

**Developments in Biologicals, Vol. 114:
Vaccines for OIE List A and Emerging Animal Diseases**

Edited by F Brown and J A Roth

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This book contains papers submitted by various authors during an International Symposium on Vaccines for OIE List A and Emerging Animal Diseases held in Ames, Iowa, in September 2002. The symposium intended to review the availability, safety and efficacy of vaccines for various diseases such as foot-and-mouth disease (FMD), rinderpest, peste des petits ruminants (PPR), contagious bovine pleuropneumonia (CBPP), bluetongue, lumpy skin disease, sheep and goat pox, classical swine fever (CSF) and avian influenza. Heartwater and West Nile virus were also included.

After the recent outbreaks of FMD in the United Kingdom, the European Union (EU) has ruled that future control strategies might involve a policy of 'vaccination to live', rather than stamping out. This change in opinion implies that attention is now given to novel marker vaccines and the companion diagnostic tests that can be used for DIVA (differentiating infected from vaccinated animals). The South American experience in using tests that detect antibodies to the non-structural proteins (NSPs) of FMD is presented. These antibodies should only be present when the animals have been infected and not when vaccinated as the vaccine is inactivated. Therefore, countries have the opportunity to vaccinate in the case of outbreaks or to eradicate endemic disease, while still demonstrating whether there is active infection and be able to gain OIE disease-free status. This strategy has been used with success to control and eradicate FMD from parts of South America. Tests detecting antibodies to the NSPs are currently the most reliable and vaccine producers will be forced to produce vaccines free of NSPs. Novel vaccines, such as using adenoviruses to express empty capsids of FMD virus and immunostimulatory effects of adenoviruses expressing interferon α to induce rapid immune responses in animals are also presented.

Marker vaccines are also important in the eradication of rinderpest. As the disease now only persists in a few pockets worldwide, DIVA is becoming increasingly important to prove global freedom of rinderpest. The development of marker vaccines such as the use of vector viruses expressing rinderpest antigens, addition of marker genes to existing vaccine strains and chimeric viruses are described. The development of rapid diagnostic kits is also important as fast diagnosis, especially in areas where laboratory support is not

available, implies that disease control strategies can be employed much sooner. Previously PPR was prevented and controlled by the use of rinderpest vaccine. However, the use of this vaccine is now strongly discouraged and classical and new generation vaccines to PPR, such as a dual vaccine that protects against PPR and capripox, are covered.

The current status in the development of improved live, attenuated and nucleic acid vaccines (DNA vaccines) for heartwater was presented by the South African team from the Onderstepoort complex. The attenuated vaccine protected animals against a lethal homologous needle challenge, while the DNA vaccines provided protection under experimental challenge, but not in field challenge. More work is in progress, but the old technology of live blood vaccines may soon be something of the past, due to the groundbreaking research of this team.

The papers on avian influenza vaccines come at a time when South East Asia and China are facing a widespread outbreak of highly pathogenic avian influenza. The use of vaccines, the different choices of vaccines available and future developments are described. The use of vaccination to eradicate low pathogenic avian influenza from Italy using DIVA and the accompanying tests used to distinguish between vaccinated and infected birds are described in some detail.

Papers are presented on regulatory considerations for the emergency use of vaccines in the United States and the EU. A very useful survey of vaccines produced against List A diseases by OIE member countries provides an easy reference to what type of vaccines are available and where to find them. An African team reviewed the suitability of currently available vaccines for controlling the major transboundary diseases that afflict sub-Saharan Africa.

This book will be useful for animal health regulatory officials responsible for the control of List A diseases and will provide background on currently available vaccines as well as future trends. However, it should not be seen as a comprehensive textbook, but rather as a quick reference as all papers provide summarised information but with references that can be read for more detail.

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