

# 羊隻口蹄疫病毒排毒試驗

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## 摘要

口蹄疫(Foot and mouth disease ; FMD)是一種急性偶蹄類動物傳染病，會造成嚴重之經濟損失。引起該病的病原是屬於正股單鏈 RNA 的口蹄疫病毒(FMDV)，歸類於小核糖核酸病毒科(*Picornaviridae*)、口瘡病毒屬(*Aphthovirus*)。FMDV 共有 O、A、C、Asia 1、SAT 1、SAT 2、SAT 3 等七種血清型，各血清型病毒間並沒有交叉保護作用。台灣從 1997 年以來有兩株 O 血清型口蹄疫病毒株入侵，第一次在 1997 年 3 月，由親豬型的口蹄疫病毒株(O/Taiwan/97)所引起，這株病毒不會感染豬以外的偶蹄類動物。第二次發生在 1999 年 6 月，是由泛亞洲 O 血清型口蹄疫病毒(O/Taiwan/99)所造成，該株病毒最早是從金門的黃牛所分離到，該株病毒除了感染牛隻之外，也會造成羊隻及豬隻的感染。根據文獻指出，口蹄疫病毒對於羊隻大多只是不顯性的感染，雖然可以檢測到口蹄疫非結構性蛋白抗體陽轉現象，但排毒的狀況或時間長短卻很少有研究，因此感染過口蹄疫的羊隻可能成為保毒動物，在羊群中形成散播源，實為防疫上的死角。

本次試驗的兩頭羊係飼養於某畜牧場，不僅具有高倍力價的口蹄疫血清中和抗體，且其口蹄疫非結構性蛋白抗體一直維持陽性狀態，因此，為確認羊隻體內是否確實帶有口蹄疫病毒，乃將羊隻自該畜牧場購回，藉由注射 dexamethasone 及 cyclophosphamide 以造成羊隻免疫抑制，來誘發羊隻體內可能潛伏感染之口蹄疫病毒的複製及排毒，期能藉此試驗對羊隻口蹄疫感染之情形有更多的了解。

# **The shedding test of foot and mouth disease virus in goat**

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## **Abstract**

Foot and mouth disease (FMD) is an acute and infectious disease of cloven-hoofed animals. It can cause severe economic loss. The cause agent of FMD is FMD virus (FMDV), is a positive sense and single stranded RNA virus, belongs to *Picornaviridae*, *Aphthovirus*. FMDV has seven distinct serotypes including type O, A, C, Asia 1, SAT 1, SAT 2, and SAT 3. There is no cross-protection between each serotype. Totally two strains of O serotype FMDV invasion occurred in Taiwan since 1997. The first invasion of FMDV occurred in March, 1997. It belongs to porciphilic FMDV (O/Taiwan/97), the virus won't infect cloven-hoofed animals except pigs. The second time occurred in June, 1999 which was caused by Pan-Asia topotype serotype O FMDV (O/Taiwan/99). The virus was firstly isolated from Chinese yellow cattle in Kinmen and could infect goats and pigs. Based on the information of paper, foot-and-mouth disease virus can cause subclinical infection in goats. The seroconversion of non-structural protein (NSP) of FMDV can be detected at such cases. However, it has few studies on the situation or duration of FMDV shedding in goats. Therefore, if the goats were infected by FMDV, they could be a reservoir and became a shedding source of FMDV in the farm. It will be a dead corner of prevention and control of FMD at farm.

Two goats not only contained high titers of FMD serum neutralization (SN) antibodies but also possessed NSP antibodies against FMDV continuously were purchased from the NSP-detected farm for further investigation. We injected dexamethasone and cyclophosphamide into the goats for causing their immunosuppression to induce the replication and shedding of the possible latent infected FMDV in the goats. We hope to get more information about the FMDV infection in goats by this study.