

## PowerFood™ Microbial DNA Isolation Kit

### Inhibitor-free microorganism DNA from cultured food

The PowerFood™ Microbial DNA Isolation Kit purifies DNA from any cultured food homogenate. Inhibitors from food particles and debris are removed from the sample during purification which results in high quality DNA ready for enzymatic applications including PCR, qPCR and restriction enzyme analysis.

### Quick Protocol

Reduced processing steps enable more samples to be processed in less time. The kit works for both gram+ and gram- bacteria without requiring extra steps or special enzymes for lysis. Starting material is 1.8ml of cultured food.

### Validated with Known Food Pathogens

DNA purification has been validated for known food pathogens cultured in a variety of different solid and liquid food matrices according to FDA guidelines (Bacteriological Analytical Manual, Ed. 8, Revision A/1998) (**Figure 1**).

#### Gram -

L= MO BIO 1 kb DNA ladder\*

1 = *E. coli*/strawberries/TSB

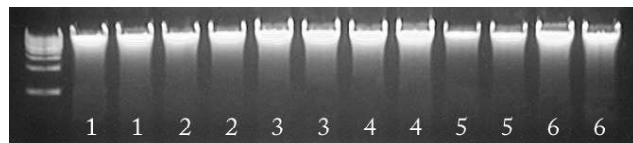
2 = *E. coli*/orange juice/TSB

3 = *E. coli* TSB culture control

4 = *S. enterica*/strawberries/TSB

5 = *S. enterica*/orange juice/TSB

6 = *S. enterica* TSB culture control



#### Gram +

L= MO BIO 1 kb DNA ladder\*

7 = *C. perfringens*/carrot juice/RCM

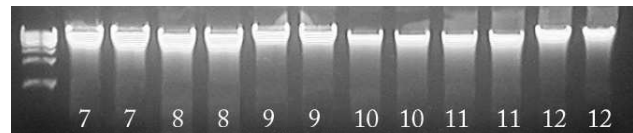
8 = *C. perfringens*/raw ground beef/RCM

9 = *C. perfringens* RCM culture control

10 = *C. difficile*/ready-to-eat salad/RCM

11 = *C. difficile*/raw ground beef/RCM

12 = *C. difficile* RCM culture control



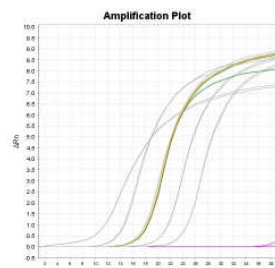
**Figure 1.** Genomic DNA from known pathogens cultured in various food homogenates. Samples were processed using a BagMixer® 400 (Interscience). 10 µl of DNA was loaded into each well of a 1% agarose gel. RCM= Reinforced Clostridial Medium, TSB= Trypticase Soy Broth. \*MO BIO 1 kb DNA ladder (catalog # 17200-100)

### Successful qPCR Results

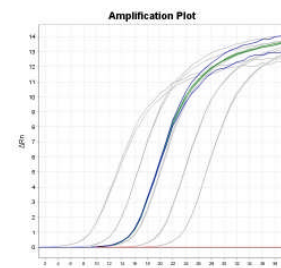
Real-time PCR was used to assess inhibitor removal. Assays were performed using the Kapa SYBR Fast qPCR Kit and primers specific for *S. enterica* and *C. perfringens*. Removal of PCR inhibitors was demonstrated by correct estimation of the quantity of DNA based on the OD260 (**Figures 2, 3**).

### Summary

Purification of pathogen DNA from cultured food samples can be difficult due to inhibitors from various components such as pulp, fat, and sugars. The PowerFood™ Microbial DNA Isolation kit combines the robust and rapid lysis method of bead beating with patented IRT® for isolation of DNA. This results in unsurpassed purity from any organism and food type. A stream-lined protocol with minimal steps makes processing easier and eliminates areas where mistakes can be introduced, which results in reliable and sensitive pathogen detection.



**Figure 2.** Detection of *S. enterica* cultured in orange juice and strawberries. The standard curve consisted of a 5 point, 10-fold dilution series of Salmonella DNA. Assay efficiency was 101%. 1 ng of DNA was used for template in each reaction and 1.17±0.04 ng was detected.



**Figure 3.** Detection of *C. perfringens* cultured in carrot juice and raw ground beef. The standard curve consisted of a 5 point, 10-fold dilution series of *C. perfringens* DNA. Assay efficiency was 90%. 1 ng of DNA was used for template in each reaction and 0.86±0.03 ng was detected.

### Related Product: BagMixer® 400 and BagFilters

The PowerFood™ Microbial DNA Isolation Kit was optimized to work with the BagMixer® 400 and BagFilters. The BagMixer® is the world's best lab blender line, ensuring quick and sterile blending of all samples.



Catalog No.	Description	Quantity
21000-50	PowerFood Microbial DNA Isolation Kit	50 prep
21000-100	PowerFood Microbial DNA Isolation Kit	100 prep
13111-V-220	Vortex Genie 2 (220v)	1
13000-V1-24	Vortex Adapter Genie 2, Holds 24 tubes (1,5-2.0 ml)	1
23112	BagMixer® 400	1 Unit
23114-500	BagPage® 400	500 bags
23113-500	BagFilter® 400 P	500 bags