Preliminary assessment of the feasibility of using combined *E. coli, Clostridium perfringens* and Rotavirus A vaccines together

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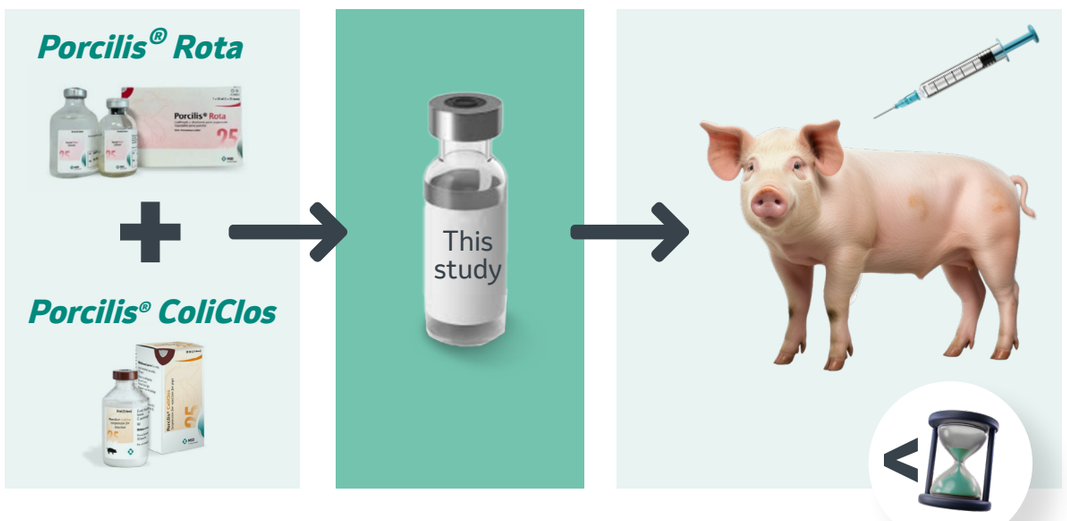
Background and Objectives

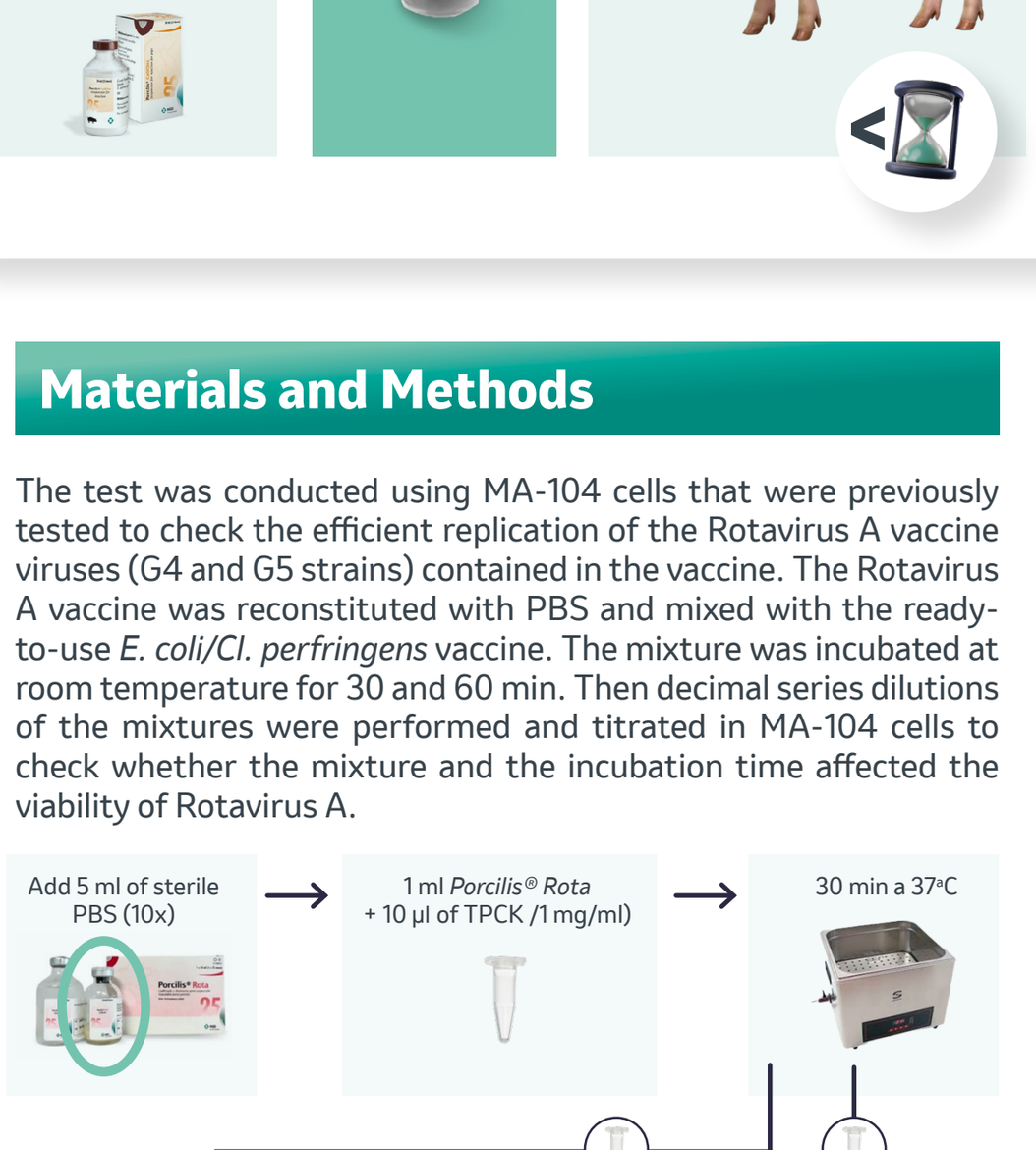
Neonatal diarrhoea is a common condition affecting many farms and frequently caused by *E. coli, Cl. perfringens* and Rotavirus A. Vaccination of gilts and sows is a key tool to control this condition. Having the possibility of administering a combined *E. coli, Cl. perfringens* and Rotavirus A vaccine in a single shot would be convenient.

The aim of the present study was to test whether mixing of a commercial vaccine containing Rotavirus A *(Porcilis® Rota)* with an *E. coli* plus *Cl. perfringens* vaccine *(Porcilis® ColiClos)* would affect vaccine virus viability.



Materials and Methods

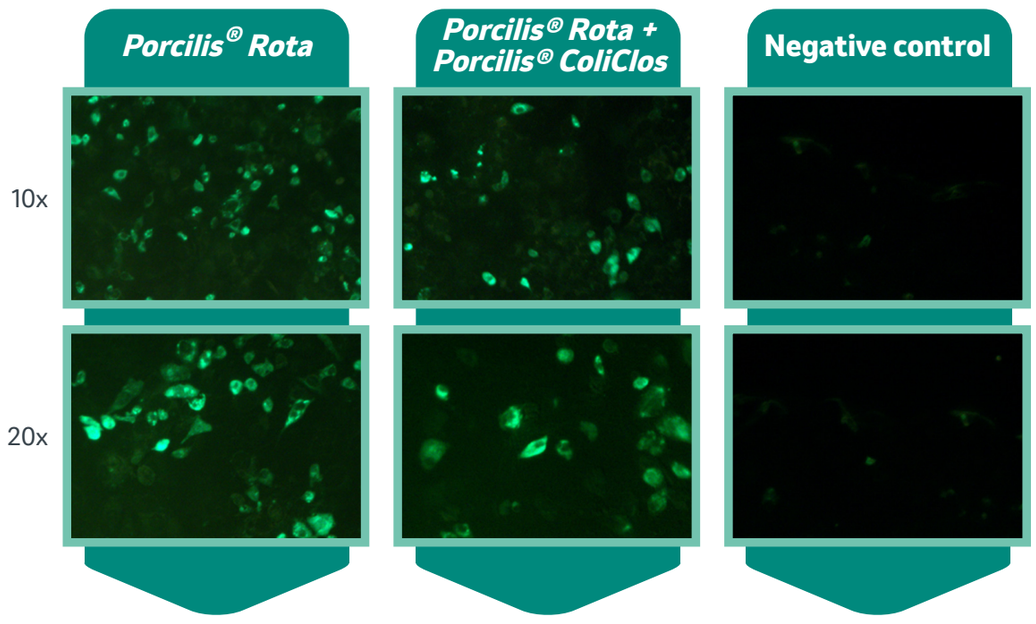
The test was conducted using MA-104 cells that were previously tested to check the efficient replication of the Rotavirus A vaccine viruses (G4 and G5 strains) contained in the vaccine. The Rotavirus A vaccine was reconstituted with PBS and mixed with the ready-to-use *E. coli/Cl. perfringens* vaccine. The mixture was incubated at room temperature for 30 and 60 min. Then decimal series dilutions of the mixtures were performed and titrated in MA-104 cells to check whether the mixture and the incubation time affected the viability of Rotavirus A.



Virus titer was assessed by immunofluorescence (IF) staining using an anti-VP6 monoclonal antibody. Toxicity of the *E. coli/Cl. perfringens* vaccine for the MA-104 cells was also assessed.

Results

The viral titer was obtained after performing the IFT. To calculate the viral titer of the vaccine, the number of wells in which specific fluorescence was observed was recorded and the tissue culture infective doses 50 (TCID50) were established using the Reed & Muench method.



Negative control	Vaccine	Títer viral/ml	Títer viral/dosis
0	*Porcilis® Rota*	$1x10^{5,12}$ $TCDI_{50}$ /ml	$1x10^{5,42}$ $TCDI_{50}$ /dosis
	Porcilis® Rota + Porcilis® ColiClos	$1x10^{5,75}$ $TCDI_{50}$ /ml	$1x10^{5,05}$ $TCDI_{50}$ /dosis
30 min.	*Porcilis® Rota*	$1x10^{5,65}$ $TCDI_{50}$ /ml	$1x10^{5,92}$ $TCDI_{50}$ /dosis
	Porcilis® Rota + Porcilis® ColiClos	$1x10^{5,25}$ $TCDI_{50}$ /ml	$1x10^{5,55}$ $TCDI_{50}$ /dosis
60 min.	*Porcilis® Rota*	$1x10^{5,62}$ $TCDI_{50}$ /ml	$1x10^{5,92}$ $TCDI_{50}$ /dosis
	Porcilis® Rota + Porcilis® ColiClos	$1x10^{5,12}$ $TCDI_{50}$ /ml	$1x10^{5,92}$ $TCDI_{50}$ /dosis

Viral titer was unaffected by the mixture of both vaccines or incubation times up to 60 minutes.

Discussion and Conclusion

- No significant differences were observed in the viral titer values obtained between Porcilis® Rota and Porcilis® Rota + Porcilis® ColiClos combination.
- No significant differences in viral titers were observed up to 60 min of incubation.
- Based on the results, mixture of Porcilis® Rota and Porcilis® ColiClos could be suitable for immunization of sows given that the viability of the virus is maintained after mixture.