

## Technical Data sheet

### GranuCult™

### mCCD (Modified Charcoal Cefoperazone Deoxycholate) Agar (Base)

acc. ISO 10272

Ordering number: 1.00070.0500

For isolation, detection and enumeration of *Campylobacter 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 10272 and FDA-BAM.

Modified charcoal cefoperazone deoxycholate (mCCD) agar is also called Modified CCDA-PRESTON or Campylobacter blood-free selective agar.

#### Mode of Action

This medium contains meat extract and enzymatic digests of animal tissue and casein which are used as nitrogen sources. The combination of activated charcoal, iron (II) sulfate and sodium pyruvate are used to absorb radicals and peroxides that might be inhibitory to the microaerophilic *Campylobacter*. Agar is the solidifying agent.

This medium contains the selective agents desoxycholate, cefoperazone and amphotericin B to inhibit the accompanying bacterial flora as well as yeasts and moulds

## Typical Composition

Specified by ISO 10272		Specified by FDA-BAM M30a		GranuCult™ mCCD Agar (Base) acc. ISO 10272	
Meat Extract	10 g/l	Meat Extract	10 g/l	Meat Extract	10 g/l
Enzymatic Digest of Animal Tissues	10 g/l	Enzymatic Digest of Animal Tissues	10 g/l	Enzymatic Digest of Animal Tissues	10 g/l
Enzymatic Digest of Casein	3 g/l	Enzymatic Digest of Casein	3 g/l	Enzymatic Digest of Casein	3 g/l
Charcoal	4 g/l	Charcoal	4 g/l	Charcoal	4 g/l
Sodium Chloride	5 g/l	Sodium Chloride	5 g/l	Sodium Chloride	5 g/l
Sodium Deoxycholate	1 g/l	Sodium Deoxycholate	1 g/l	Sodium Deoxycholate	1 g/l
Sodium Pyruvate	0.25 g/l	Sodium Pyruvate	0.25 g/l	Sodium Pyruvate	0.25 g/l
Iron (II) Sulfate	0.25 g/l	Iron (II) Sulfate	0.25 g/l	Iron (II) Sulfate	0.25 g/l
-	-	Yeast Extract*	2 g/l	-	-
Agar	8-18 g/l	Agar	8-18 g/l	Agar-Agar**	12 g/l
Water	1000 ml/l	Water	1000 ml/l	Water	n/a
pH at 25 °C	7.4 ± 0.2	pH at 25 °C	7.4 ± 0.2	pH at 25 °C	7.4 ± 0.2
<b>Supplements added after autoclaving</b>					
Cefoperazone	0.032 g/l			Cefoperazone	0.032 g/l
Amphotericin B	0.01 g/l			Amphotericin B	0.01 g/l

\* Yeast Extract may be supplemented before autoclaving to meet the formulation given by FDA-BAM.

\*\*Agar-Agar is equivalent to other different terms of agar.

## Preparation

Dissolve 45.5 g in 1 liter of purified water. Heat in boiling water, and agitate frequently until completely dissolved. Autoclave 15 minutes at 121 °C. Cool to 45-50 °C.

Aseptically add the content of 2 vials of CCDA Selective Supplement (article number 1.00071.0010). Mix thoroughly and pour plates.

To achieve FDA-BAM Medium M30a, add 2 g/l yeast extract (article number 1.03753.0500) to the medium and dissolve before autoclaving.

The prepared medium is black.

## Experimental Procedure and Evaluation

Depend on the purpose for which the medium is used.

Following the procedure given by EN ISO 10272, inoculate the surface of the medium from the selective enriched cultures or direct from the initial suspension so that well-isolated colonies will be obtained.

Plates must be dried directly prior to inoculation in order to prevent presence of condensing water on the surface and swarming of the bacteria (see EN ISO 11133).

Incubate the solid media in a microaerobic atmosphere at 40.5-42.5 °C for 40-48 h to detect the presence of colonies presumed because of their characteristics to be *Campylobacter*.

Microaerobic atmosphere can be achieved by using Anaerocult® C or C mini in an anaerobic jar. Prevent drying out of the surface of the plates during incubation!

These colonies are confirmed following the procedure given by EN ISO 10272.

### 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 to EN ISO 10272-1, self-prepared complete medium can be stored at +1 °C to +5 °C in the dark and protected against evaporation for up to 7 days.

### Quality Control

Function	Control strains	Incubation	Method of control	Expected results
Productivity	<i>Campylobacter coli</i> ATCC® 43478	40-48 h at 40.5-42.5 °C microaerobic	Qualitative	Good growth
	<i>Campylobacter jejuni</i> ATCC® 33291			
	<i>Campylobacter jejuni</i> ATCC® 29428			
Selectivity	<i>Escherichia coli</i> ATCC® 8739	40-48 h at 40.5-42.5 °C aerobic	Qualitative	Inhibited growth
	<i>Escherichia coli</i> ATCC® 25922			
	<i>Proteus mirabilis</i> ATCC® 29906			No growth

Please refer to the actual batch related Certificate of Analysis.

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



*Campylobacter jejuni* ATCC® 33291

## Literature

Bolton, F.J. and Robertson, L. (1982): A selective medium for isolating *Campylobacter jejuni/coli*. J. Clin. Path. **35**: 462-467.

Bolton, F.J., Coates, D., Hinchcliffe, P.M. and Robertson, L. (1983): Comparison of selective media for isolation of *Campylobacter jejuni/coli*. J. Clin. Path. **36**: 78-83.

Bolton, F.J., Hutchinson, D.N. and Coates, D. (1984): Blood-free selective medium for isolation of *Campylobacter jejuni* from feces. J. Clin. Microbiol. **19**, 169-171.

Corry J.E.L. and Atabay, H.I. (2012): Culture media for the isolation of *Campylobacters*, *Helicobacters* and *Arcobacters*. In: Handbook of Culture Media for Food and Water Microbiology. (Corry, J.E.L., Curtis, G.D.W. and Baird, R.M. eds), pp. 403 - 435. Royal Society of Chemistry, Cambridge, UK.

FDA-BAM (2001): Chapter No. 7: *Campylobacter*. U.S. Food and Drug Administration - Bacteriological Analytical Manual.

ISO International Standardisation Organisation. Microbiology of food, animal feed and water - Horizontal method for detection and enumeration of *Campylobacter spp.* - Part 1: Detection method. EN ISO 10272-1:2006.

ISO International Standardisation Organisation. Microbiology of food and animal feeding stuffs -- Horizontal method for detection and enumeration of *Campylobacter spp.* - Part 2: Colony-count technique EN ISO/TS 10272:2006.

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
GranuCult™ mCCD (Modified Charcoal Cefoperazone Deoxycholate) Agar (Base) acc. ISO 10272	1.00070.0500	500 g
CCDA Selective Supplement	1.00071.0010	10 vials
Yeast Extract granulated	1.03753.0500	500 g
Anaerobic jar	1.16387.0001	1 ea
Anaeroclip®	1.14226.0001	1 x 25
Anaerocult® C	1.16275.0001	1 x 10
Anaerocult® C mini	1.13682.0001	1 x 25
Plate basket	1.07040.0001	1 ea
GranuCult™ BOLTON Broth (Base) acc. ISO 10272	1.00068.0500	500g
Bolton Broth Selective Supplement	1.00079.0010	10 vials
Singlepath® Campylobacter	1.04143.0001	25 tests

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