PRODUCT INFORMATION

Product Type: Divided Petri Dishes 90mm (DD)

Cat No. DD048 - CNA COLUMBIA + BLOOD / MACCONKEY AGAR

Intended Use:

CNA Columbia + Blood

Columbia CNA Agar supplemented with 5% sheep blood, is a selective and differential media used for the isolation and differentiation of gram-positive microorganisms from clinical and nonclinical materials.

MacConkey Agar

Used for the isolation and confirmation of *Escherichia coli* and other Enterobacteriaceae, e.g. *Salmonella* and *Shigella*, from the food chain, cosmetic, pharmaceutical and other materials.

Principle and Uses:

CNA Columbia + Blood

Selective blood agar medium containing colistin and nalidixic acid to suppress Gram-negative bacteria, enriched with 5% sheep blood for the growth and hemolytic differentiation of Gram-positive cocci.

CNA Columbia + Blood derive its superior growth-supporting properties from the combination of peptones prepared from pancreatic digest of casein, peptic digest of animal tissue and beef extract. Yeast extract and corn starch are also included in the formulation and serve as energy sources, with yeast extract being a supplier of the B-complex vitamins. Sheep blood supports the growth of fastidious organisms and allows detection of hemolytic reactions. It should be noted that this medium has a relatively high carbohydrate content and, therefore, beta-hemolytic streptococci may produce a greenish hemolytic reaction that may be mistaken for alpha hemolysis.

The addition of the antimicrobial agents, colistin (or polymyxin B) and nalidixic acid, renders the medium selective for gram-positive microorganisms. Colistin and polymyxin B disrupt the cell membrane of gram-negative organisms, whereas the nalidixic acid blocks DNA replication in susceptible gram-negative bacteria.

MacConkey Agar

MacConkey agar is a pink-red, selective and differential medium that isolates Gram-negative bacteria and distinguishes lactose fermenters (pink/red colonies) from non-fermenters (colorless colonies), while inhibiting Gram-positive growth.

MacConkey Agar contains crystal violet and bile salts that inhibit the growth of the Gram-positive microbial flora whilst it allows the Gram-negative bacteria to grow. Peptones provide nitrogen, vitamins and amino acids. Lactose and the pH indicator neutral red are used to detect lactose degradation. The fermentation of lactose is causing a local drop down of the pH, resulting in a colour change of the pH indicator neutral red. By this, reddish-pink colonies are formed and the medium around the colonies changes its colour to reddish. Often a bile precipitation zone around the colony is formed. Bile salts and crystal violet inhibits the growth of Gram-positive bacteria. Agar is the solidifying agent.

Composition

CNA Columbia + Blood

Pancreatic Digest of Casein - 12.0 g/L
Peptic Digest of Animal Tissue - 5.0 g/L
Yeast Extract - 3.0 g/L
Beef Extract - 3.0 g/L
Corn Starch - 1.0 g/L
Sodium Chloride - 5.0 g/L
Agar - 13.5 g/L
Colistin - 10.0 mg/L
Nalidixic Acid - 10.0 mg/L
Sheep Blood – 50 ml/L

MacConkey Agar

Pancreatic digest of gelatin - 17.0 g/L
Peptic digest of casein - 1.5 g/L
Peptic digest of animal tissue - 1.5 g/L
NaCl - 5.0 g/L
Lactose - 10.0 g/L
Bile salt mixture - 1.5 g/L
Neutral red - 0.04 g/L
Crystal violet - 0.001 g/L
Agar - 13.5 g/L

Storage: 2-8°C
Appearance:
CNA Columbia + Blood: Cherry Red
MacConkey Agar: Clear, dark-red

pH Range:
CNA Columbia + Blood: 7.1 - 7.5
MacConkey Agar: 6.9 - 7.3

Package contents: 10 plates in a package
Exp. Date: Printed on label and on the item.
Required materials not supplied: Laboratory equipment as required.

Warning and Precautions - For professional use only. Follow good microbiological lab practices while handling specimens and culture. Do not use Petri dishes if they show evidence of microbial contamination, discoloration, drying, cracking, or other signs of deterioration. Avoid freezing and overheating. The Petri Dishes may be used / inoculated up to the expiration date and incubated for the recommended incubation times. After use and prior to discarding, specimen containers and all contaminated material, including the used culture media and contaminated culture containers, must be sterilized or incinerated by validated procedures. Since the nutritional requirements of organisms vary, some strains may be encountered that fail to grow or grow poorly on this medium.
If excessive moisture is observed, invert the bottom over an off-set lid and allow to air dry in order to prevent formation of a seal between the top and bottom of the plate during incubation.
Storage Instructions: On receipt, store plates in the dark at 2–8 °C. Avoid freezing and overheating. Do not open until ready to use.

Waste Disposal

After interpretation all items should be destroyed by standard incineration methods.

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Implementation Date: 17/11/25
Version Number: 01

Performance Testing Results:
GPT: inoculum 10-100 cfu.
Inhibitory properties: inoculum 10000 cfu.

TEST	ATCC	Incubation Temp. (℃)	Incubation Cond.	Reaction 1 CNA COLUMBIA		Reaction 2 MC	
Klebsiella pneumoniae	13883	33-37 ℃	Aerobic or 5% CO2, 24 hours	/		Growth	Red pink, mucoid
Proteus mirabilis	4630	33-37 ℃	Aerobic or 5% CO2, 24 hours	Inhibited		Growth	Colorless, non-swarming
Salmonella typhimurium	14028	33-37 ℃	Aerobic or 5% CO2, 24 hours	/		Growth	Colorless
Shigella flexneri	29903	33-37 ℃	Aerobic or 5% CO2, 24 hours	/		Growth	Colorless
Escherichia coli	25922	33-37 ℃	Aerobic or 5% CO2, 24 hours	Inhibited		Growth	Red-pink, slight precipitate
Pseudomonas aeruginosa	27853	33-37 ℃	Aerobic or 5% CO2, 24 hours	Inhibited		Growth	Colorless
Staphylococcus aureus	25923	33-37 ℃	Aerobic or 5% CO2, 24 hours	Growth	Beta hemolytic reaction	Inhibited	
Streptococcus pyogenes group A	19615	33-37 ℃	Aerobic or 5% CO2, 24 hours	Growth	Beta hemolytic reaction	/	
Streptococcus pneumoniae	49619	33-37 ℃	Aerobic or 5% CO2, 24 hours	Growth	Alpha hemolytic reaction	/	

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