Ribosplode! Macrolide-Mediated Ribosomal Polymorphisms

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As the development of novel antibiotics slows and pathogenic bacteria develop mutations to counter antibiotics, understanding mutant genes contributing to resistance becomes critical. Among Gram-negative bacteria like E. coli and V. cholerae, ribosomal mutations often lead to Macrolide resistance. While extensively studied in these species, macrolide resistance in V. natriegens remains unexplored. Using a chemostat for sustained drug inhibition, I monitored V. natriegens' directed evolution against erythromycin, a common Macrolide. I anticipated the evolution of 23S rRNA and 50S subunit mutations under erythromycin stress. Surprisingly, I also observed 16S rRNA and 30S subunit mutations alongside the expected ones. This insight into ribosome-mediated resistance in V. natriegens could serve as a model for understanding resistance in related pathogens.

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