

# Amide Derivatives of Glycopeptides Antibiotics to Overcome Antibiotics Resistance

Ahmad Hussien\*

Department of Immunology, University of Kentucky, Kentucky, USA

\*Corresponding author: Ahmad Hussien, Department of Immunology, University of Kentucky, Kentucky, USA, E-mail: ahmadhussenajdidjdj@edu.in

**Citation:** Hussien A (2021) Amide Derivatives of Glycopeptides Antibiotics to Overcome Antibiotics Resistance. J Clin Immunol Allergy Vol.7 No.6:02.

**Received date:** December 6, 2021; **Accepted date:** December 20, 2021; **Published date:** December 27, 2021

## Introduction

Periodontitis is one of the most common diseases in dentistry. Black-pigmented, gram negative oral anaerobes such as porphyromonas gingival is and prevotella intermediate are thought to be pathogens in adult periodontitis. Anti-biotherapy is usually needed in the treatment of periodontitis, but treatment is often inappropriate leading to bacterial resistances, a serious problem in dental practice. Consequently, identification of resistance genes in these microorganisms is crucial, to allow prescription of specific antibiotics. This study identified bacterial species by PCR as well as their antibiotic resistances. Identification of porphyromonas gingival is and prevotella intermediate was performed according with Ashimoto et al. identification of TetM, TetQ and TEM genes was done according with Koukos, et al. and the CfxA gene according with Handal et al. Prevotella intermediate represented 44% and porphyromonas gingival is 20% of total isolates. Remaining 36% strains belonged to other black-pigmented species. Concerning the antibiotic resistance genes, it was seen that 8% of isolates had one of the tetracycline resistance genes (TetQ or TetM). CfxA gene was detected in 2% and TEM gene in 30% of strains. Strains with tetracycline (TetQ or TetM) resistance genes also harboured the TEM gene. Prevotella sp. was the most prevalent bacterial species found in periodontic infections, as expected. Most strains (64%) with the TEM gene were identified as inter media and only 7% of identified gingival is had one of the analyzed resistance genes. No tetracycline resistance gene was observed in gingival is strains. Glyco peptide antibiotics were once considered as drug of choice of serious gram positive infections. These antibiotics interrupt bacterial cell wall synthesis to exert their antibacterial effects. They pose higher barrier for drug resistance development, as they target non-protein components of bacterial cell wall. However, these antibiotics are increasingly becoming less effective due to emergence of resistant strains.

To address this issue, modification of glycol peptide antibiotics to enhance their activity is therefore a useful strategy to develop new compounds against drug-resistant strains. We explored an underutilized reactive site on the glycol peptide antibiotics and developed a simple yet highly efficient scheme to synthesize various analogs. Using this scheme, the C-terminal carboxyl group of vancomycin was reacted with amine compounds to yield carboxamide analogs some of which with improved antibacterial activity up to 100 times. Usually multiple chemical reactions are needed to prepare antibiotic analogs. Our single-step scheme provides a simple yet efficient methodology to develop potent analogs of vancomycin. Different analogs are synthesized by reacting series of diamines with vancomycin.

## Scottish Immunization Recall System

To protect children and other vulnerable groups from vaccine-preventable diseases, population-level immunity must be attained and individuals must have timely vaccinations to minimize their risk of infection. This project assesses the relationship between deprivation, vaccination uptake, and timeliness in NHS Lothian, the second-largest health board in Scotland, to understand inequities in immunization and to see how the relationship has changed over the past decade. This retrospective cohort study uses immunization data from the Scottish Immunization Recall System (SIRS) for four routine childhood vaccines: the Third dose of the Primary Vaccine (TPV), both doses of Measles, Mumps, Rubella (MMR), and the Preschool Booster (PSB). The data include ten years of immunizations administered between 2008 and 2017. This study finds strong evidence for an association between deprivation and uptake and timeliness. Though uptake is high (>96%), immunization rates differ by deprivation decile with reduced risks of non-vaccination in the most deprived groups and increased risk in the least deprived deciles. Vaccines were not administered in a timely manner with more than half of the population experiencing delay.