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## Escherichia coli Antigen Test Kit (K99 Pilitest™)

Ten percent of beef and dairy calves are lost each year to scours. One of the most important infectious causes of scours in young calves is enteropathogenic *Escherichia coli* which carries K99<sup>+</sup> pili. Fortunately, immunoprophylaxis has been shown to be effective in reducing the severity of scours caused by enteropathogenic *E. coli*. Nevertheless, because of the sporadic nature of outbreaks, the expense of vaccines and oral antibodies may not be justified without a specific etiologic diagnosis of K99<sup>+</sup> *Escherichia coli*.

Our K99 Pilitest™ is a sensitive latex agglutination test for the presence of K99<sup>+</sup> *E. coli* in stools of diarrheic calves. It may also be used for detection of K99<sup>+</sup> *E. coli* grown on solid or in liquid medium. The agglutination reaction takes less than three minutes and the entire test, including sample preparation, can be performed in ten minutes or less.

VMRD's Pilitest™ is recommended for use with stools from calves exhibiting signs of diarrhea or "white scours" within 5 days of birth. While it is possible to detect K99<sup>+</sup> *E. coli* in stools of older calves, its contribution to diarrhea in this group may not be significant.

Bacterial numbers fall in some calves after 48 hours. Therefore, when one is testing calves having diarrhea for more than 48 hours, it may be necessary to test several calves before concluding that K99<sup>+</sup> *E. coli* are not responsible for the diarrhea observed.

### Analytical Sensitivity and Specificity

In an independent evaluation, VMRD's K99 Pilitest™ detected the following standard *E. coli* K99 isolates at a concentration of 3.6 x 10<sup>9</sup> CFU per ml: B41, B44, B79, B85, B111, and B117. The test also detected the following *E. coli* K99 field isolates at a concentration of 3.6 x 10<sup>9</sup> CFU per ml: 833, 1678, 678, 8425B, 635B, and 14992. Isolates 860070, B41M, 1592, 802575, 840343, and 845208 were used as negative controls in this study. All were negative in the Pilitest™ with the exception of isolate 1592, which was weakly positive at a concentration of 8.2 x 10<sup>12</sup> CFU per ml (1000 times the detection level of K99 bacteria).

### Diagnostic Sensitivity and Specificity

		Culture		
		+	-	Sum
VMRD K99 PILITEST™	< 48 hours post-inoculation +	13	1 <sup>†</sup>	14
	-	1 <sup>†</sup>	3	4
	Sum	14	4	18
Sensitivity: 93% • Specificity: 75%				

<sup>†</sup>Sample was from an inoculated calf. Three consecutive cultures following the negative culture were positive. Given that the data support this sample being positive, diagnostic specificity of this assay on this sample set was 100%.

<sup>†</sup>A previous sample from the same animal (taken at < 24 hours) tested positive by the PILITEST™.



## VMRD'S K99 PILITEST™ IS A POINT-OF-CARE TEST

Escherichia coli Antigen Test Kit (K99 Pilitest™)			(stool testing data)	
Format	Sample Type	Sensitivity	Specificity	Assay Time
Latex Agglutination	stool or culture	93% (< 48 hr)	75%	10 minutes

Catalog No.	Tests
299-10	10
299-25	25

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