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MOLECULAR CLONING AND CHARACTERIZATION OF LEA GENES FROM DEINOCOCCI

Erica Soboslay, Esther Juárez, Robert Ziemba, James Tuohy
Glendale Community College, Glendale, AZ

Bacteria in the genus *Deinococcus* are known for their ability to resist extreme environmental challenges such as radiation, oxidation, and desiccation. Resistance to desiccation, in *Deinococcus radiodurans* is known to be attributed, in part, to the expression of group 3 Late Embryogenesis Abundant Protein (LEA). Little is known about group 3 LEA proteins in *D. radiodurans*, but their function may be related to the hydrophilic structure of the protein and changes to that structure during desiccation.

Several new species of *Deinococcus* have been discovered in the Sonoran desert. The functional role of LEA proteins in these species is unknown. However, the extreme nature of their habitat suggests these species may share similar desiccation resistance strategies to that of *D. radiodurans*.

This study is aimed at cloning and characterizing LEA proteins from *D. radiodurans* and *D. hopiensis* as well as other desert *Deinococcus* species. In order to investigate the role of LEA proteins in the desiccation tolerance of *Deinococci*, the *lea1* gene was isolated and cloned into an expression vector and transformed into *E. coli*. Sequencing results have verified the successful cloning of *lea1* from both *D. radiodurans* and *D. hopiensis*.

Sequence analysis and expression studies of the LEA protein are in progress to determine the role of the protein in desiccation resistance in the *Deinococci*.