

## WV 1

**Live vaccination with a hemagglutinin-expressing infectious laryngotracheitis virus recombinant protects chickens against different highly pathogenic avian influenza viruses of the H5 subtype**

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Live vaccination with infectious laryngotracheitis virus (ILTV, gallid herpesvirus 1) recombinants expressing hemagglutinin (HA) of highly pathogenic avian influenza viruses (HPAIV) was shown to protect chickens against challenge with homologous HPAIV (Lüschow et al., 2001, Vaccine 19:4249-59; Veits et al. 2003, J Gen Virol 84:3343-52). However, protection against Asian H5N1 HPAIV was insufficient. Therefore, a new mutant (ILTV- $\Delta$ UL50IH5V) has been generated, which was attenuated by deletion of the viral dUTPase gene, and abundantly expressed the HA of a recent H5N1 virus (Pavlova et al. 2009, Vaccine 27). To evaluate efficacy of ILTV- $\Delta$ UL50IH5V against different H5 HPAIV isolates 6-weeks-old chickens were immunized by eye drop administration. All animals developed HA specific antibodies, and were protected against lethal infection with homologous HPAIV A/duck/Vietnam/TG24-01/05 (H5N1, clade 1, amino acid sequence identity 100 %), and also with heterologous HPAIV A/cygnus cygnus/Ruegen-Germany/R65/2006 (H5N1, clade 2.2, identity 96.1 %) or A/chicken/Italy/8/98 (H5N2, identity 93.8 %). No symptoms of disease were observed after challenge with the H5N1 viruses, and only 20 % of the H5N2 infected animals developed minimal clinical signs. Real-time RT-PCR analyses of oropharyngeal swabs revealed limited challenge virus replication, but the absence of HPAIV RNA from cloacal swabs indicated that no generalized infections occurred. Vaccination with ILTV- $\Delta$ UL50IH5V allowed differentiation of immunized from AIV-infected animals by serological tests for antibodies against the AIV nucleoprotein. Furthermore, unlike other potential marker vaccines, attenuated ILTV is suitable for fast and inexpensive mass application.

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