan to compare the immune enhancing mechanisms conducted by frozen dried lapinized hog cholera vaccine and the E2 subunit vaccine. Our results show that no significant difference was observed among the serum concentration of IL-1, IL-4, GM-CSF and TNF-α in all groups, while serum IL-6 concentrations increased significantly on day 4 and day 7 in frozen dried lapinized hog cholera vaccinnation group. Serum concentration of IL-2 increased with significance on the first day of vaccination in all the groups estimated; IFN-γ concentration increased on day 2 of E2 subunit vaccination and on day 3 of frozen dried lapinized hog cholera vaccination. However, the immune activation mechanism mediated by of the cytokines triggered by the vaccination and the antibody optimization related pathways remain to be explored in the future.