

Prepare your lab for the EHEC outbreak

Several European countries are facing an unprecedented outbreak of a new strain of enterohemorrhagic *Escherichia coli* (EHEC). The University Medical Centre Hamburg-Eppendorf and BGI-Shenzhen in Beijing have successfully sequenced the strain, identifying it as a new verotoxin-producing serotype: *E. coli* O104:H4. Verotoxins, also called Shiga toxins, are the causative agents of severe gastro-intestinal symptoms as well as the life-threatening hemolytic-uremic syndrome (HUS). Rapid and reliable testing for verotoxin-producing *E. coli* is crucial during an outbreak of this nature.

QIAGEN offers a real-time PCR assay for verotoxin-producing *E. coli*. The *mericon*[®] VTEC stx 1/2 Kit is a complete, rapid, and highly sensitive assay. After DNA has been extracted from the bacterial enrichment culture, the run time for the assay is less than 90 minutes. The assay can detect as few as 10 copies of DNA per reaction (Figure 1), and it is highly specific (Table 1).

A negative result with this assay means that your sample does not contain any verotoxin-producing *E. coli* strains, including the new O104:H4 strain. If you get a positive result and you want to identify the specific strain, further testing is necessary.

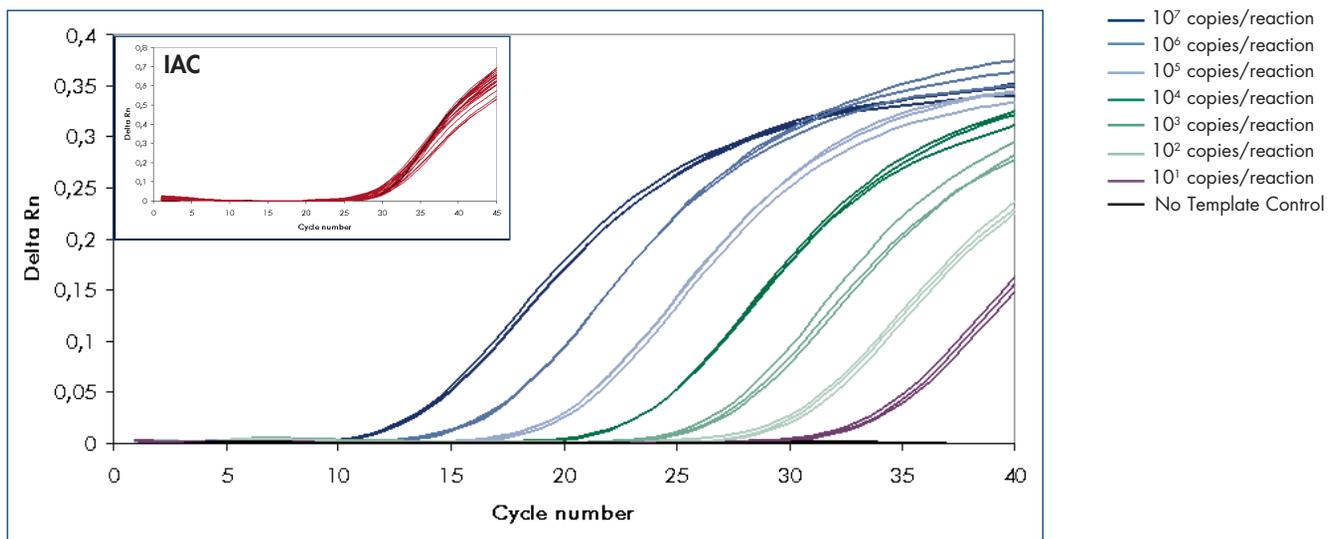


Figure 1. *E. coli* detection on the QIAGEN[®] Rotor-Gene[®] Q real-time PCR cycler. Real-time PCR reliably amplifies *E. coli* VTEC DNA over a wide template range. Even minute amounts of pathogen DNA can be detected: here, as few as 10 DNA copies per reaction are reliably detected. The Internal Amplification Control (IAC) is stable in the presence of all copy numbers, which proves that the reaction is working in each case.



Table 1. The mericon VTEC stx 1/2 kit specifically detects verotoxin-producing *E. coli* and shows no cross reactivity. The mericon VTEC spp assay is highly specific for the detection of microorganisms producing verotoxins, also called Shiga toxins. Experimental validation was performed with 10,000 copies of pure DNA per PCR reaction

Experimental Validation			
Targets	Results	Targets	Results
Positive targets			
VTEC stx1	+	VTEC stx2	+
Negative targets			
<i>Escherichia coli</i>	–	<i>Legionella erythra</i>	–
<i>Bacillus cereus</i>	–	<i>Legionella pneumophila</i>	–
<i>Campylobacter coli</i>	–	<i>Listeria monocytogenes</i>	–
<i>Campylobacter jejuni</i>	–	<i>Salmonella abony</i>	–
<i>Campylobacter laridis</i>	–	<i>Shigella flexneri</i>	–
<i>Campylobacter upsaliensis</i>	–	<i>Staphylococcus aureus</i>	–
<i>Clostridium perfringens</i>	–	<i>Yersinia enterocolitica</i>	–
<i>Cronobacter sakazakii</i>	–		

Ordering Information

Application	Product name	Cat. no.
Sample preparation kits		
For DNA extraction from enrichment cultures of <i>E. coli</i> or other Gram-negative bacteria	mericon DNA Bacteria Kit (100)	69525
Assays for pathogen detection		
For specific detection of verotoxin-producing <i>E. coli</i>	mericon VTEC stx 1/2 Kit (24)*	290053
	mericon VTEC stx 1/2 Kit (96)*	290055
Rotor-Gene Q real-time PCR cyclers		
With 2 channels plus High Resolution Melt	Rotor-Gene Q 2plex HRM System	9001630

* The mericon VTEC stx 1/2 Kit includes all of the required primers, probes, and enzymes to run an analysis for verotoxin-producing *E.coli*.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

You can find additional information about QIAGEN products for food safety professionals on the QIAGEN website at www.qiagen.com/FoodSafety.

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