

# Analysis the Antimicrobial Effect of *Streptomyces* Strain Collection Against Resistant Bacteria by using Gene Mapping

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**Abstract:**

In modern society, the increasing prevalence of multidrug-resistant bacteria poses a significant and alarming threat. Among these bacteria, *Pseudomonas aeruginosa* stands out as the most commonly encountered multidrug-resistant bacterium, capable of causing a wide range of diseases. In our study, we focused on analyzing the antibacterial activity of two *Streptomyces* K189 and K145 collected in our lab. Molecular biological identification confirmed them as *Streptomyces rimosus* strains. Our experiments employed three different methods: streak plating, agar diffusion method, and filter paper diffusion method. The results revealed that both strains exhibited selective inhibitory activity against specific strains of *Pseudomonas*. Notably, K189 showed stronger inhibitory effects on P66 and P18 compared to K145, while neither strain showed inhibition against *Pseudomonas aeruginosa* P43. Genomic analysis using the CLC Genomics Workbench Tool identified the presence of OTC resistance genes, including *otrB* and *otrC*, in strains K145T and K189T, suggesting their potential for oxytetracycline production. Further studies are warranted to explore the selectivity mechanism and potential applications of these strains against the specific target strains.

**Keywords:** *Streptomyces*, molecular biological identification, antibacterial activity, cross-streak method, *Ps. Aeruginosa*, *Streptomyces rimosus*

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