

# Detection of *Campylobacter* in stool: a comparative study between culture and the RIDA®QUICK rapid test.

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## Objectives

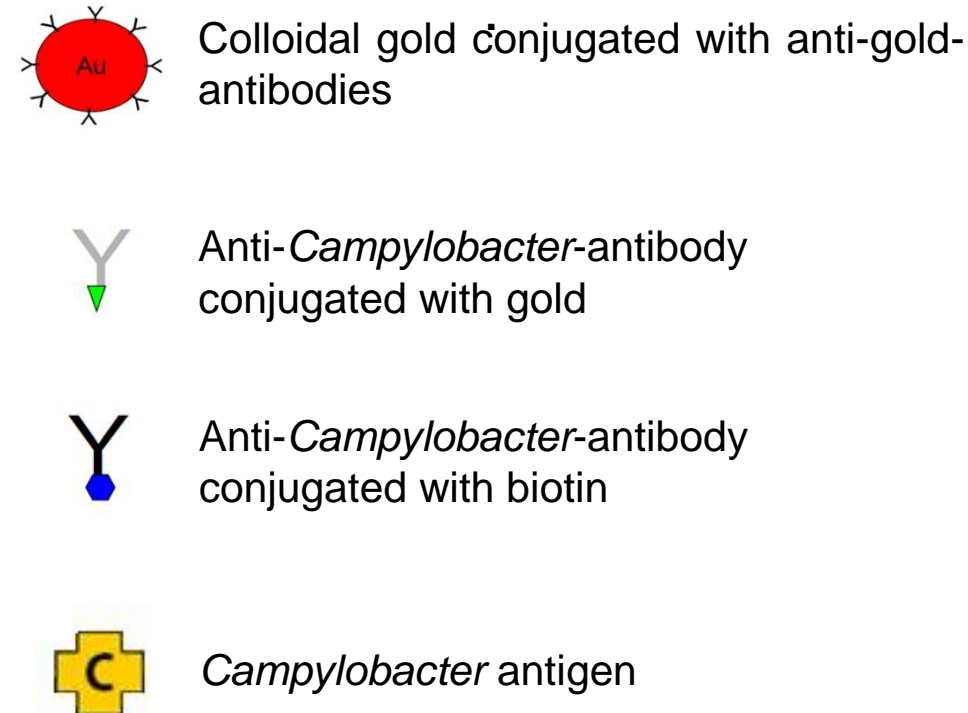
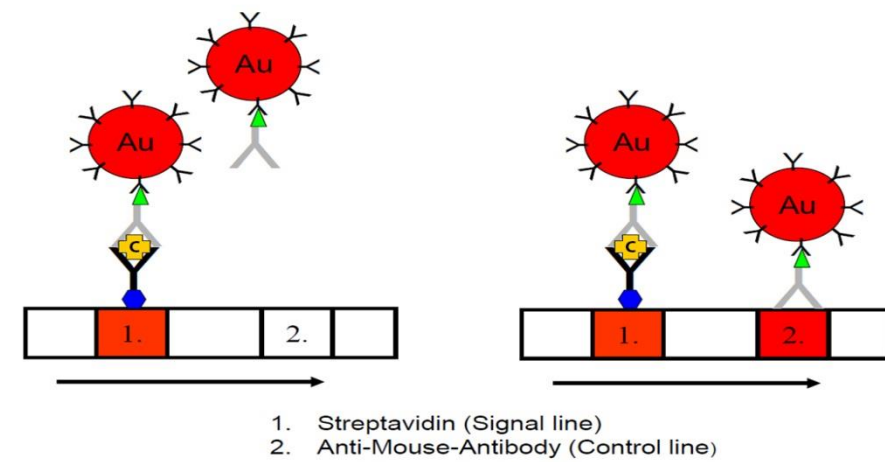
*Campylobacter* infection is an important cause of acute diarrhea worldwide. This comparative study investigated whether the RIDA®QUICK *Campylobacter* rapid test (R-Biopharm) correctly detects the presence of *Campylobacter* in stool and is therefore suitable for screening stool samples for *Campylobacter* enteritis.

## Methods

The results of the culture (Butzler agar, Bio-Rad) were compared with the RIDA®QUICK *Campylobacter* rapid test results.

Stool samples were cultured on Butzler agar (Bio-Rad), a selective blood agar for *Campylobacter* with the presence of an anti-fungal agent and various antibiotics. Subsequently the plates were incubated for 48 hours in a microaerophilic environment at 42° C.

The RIDA®QUICK *Campylobacter* rapid test (R-Biopharm), a one-step lateral flow immunochromatographic assay using both biotinylated and gold-labeled anti-*Campylobacter* antibodies, was performed on the same stool samples. When *Campylobacter jejuni* and/or *Campylobacter coli* antigens are present in the stool, immune complexes form with the anti-*Campylobacter* antibodies. Streptavidine, coated on the test-line (T), captures the migrating immune complexes by the biotinylated anti-*Campylobacter* antibodies, resulting in a red-violet staining of the T-line in the presence of *Campylobacter* antigens. The excess of gold-labeled antibodies, not bounded in the complex, migrate further towards the control-line (C), where they are bound later, resulting in a red C-line, confirming the validity of the test result.



## Results

188 stool samples were tested, from which 8 *Campylobacter coli* and 4 *Campylobacter jejuni* were isolated by culture and 13 samples tested positive with the RIDA®QUICK *Campylobacter* rapid test.

	Positive culture Butzleragar	Negative culture Butzleragar
Positive RIDA®QUICK	12 (TP)	1 (FP)*
Negative RIDA®QUICK	0 (FN)	175 (TN)

The false positive sample\* (FP) was a bloody stool from which no other pathogen was isolated. No PCR for *Campylobacter* was performed on this sample. Possibly the *Campylobacter* present was no longer viable and could not be cultured anymore, while the antigen still could be detected.

Based on these results, we obtained a sensitivity of 100 %, specificity of 99.43 %, positive predictive value of 92.31 %, negative predictive value of 100 % and an accuracy of 99.47 % for the RIDA®QUICK *Campylobacter* rapid test.

Parameter	Result study (n=188)
Sensitivity	100%
Specificity	99,43%
Positive predictive value	92,31%
Negative predictive value	100%
Accuracy	99,47%

## Conclusion

A negative test result with the RIDA®QUICK *Campylobacter* rapid test indicates the patient is not suffering from any *Campylobacter* enteritis.

Therefore, a stool with a negative RIDA®QUICK *Campylobacter* rapid test result is not cultured for *Campylobacter* anymore in our hospital.

However, culturing the stool specimen does remain necessary in case of a positive test result for both confirmation and performing susceptibility testing of the *Campylobacter* strain.

The RIDA®QUICK *Campylobacter* rapid test is easy to perform with results known within 25 minutes.

This procedure results in a much faster response to the physician: two to three days sooner compared to culturing the stool sample!