CORRELATING VACCINE INDUCED PROTECTION WITH HUMORAL AND CELLULAR IMMUNE RESPONSES TO FMDV: POTENTIAL IN VITRO ASSAYS FOR REPLACEMENT OF POTENCY TEST

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INTRODUCTION

It is well known that neutralising antibody titres are important in protecting against Foot-and-mouth Disease (FMD) infection. However, it has often been shown the humoral antibody titre is not always fully predictive of vaccine-induced protection against FMD. Therefore, this study has looked for a correlation between cell mediated immune responses, humoral immune responses and post-vaccination protection against FMDV infection.

MATERIALS AND METHODS

Samples were collected from 5 vaccine challenge experiments conducted at Pirbright, United Kingdom. Blood samples from FMDV vaccinated, non-vaccinated and vaccinated-and-challenged cattle were re-stimulated overnight with inactivated FMDV antigen and the level of induced IFN-γ was measured. Humoral antibody levels were measured by virus neutralisation test.

RESULTS

A positive correlation was found between humoral antibody response, IFN-γ response and protection against the clinical disease.

CONCLUSION

T cell stimulation assays such as the whole blood IFN-γ assay along with VNT are potential candidates for vaccine evaluation and could reduce the need for in vivo challenge in the future.