

P027 Enhanced protein synthesis activity during the late growth phase in an antibiotic-overproducing *rpsL* mutant of *Streptomyces coelicolor* A3(2)

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Antibiotic production in bacteria is often activated or enhanced by certain mutations in the *rpsL* gene (encoding the ribosomal protein S12) that confer resistance streptomycin. Recently, we found that K88E *rpsL* mutant of *Streptomyces coelicolor* A3(2), with enhanced antibiotic production, exhibited an aberrant protein synthesis activity during the late growth phase. In this study, we have uncovered characteristic properties in the K88E mutant with respect to protein synthesis *in vitro*. The results demonstrated that the K88E mutant ribosomes from the stationary phase cells have a high capacity for translating both synthetic polynucleotide and natural mRNA; S150 solution from K88E mutant cells grown to stationary phase supports a higher level of translational activity; and the K88E mutant ribosomes are structurally more stable under the stress conditions such as amino acids starvation and low concentration of magnesium. We concluded that the increased stability of the 70S particles and level of specified translation-associated factors are responsible for the aberrant activation of protein synthesis in the *S. coelicolor* K88E mutant. Our findings lead to the suggestion that the K88E mutation enhances the capacity of cells to synthesize proteins under the conditions of starvation encountered in the late growth phase.