

Transcriptome profiling in *Leishmania amazonensis* promastigotes associated with virulence attenuation

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Leishmaniasis is one of the most important neglected tropical diseases and it is known that *in vitro* cultivation of *Leishmania spp.* for long periods results in a progressive loss of virulence. The focus of this work was to integrate -omic data with bioinformatics resources to contribute to a better understanding of an important biological aspect of this parasite: the loss of virulence after successive periods of *in vitro* cultivation. For this purpose, we evaluated by RNA-seq the difference in expression profile of *L. amazonensis* promastigotes freshly isolated from experimentally infected mice (R0) and parasites that were cultured after 30 passages *in vitro* in Schneider's Insect Medium (R30). We have identified 683 genes with significant differential expression, 64.12% of which with decreased expression in R30 compared with R0. This study showed that the loss of virulence in *L. amazonensis* after successive periods of *in vitro* cultivation are likely to be associated with parasite-host interactions mediated by parasite surface proteins, stress tolerance and metabolism of amino acids and fatty acids. Furthermore, we disclosed several other genes that are possibly associated with *Leishmania* virulence and are good candidates for further functional studies. In this study we have also investigated the presence of viral sequences in the *L. amazonensis* RNA-seq reads. To this end, we assembled reads that were not mapped against the *Leishmania amazonensis* reference genome using the Trinity software and performed a Blast search against the NCBI non-redundant database. The results were manually filtered by length and e-value. We identified 35 putative viral unigenes and, based on their sequence similarity, the sequences belong to Picornavirales order and Baculoviridae family. Further studies are necessary to confirm the identity and phylogeny of these putative virus sequences. Once the virus identity is confirmed, the impact of these viruses on the virulence of *L. amazonensis* will be investigated.