VIASURE *MULTIPLEX*

Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit

Pathogen and product description

Campylobacter species are gram-negative, nonspore forming, spiral, or curved-shaped bacteria. Among the more than 26 species currently classified in the *Campylobacter* genus, most human diseases are attributed to three major food-borne species: *Campylobacter jejuni*, *Campylobacter coli*, and *Campylobacter lari*. These three species can be isolated from poultry and are of greatest concern to the poultry industry.

Campylobacter is considered one of the most common causes of diarrheal illness worldwide. Poultry is a major reservoir and source of transmission of Campylobacter to humans. In particular *C. jejuni* is the common species found in beef, *C. coli* is often isolated from pork, and *C. lari* is predominant in shorebirds. Other risk factors include consumption of animal products and water, contact with animals, and even person-to-person transmission (fecal-oral or via fomites).

Infection with *Campylobacter* causes gastroenteritis characterised by fever, vomiting, headaches, and abdominal pain with watery or bloody diarrhea, for a median duration of 6 days. Besides gastroenteritis, these three species can cause periodontitis, septicemia, and second trimester intrauterine growth restriction. Furthermore, *C. jejuni* infection may lead to autoimmune conditions such as Guillain-Barré syndrome (GBS) and Miller Fisher syndrome (MFS).

Campylobacter enteritis is usually self-limiting and typically does not require antimicrobial therapy. In these cases, maintenance of proper hydration and electrolyte balance is the most important tenets of treatment. However, in severe and prolonged cases of enteritis, bacteremia, or other extraintestinal infection, prompt antimicrobial treatment is indicated.

Traditional microbiological methods for *Campylobacter* identification include enrichment, culturing, isolation, and phenotypic characterization. The procedures are laborintensive, time consuming, and with a relatively narrow differentiation spectrum among target species. These factors present challenges for the identification of *Campylobacter* from patient samples or contaminated food. Fortunately, methodologies based on molecular biology have been developed to improve laboratory approaches, such as Real Time PCR. Multiplex qPCR can detect several targets in one reaction, saving time, effort, and sample. This qPCR assay can be used for identifying *C. coli, C. lari* and *C. jejuni* or secondary screening for confirmation of *Campylobacter* bacteria to the species level.

VIASURE *Campylobacter coli*, *C. lari* & *C. jejuni* Real Time PCR Detection Kit is designed for the diagnosis of *Camplylobacter coli*, *C. lari* and/or *C. jejuni* in clinical samples. After DNA isolation, the identification of *C. coli, C. lari* and *C. jejuni* is performed by the amplification of a conserved region of the hip0 gene for *Campylobacter jejuni*, Gyrasa A gene for *Campylobacter* lari and CeuE gene for *Campylobacter coli*, using specific primers and a fluorescent-labelled probe.

Analytical sensitivity

VIASURE *Campylobacter coli, C. lari & C. jejuni* Real Time PCR Detection Kit has a detection limit of ≥10 DNA copies per reaction for *Campylobacter coli*, *Campylobacter lari* and *Campylobacter jejuni* (Figures 1, 2 and 3).

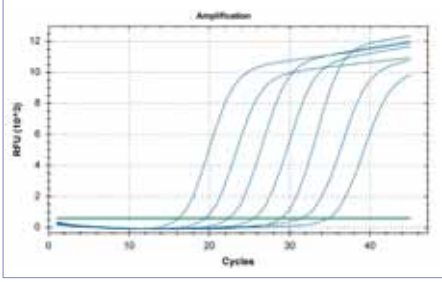


Figure 1. Dilution series of Campylobacter jejuni (10^7-10^1 copies/rxn) template run on the Bio-Rad CFX96™ Real-Time PCR Detection System (channel FAM).

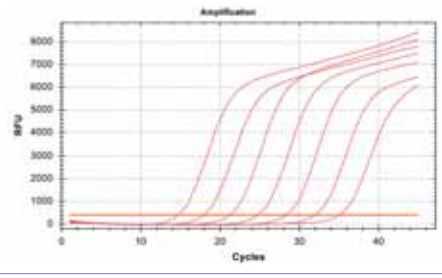


Figure 2. Dilution series of Campylobacter lari (10^7-10^1 copies/rxn) template run on the Bio-Rad CFX96™ Real-Time PCR Detection System (channel ROX).

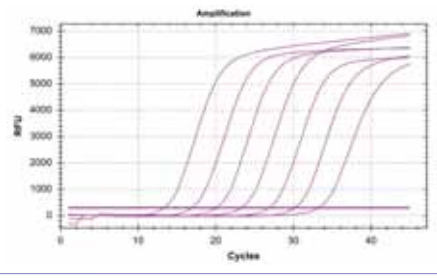


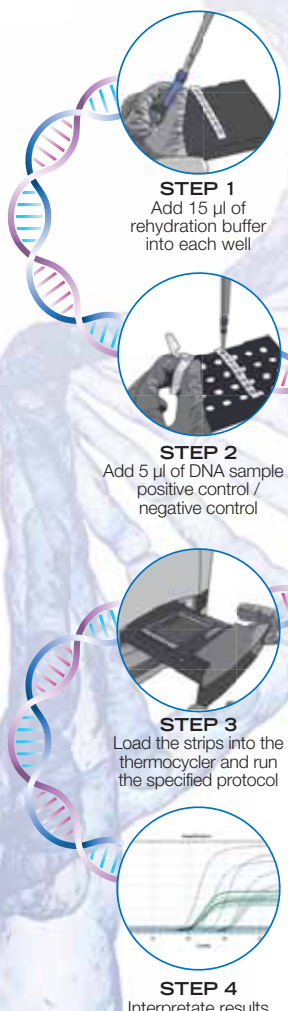
Figure 3. Dilution series of Campylobacter coli (10^7-10^1 copies/rxn) template run on the Bio-Rad CFX96™ Real-Time PCR Detection System (channel Cy5).

Components

Reagent/Material	Description	Colour	Quantity
Campylobacter coli, C. lari & C. jejuni 8-well strips	A mix of enzymes, primers-probes, buffer, dNTPs, stabilizers and Internal control in stabilized format	White	6/12 x 8-well strip
Rehydration Buffer	Solution to reconstitute the stabilized product	Blue	1 vial x 1,8 mL
***Campylobacter coli, C. lari & C. jejuni* Positive Control**	Non-infectious synthetic lyophilized cDNA	Red	1 vial
Extraction Control	Non-infectious nucleic acid lyophilized	Green	1 vial
Negative Control	Non template control	Violet	1 vial x 1 mL
Water RNAse/DNAse free	RNAse/DNAse free water	White	1 vial x 1 mL
Tear-off 8-cap strips	Optical caps for sealing wells during thermal cycling	Transparent	6/12 x 8-cap strip

Work Flow

One-step rehydration of wells and add your extracted DNA



STEP 1
Add 15 µl of rehydration buffer into each well

STEP 2
Add 5 µl of DNA sample / positive control / negative control

STEP 3
Load the strips into the thermocycler and run the specified protocol

STEP 4
Interpretate results

Kit References

Reference	Description
VS-CLJ106L	VIASURE Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit 6 x 8-well strips, low profile
VS-CLJ106H	VIASURE Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit 6 x 8-well strips, high profile
VS-CLJ112L	VIASURE Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit 12 x 8-well strips, low profile
VS-CLJ112H	VIASURE Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit 12 x 8-well strips, high profile
VS-CLJ113L	VIASURE Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit 96-well plate, low profile
VS-CLJ113H	VIASURE Campylobacter coli, C. lari & C. jejuni Real Time PCR Detection Kit 96-well plate, high profile

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