Assessment of apoptotic pathways of the host cell during infection by *Trypanosoma cruzi*.

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Introduction: Apoptosis is a phenomenon of cellular degeneration highly conserved evolutionarily, being observed not only during development, but also associated with a number of diseases. Apoptosis is regulated by a complex set of proteins and accomplished by biochemical mechanisms that act to initiate and complete the destruction of the cell. The inhibitors of apoptosis (IAP) proteins are a family of proteins that are involved in cell death, immunity, inflammation and cell cycle. Other important player, the lectin galectin-3 participate in both mitochondrial and death receptor pathways. Many studies have shown intracellular pathogens, like *Trypanosoma cruzi*, exploit host cell apoptotic pathways as a strategy for survival and/or dissemination in the host. The cumulative findings indicate that T. cruzi infection can block apoptosis initiated through death receptor and mitochondrial pathways. It's not fully understood the precise mechanism how *T.cruzi* manipulate host cell death pathway to his own benefits. **Objective**: Our experiments aim to investigate the role of galecin-3, the IAP family proteins, XIAP, cIAP1, cIAP2, Survivin and Bcl-2 family members over apoptosis signaling pathways in infected cells. **Methods**: Galectin-3 stably silenced HeLa (shGAL3) cells and control HeLa SCR (scramble) cells were infected at different times with *T. cruzi* followed by functional analysis: (1) *western blot* analysis to determine the IAP proteins levels, (2) quantitative PCR analysis to determine IAP mRNA levels (3) quantitative PCR analysis to determine Bcl-2 family members mRNA levels (4) cell death quantification by flow cytometry using Annexin V and propidium iodide staining. **Discussion and results:** HeLa shGAL3 infected cells presented higher caspase-3 activity levels in contrast with HeLa scramble cells. HeLa shGAL3 cells express lower mRNA levels of IAP and Bcl-2 family proteins but presented a higher increase after etoposide treatment than HeLa SCR. **Conclusion:** The results suggest that galectin-3 may be important for the expression's regulation of IAP and Bcl-2 family members.

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