

Role of EhAK6, an aurora kinase homolog with a unique C-terminal endonuclease V domain in *Entamoeba histolytica*

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The Aurora kinases are well known essential regulators in multiple stages of both mitotic and meiotic cell division in eukaryotic organisms. *Entamoeba histolytica* genome contains coding sequence of seven homologs of Aurora kinases which share sequence identity above 90% in their conserved aurora kinase domain. Among these 7 homologs, EhAK6 is exceptional (Acc. Id: XP_655957.2) as it possesses an Endonuclease V domain located at C-terminus of Aurora kinase domain. Until now, there is no evidence of Aurora kinase protein tagged with Endonuclease V domain in any other organisms. Unlike higher eukaryotes, this human parasite shows irregularities in cell cycle, chromosome segregation and cytokinesis. We have identified several interactors of EhAK6 which include Sir2 family protein, A/G-specific adenine glycosylase, Uracil-DNA glycosylase, DNA repair protein RAD51, DNA repair protein RAD51C, DNA ligase and DNA repair endonuclease and other cell cycle related proteins like Proliferating cell nuclear antigen, Kinesin motor domain-containing protein, Cyclin, WD domain containing protein, Tubulin gamma chain and Serine/threonine-protein kinase PLK1. Their probable structure and molecular interactions have been analysed by homology modelling and molecular docking study. The unique structural feature of EhAK6 may be used as a candidate of novel drug target in human pathogen *E. histolytica*.