**Impact of a baculovirus metalloprotease on *Mamestra configurata* insect intestinal mucins**

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Baculoviruses are insect specific pathogens that have the potential to control insect pests. For per os infection, baculovirus virions must cross the peritrophic matrix (PM) to reach the midgut epithelium, the initial site of virus replication. Insect intestinal mucins (IIM) comprise a key subset of PM structural proteins. The IIM are thought to be critical to the protective functions ascribed to the PM, as well as in aiding in the passage of the food bolus through the gut. Some baculoviruses, including Mamestra configurata nucleopolyhedrovirus (MacoNPV), encode metalloproteases, referred to as enhancins, which are thought to facilitate infection by degrading IIM within the PM. In this study we examined the interaction between MacoNPV enhancin and several IIM previously identified from the M. configurata PM by using McIIM specific antibodies and western blots. Per os infection of M. configurata larvae with MacoNPV occulusion bodies (OB) showed that McIIM4 was degraded within 4 hours of OB ingestion while another McIIM, McIIM2, was not affected. Time course experiments indicated that the PM recovered by 8 h post-infection when no McIIM4 degradation was detected. In a series of in vitro assays, OB of MacoNPV and recombinant Autographa californica MNPV expressing MacoNPV enhancin were incubated with dissected PM. Western blots showed that McIIM4 was degraded in the presence of either virus. Degradation of McIIM4 was inhibited by EDTA, an inhibitor of metalloproteases. Thus, MacoNPV enhancin appears capable of degrading a major structural PM protein, but exhibits specificity in the substrates that it targets.

**Key words:** Baculovirus, metalloprotease, Mamestra configurata, intestinal mucin, perithrophic matrix