

Induction of Apolipoprotein-III Expression in the Apoptotic Cells of Midgut Epithelium in Specific Response to *Plasmodium berghei*

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Apolipoprotein-III has been known to play an important role in both lipid transportation and innate immunity in insect. Here we report a molecular and immunological characterization of a mosquito apolipoprotein-III (apoLp-III) at midgut epithelium of the human malaria vector, *Anopheles gambiae* (Ag). Developmental profile of AgApoLp-III showed that it was expressed throughout the entire life cycle. RT-PCR analysis for tissue specificity indicated that the highest expression was detected at thorax although it was also detected at midgut, ovary, abdomen and head. Interestingly, RT-PCR analysis showed that AgApoLp-III was strongly induced in midgut in response to malaria parasite, *Plasmodium berghei* at the time of invasion (24 hr). Furthermore, fluorescent microscopic analyses of midgut cells after dual-immunostaining showed that apoLp-III was detected only at the Plasmodium-invaded cells, not at the Plasmodium-uninvaded cells. These findings, for the first time in insect, suggest that apoLp-III may play an important role in midgut innate immunity in response to *Plasmodium berghei* invasion.