

# Shiga toxin-producing *Escherichia coli* (STEC) in food

## 1. TEST

**Ready-to-eat (RTE)** food is intended by the producer or manufacturer to be safe to eat without the need for further cooking or processing.



Enrichment of food sample in broth

Polymerase chain reaction (PCR) screen for Shiga toxin genes (*stx1* and *stx2*)

Culture isolation of Shiga toxin-producing *E. coli* (STEC) from the enriched food sample is attempted if the result of the *stx* PCR screen is positive.

PCR is used to confirm the presence of *stx* gene(s) in cultured *E. coli* isolate.

**Non-RTE food** requires further cooking or processing before it is safe to eat.



## 2. LABORATORY RESULT

### PCR positive, culture positive

- PCR positive result** means the Shiga toxin-encoding *stx* gene(s) was detected in an enriched broth of a food sample.
- Culture positive result** means a living *E. coli* strain containing the Shiga toxin-encoding *stx* gene(s) was cultured from the PCR positive enrichment broth.

### PCR positive, culture negative

- PCR positive result** means the Shiga toxin-encoding *stx* gene(s) was detected in an enriched broth of a food sample.
- Culture negative result** means a living *E. coli* strain containing the Shiga toxin-encoding *stx* gene(s) could not be cultured from the PCR positive enrichment broth.

## 3. ACTION BASED ON LABORATORY RESULTS

### RTE food

#### PCR positive, culture positive

**Food is unsafe.**  
See Article 14, Regulation (EC) No 178/2002, as amended.

**Action required.**  
Inform the competent authorities according to Article 19, Regulation (EC) No 178/2002, as amended. For more information, see the Food Safety Authority of Ireland (FSAI) Guidance Note 10: *Product Recall and Traceability*.

Do not place on market or withdraw/recall from market.

#### PCR positive, culture negative

**Action may be necessary.**  
This would be based on risk assessment of additional information. Factors that may be considered include but are not limited to whether STEC is confirmed in related batches of food, type of food and manufacturing process, and/or public health is potentially at risk based on evidence of related cases of human illness. Seek expert advice on risk assessment e.g. from competent authorities.

### Non-RTE food

#### PCR positive, culture positive

**In general, no action.**  
However, action may be necessary based on risk assessment of additional information. Factors that may be considered include but are not limited to whether public health is potentially at risk based on evidence of related cases of human illness, type of food and manufacturing process, and/or food is not labelled with clear and valid instructions on cooking, handling and storage. Seek expert advice on risk assessment e.g. from competent authorities.

#### PCR positive, culture negative

**In general, no action.**  
However, action may be necessary based on risk assessment of additional information. Seek expert advice on risk assessment e.g. from competent authorities.

Carry out any actions necessary based on the outcome of the risk assessment.