

利用反向遺傳學平台開發新城病活毒疫苗

以及毒力因子分析工作

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摘要

新城病 (ND) 是一禽類重要疾病，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，並利用反向遺傳學技術置入雞傳染性支氣管炎病毒之抗原片段以開發雙價載體疫苗，此載體疫苗之新城病安全效力評估結果皆理想。為了未來替此新城病病毒 (及其載體疫苗平台) 申請專利，反向遺傳學技術也被應用來回收重組新城病病毒以釐清本所第七基因型新城病病毒毒力弱化關鍵點，目前已將關鍵點自 45 個點突變限縮到 7 個點突變。此外，本次學術研討會也將一併介紹赴日本岐阜大學訪問之交流過程。

Use of Reverse Genetics Techniques for Development of Newcastle Disease Live Vaccine and Analysis of Virulence Factor

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Abstract

Newcastle Disease (ND) is a highly contagious avian disease and causes serious economic losses in the poultry industry annually. Thus, the implementation of ND vaccines is necessary for every poultry farm worldwide. The Animal Health Research Institute (AHRI) has successfully developed an ND live vaccine of genotype VII based on serially artificial attenuation from a wild type virus. Moreover, with reverse genetics techniques, the antigenic fragment of IBV (Infectious Bronchitis Virus) has been inserted into the above Newcastle Disease Virus (NDV) backbone for development of a bivalent vector vaccine, and the satisfactory results of efficacy and safety evaluation for NDV have been proved. For future patent application of this NDV (and its vector platform), reverse genetics techniques was also applied to recover recombinant NDVs to clarify the critical mutations leading to attenuation. It was discovered that seven out of 45 points mutation have been verified and determined as the key mutations. In addition, the discussions and learnings of NDV vector platform during the visit in Laboratory of Zoonotic Diseases of Gifu University, Japan will be presented in this seminar as well.