

EXTRACELLULAR LIPID DROPLETS PROMOTE HEMOZOIN CRYSTALLIZATION IN *SCHISTOSOMA MANSONI*

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The fluke *Schistosoma mansoni* digest hemoglobin releasing heme inside their gut. Heme detoxification in this organism consist mainly on its crystallization into hemozoin (Hz). Here we investigated Hz crystallization in this parasite and the *in vivo* effects of antimalarials. Ultrastructural analysis of gut adult worms revealed the presence of electro-luscent structures similar to lipid droplets (LD), in which crystalline assemblies grow on their surface. Lipid analysis from female gut regurgitates (R) revealed that diacylglycerol was the major neutral lipid, whereas phosphatidylcholine was the main phospholipid. Quinine (QNN) inhibited Hz crystallization promoted by R and their extracted lipids. Fractionation of R showed that Hz crystallization activity was present mainly at lower density fractions. Treatment of *S. mansoni* infected mice with QNN led to a decrease in worm Hz content, parasitemia and eggs deposition in mice intestine and also caused remarkable ultrastructural changes in gut epithelium of female worms. Together, these results indicate that Hz crystallization in *Schistosoma mansoni* occur in LD present inside gut lumen by allowing heme association to a hydrophilic-hydrophobic interface provided by these structures. Moreover, Hz crystallization seems to be an interesting target to allow development of new therapeutic compounds. Support: WHO-TDR-SSI, CNPq, FAPERJ, HHMI.