DNA holds all the genetic information to form proteins. Thus, if mutations occur in DNA, mutations can occur in proteins that carry out essential functions. *E. coli (Escherichia coli)* uses a specific process to fix mutated DNA, called a mismatch repair pathway. The helicase UvrD in *E. coli* unwinds DNA to repair mutated bases. However, little information is known about the specific mechanism, particularly in eukaryotes. Our project aims to set up the expression of UvrD from thermophilic species of bacteria like commercially obtained *Thermoanaerobacter tengcongensis (Tte)* UvrD and *Thermus aquaticus (Taq)* through the use of plasmid transformation and autoinduction. Additionally, our project aims to determine the role that eukaryotic helicase plays when repairing DNA by purifying UvrD from Taq and setting up ATP hydrolysis and DNA unwinding assays. By the end of the project, the *Tte* UvrD should be compared to its homologous counterpart: *E. coli* UvrD activity. By determining the mechanism and role of *Tte* MMR proteins, we can establish a foundation for understanding the functional capabilities of eukaryotic MMR proteins. Studying *Tte* MMR proteins is ideal, because it is a hybrid system between the eukaryotic and the *E. coli* MMR pathway, and it is simpler to study than a eukaryotic pathway. Furthermore, by understanding *Tte* MMR proteins and by extension eukaryotic proteins, we can further understand how to recognize and treat defective MMR pathways in humans. This provides a new gateway for research pertaining to DNA correction and repair beyond the scope of the project.