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Drug Resistance Modulation of *Pseudomonas aeruginosa* by Neomycin †

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Abstract: Aminoglycoside is a class of antibiotic that suppresses protein synthesis and damage the outer cell membrane. Many topical medicines had neomycin, such as an ointment, eye drops, and creams, considered aminoglycoside antibiotics. The gram-negative bacteria of *Pseudomonas aeruginosa* can cause many burn infections, which curative and treated with these antibiotics of neomycin. *Pseudomonas aeruginosa* is one of the important opportunistic pathogens that show adaptive resistance to aminoglycosides (Neomycin, Gentamycin). MexXY-OprM efflux pump is an important factor for the pathogens to moderate the adaptive resistance against the aminoglycosides. There are three important mechanisms present in the pathogen, which helps the organisms defend against the antimicrobial agents, such as drug inactivation, changes in targets, and drug efflux and restricted uptake. The purpose of this study is to generate the neomycin-resistance properties in *P. aeruginosa* cells. For this experimental study, *P. aeruginosa* cells were treated with a high concentration of neomycin for a prolonged time, and the surviving cells were collected as neomycin-resistant cells. The cells voluntarily adjust and modify their properties, depending on the environmental condition. Future studies will focus on the cells' drug-efflux behavior with gallic acid treatments.

Keywords: neomycin; *Pseudomonas aeruginosa;* neomycin resistance.

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Conflicts of Interest

The authors declare no conflict of interest.