



# BACITRACIN DISKS

- For in vitro use only -

Catalogue No. DB10

Our Bacitracin Disks are used in the presumptive identification of group A,  $\beta$ -hemolytic streptococci, and allows for differentiation of group A,  $\beta$ -hemolytic streptococci from other  $\beta$ -hemolytic streptococci.

Bacitracin is active mainly against gram-positive organisms and inhibits cell wall synthesis of actively growing cells. Studies performed by Maxted showed that group A streptococci to be much more sensitive to bacitracin than other  $\beta$ -hemolytic streptococci. He found that 99.0% of group A streptococci were inhibited by bacitracin while only 4.7% of non-group A beta-hemolytic streptococci were inhibited by bacitracin. The bacitracin test should be performed in conjunction with a SXT susceptibility test as the combined results increase the sensitivity and predictive value of the bacitracin test. Bacitracin/SXT susceptibility tests are still in use where facilities for serologic group determination are unavailable.

Bacitracin	SXT	Presumptive ID
S	R	Group A $\beta$ -streptococci
R	R	Group B $\beta$ -streptococci
R	S	Not Group A or B $\beta$ -streptococci
S	S	Rule out Group A or B $\beta$ -streptococci by serologic tests

## Recommended Procedure

1. Select 3 to 4 well-isolated colonies of the suspect organism derived from a pure, overnight culture plate.
2. Using a sterile swab streak the organism onto a non-selective Blood Agar Plate in three directions to obtain a heavy, confluent growth.

3. Aseptically place a bacitracin disk on to the agar surface.
4. Incubate at 35°C for 18 to 24 hours in an aerobic environment supplemented with 5-10% CO<sub>2</sub>.
5. Examine the plate and measure the zone of inhibition around the disk.

## Interpretation of Results

A zone of inhibition  $\geq 14$ -mm indicates susceptibility to bacitracin and is presumptive of Group A streptococci.

A zone of inhibition  $< 14$ -mm indicates resistance to bacitracin and is indicative of non-Group A  $\beta$ -hemolytic streptococci. Additional biochemical and/or serological tests should be performed on isolated colonies from pure culture in order to complete identification.

- *The bacitracin test is an accurate presumptive test for group A streptococci, but not highly specific since more than 10% of group C and G streptococci and 5% of group B strains are also susceptible to Bacitracin*
- *Only  $\beta$ -hemolytic streptococci should be tested since many  $\alpha$ -hemolytic streptococci, including *S. pneumoniae*, are susceptible to low concentrations of bacitracin*

## Quality Control

Organism	Expected Results
<i>Streptococcus pyogenes</i> ATCC 19615 (Group A)	S Bacitracin susceptible
<i>Streptococcus agalactiae</i> ATCC 27956 (Group B)	R Bacitracin resistant

## **Storage and Shelf Life**

Our Bacitracin Disks should be stored at -20°C and protected from light. Under these conditions they have a shelf life of 52 weeks from the date of manufacture.

## **References**

1. Baron EJ, Tenover FC, Tenover FC. *Bailey and Scott's diagnostic microbiology*. 8th ed. St. Louis: Mosby, 1990.
2. Balows A, Hausler WJ, Herman KL et al. *Manual of clinical microbiology*. 5th ed. Washington, DC: ASM, 1991.
3. MacFaddin, JF. *Biochemical Tests for the Identification of Medical Bacteria*, 3rd ed. Philadelphia: Lippincott Williams & Wilkins, 2000.

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