

Abstract

Transposons are DNA segments that are capable of moving from one part of the genome to another with the help of the transposase enzymes. The P element in *Drosophila* is a very well studied transposable element. THAP9, which is a homolog of the *Drosophila* P element transposase (DmTNP), has been domesticated in several organisms like humans and zebrafish. The function of THAP9 is not known and the structure has also not been solved so far. However, like DmTNP, THAP9 is predicted to bind GTP and DNA. This study involves building protein models of hTHAP9 and zfTHAP9 on the Robetta server, which was found to be most suitable for molecular modeling. Docking GTP onto THAP9 using Autodock Vina predicted the amino acid residues interacting with the ligand. It was also found that in silico mutation of acidic residues in DmTNP reduces the binding affinity for DNA. This study aims to provide directions to future wet-lab experiments to understand the role of THAP9 in humans and other organisms.