ROS Induces Changes in the Interaction of *Leishmania amazonensis* RPA-1 With Telomeres and Its Protein Partners

da Silva, M.S.\(^1,2\), Perez, A.M.\(^1,2\), Nunes, V. S.\(^1\), Cano, M.I.N.\(^1\)

\(^1\)Departamento de Genética, I.B.B., UNESP, Botucatu, \(^2\)UNICAMP, Campinas, São Paulo, Brazil *mamasantos2003@yahoo.com.br*

**INTRODUCTION:** Leishmaniasis is a spectrum of diseases caused by parasites of the genus *Leishmania*. During infection, parasites use different mechanisms to survive host defenses including the exposition to reactive oxygen species (ROS). To overcome these barriers they usually increase the expression of specific proteins, which are able to protect their genome, mainly telomeres, from oxidative damage. However, it is still unknown how these parasites protect telomeres from ROS attack. *Replication Protein A* (RPA) is an important player in DNA metabolism pathways including replication, repair and telomere maintenance. LaRPA-1 was well characterized as a telomeric protein and we have recently shown that at telomeres, in response to DNA double-strand breaks, LaRPA-1 works probably to prevent loss of single-stranded DNA and to assume a capping function.

**MATERIAL and METHODS:** We first established the IC\(_{50}\) for H\(_2\)O\(_2\) and then estimated the differential oxidation of deoxyribose in genomic DNA from parasites treated with H\(_2\)O\(_2\) and from non-treated controls by the quantification of 8-oxodG using high-performance liquid chromatography (HPLC). The extent of damaged DNA was detected by TUNEL assay. Parasites treated in the same conditions as above were analysed by telomeric FISH combined with IIF and by Western blot using anti-LaRPA-1, anti-Ogg1 and anti-AP endonuclease sera. *In vivo* ChIP assays were done to check for alterations in the interactions between LaRPA-1 and telomeres. Protein:protein interaction assays were also performed using nuclear extracts from parasites treated and non-treated, recombinant proteins and double IIF using Zenon kit.

**RESULTS and DISCUSSION:** Preliminary results showed changes in the dynamic of interactions of LaRPA-1 when parasites were subjected to oxidative stress, especially with an increase in the amount of protein bound to telomeres and to its known protein partners.

**CONCLUSION:** Altogether our results suggest that LaRPA-1 is involved in the oxidative stress response principally at parasite telomeres.

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