

牛流行熱之監測

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摘要

分析 21 株臺灣牛流行熱病毒株 G 糖蛋白基因親緣性顯示，2019 年 HL 病毒株與 2014 年 HL 外來病毒株親緣性較遠與 2012 年 HL 株較接近，核苷酸序列相似度分別為 96.2%和 99.5%。2019 年病毒株應演化自臺灣 1996 年至 2012 年內源基因群。2019 年病毒株與疫苗毒株之疫苗高免血清交叉中和試驗的 R 值為 0.88，證實現行疫苗毒株，仍能提供良好中和性。為評估畜衛所牛流行熱磷酸铝膠與新上市油質佐劑疫苗效力差異，自抗體監測資料庫中擷取 4 個牧場 120 個血清樣本，其 2019 年和 2020 年先後施打舊、新劑型疫苗且皆為免疫後 2 週，其抗體力價平均值分別為 142.03 ± 35.39 倍； 430.54 ± 257.25 倍，油質疫苗激活抗體的能力較佳，為磷酸铝膠疫苗的 3.36 倍，且 33.9%牛隻其力價大於等於 4096 倍。然而，調查發現，免疫油質疫苗較易出現發熱、食慾減退 2-3 天、泌乳量減少 5 至 9%等不良反應。某牧場為減少基礎免疫第 1 劑牛隻不良反應，補強時改降為 1/2 劑量，其免疫後牛隻正常且 81 天後抗體力價為 304.44 ± 152.03 倍與製劑研究組田間試驗 1 劑量牛隻之抗體表現相近。故建議新油質疫苗減量施打或減少佐劑含量，可減少不良反應，同時仍保有優異免疫效力。

Surveillance on Ephemeral Fever Virus Disease

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Abstract

Phylogenetic analysis of the surface glycoprotein (G) gene of 21 Taiwanese bovine ephemeral fever (BEF) virus isolates revealed that the identities of the nucleotide sequences ranged from 96.2% to 99.5%. Moreover, among the isolates identified in Hualien County, the isolates identified in 2019 were genetically more similar to the isolates from 2012 than those from 2014. Furthermore, the results suggest that the 2019 isolate strain came from the 1996-2012 endogenous groups. A cross neutralization test between the 2019 strain and the vaccine strain resulted in an R value of 0.88 b, indicating that the commercially available BEF vaccine still confers good protection against the 2019 strain. To evaluate the effectiveness of different adjuvants, available data from the BEF serological surveillance database were compared for four farms. Two weeks after administering vaccines adjuvanted with either phosphate aluminum gel or long-term W/O/W, the mean antibody titers were 142.03 ± 35.39 and 430.54 ± 257.25 , respectively. The W/O/W-adjuvanted vaccine was more effective, not only eliciting 3.36X more antibody titers than the aluminum-gel, but also providing titers ≥ 4096 in 33.9% of vaccinated cattle. On the other hand, common side effects of this W/O/W adjuvanted vaccine included fever, anorexia for 2-3 days, and a drop in milk production in 5-9% of vaccinated cattle, with these side effects usually disappearing after 10 days. To try to minimize these side effects, one farm only administered a half dose booster shot to heifers. The heifers were found to be healthy and their mean antibody titer was 304.44 ± 152.03 at day 81, which was roughly the same as the previous field tests where full doses were administered. We thus suggest that a reduction in either the volume of vaccine adjuvant, or the vaccine concentration administered in a single dose should make the new BEV vaccine safer as well as allow it to provide better lasting long-term immunity.