3-3-13. Polyhedra production of recombinant *Autographa californica* NPV containing additional polyhedrin of A. californica, *Bombyx mori* or *Spodoptera exigua* NPV

Jin Hee Chang[1], Yeon Ho Je[2], Jong Yul Roh[1], Byung Rae Jin[3] and Kyung Saeng Boo[1]

[1]School of Agricultural Biotechnology, Seoul National University,
[2]Department of Biological Sciences, Imperial College of Science, Technology and Medicine,
[3]College of Natural Resources and Life Science, Dong-A University

The role of polyhedrin protein in the polyhedra production in *Autographa californica* Nucelopolyhedrosisvirus(AcNPV) was studied by over-expression of AcNPV polyhedrin or heterologous polyhedrin from *Bombyx mori*(Bm) NPV or *Spodoptera exigua*(Se) NPV. Each polyhedrin gene was cloned by PCR with specific primers and confirmed for its integrity. The transfer vectors containing additional polyhedrin gene from AcNPV, BmNPV, or SeNPV were constructed to be designated as pBac-Ac, pBac-Bm, and pBac-Se, respectively. These plasmids were co-transfected with bacmid bApGOZA into Sf9 cells. The resulting recombinants, designated as vApAcPol, vApBmPol, and vApSePol, were constructed and their polyhedra produced were examined by microscopy and SDS-PAGE. All of the recombinants produced polyhedra in nucleus and the polyhedrin expressions were increased. Among three recombinants, vApAcPol and vApBmPol produced larger polyhedra than the wild type AcNPV and vApSePol also produced polyhedra larger, even though smaller than that of AcNPV, than the wild type SeNPV polyhedra, which is the smallest.

From these results, a viral factor would be suggested to control the polyhedra production, especially concerning their size. If the core region or site of the operation can be detected and used, we can make much larger or massive polyhedra than that of wild types and this manipulation can be efficiently applied to BEVS or bio-engineered biopesticide production.