Technical Data Sheet

GranuCult™
Half FRASER (Demi FRASER) Broth (Base) with Antibiotics acc. ISO 11290

Ordering number: 1.00025.0500

For the primary selective enrichment of *Listeria spp.* from food and animal feed as well as from environmental samples and other materials.

This culture medium complies with the specifications given by EN ISO 11290 and APHA.

Mode of Action

The high nutrient content and the large buffer capacity creates optimum growth conditions for *Listeria*. The growth of accompanying bacteria is largely inhibited by lithium chloride, nalidixic acid and acriflavine hydrochloride. The detection of the ß-D-glucosidase activity is possible by the addition of aesculin and ammonium iron(III) citrate forming a black complex of aesculin with iron(III) ions. But this reaction is not exclusive to *Listeria spp.,* so that following EN ISO 11290-1, every primary and secondary enrichment in Fraser broth has to be sub-cultured on selective plating media.

From GranuCult™ Half FRASER (Demi FRASER) Broth (Base) with Antibiotics acc. ISO 11290 the primary selective enrichment Half Fraser broth can be prepared by addition of one vial Ammonium iron(III) citrate supplement (article number 1.00092.0010) per 500 ml Half Fraser Broth (base).

For the secondary enrichment step, Fraser broth can be prepared from Half Fraser broth by addition of one additional vial reconstituted Fraser Listeria selective supplements (article number 1.00093.0010) per 500 ml Half Fraser Broth.

Typical Composition

Specified by ISO 11290		GranuCult™ Half FRASER (Demi FRASER) Broth (Base) with Antibiotics acc. ISO 11290	
Enzymatic Digest of Animal Tissues	5 g/l	Enzymatic Digest of Animal Tissues	5 g/l
Enzymatic Digest of Casein	5 g/l	Enzymatic Digest of Casein	5 g/l
Meat Extract	5 g/l	Meat Extract	5 g/l
Yeast Extract	5 g/l	Yeast Extract	5 g/l
NaCl	20 g/l	NaCl	20 g/l
Na_2HPO_4 x 2 H_2O	12 g/l	Na_2HPO_4, anhydrous*	9.6 g/l
KH_2PO_4	1.35 g/l	KH_2PO_4	1.35 g/l
Aesculin	1 g/l	Aesculin	1 g/l
LiCl	3 g/l	LiCl	3 g/l
Acriflavine Hydrochloride	0.0125 g/l	Acriflavine Hydrochloride	0.0125 g/l
Nalidixic Acid Sodium Salt	0.01 g/l	Nalidixic Acid Sodium Salt	0.01 g/l
Water	1000 ml/l	Water	n/a
pH at 25 °C	7.2 ± 0.2	pH at 25 °C	7.2 ± 0.2
Supplement added after autoclaving:			
Ammonium Iron (III) Citrate	0.5 g/l	Ammonium Iron (III) Citrate	0.5 g/l

* equivalent to 12 g/l Na_2HPO_4 x 2 H_2O

Preparation

Dissolve 27,5 g in 500 ml purified water and autoclave 15 min at 121 °C. Dissolve the contents of 1 vial Ammonium iron(III) citrate (article number 1.00092.0010) in 1 ml of sterile distilled water. Add to the broth after it has cooled below 50 °C.

The supplements is homogeneously distributed in the broth by carefully swirling.

Fraser broth is made by adding a further bottle of Selective Supplement (article number 1.00093.0010) to the half-concentrated Fraser broth.

The prepared medium is clear to almost clear and yellowish-brown.

Experimental Procedure and Evaluation

Depend on the purpose for which the medium is used.

Incubate for the primary enrichment step the inoculated Half Fraser broth under aerobic conditions, e.g. acc. to EN ISO 11290-1 at 29-31 °C for 22-26 h.

Transfer 0.1 ml material from the resulting culture (regardless of its color) to the secondary enrichment culture medium, e.g. 10 ml Fraser broth, following the method given EN ISO 11290-1.

Incubate for the secondary enrichment step the inoculated Fraser broth under aerobic conditions, e.g. acc. to EN ISO 11290-1 at 36-38 °C for 46-50 h.

From the culture obtained in the primary and the secondary enrichment culture selective solid media are inoculated, see details given by EN ISO 11290-1.

Storage

Store at +15 °C to +25 °C, dry and tightly closed. Do not use clumped or discolored medium. Protect from UV light (including sun light). For *in vitro* use only.

According Corry et al. (2012), self-prepared complete medium should be used immediately after addition of the supplements.

Quality Control

Function	Control strains	Incubation	Method of control	Criteria	Expected results
Productivity	*Listeria monocytogenes* 1/2a ATCC® 35152 + *Escherichia coli* ATCC® 25922 + *Enterococcus faecalis* ATCC® 29212	22-26 h at 29-31 °C	Qualitative	>10 colonies on Agar Listeria according to Ottaviani and Agosti	Blue-green colonies with opaque halo on Listeria agar acc. OTTAVIANI and AGOSTI acc. ISO 11290
	Listeria monocytogenes 4b ATCC® 13932 + *Escherichia coli* ATCC® 8739 + *Enterococcus faecalis* ATCC® 19433				
Selectivity	*Escherichia coli* ATCC® 8739	22-26 h at 29-31 °C		Total inhibition on Tryptic Soy Agar (TSA)	-
	Escherichia coli ATCC® 25922				
	Enterococcus faecalis ATCC® 19433			< 100 colonies on Tryptic Soy Agar (TSA)	
	Enterococcus faecalis ATCC® 29212				

Please refer to the actual batch related Certificate of Analysis.

The performance test is in accordance with the current version of EN ISO 11133.

Literature

APHA (2015): Compendium of Methods for the Microbiological Examination of Foods. 5th ed. American Public Health Association, Washington, D.C.

Beumer, R.R. and Curtis, G.D.W. (2012): Culture media and Methods for the isolation of *Listeria monocytogenes*. In: Handbook of Culture Media for Food and Water Microbiology. (Corry, J.E.L., Curtis, G.D.W. and Baird, R.M. eds). pp. 115-129. Royal Society of Chemistry, Cambridge, UK.

Corry, J.E.L., Curtis, G.D.W. and Baird, R.M. (2012): Handbook of Culture Media for Food and Water Microbiology, pp. 762-764. Royal Society of Chemistry, Cambridge, UK.

Fraser, J. A. and Sperber, W. H. (1988): Rapid detection of *Listeria spp*. in food and environmental samples by esculin hydrolysis. J. Food Prot. **51**: 762-765.

ISO International Standardisation Organisation. Microbiology of food and animal feeding stuffs -- Horizontal method for the detection and enumeration of Listeria monocytogenes - Part 1: Detection method -- Amendment 1: Modification of the isolation media and the haemolysis test, and inclusion of precision data. EN ISO 11290-1:1998 + Amd 1:2004.

ISO International Standardisation Organisation. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media. EN ISO 11133:2014.

Ordering Information

Product	Cat. No.	Pack size	Other pack sizes available
GranuCult™ Half FRASER (Demi FRASER) Broth (Base) with Antibiotics acc. ISO 11290	1.00025.0500	500 g	
Readybag® Half FRASER (Demi FRASER) Broth with Supplements acc. ISO 11290, 12,5 g, irradiated	1.02449.0060	60 bags	35 x 62 g bags
ReadyTube™ 2000 Half Fraser ISO 11290	1.46646.0001	2000 ml bag	6 x 225 ml
ReadyTube™ 10 Fraser ISO 11290	1.46208.0020	20 x 10 ml	100 x 10 ml
GranuCult™ FRASER Broth (Base) acc. ISO 11290	1.10398.0500	500 g	
FRASER Listeria Selective Supplement	1.00093.0010	10 x 1 vial	
FRASER Listeria Ammonium Iron (III) Supplement	1.00092.0010	10 x 1 vial	
Chromocult® Listeria Agar (Base) acc. OTTAVIANI and AGOSTI acc. ISO 11290	1.00427.0500	500 g	
Chromocult® Listeria Agar Enrichment Supplement	1.00439.0010	10 x 1 vial	
Chromocult® Listeria Agar Selective Supplement	1.00432.0010	10 x 1 vial	
ReadyPlate™ CHROM Listeria Agar ISO 11290	1.46186.0020	20 x 90 mm	100 x 90 mm
Oxford-Listeria-Selective Agar (Base)	1.07004.0500	500 g	
Oxford-Listeria-Selective Supplement	1.07006.0010	10 x1 vial	
Oxford Listeria Selective Agar	1.46328.0020	20 pcs	

Product	Cat. No.	Pack size	Other pack sizes available
PALCAM Listeria-Selective Agar (Base) acc. to VAN NETTEN et al.	1.11755.0500	500 g	
PALCAM Listeria Selective-Supplement acc to van Netten et al	1.12122.0010	10 x 1 vial	
PALCAM Listeria Selective Agar	1.46329.0020	20 pcs	
L-PALCAM-Listeria Selective Enrichment Broth (Base) acc to van Netten et al.	1.10823.0500	500 g	
Singlepath® Listeria	1.04142.0001	25 tests	
Singlepath® L' mono	1.04148.0001	25 tests	
ReadyTube™ 9 BPW ISO 6579, 6887, 21528	1.46142.0020	20 x 9 ml	100 x 9 ml, 6 x 225 ml, 6 x 1000 ml, 1 x 2000 ml

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