

Nucleotide Hydrolysis in Intact Trophozoites of *Giardia lamblia*

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Giardia lamblia, a parasitic flagellated protozoan, is the most common causative agent of diarrheal illness worldwide through waterborne outbreaks. The clinical manifestation of giardiasis is highly variable, since asymptomatic individuals to patients exhibiting severe symptoms. Considering the impact of giardiasis in public health, especially in children, it is very important to investigate the biochemical aspects of this parasite. Therefore, the aim of this study was to characterize the nucleotide hydrolysis in intact trophozoites of *G. lamblia*. The trophozoites of *G. lamblia* presented ATP hydrolysis. The parasites curve was linear between 1.0 and 5.0x10⁶ trophozoites/mL. The time course of ATP hydrolysis was linear up to 60 minutes. The activity was influenced by divalent cations, Mg²⁺ and Ca²⁺, and the best activator was 5.0mM Mg²⁺. We showed that the optimal pH for nucleotide hydrolysis was 7.5. The ability of *G. lamblia* trophozoites to hydrolyze other nucleotides was also evaluated. ATP and UTP were the preferred substrates; nonetheless, they also hydrolyzed ADP and UDP. These results suggest a possible presence of a member of NTPDase family in trophozoites of *G. lamblia*. Further studies are necessary to confirm the characterization of this enzyme. The investigation on the hydrolysis activity of nucleotides in trophozoites of *G. lamblia* is important for modulation of the concentration of these compounds involved in cellular signalization.

Keywords: *Giardia lamblia*, nucleotide hydrolysis, NTPDase, cellular signalization

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