



## Detection of *Listeria* in Food and Environmental Samples Using an ISO-Validated Multiplex PCR Kit: the foodproof® *Listeria* plus *L. monocytogenes* Detection LyoKit

Due to the extreme risk of illness from foods contaminated with *Listeria monocytogenes*, many Ready-to-Eat products and food production environments are highly monitored using *Listeria* spp. as an indicator. Some available PCR assays require a separate secondary test to identify *L. monocytogenes*, which causes delays in corrective actions and increases laboratory labor. However, the foodproof® *Listeria* plus *L. monocytogenes* Detection LyoKit detects food-relevant *Listeria* spp. and *L. monocytogenes* in a single reaction.



### Validation Methods

- The study comprised 50 inclusivity and 30 exclusivity strains per target, sensitivity, relative level of detection (RLOD) and collaborative studies.
- Validation of the alternative method was performed and compared to the ISO reference method (culture) for:
  - Composite Foods/Ready-to-Eat/Reheat
  - Meat Products
  - Milk and Dairy Products
  - Vegetables
  - Seafood and Fishery Products
  - Environmental Samples
- Samples were enriched in:
  - Half-Fraser Broth (1:10) at  $30 \pm 1$  °C for 24 – 46 h
  - Actero™ *Listeria* Enrichment Broth (1:7) at  $36 \pm 1$  °C for 20 – 24 h.
- Following incubation, DNA extraction was performed with foodproof® StarPrep® Two Kit (Standard or 8-strip), then lysates were analyzed by real-time PCR with the foodproof *Listeria* plus *Listeria monocytogenes* Detection LyoKit.



Standard  
Extraction Option



High Throughput 8-Strip  
Extraction Option

### Validation Results

- The validation study (NordVal No. 054) indicated that the foodproof method performed comparably to reference method EN ISO 11290-1:2017 and fulfills the validation criteria according to EN ISO 16140-2:2016.
- The specificity studies yielded:
  - 100% inclusivity of the 50 target strains
  - 100% exclusivity of the 30 non-target strains
- Additionally, the acceptability limits for the sensitivity and RLOD studies for all categories and enrichment protocols were met.



### Industry Significance

- The validation of the foodproof *Listeria* multiplex assay provides many industries with the ability to quickly screen for *Listeria* and then immediately identify if corrective actions need to occur for *Listeria monocytogenes* in a single test.
- Using a single assay reduces costs and improves operational efficiencies throughout food production and environmental monitoring, as well as for high-throughput testing laboratories.



## Products

Product No.	Description	Quantity
Enrichment Options		
MED2018	Actero™ <i>Listeria</i> Enrichment Media	2 kg
MED2020		10 kg
DNA Extraction Options		
KIT230177	foodproof® StarPrep® Two Kit, Standard	96 reactions
KIT230186	foodproof® StarPrep® Two Kit, 8-Strip	480 reactions
PCR Test Options		
KIT230129 (LP) KIT230130 (RP) KIT230369 (DP)	foodproof® <i>Listeria</i> plus <i>Listeria monocytogenes</i> Detection LyoKit	96 reactions

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