

II. Abstract

Translational control of gene expression plays an essential role during development in a wide variety of organisms. It is often regulated through regulatory elements in the 3' untranslated region (3'UTR) of an mRNA. Regulatory proteins bind these sites and control mRNA stability, translation and localization. One family of regulatory proteins—the Puf proteins—is ubiquitously found in diverse eukaryotic organisms. Functional studies in different organisms have revealed various roles of Puf in embryonic development, stem cell maintenance, germline differentiation, and neuronal development. In this study, I have identified a unique Puf protein (PfPuf3) in the malaria parasite *Plasmodium falciparum*, which are distinctive from traditional Puf proteins in primary structure. To comprehensively understand the functions of PfPuf3, I propose to investigate the subcellular location(s) of PfPuf3 and its association with other partner proteins during parasite development. This study will provide deeper insights into the molecular mechanism governing *P. falciparum* development and may help identify novel targets for chemotherapy.