

CHAPTER I

INTRODUCTION

Classical swine fever (CSF) or hog cholera is one of the most important infectious diseases of pigs that can cause non to severe illness in all ages. The morbidity, mortality and course of the disease mainly depend on virulence of the virus as well as age of pigs. Hog cholera was firstly noticed in Ohio, U.S.A. in 1833. At present, this disease has been found worldwide including Thailand (Paton and Greiser-Wilke, 2003) which was first reported in 1950 and it has been classified as a noticeable disease in the list of Department of Livestock Development, Ministry of Agriculture since 1956 with highly concerned as a cause of an economic loss in pig industry in Thailand.

CSF is caused by classical swine fever virus (CSFV) that belongs to the family Flaviviridae, genus pestivirus. CSFV is an enveloped virus with a size of 40-50 nm which has a single stranded RNA in nucleocapsid protein. The important role for pathogenesis of CSFV is immunosuppression in infected animals because the virus could destroy white blood cells (WBC) in many ways leading to severe leukopenia. All populations of white blood cells especially lymphocytes, a protector of body were destroyed by necrosis and, more effective mechanism, apoptosis that can destroyed both infected and non infected cells. The apoptosis of WBC has been rapidly induced in a few hours after infection, before the virus particles were detected in blood circulation. Furthermore, the trace of apoptosis and necrosis of lymphoid cells could be observed for a long period from various lymphoid tissues. Prevention of the disease is using live virus vaccine. In Thailand, lapinized live virus vaccine (Chinese strain) has been widely used for a long time but the disease still remain. One of the reasons is improper vaccination. There was evidenced that virulent CSFV could multiply and viremia was obscured in piglets that were vaccinated while the maternal antibody still high. In such case, the virus could overwhelm efficacy of vaccine and might affect lymphoid cells, both in circulation and lymphoid tissues

The hypothesis of this study was focused on efficacy of the live-virus vaccine could prevent apoptosis of lymphoid tissues of pigs after high virulent CSFV challenged.

The objectives of this study were focused on two specific areas. (i) To investigate the correlation between apoptosis and infection of lymphoid tissues induced by CSFV. (ii) To investigate the efficiency of CSFV-live virus vaccine for the protection of the lymphoid apoptosis in piglets challenged by CSFV virulent strain.

The results of this study could render the information of pathogenesis and protection of CSFV vaccine in piglets which will be a useful for control of the disease in pigs.



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