



## Ready-to-run microchips for identification of cattle pathogens using real-time PCR analyzer AriaDNA

Identification of pathogens that cause infectious diseases of cattle is essential for correct diagnosis and treatment of infections. Currently used methods are laborious, time consuming, low sensitivity assays that involve manual operations and thus do not achieve accuracy and high throughput requirements of the cattle industry.

The ready-to-run microchips with lyophilized reagents are optimized for use with real-time PCR analyzer AriaDNA offer simple, rapid and accurate determination of pathogens, matching cost effectiveness and throughput requirements of the industry. These ready-to-run microchips just need a dispensing of the test sample DNA into the individual reactors of the microchip thus significantly minimizing human error.

To impart high reliability into the detection, positive and negative control for each of the pathogen of the test kit panel, an internal control (IC) to monitor internal inhibition of the sample is also included in the microchips.



### ADVANTAGES

- Microchip qPCR with 10 times lower reagent consumption
- Increased specificity for difficult templates thanks to uniform temperature in microchip wells
- Ready-to-run microchips with panels of the test pathogens minimizes operator errors
- Simplifies master mix preparation for the panels of pathogens - needs just addition of DNA sample into the microchip
- Fast temperature transitions complete qPCR run in less than 35 min and shorten qPCR analysis time to result
- Simple shipment & storage of the microchip kits thanks to stabilized lyophilized reagents
- Customizable panels of pathogens in the ready-to-run microchip



### USER FRIENDLY SOFTWARE

Designed to acquire real-time PCR data and allows simplified operation steps. It offers auto-interpretation of results in view of IC, allows manual analysis of data, and prints three layers of report in compliance with 21 CFR part 11 of the regulations.

# FLUORESCENCE DETECTION

AriaDNA 2 is two-channel analyser: 1. FAM/SYBR Green, and 2. ROX/CY5

## Channel 1 (FAM)

1. *Chlamydia abortus*, 2. *Campylobacter jejuni*, 3. *Salmonella enterica*, 4. *Listeria monocytogenes*, 5. *Leptospira interrogans*

## Channel 2 (Cy5)

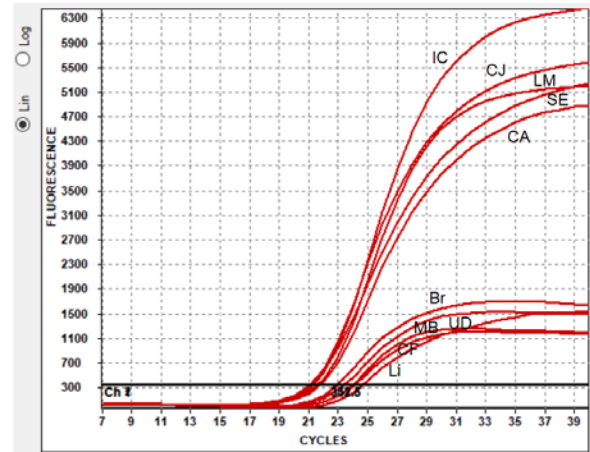
1. *Brucella sp.*, 2. *Campylobacter fetus*, 3. *Ureaplasma diversum*, 4. *Mycoplasma bovis*, 5. Internal Control (Rum\_1)

## Test panel of pathogens

Sample 1	Sample 2	Sample 3	Sample 4	-Ve/+Ve Controls	
SE-F IC-C	SE-F IC-C	SE-F IC-C	SE-F IC-C	C- SE-F UD-C	C+ SE-F UD-C
LM-F MB-C	LM-F MB-C	LM-F MB-C	LM-F MB-C	C- LM-F MB-C	C+ LM-F MB-C
CA-F CF-C	CA-F CF-C	CA-F CF-C	CA-F CF-C	C- CA-F CF-C	C+ CA-F CF-C
CJ-F Br-C	CJ-F Br-C	CJ-F Br-C	CJ-F Br-C	C- CJ-F Br-C	C+ CJ-F Br-C
IC-F LI-C	IC-F LI-C	IC-F LI-C	IC-F LI-C	C- IC-F LI-C	C+ IC-F LI-C

SE (Salmonella enteric), UD (Ureaplasma diversum). LM (Listeria monocytogenes), MB (Mycoplasma bovis), CA (Chlamydia abortus), CF (Campylobacter fetus), CJ (Campylobacter jejuni), Br (Brucella sp.), LI (Leptospira interrogans). **C+** (Positive control samples); **C-** (Negative control samples); **IC** (Internal control).

## Amplification plots



1. SE (Salmonella enteric)
2. UD (Ureaplasma diversum)
3. LM (Listeria monocytogenes)
4. MB (Mycoplasma bovis)
5. CA (Chlamydia abortus)
6. CF (Campylobacter fetus)
7. CJ (Campylobacter jejuni)
8. Br (Brucella sp)
9. LI (Leptospira interrogans)
10. IC (Internal control)

## ANALYSIS FLOW CHART

- 1 Extract DNA from the test samples using suitable DNA extraction and purification kit
- 2 Add extracted DNA samples into the microchip reactors
- 3 Insert the microchip into the AriaDNA analyzer and run the analysis with the software on a computer
- 4 Obtain real-time PCR results and print report in 35 minutes

## RESULTS

- 1 Real-time PCR data for up to 4 samples with a panel of 9 pathogens
- 2 Detection limit equals  $1 \times 10^3$  CFU in 1 mL of the sample.

For research use only (RUO).



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