

Effects of Substituting Polyhedrin and Host on Virion
Occlusion and Polyhedral Morphology in *Autographa
californica* Nucleopolyhedrovirus

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A substitution of the polyhedrin of *Autographa californica* nucleopolyhedrovirus (AcNPV) with that of *Spodoptera exigua* NPV (SeNPV) and *Bombyx mori* NPV (BmNPV), respectively, resulted in the morphological change of polyhedra. Morphological features and productivity of polyhedra of recombinant AcNPVs were examined and compared in three cell lines, *Spodoptera frugiperda* (Sf-9), *S. exigua* (Se301) and *Trichoplusia ni* (Hi5) cells, respectively. The polyhedra shape produced by each virus was not changed significantly according to the cell line. The size of polyhedra, however, was biggest in Se301 cells, followed by Hi5 and Sf9 cells in decreasing order. The yield of polyhedra and polyhedra-positive cell rate in each cell lines also showed significant differences. These results suggested that the host cells do not influence the shape of polyhedra but the polyhedra size and productivity could be affected by host cells. More interesting result was the change of polyhedra shape in AcSePol from irregular to regular in all cell lines. This implied that the regularization of polyhedra shape depend on rather other viral gene(s) than the polyhedrin gene sequence and host cells. Our results suggest that the shape and regularization of polyhedra depend on other viral gene and the existence of host cell factor that can change the size of polyhedra.