

Ablation of *Leishmania mexicana* Ku80 activates ALT-pathway necessary for telomere maintenance

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Genome stability is guarded by telomere-associated proteins, which play an essential role in protecting the telomere ends from the nuclease activity. Among them, telomerase, Ku70/80, and additional proteins coordinate a fine-tuned mechanism to accomplish this purpose. In contrast, the alternative lengthening of telomeres (ALT) is a homology recombination-dependent pathway presented as an alternative to the canonical telomere maintenance mechanisms. Telomeres of *Leishmania mexicana* get elongated in the absence of Ku proteins. It was proposed that they are maintained by the ALT pathway. Here we demonstrated that this is indeed the case, as we were able to amplify the 30G-overhang ends targeting specific chromosomes of *L. mexicana* and detect *t*-circles upon ablation of Ku80 in this protist. In addition, we have endogenously tagged the *L. mexicana* Ku80 protein and demonstrated its association with telomeres and interaction with signal transduction intermediates that facilitate DNA repair.