# Efficacy comparison of live Aujeszky's disease vaccines in pigs

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## Introduction

Aujeszky's disease (AD) is major pig disease that is responsible for devastating economic losses to pig husbandry. AD is controlled by containment of infected herds and by the use of vaccines and/or removal of latently infected animals. Efficiency of vaccination against AD is evaluated by humoral immune response to AD virus (ADV) and by resistance to challenge infection based on the clinical protection and reduction of challenge virus shedding.

The aim of our study was to compare the efficacy of Auphyl® Plus (vaccine that contains the attenuated MNC+/10a ADV strain and an oil-in-water emulsion adjuvant; Lomniczi and Kelemen, 1998) with other live AD vaccines most frequently used in the field.

## Materials and methods

Six weeks old piglets were vaccinated and then boosted three weeks later with one dose of each of four commercial vaccine, according to the manufacturers' instruction (Vaccine "A" = Auphyl® Plus from Ceva-Phylaxia; vaccine "B", "C" and "D" were from different manufacturers).

Three weeks after booster vaccination the pigs were challenged with 4 ml of the NIA-3 virulent ADV strain at a dose of 7.7 $\log_{10}$ $TCID_{50}$/ml via the intranasal route in the left nostrils.

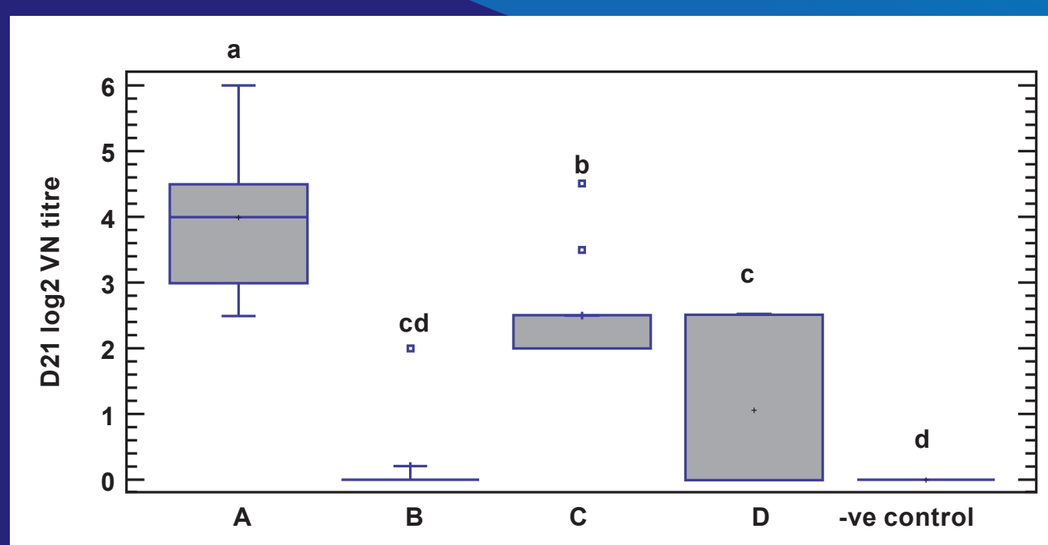
Humoral immune-responses were measured by virus neutralization assay using standard micro-neutralization method on MDBK cells (against 100-300 $TCID_{50}$ /ml ADV).

Animals were observed for 7 days after the challenge for clinical signs. Swabs were taken on D2, D5, and D7 from the left nostrils of the challenged animals for the measurement of challenge virus shedding. Serological results, body weight gain and virus shedding data were analysed by ANOVA. Differences were considered significant at $p<0.05$.

## Results

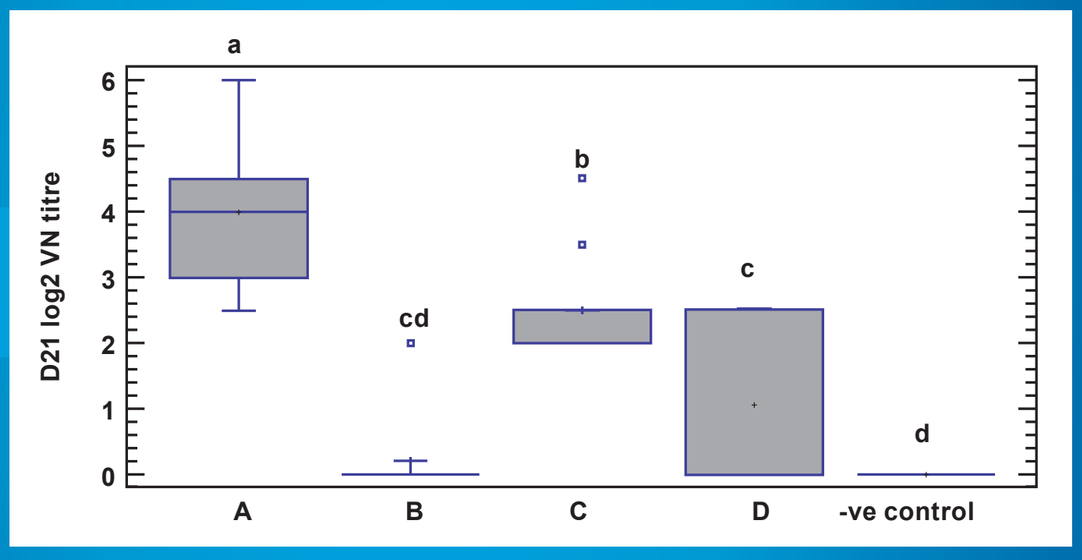
Following primary vaccination (D21) Auphyl® Plus induced significantly higher mean antibody tires than the other vaccines, which further differed significantly from each other (Figure 1).

***Fig 1.*** *Box-and-Whisker plot of antibody titres to ADV following primary vaccination (D21). Different letters indicate statistically significant differences of the means between groups at the 95% confidence level.*




After the booster vaccination (D42) the antibody titres induced by Auphyl® Plus were still significantly higher, compared to all the other tested vaccines (Figure 2).

***Fig 2.*** Box-and-Whisker plot of antibody titres to ADV following b*ooster vaccination (D42). Different letters indicate statistically significant differences of the means between groups at the 95% confidence level.*

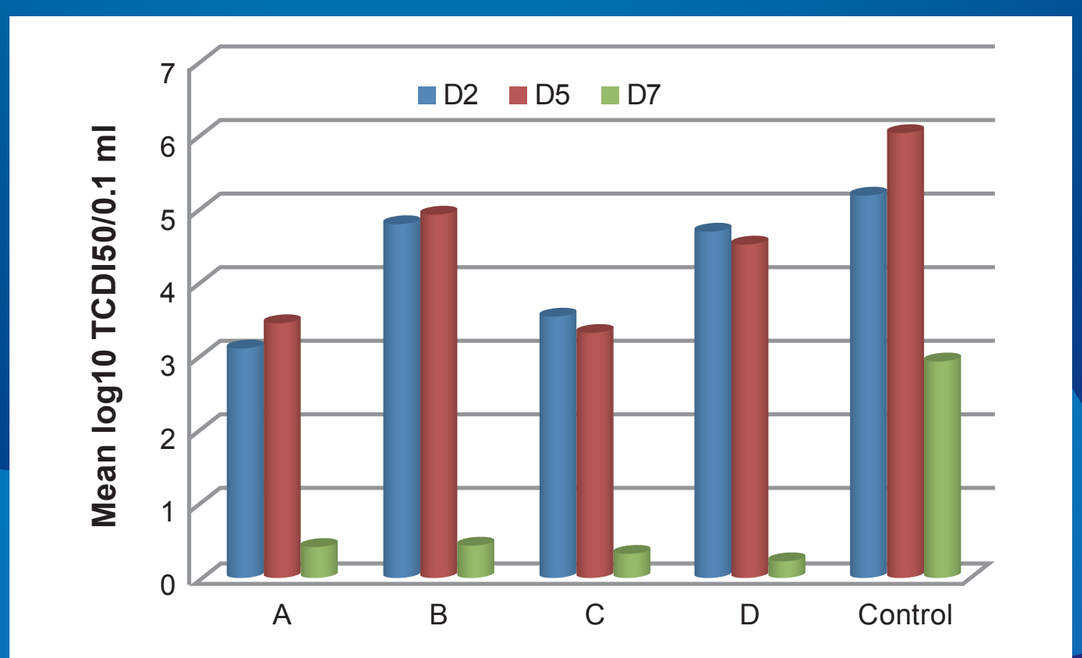



The lowest level of challenge virus shedding was measured in the Auphyl® Plus and vaccine "C" groups which differed significantly from the two other vaccines and from the non-vaccinated controls. There was no significant difference between vaccine "B" and "D" and the unvaccinated control.

Regarding body weight-gain, the control pigs had significantly lower gain than the vaccinated ones, but there was no statistically significant difference among the vaccinated groups regarding this parameter.

The shedding pattern was very similar on D2 and D5 post-challenge, while by D7 the shedding dropped to very low level, while the survived control animals still shed significant amount of ADV (Figure 3).

***Fig 3.*** *Virus shedding after ADV challenge as measured by virus isolation.*




## Discussion and conclusions

Auphyl® Plus induced significantly higher humoral immune-response than the other vaccines. All vaccines provided good clinical protection against ADV challenge, however the best control of challenge virus shedding was achieved by Auphyl® Plus (lowest shedding of all vaccines on D2) and vaccine "C".

## References

Lomniczi, B. and Kelemen, M.: Hungarian Veterinary Journal, 120: 515-522 (1998).

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