

*Escherichia coli* are common in human bacterial flora. Most of them are harmless, but some known as Shiga Toxic *E. coli* or STEC, can cause severe, sometimes lethal, pathologies.

Main source of infection is contaminated food making it a major concern for food processors.

Among these STEC, several serogroups are more commonly related to human diseases. In Europe, STEC Top 5 serogroups include *E. coli* O157, O26, O103, O111 and O145. In the USA, serogroups O45 and O121 are added to this list making the STEC Top 7.

## GeneDisc System Benefits

**Rapid** — Accelerate the batch release of your short shelf life products and raw materials. While other methods such as immunoassays or culture methods require up to 3 days to results, the Pall GeneDisc method allows a detection of pathogenic STEC in as fast as 10 hours.

**Easy to use** — GeneDisc solutions are designed for routine use. Implementing PCR (Polymerase Chain Reaction) has never been this easy.

**High throughput capability** — Process up to 96 samples DNA extractions simultaneously in less than one hour.

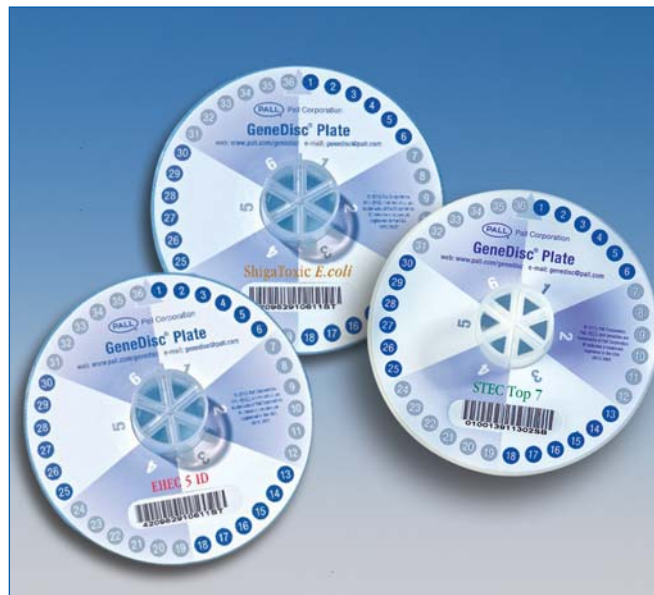
**Modular** — System modularity fits your throughput needs: up to 96 samples can be analyzed in a one hour PCR run.

## Choose Your GeneDisc Solutions

Pall GeneDisc Technologies provide you with flexible solutions matching your needs for a reliable monitoring of STEC.

## GeneDisc® Technologies

### A Flexible Approach for the Detection of Top 5 and Top 7 Shiga Toxic *E. coli*



## Shiga Toxic *E. coli* Identification

Bacteria	Gram –, motile enterobacteria producing shigatoxins ( <i>stx</i> ) and intimin ( <i>eae</i> )
Food Vehicle	Large variety of food especially beef cattle and dairy products
Disease	Gastro-enteritis, Hemorrhagic diarrhea, Hemolytic-uremic syndrome (HUS)
Incidence of Cases (per 100,000 population)	1.90 (FoodNet, 2010)
Notification Rate (per 100,000 population)	0.83 (EFSA, ECDC, 2010)
Related Outbreaks	2 (EFSA, ECDC, 2010) 25 (CDC, 2010)
Related Recalls	8 (FDA & FSIS, 2012)
Related Alerts / Information	22 (RASFF, 2011)

### Follow reference method

**In line with MLG 5B and ISO/TS 13136** – With this method, a systematic screening based on virulence factors allows to discriminate pathogenic strains from non pathogenic ones. If result is positive, an identification of the Top 7 or Top 5 serogroups is performed.

**Test *Salmonella* spp. simultaneously** – Analysis with *Salmonella* spp. is available and does not require any additional hands-on time nor enrichment.

### Reduce your rate of presumptive positive

**Enhanced workflow** – This method enables to reduce the number of presumptive positive sample using a cutting edge approach. With this method, all targets – serogroups and virulence factors – are analyzed within one GeneDisc plate.

**High level of discrimination** – An accurate virulence factor screening based on the association of these factors to serogroups provides a lower rate of presumptive positive than any other available method.



GEN 25/06 – 11/08  
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## How the System Works



## Validations

Method	Part Number	Validation	Matrix	Time to Result
STEC	GSTEHEC1XX006	AOAC	Raw Ground Beef/ Raw Beef Trim	10 h
STEC & <i>Salmonella</i> spp.	GSTECSL2XX006			
STEC Top 7	GTOP7EC106006 GSTECP206006	AOAC Ongoing		
<i>E. coli</i> O157:H7	GSTEHEC1XX006 GEHECID106006	NF VALIDATION	Raw Beef Meat Dairy products/ Vegetables products	10 h 18 h
<i>E. coli</i> O157:H7 & <i>Salmonella</i> spp.	GSTECSL2XX006 GEHECID106006		Raw Beef Meat Dairy products/ Vegetables products	10 h 18 h

All methods are approved by AOAC using both Extraction Pack Food 1 and Food 2

## Technical Information

Enrichment Time	Down to 8 hours
Sample Preparation Time	< 1 hour for 96 samples
PCR Cycle Time	< 1 hour
Total Turnaround Time	Down to 10 hours
Hands On Time	About 30 minutes for 96 samples (<30 s/sample)
Limit Of Detection	1 bacteria in 25 g of food sample 1 bacteria in 375 g of raw ground beef or raw beef trim
Specificity	Wide range of strains tested for inclusivity and exclusivity
Internal Positive Control Per Sample Analysis	Detects presence of inhibitors in each sample DNA extract

## Ordering Information

Part Number	Description	Samples/pack
<b>Equipment</b>		
EGDCV3A	GeneDisc Cyclor Base Unit	-
EGDSV3A	GeneDisc Cyclor Sub Unit	-
EGDUL1A230 (EU) EGDUL1A120 (US)	GeneDisc Ultra-Lyser	-
EGDBH96230 (EU) EGDBH96120 (US)	GeneDisc DryBlock Heater 96	-
SPSKIT96	Extraction Pack Food 2 Starter Kit	-
<b>Consumables</b>		
PFOOD1100	Extraction Pack Food 1	100
PFOOD2096	Extraction Pack Food 2 (High throughput)	96
GSTEHEC106006 GSTEHEC112006	GeneDisc ShigaToxic <i>E. coli</i> *	36 72
GSTECSL206006 GSTECSL212006	GeneDisc ShigaToxic <i>E. coli</i> * & <i>Salmonella</i> spp.	36 72
GEHECID106006	GeneDisc EHEC 5 ID (H7, O26, O103, O111, O145)	36
GTOP7EC106006	GeneDisc STEC Top 7 (virulence genes and O157, O26, O103, O111, O145, O45, O121 serogroups)	36
GSTECP206006	GeneDisc STEC Plus (virulence genes)	36

\*Includes identification of pathogenic *E. coli* O157

We also offer a full product range for pathogen detection in food and water and for spoilage organisms in beverage.

Quantitative tests for pathogens in water (*Legionella*, *E. coli*, *Enterococcus*...) are also available.

For more information including part numbers please contact us.



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