

水禽小病毒疫苗研發與量產

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摘要

水禽小病毒感染症 (waterfowl parvovirus infection) 係由鵞源水禽小病毒 (goose parvovirus; GPV) 或鴨源水禽小病毒 (muscovy duck parvovirus; MDPV) 感染雛鵞或雛鴨並造成大量死亡，於臨床上呈現纖維素性壞死性腸炎、癒後發育不良及短嘴等。本病毒可於鵞及正番鴨的纖維芽母細胞及胚胎蛋皆能增殖，但是鵞或正番鴨並非全年產蛋，加諸 SPF 胚胎蛋取得不易。因此本組陸續嘗試開發鵞源水禽小病毒胚胎增殖之活毒疫苗、鴨源水禽小病毒胚胎增殖之不活化疫苗、水禽小病毒組織培養雙價活毒疫苗、水禽多價活毒疫苗與水禽多價卵黃抗體，可供水禽產業之種禽與雛禽之主被動免疫使用，以供保護雛鴨、雛鵞抵抗鴨源及鵞源水禽小病毒。上述疫苗及卵黃抗體製劑對雛鴨、雛鵞、種鴨與種鵞均有良好之安全與效力。相較於胚胎增殖之水禽小病毒疫苗，受限季節及 SPF 胚胎蛋取得不易，以組織培養製造疫苗可解決此問題，加諸配合卵黃抗體之使用，可以提供更好的保護。

Development and Production of Waterfowl Parvovirus

Vaccine

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Abstract

Waterfowl parvovirus infection is caused by goose parvovirus (GPV) or Muscovy duck parvovirus (MDPV) which infecting goslings or ducklings, and it results in high mortality. Clinically manifestations include fibrinonecrotic enteritis, stunted growth, and shortened beak deformities. The virus can propagate in fibroblast cells and embryonated eggs from geese and Muscovy ducks. However, these hosts do not lay eggs year-round, and SPF embryonated eggs are difficult to obtain. Thus, our division has gradually attempted to develop a goose-origin embryo-propagated live attenuated parvovirus vaccine, a duck-origin embryo-propagated inactivated vaccine, a bivalent tissue-culture-derived live attenuated waterfowl parvovirus vaccine, a multivalent live attenuated waterfowl vaccine, and a multivalent waterfowl egg yolk antibody preparation. These vaccines can be used to provide active and passive immunization for breeder and young waterfowl in the industry, protecting ducklings and goslings against both duck- and goose-origin waterfowl parvoviruses. The vaccines and egg yolk antibody preparations mentioned above have demonstrated good safety and efficacy in ducklings, goslings, breeder ducks, and breeder geese. In contrast to embryo-propagated waterfowl parvovirus vaccines, which are limited by seasonal egg production and the difficulty of obtaining SPF eggs, vaccine production via tissue culture can overcome these constraints. Furthermore in combination with egg yolk antibody administration, better protection can be achieved.