IN VIVO ANALYSIS OF THREE eIF4G HOMOLOGUES FROM *TRYPANOSOMA BRUCEI*

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In higher eukaryotes, protein synthesis starts with binding of the translation initiation complex eIF4F to the mRNA. This complex (formed by the eIF4A, eIF4E and eIF4G subunits) allows the recognition of mRNAs by the ribosome during translation initiation. The eIF4G is a scaffolding protein responsible for the correct assembly of the complex. Investigating how translation initiation occurs in trypanosomatids, we have identified multiple homologues for each eIF4F subunit. Five eIF4G homologues were identified within *T. brucei* genome. In order to characterize these homologues, we chose three of them, called *Tb*EIF4G3-5, to perform in vivo analysis, including cellular localization and RNA interference. The knock-down of *Tb*EIF4G3 resulted in cell death before 24h of RNAi induction. In contrast, cells suffering *Tb*EIF4G4 depletion showed growth retardation after 48h and cell death after the 5th day of RNAi maintenance. They also exhibited reduction of mobility and change in morphology. The depletion of *Tb*EIF4G5 also resulted in cellular death but it happened as a delayed phenotype compared to the other two. The cellular localization of these proteins confirmed their presence in the *T. brucei* cytoplasm but TbEIF4G4 seems to have a differential pattern of protein distribution. The five proteins vary in different aspects, but at least two of them (*Tb*EIF4G3-4) had results that indicate an important role in *T. brucei* metabolism.