TElomeric Repeat-containing RNA (TERRA) expression at *Leishmania* spp. chromosome ends

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INTRODUCTION: Telomeres are nucleoprotein structures that protect chromosome ends from fusion and degradation. Although generally considered transcriptionally silenced, it was previously shown that different types of RNA polymerases transcribe telomeres in Kinetoplastida protozoa. However, at that time it was not clearly defined which telomeric strand was being transcribed, since a double stranded telomeric probe was used in the assays. More recently, it was demonstrated that telomeres from different eukaryotes including mammals and yeasts are transcribed into telomeric repeat-containing RNA (TERRA). TERRA is a long non-coding RNA (lncRNA) transcribed from subtelomeric regions towards the 3´ends of telomeric repeats, whereby the C-rich telomeric strand is used as template. Several lines of evidence indicate that TERRA regulates telomere length, telomerase activity and heterochromatin deposition and although its biogenesis is well defined the functions associated to TERRA are still very controversial. **OBJETIVO:** Identify and characterize TERRA in all *Leishmania* parasite life stages. **MATERIAL AND METHODS:** In this work, we checked the expression of TERRA during the *Leishmania* developmental cycle using independent RNAs-Seq libraries constructed from the three parasite life stages (promastigotes, metacyclic and amastigotes), and validated these results using northern blot and RT-PCR. **RESULTS AND DISCUSSION:** We identified putative TERRA transcripts originated from several parasite chromosome ends (right and left arms). We then focused on chromosome ends that share structural similarities with human subtelomeres and analyzed their transcription profiles. Northern blot and RT-PCR analysis confirmed the existence of TERRA transcripts comprising subtelomeric sequences followed by tracts of G-rich telomeric repeats of variable length. We are actually doing immunoprecipitation assays to verify if *Leishmania* TERRA is associated with telomerase and other telomeric proteins. **CONCLUSION**: The existence of TERRA in *Leishmania* further indicates that telomere transcription is highly conserved among eukaryotes and opens new avenues to study TERRA-associated functions in a pathogenic parasite.

Key words: Transcripts, LncRNA, TERRA, Telomeres, *Leishmania*,

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