

PROTEIN EXPRESSION IN THE SALIVARY GLANDS OF DENGUE-INFECTED *Aedes aegypti* MOSQUITOES AND BLOOD-FEEDING SUCCESS

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Abstract. Mosquito salivary glands (SG) play an essential role in food digestion and pathogen transmission. The function of the salivary components during infection is poorly understood. In this study, female *Aedes aegypti* mosquitoes were infected with dengue virus serotype 2 (DENV-2) via an artificial membrane feeding apparatus. The mosquito SGs were examined for DENV-2 infection for 14 days post-infection (dpi). The amount of dengue virus increased throughout the 14 dpi. Three different meals were provided for the *Ae. aegypti* mosquitoes. SG protein expression was compared among sugar-fed (SF), blood-fed (BF), and dengue-infected blood-fed (DF) mosquitoes using SDS-PAGE coupled with densitometric analysis. The SG of SF mosquitoes had fewer protein bands than those of BF and DF mosquitoes. The major SG proteins seen among BF and DF mosquitoes had molecular weights of 12-15, 25-30, 35-40, 45-50, 55-60 kDa and 61-67 kDa. We compared the SG protein band expression profiles in BF and DF mosquitoes. Two bands (35-40 and 61-67 kDa) were expressed more by DF mosquitoes and 3 different bands (25-30, 45-50, and 55-60 kDa) were expressed more by BF mosquitoes. These SG proteins may have some role in facilitating blood-feeding and dengue infection. We speculate these specific SG proteins in dengue-infected mosquitoes may increase the chance of blood-feeding and virus transmission by infected mosquitoes. These results may be useful for designing additional tools to investigate the interaction between *Ae. aegypti* SG and the dengue virus.

Keywords: *Aedes*, blood feeding, dengue, mosquito, protein, salivary gland

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