

利用反向遺傳學技術開發新城病活毒疫苗

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摘要

新城病 (ND) 是一禽類重要的疾病，因它會導致家禽產業上嚴重經濟損失，使得新城病疫苗的投予在世界上每個家禽場幾乎是必要的。透過連續的人工馴化減毒，本所 (AHRI, 家畜衛生研究所) 已成功研製一第七基因型新城病活毒疫苗，此疫苗株在一日齡雛雞腦內病原性試驗結果顯示 ICPI 指數低於 0.2。為開發新城病載體疫苗，反向遺傳操作平台已經成功於我們的實驗室中建立，此外，利用反向遺傳學技術，綠色螢光蛋白 (GFP) 業已成功建構到我們的新城病活疫苗載體骨幹中。在未來，GFP 將被 IBV (雞傳染性支氣管炎病毒) 的抗原性片段做更換，以進行多價疫苗的開發。

Use of reverse genetics techniques for the development of a live vaccine for Newcastle Disease

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Abstract

Newcastle Disease (ND) is a highly contagious avian disease and it causes serious economic losses in the poultry industry annually. Thus, the implementations of ND vaccines is necessary for every poultry farm worldwide. The Animal Health Research Institute (AHRI) has successfully developed a ND live vaccine of genotype VII based on serially artificial attenuation from a wild type virus. The intracerebral pathogenicity evaluation of this vaccine strain on one-day old chicks revealed that the value of the ICPI index (Intracerebral Pathogenicity Index) is below 0.2. In order to develop an effective vector vaccine, a reverse genetics platform was successfully established at AHRI. Green fluorescent protein (GFP) was also successfully constructed into this ND live vaccine vector using reverse genetics. For future study, GFP will be exchanged with antigenic fragments of IBV (Infectious Bronchitis Virus) for multivalent vaccine development.