



TETRASTRIPS

(Rota, Corona, E. coli F5, Cryptosporidium)

BIO K 156

Diarrhoea is a major cause of mortality in young cattle under one month. Bovine neonatal gastroenteritis is a multifactorial disease. It can be caused by viruses (coronavirus or rotavirus), by bacteria: (*Salmonella*, pathogenic strains of *E. coli*) or by protozoa such as *Cryptosporidium parvum*. Coronavirus and rotavirus are often associated with episodes of neonatal diarrhoea. *Cryptosporidium parvum* is also frequently isolated in faeces, where it can be present in very high quantities. It can persist for a long period in the environment. F5-positive enterotoxigenic *E. coli* is frequently isolated in under-three-day-old calves, particularly in colostrum-deprived calves or in calves fed colostrum that is free of anti-*E. coli* F5 + specific antibody. The diagnosis of the etiological agent of diarrhoea can be performed only in the laboratory because the clinical signs do not suffice to distinguish between these different microorganisms. It is possible to identify these agents by means of different techniques, including culture, staining, electron microscopy and floating techniques. However, these techniques are labour intensive, impractical and time consuming. These classical techniques have rapidly been replaced by the ELISA technology because of its simplicity and limited laboratory equipment requirements. The sensitivity and specificity of the ELISA technique for detecting these pathogens is at least as good as that of the more classic techniques, and the results are very similar. The ELISA technique is rapid and reliable and is particularly suited to the analysis of large numbers of samples. These classical techniques have rapidly been replaced by the ELISA technology because of its simplicity, and the limited requirements in laboratory equipment. Nevertheless, ELISA can be time consuming and expensive especially when small number of analysis has to be performed. Chromatographic lateral flow immunoassay is becoming the gold standard for gastroenteritis diagnosis because of its simplicity, rapidity, sensitivity and specificity. Laboratory equipment required is limited. Results compared with classical techniques are rather similar in terms of diagnosis and strips are far easier to use.

Use of the kit

The kit is designed to detect Rotavirus, Coronavirus, *E. coli* F5 (K99), *Cryptosporidium parvum* in calf stool

Reliable Results

The use of monoclonal antibodies as conjugates and to capture the pathogens on the strip ensures excellent specificity and very reliable results.

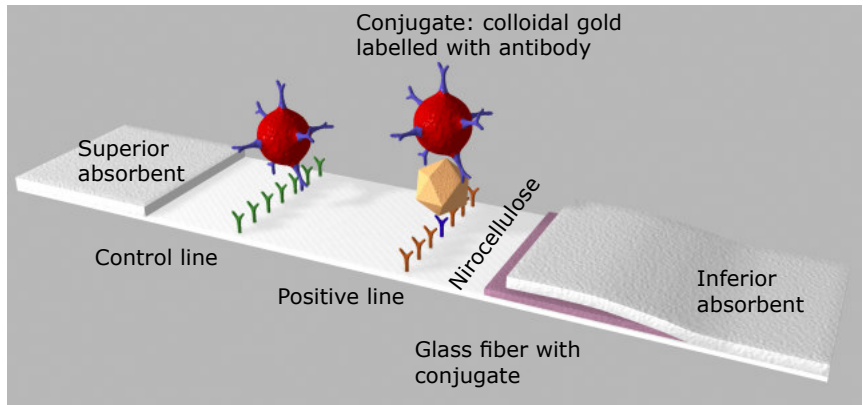
Ease-of-Use

Minimal hands-on-time
Room temperature incubation
Results available in 10 minutes



Bio-X Diagnostics

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Example of results for Rotavirus

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dsRNA electrophoresis on PAGE (Silver staining)

| | | | |
|---|----|----|----|
| | + | - | |
| + | 48 | 0 | 48 |
| - | 2 | 40 | 42 |
| | 50 | 40 | 90 |

Specificity: 100 %
Sensitivity: 96 %

Example of results for Coronavirus

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RT-PCR

| | | | |
|---|----|----|----|
| | + | - | |
| + | 7 | 2 | 9 |
| - | 4 | 74 | 78 |
| | 11 | 76 | 87 |

Specificity: 97.4 %
Sensitivity: 63.6 %

ELISA BIO K 068

| | | | |
|---|---|----|----|
| | + | - | |
| + | 8 | 1 | 9 |
| - | 1 | 78 | 79 |
| | 9 | 79 | 88 |

Specificity: 98.7 %
Sensitivity: 88.9 %



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Example of results E. coli F5

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PCR

| | | | |
|---|----|----|----|
| | + | - | |
| + | 19 | 1 | 20 |
| - | 4 | 62 | 66 |
| | 23 | 63 | 86 |

Specificity: 94.4 %
Sensitivity: 82.6 %

ELISA BIO K 069

| | | | |
|---|----|----|----|
| | + | - | |
| + | 18 | 1 | 19 |
| - | 2 | 65 | 67 |
| | 20 | 66 | 86 |

Specificity: 98.5 %
Sensitivity: 90 %

Example of results for *Cryptosporidium*

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Flotation

| | | | |
|---|----|----|-----|
| | + | - | |
| + | 32 | 3 | 35 |
| - | 2 | 63 | 65 |
| | 34 | 66 | 100 |

Specificity: 95.5 %
Sensitivity: 94.1 %

PCR

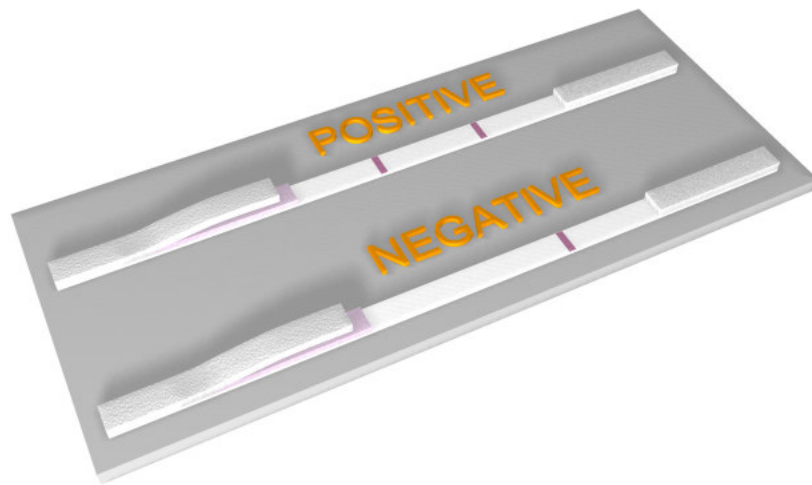
Trotz-Williams et al. Veterinary parasitology
134 (2005) 15-23

| | | | |
|---|----|----|-----|
| | + | - | |
| + | 47 | 5 | 52 |
| - | 13 | 70 | 83 |
| | 60 | 75 | 135 |

Specificity: 93.3 %
Sensitivity: 78.3 %



Bio-X Diagnostics



BIO K 156 TETRASTRIP KIT

10 spoon vials with dilution buffer
1 vial with

- 5 Rotavirus strips
- 5 Coronavirus strips
- 5 E. coli F5 (K99) strips
- 5 *Cryptosporidium* strips

1 insert

Bibliography

Multiattribute evaluation of two simple tests for the detection of *Cryptosporidium parvum* in calf faeces

Lise A. Trotz-Williams, S. Wayne Martin, Donald Martin, Todd Duffield, Kenneth E. Leslie, Daryl V. Nydam, Frames Jamieson, Andrew S. Peregrine

Veterinary parasitology 134 (2005) 15-23



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