X + V factor disc

Cat. 7159

6-mm discs prepared by impregnating high quality absorbent paper with accurately determined amounts of X+V growth factors for the identification of Haemophilus.

Practical information

Industry: Clinical

CE
IVD

Principles and uses

X and V Factor Disks are paper disks impregnated with X (hemin) and V (nicotinamide adenine dinucleotide - NAD) growth factors. They are used for the differentiation of Haemophilus species, including Aggregatibacter aphrophilus based upon their requirements for the growth factors.

Haemophilus genus is a group of small polymorphic gram-negative bacteria whose isolation requires rich media, usually containing blood or its derivatives. Type B Haemophilus influenzae is pathogenic microorganisms of relevance for the human being. Haemophilus ducreyi, is also a pathogen, sexually transmitted, which produces chancroid. Other bacteria of the Haemophilus genus are part of the normal microflora of the mucosa and only in certain ocasions develop a disease.

Haemophilus influenzae, Haemophilus parainfluenzae, and several other members of the genus Haemophilus require V factor (ß-nicotinamide adenine dinucleotide NAD) and X factor for growth. Unlike most bacteria, these species are not able to synthesize NAD de novo from low-molecular weight compounds but use a limited number of exogenous pyridine nucleotides or precursors as a source of NAD. The factor V has a physiological action similar to hemin, and it can be replaced with nicotinamide and adenine nucleotide (NAD, nicotinamide adenine nucleotide) or other coenzymes.

Formula in g/L

Instructions for use

» For clinical diagnosis, the type of samples are pured cultures.

1.- PREPARATION OF MATERIAL:
4-5 suspect colonies that show similar morphology are taken from the primary isolation medium to Trypticasein Soy Broth (T.S.B.) (Cat. 1224) or saline broth. Adjust the turbidity with a Mc Farland Standard Tube 0.5 (equivalent to a uniform suspension of 1.5x108 bacterial cells/ml). If the bacteria concentration is low, incubate for 3 hours and adjust.
It is important not to carry over any X-factor or V factor contained in the medium that the organism is taken from.

2.- INOCULATION INTO PETRI DISH:
Streak the entire surface of a factor-free media, turning the plate, such as Mueller Hinton Petri Dish (Cat. 1058) or other appropriate agar Brain Heart Infusion Agar (Cat. 1048), Trypticasein Soy Agar (Cat. 1224), with the help of a loop.
After inoculation, leave the plates unsealed for 10-15 minutes to allow for any surface moisture to be absorbed before applying the growth factor discs.

3.- GROWTH FACTOR DISC APPLICATION:
Allow containers to reach room temperature before opening. Open the CONDA discs cartridge under the flame and discharge the disc with the trigger or flamed and cooled forceps. Press the disc gently into the agar with the help of the forceps. Place them at least 4 to 5 cm apart.

4.- INCUBATION:
Place the Petri Dish into the incubator inversely at 35 ºC for 18-48 hours, in 5-10% CO_2.

5.- RESULTS:
Observe for growth or no growth around the disks.

Organisms that require only X-Factor will grow only in the area of the X- and XV-Factor Disks. Organisms that require only V-Factor, will grow only in the areas of the V- and the XV-Factor Disks. If both X- and V-Factors are required, the organism will grow only in the area of the XV-Factor Disk.

In cases where slight growth occurs around the V-Factor Disk, the growth must be at least equal in amount to that around the XV-Factor Disk before the organism can be considered H. parainfluenzae.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)

Microbiological test

The product mentioned above has been approved according to the accepted procedures that are prescribed and validated thoroughly by the main microbiological circles.

The information mentioned above is accurate to the best of our knowledge and belief.

Microrganisms	Specification	Characteristic reaction
Haemophilus influenzae (H. aegyptius)	Growth factor: X (+), V (+)	Hemolysis (-)
Haemophilus parainfluenzae	Growth factor: X (-), V (+)	Hemolysis (-)
Haemophilus ducreyi	Growth factor: X (+), V (-)	Hemolysis (-)
Haemophilus haemolyticus	Growth factor: X (+), V (+)	Hemolysis (+)
Aggregatibacter aphrophilus	Growth factor: X (-), V (-)	Hemolysis (-)
Haemophilus parahaemolyticus	Growth factor: X (-), V (+)	Hemolysis (+)
Haemophilus segnis	Factor de crecimiento: X (-), V (+)	Hemolysis (-)

Storage

Temp. Min.:8 ºC
Temp. Max.:-20 ºC

Bibliography

Jorgensen., et al. Manual of Clinical Microbiology, American Society for Microbiology, Washington, D.C.
Helen M. Windsor, Rosa C. Gromkova, Hendrik J. Koornhof Growth Characteristics of V Factor-Independent Transformants of Haemophilus influenzae. Emergent Pathogen Research Unit of the South African Medical Research Council, School of Pathology of the University of the Witwatersrand and the South Afiacan Institute for Medical Research.
Jawetz, E., Melnick, J. and Adelberg, E. (1965). Manual de microbiologi´a me´dica. Me´xico: El Manual Moderno.