

Mycobacteriophage TM4 Tape-Measure Protein Blocks Entry into Stationary Phase of Tuberculosis

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The treatment of tuberculosis requires a minimum of 6 months of multidrug therapy. Antibiotic efficacy is complicated by a bacterial subpopulation of “persisters”. The persisters are genotypically susceptible, but phenotypically resistant to antibiotics. Currently, persistence is thought to be a result of dormancy by the bacteria. A possible method to eliminate these persister cells lies in utilizing the tape measure protein (TMP) from phages. These TMPs have homology to resuscitation promoting factor (Rpf) proteins found in *Micrococcus luteus*, *Mycobacterium tuberculosis*, and other bacteria. Rpfs are used to resuscitate bacteria from a stationary phase to an active growth. Analysis of data shows that the expression of these proteins blocks the bacteria’s ability to enter stationary phase and thus could prove to be a useful tool in blocking the formation of persistent bacteria and dramatically reducing the length of treatment and formation of antibiotic resistant progeny.

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