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Expression and localization of the spore wall protein SWP26 of *Nosema bombycis* in the silkworm BmN cell line

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ABSTRACT

The microsporidian spore wall proteins, as the main components of the spore wall, play a key role in spore adherence to host cells and in recognition of the parasite by the host during the invasion process. In this study, we used the Bac-to-Bac baculovirus expression system to express the spore wall protein SWP26, fused to enhanced green fluorescent protein (EGFP), in the silkworm BmN cell line. The *SWP*26 and *EGFP* genes were inserted into the baculovirus transfer vector pFastBac1. The transfer vector pFastBac1-swp26-egfp was transformed into the bacterium *Escherichia coli* DHl0Bac/*Bombyx mori* nucleopolyhedrovirus (BmNPV) to construct the recombinant vBm$^{swp26\text{-}egfp}$ bacmid. The vBm$^{swp26\text{-}egfp}$ bacmid DNA was then used to transfect BmN cells to obtain the recombinant baculovirus. Western blotting analysis of total protein lysates in BmN cells infected by the recombinant virus showed a protein band of approximately 51 kDa, which corresponded to the deduced molecular weight of the swp26-egfp fusion protein. In addition, a fluorescence signal was observed in the cytoplasm and nucleoplasm of transfected cells, indicating that SWP26 had been successfully expressed in BmN cells. The SWP26 expression system established in this study lays the foundation for additional molecular and cellular studies, especially those focused on the interaction between the SWP26 protein of *Nosema bombycis* and the proteins of the silkworm, *Bombyx mori*.

KEYWORDS

Bacmid; Expression; Microsporidia; *Nosema bombycis*; Spore Wall Protein

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