



The relation antibody and protection after Foot-and-Mouth Disease vaccination cannot be standardised

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Introduction

- Protection against FMD challenge is correlated with antibody concentration
- Different laboratories find different relations between antibody response and protection
- In the current study we try to standardise antibody level detection for FMD type O Manisa

Materials and Methods

- Sera from 10 potency tests performed by Belgium, 6 performed in the Netherlands and 1 performed in the UK, were tested by the laboratory responsible for the potency test
- Antibody titres in a standard type O test, PrioCHECK[®] FMDV Type O ELISA, were determined
- Standardised neutralising antibody titres were determined by subtracting the log titre of a standard control serum obtained from a cow vaccinated with monovalent O Manisa vaccine
- Results were analysed by logistic regression analysis

Results

- Significant differences for the titre of the control serum between laboratories in both ELISA and VNT
- Significant differences between laboratories even after standardisation by both ELISA (figure 1) and the VNT (figure 2)

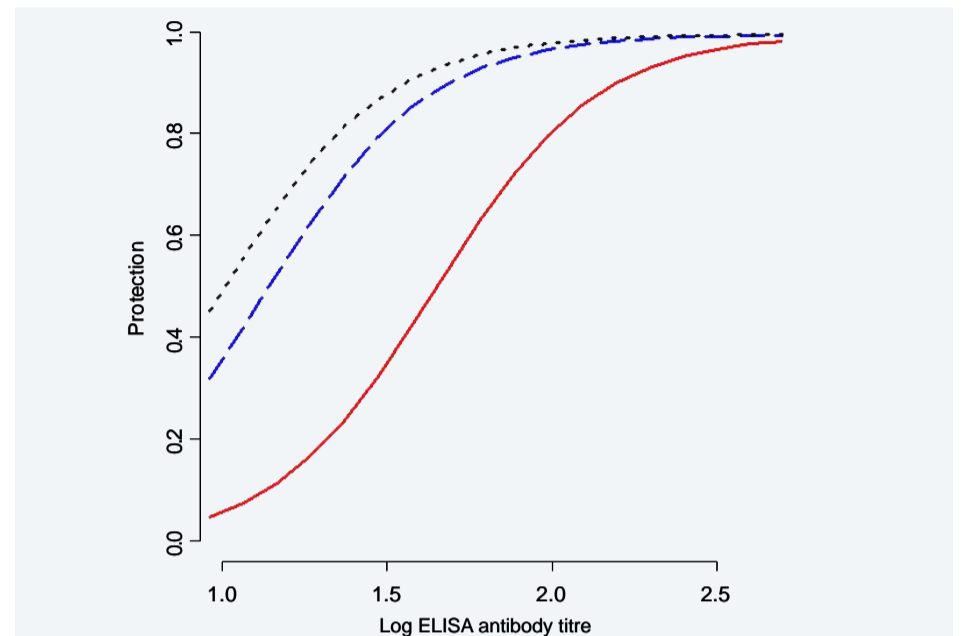


Figure 1: Comparison of protection and the ELISA titre of sera collected 3 weeks post vaccination. In dashed blue the results obtained in Brussels, solid red the results of the laboratory in the Netherlands and dotted black the results obtained in Pirbright.

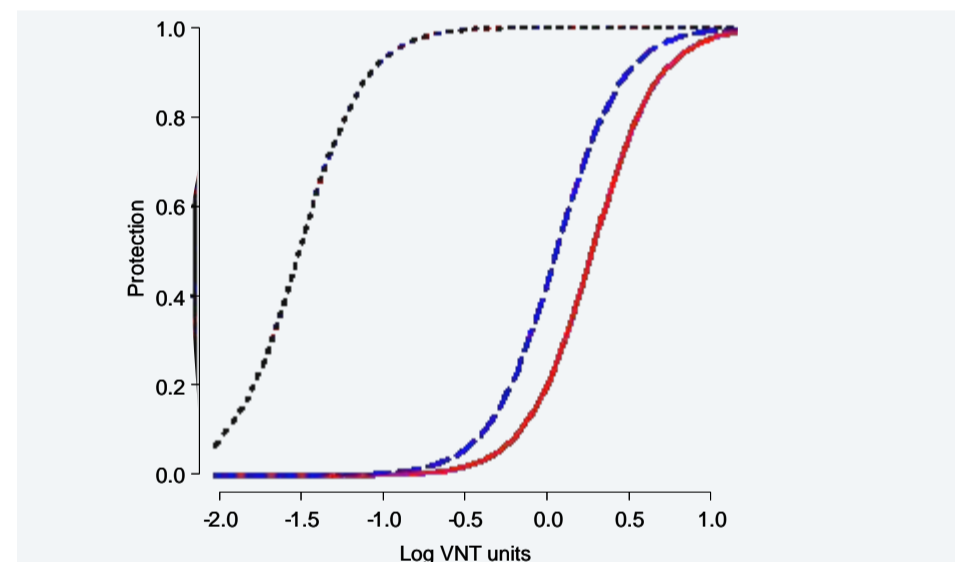


Figure 2: Comparison of protection and the VNT units of sera collected 3 weeks post vaccination. In dashed blue the results obtained in Brussels, solid red the results of the laboratory in the Netherlands and dotted black the results obtained in Pirbright.

Conclusions

- Standardisation of serological tests relating protection to antibody response is not yet possible
- Producers should set-up their own relation between antibody response and protection

Recommendations

- More data from more sources should be analysed to finalise the conclusion
- Mathematical optimisation studies should be performed to provide guidance on how producers most effectively can relate antibody response to protection

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