

ISOLATION AND CHARACTERIZATION OF HEME AGGREGATES IN THE MIDGUT OF *Aedes aegypti*

Vieira, T.O.¹; Alvarenga, P.H.¹; Devenport, M.²; Jacobs-Lorena, M.² and Oliveira, P.L.¹

¹Instituto de Bioquímica Médica, Centro de Ciências da Saúde, Universidade Federal do Rio de Janeiro – RJ, Brasil, 21910-590. ²Department of Molecular Microbiology & Immunology, Johns Hopkins University - Bloomberg School of Public Health - Baltimore, Maryland, USA, 21205

Digestion of hemoglobin (Hb) blood-feeding organisms results in the release of large amounts of free heme in their midgut lumen. *Aedes aegypti* peritrophic matrix (PM) can bind toxic heme molecules generated during blood digestion, however the identity of the binding molecules and the mechanisms by which this heme aggregate is formed is unknown. The heme aggregation process during the course of blood digestion was monitored by means of midgut fractionation in sucrose gradient, and analysis of fractions by SDS-PAGE, light absorption spectrometry and FTIR spectrometry. Twelve hours after blood meal (ABM), heme (bound to Hb) was found at the top of the gradient. During the course of digestion, the amount of Hb-bound heme decreased and the band containing heme associated to PM aggregates increased at higher sucrose concentrations. SDS-PAGE analysis of PM-containing fractions showed the presence of several proteins, such as *Aedes aegypti* intestinal mucin 1, which has been shown to bind heme. These results suggest that heme aggregation is an integral part of blood digestion, probably mediated by PM proteins.

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