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## Lack of interference between three oral attenuated bacterial swine vaccines

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### Introduction

Three separate studies were conducted to determine if Enterisol® Ileitis (*Lawsonia intracellularis*), Enterisol® SC-54 (*Salmonella choleraesuis*), and Ingelvac® Ery-ALC (*Erysipelothrix rhusiopathiae*) vaccines could successfully immunize 3-week old weaned pigs when administered simultaneously (Table 1).

### Materials & Methods

All vaccines were Frozen Form (FF; with the exception of Non-Frozen [NF] Enterisol Ileitis in Trial I-Group 2) and were administered by oral drench. Piglets were from source herds previously shown to be susceptible to the relevant challenge organism but with no recent clinical history of the associated disease. The *Lawsonia* and *Erysipelothrix* challenge organisms were derived from different parent isolates than the respective vaccines. Measures of protection utilized were as previously established in challenge studies.

Table 1. Experimental designs for assessing interference between 3 oral attenuated vaccines administered concurrently.

Treatment groups	N	Vacc ~Age	Ch. ~Age	Nec ~Age
<b>Study 1</b>				
EI-FF/SC54/Ery	20	3 wks	6 wks	9 wks
EI-NF/SC54/Ery	20	3 wks	6 wks	9 wks
Challenge Controls	20	--	6 wks	9 wks
Strict Controls	10	--	--	9 wks
<b>Study 2</b>				
SC54/EI/Ery	15	3 wks	7 wks	9 wks
SC54	15	3 wks	7 wks	9 wks
Challenge Controls	15	--	7 wks	9 wks
Strict Controls	5	--	--	9 wks

<b>Study 3</b>				
Ery/EI/SC54	15	3 wks	6 wks	7 wks
Ery	15	3 wks	6 wks	7 wks
Challenge Controls	15	--	6 wks	7 wks
Strict Controls	5	--	--	7 wks

Vacc=vaccination; Ch=challenge; Nec=necropsy

### Results and Discussion

Vaccines administered simultaneously showed significant protective effects for their respective diseases (Table 2). Simultaneous use of vaccines had no negative effect on pre-challenge weight gain. Enterisol Ileitis FF and NF provided bioequivalent protection against challenge with *Lawsonia intracellularis*.

Table 2. Significant protective effects found with the target vaccine in three separate studies.

Vaccine	Disease/agent	Protective effects*
Enterisol Ileitis FF & NF	Proliferative enteropathy/ileitis; <i>Lawsonia intracellularis</i>	Gross lesion prevalence and severity
Enterisol SC-54	Salmonellosis; <i>Salmonella choleraesuis</i>	Fever, organ culture, fecal shedding, clinical signs
Ingelvac Ery-ALC	Erysipelas; <i>Erysipelothrix rhusiopathiae</i>	Mortality, clinical signs

\*p ≤ 0.05

### Discussion

Even though these frozen-form products are now approved for simultaneous administration it may not always be advisable to do so. Optimal vaccination timing for each individual disease may differ depending upon when maternal immunity depletes and onset of infection occurs for the specific pathogens. If simultaneous vaccination with these three vaccines is indicated it can be done safely and effectively.