

EFFECT OF PERITROPHIC MATRIX C- TYPE LECTIN (AdPMCTL) ON BLOOD-MEAL SIZE IN *ANOPHELES DIRUS*

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Abstract. The peritrophic matrix (PM) is penetrated by *Plasmodium* ookinete to permit transition to oocyst in the mosquito midgut, the manner by which the ookinete interacts with glycoproteins on the PM remains poorly understood. We partially characterized peritrophic matrix C-type lectin (PMCTL) from *An. gambiae* (CTL10) and *An. dirus* (AdPMCTL). AdPMCTL protein was produced specifically in blood-fed mosquitoes. The 320 amino acid AdPMCTL exhibits 72% identity with a putative secreted *An. gambiae* ortholog (AGAP009316, CTL10). *AdPMCTL* was cloned and its expression profile determined in sugar- and blood-fed midguts. RNAi was used to determine the effect of AdPMCTL on blood meal size and on mosquito survival. *AdPMCTL* mRNA was present in midguts of sugar-fed mosquitoes and exhibited up-regulation following a blood meal, and *AdPMCTL* silencing significantly influenced the blood-meal size of engorged mosquitoes, suggesting a role for AdPMCTL as a stabilizing linker molecule, which limits PM distension after blood feeding.

Keywords: *Anopheles dirus*, *Anopheles gambiae*, C-type lectin, gene silencing, peritrophic matrix

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