

## Technical Bulletin

Boehringer Ingelheim  
Vetmedica, Inc.

# PULMO-GUARD™ MPB: Minimal Injection Site Reaction

## Key Points

### Studies Show Minimal Injection Site Reactions

- **PULMO-GUARD™ MPB** vaccinated calves showed little or no tissue reaction.
- **PULMO-GUARD MPB** vaccinated calves exhibited no significant injection site reaction.

## Study Design

Study animals	50 cross bred, 400-500 lb heifers and steers; purchased from local farms.
Procedure	Randomly assigned to four groups.
	Blinded study for individual examining and scoring injection site reactions.
	Injection sites examined on days 0, 3, 7, 10, 14, 21, 24, 28, 35.
Injection site scoring system	0-5 cm, 5-10 cm, 10-15 cm, >15 cm.

## Treatment Groups

	No. of Calves	Left Side Vaccination	Right Side Vaccination
Group 1	15	<b>PULMO-GUARD™ MPB*</b> & <b>PULMO-GUARD™ PHM-1</b> middle of neck about 6 inches apart	<b>EXPRESS® 5 &amp; ALPHA-7™</b>
Group 2	15	<b>PULMO-GUARD MPB*</b> & <b>ALPHA-7</b> middle of neck about 6 inches apart	<b>EXPRESS 5 &amp; PULMO-GUARD PHM-1</b>
Group 3	15	<b>Myco-Bac™ B**</b> & <b>PULMO-GUARD PHM-1</b> middle of neck about 6 inches apart	<b>EXPRESS 5 &amp; ALPHA-7</b>
Control	5	Sterile saline	

\* Booster at 14 days later in approximately the same area as first vaccination.

\*\* Booster at 7 and 14 days later in approximately the same area as first vaccination.

## Bottom Line

- **PULMO-GUARD MPB** showed no significant tissue reaction when injected in proximity to **PULMO-GUARD PHM-1** vaccine.
- When **PULMO-GUARD MPB** was administered in proximity to **ALPHA-7** vaccine, there was more swelling for both vaccines.