

**TITLE:** MOLECULAR DIAGNOSIS OF BETA LACTAMASES RESISTANCE GENES

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**ABSTRACT:**

The emergence and spread of antimicrobial resistance are problems of great global importance. Resistance to antibiotics occurs naturally from the bacterial population's ability to adapt. Strains with resistance to various classes of antibiotics emerged among the major species of Gram-positive and Gram-negative bacteria. The indiscriminate use of antibiotics allows greater exposure to bacteria and allows the acquisition of mechanisms of resistance of these pathogens. B-lactamases are enzymes that hydrolyze the  $\beta$ -lactam ring thus preventing the action of  $\beta$ -lactam antibiotics. The detection of microorganisms producing  $\beta$ -lactamases is intended to assist the Hospital Infection Control Commission (CCIH) In preventing the spread of this resistance mechanism In the hospital environment and prevent it from reaching the community, as well as emphasize the rational use of available antimicrobials for clinical use. The objective of this work is to make a molecular diagnosis of 8 beta-lactamase resistance genes in 100 samples of gram positive and gram negative bacteria. Initially, a literature review was performed on resistance genes and later, the Kirby and Bauer methods for the antibiogram were used to verify resistance to antimicrobial beta-lactam antibiotics, and subsequent molecular analyzes would be performed through the polymerase chain reaction method conventional and real-time using the Syber Green system. Among the preliminary results, the study presents bibliographic data on the relationship between beta-lactam antibiotics and resistance genes. The blaKPC, blaSHV, blaVIM, blaVIM, blaSIM, blaSPM genes were resistant to piperacillin + tazobactan, ciprofloxacin, aztreonam and ceftazidime as the blaSPM, blaVIM and blaKPC genes were resistant to amikacin, cefepime, gentamicin. Following the criteria established by the Institute of Clinical and Laboratory Standards, this work presents the beta-lactam resistance shown by the same bacteria.

**Keywords:** antibiogram, antimicrobial resistance, beta-lactams, genes, molecular diagnostic

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