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# Enzymatic Characterization of an Endolysin Mediated by Chaperonin in Bacteriophage phi EL

Diana A. Tafoya<sup>^</sup>

*Department of Chemistry, University of Texas at El Paso, datafoya@miners.utep.edu*

Nadia Herrera

*Department of Chemistry, University of Texas at El Paso, nherrera3@miners.utep.edu*

Sudheer Molugu

*Department of Chemistry, University of Texas at El Paso, skmolugu@miners.utep.edu*

Zachariah Hildenbrand

*Department of Chemistry, University of Texas at El Paso, zhildenbrand@miners.utep.edu*

Maxim V. Filchikov

*Laboratory of Molecular Bioengineering, Russian Academy of Sciences*

*See next page for additional authors*

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**Author or Authors**

Diana A. Tafoya<sup>^</sup>, Nadia Herrera, Sudheer Molugu, Zachariah Hildenbrand, Maxim V. Filchikov, Vadim V. Mesyanzhinov, Konstantin A. Miroshnikov, and Ricardo A. Bernal\*

# Enzymatic Characterization of an Endolysin Mediated by Chaperonin in Bacteriophage phi EL

Diana A. Tafoya<sup>1</sup>, Nadia Herrera<sup>1</sup>, Sudheer Molugu<sup>1</sup>, Zachariah Hildenbrand<sup>1</sup>, Maxim V. Filchikov<sup>2</sup>, Vadim V. Mesyanzhinov<sup>2</sup>, Konstantin A. Miroshnikov<sup>2</sup>, and Ricardo Bernal\*<sup>1</sup>

*1 \*Department of Chemistry, University of Texas at El Paso, El Paso TX*

*2 Laboratory of Molecular Engineering, Russian Academy of Sciences, Moscow RU*

Bacteriophage phi-EL is a virus that attacks the human pathogen *Pseudomonas aeruginosa*. One of the gene products from phi-EL is a putative endolysin. Endolysin is an enzyme produced during gene expression in the lytic cycle of the bacteriophage. Its function is to digest the peptidoglycan layer of the host cell wall, thereby releasing the newly formed virions. In order to confirm the identity of this putative endolysin, the gene product was transformed into competent *E. coli* cells, expressed to high levels and purified to high homogeneity using nickel affinity and size exclusion chromatography. The peptidoglycan-hydrolyzing activity of the protein was characterized using a fluorescence-based assay. Assay results demonstrated that the endolysin activity was similar to the peptidoglycanhydrolyzing activity of *Gallus gallus lysozyme*, which supports the identity of the putative gene product as an endolysin. The kinetics of the reaction have been analyzed and calculated. X-ray crystallography will be utilized to determine the structure of endolysin. Structure determination of this protein will be used to study the lytic cycle of the bacteriophage phi-EL and function of the endolysin. This can lead to manipulation of bacterial lysis that can in turn provide treatments and medication for bacterial infections.