

# Characterization and Localization of the Vacuolar-Type ATPase in the Midgut Cells of Silkworm (*Bombyx mori*)

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The vacuolar ATPase (V-ATPase) is a multifunctional enzyme that consists of several subunits. Subunit B is a part of the catalytic domain of the enzyme. The result of the RT-PCR suggested that the V-ATPase B subunit is a ubiquitous gene. 24 h after the larvae were infected with the *Bombyx mori* nucleopolyhedrovirus (*BmNPV*), the expression level of the V-ATPase B subunit in the midgut of the resistant strain NB was about 3 times higher than in the susceptible strain 306, and then the expression level of the V-ATPase B subunit decreased rapidly to a very low level. This indicated that the virus may cause a lot of changes of physiological conditions in the midgut. Localization of the V-ATPase B subunit was attempted in midgut cells of *Bombyx mori* by immunohistochemistry. The immunohistochemical localization with the antibody against the B subunit revealed a positive staining in goblet cell apical membranes of *Bombyx mori* midgut cells as well as in the midgut of *Manduca sexta*. This sequence has been registered in GenBank under the accession number EU727173.

*Key words:* *Bombyx mori*, Midgut, V-ATPase B Subunit