

Evidence for CRK3 participation in the cell division cycle of *Trypanosoma cruzi*

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Trypanosoma cruzi CRK3 gene encodes a Cdc2p related protein kinase (CRK). To establish if it has a role in the regulation of the parasite cell cycle we studied CRK3 expression and activity throughout three life cycle stages. CRK3 from epimastigote soluble extracts interacted with p13suc1-beads. Endogenous CRK3 phosphorylated histone H1 and this activity was inhibited by specific CDK inhibitors: Olomoucine, Flavopiridol and Roscovitine. Flavopiridol partially inhibited the growth of *T. cruzi* epimastigotes at 50 nM, the lowest concentration used, but even with the highest (5 μ M), cell growth was not completely arrested. CRK3 from Flavopiridol-inhibited epimastigote extracts exhibited a dose dependent inhibition of histone H1 phosphorylation. *T. cruzi* p13suc1-binding CRK displayed the same inhibition profile. This suggests that CRK3 is the enzyme responsible for the majority of the kinase activity associated with p13suc1. CRK3 activity of hydroxyurea (HU) synchronized epimastigotes peaked