

Campylobacter Selective Supplement (Skirrow)

PRODUCT INFORMATION

V001-250mg - Vancomycin HCl, Powder, 250mg

V001-1g - Vancomycin HCl, Powder, 1g

V001-5g - Vancomycin HCl, Powder, 5g

T011-5g - Trimethoprim, Powder, 5g

T011-25g - Trimethoprim, Powder, 25g

T011-100g - Trimethoprim, Powder, 100g

P007-1MU - Polymyxin B Sulfate, Powder, 1MU

P007-10MU - Polymyxin B Sulfate, Powder, 10MU

P007-100MU - Polymyxin B Sulfate, Powder, 100MU

DESCRIPTION

Columbia Blood Agar Base with Campylobacter Selective Supplement (Skirrow) is a selective medium for the isolation of *Campylobacter* species at 42°C.

BACKGROUND

Vancomycin is a glycopeptide antibiotic used in the prophylaxis and treatment of infections caused by Gram-positive bacteria.

Trimethoprim is a bacteriostatic antibiotic which belongs to the class of chemotherapeutic agents known as dihydrofolate reductase inhibitors.

Polymyxin B is an antibiotic primarily used for resistant gram-negative infections. It is derived from the bacterium *Bacillus polymyxa*. Polymyxin B is a mixture of two closely related compounds, polymyxin B1 and polymyxin B2. It has a bactericidal action against almost all gram-negative bacilli except the Proteus group.

Mechanism of action

Vancomycin acts by inhibiting proper cell wall synthesis in Gram-positive bacteria. Due to the different mechanism by which Gram-negative bacteria produce their cell walls and the various factors related to entering the outer membrane of Gram-negative organisms,

vancomycin is not active against Gram-negative bacteria (except some non-gonococcal species of *Neisseria*).

Trimethoprim acts by interfering with the action of bacterial dihydrofolate reductase, inhibiting synthesis of tetrahydrofolic acid. Tetrahydrofolic acid is an essential precursor in the de novo synthesis of the intermediate Thymidine monophosphate (dTMP), precursor of DNA metabolite Thymidine triphosphate. Bacteria are unable to take up folic acid from the environment (i.e. the infection host) and are thus dependent on their own de novo synthesis. Inhibition of the enzyme starves the bacteria of nucleotides necessary for DNA replication causing, in certain circumstances, cell lethality due to thymineless death.

APPLICATION IN COLUMBIA BLOOD AGAR BASE

Campylobacter Selective Supplement (Skirrow) is based on the formulation of Skirrow. The antibiotic supplement is designed to be used at 42°C for optimum selective effect.

Polymyxins bind to the cell membrane and alter its structure, making it more permeable. The resulting water uptake leads to cell death.

Content concentrations

Typical Formula*	mg/litre
Columbia Blood Agar Base	
Special peptone	23
Starch	1
Sodium chloride	5
Agar	10
Final pH 7.3 ± 0.2 @ 25°C	
Campylobacter Selective Supplement (Skirrow)	
Vancomycin	10
Trimethoprim	5
Polymyxin B	2500 IU (≈ 0.3 mg)
* Adjusted as required to meet performance standards	

Table 1 typical formula for Columbia Blood Agar Base and Campylobacter Selective Supplement (Skirrow)

METHOD

Preparation

Add appropriate amount of Columbia blood agar

base to distilled water. Boil to dissolve and sterilise by autoclaving at 121°C for 15 minutes. Aseptically add supplements reconstituted as directed. Mix gently and pour into sterile Petri dishes.

Protocol

1. Prepare Campylobacter Selective Supplement (Skirrow) plates as described in the preparation for use.
2. Emulsify approximately 0.5 g of the specimen in 5 ml of sterile 0.1% peptone water to form a 1:10 dilution.
3. Inoculate on to selective medium with cotton tipped swabs so that single isolated colonies are formed.
4. Incubate the plates in an atmosphere consisting of approximately 5-6% oxygen, 10% carbon dioxide and 84-85% nitrogen for 48 hours at 42°C.
5. Examine the plates and confirm the typical colonies as *Campylobacter* species.

Quality control

Campylobacter jejuni ATCC® 33291: Good growth; grey brown coloured colonies

Negative control:

Escherichia coli ATCC® 25922: Inhibited

REFERENCES

1. Skirrow M. B. (1977) BMJ 2. 9-11.

