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Leishmania amazonensis phagolysosome maturation depends on PI3-Kinase

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Engulfment of *Leishmania* promastigotes by macrophages is initiated by the recognition of surface receptor molecules by the parasite and the host cell. During the intracellular traffic the parasitophorous vacuole formed during invasion, undergo fusion with endocytic vesicles such as lysosomes to form the phagolysosome. Here, we verified the role of PI3-kinase activity during the phagolysosome formation. In order to verify the role of PI3-K activity during promastigotes of *L*. amazonensis cell invasion, we performed invasion assays into mice inflammatory macrophages pretreated or not with 1 µM wortmannin for 30 minutes. Our results showed that cell invasion by *L. amazonensis* promastigotes was sensitive to wortmannin pre-treatment and also, pre-treatment blocked lysosomal fusion with *L. amazonensis* parasitophorous vacuole (PV). Synthesis and turnover of PIP_2 have been implicated in a variety of cellular events including membrane trafficking, control of actin polymerization, and signal transduction where it serves as a substrate for enzymes such as phospholipase C (PLC) and PI3-K. PIP_2 serves as a substrate for PI3-K in order to generate phosphatidylinositol 3,4,5-triphosphate, PIP_3. Cells transfected with PLC δ PH-GFP construct were infected for 15 minutes. PIP_2 was found surrounding the invading parasites during this time point. Longer time points of cell invasion such as 3 hours of infection did not show PIP_2 around the PV. Our results showed a clear dependence on the activity of PI3-K for lysosomal fusion with the parasitophorous vacuole to form the permanent acidic compartment enriched in lysosomal markers where amastigotes survive inside mammalian host cells. Financial support: FAPEMIG/UFU/CNPq

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