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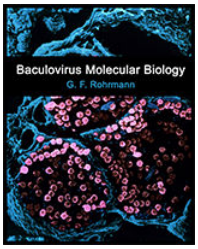

Glossary

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Bacmid — Bacmids are baculovirus genomes that contain a bacterial origin of replication so that they can replicate in bacteria as a plasmid (1). The term is derived from a contraction of baculovirus and plasmid (Luckow, pers. comm.). The original construct contained the AcMNPV genome, a bacterial origin of replication, the target site for the bacterial transposon Tn7, and a selectable kanamycin resistance marker gene, and the lacZ gene all in the polyhedrin locus. This construct allowed for the manipulation and recombination via transposition of the viral genome in bacteria; however, the construct is viable upon transfection into insect cells.

Baculoviridae — A family of occluded viruses pathogenic for insects and possibly other invertebrates. They have large circular, supercoiled, double-stranded DNA genomes and replicate in nuclei.

Basal lamina — This is a fibrous structure that separates the insect midgut epithelium from the hemocele. It is a barrier that baculoviruses might have to cross to cause a systemic infection.

BmN — Variants of a cell line derived from *Bombyx mori* that are permissive for infection of BmNPV. The original cell line was isolated by Dr. T. D. Grace. The derivation of the different subclonal lines is ambiguous and is discussed in (2).

BmN 1, 4, 5 — *See* BmN.

Budded virus — A type of baculovirus that buds out of infected cells and spreads the infection within an insect and within cell culture. The BVs derive their envelope from modified cell membranes.

Burst Sequence — This is an A/T-rich regulatory sequence between the promoter and translational start site of the very late hyperexpressed genes, polyhedrin and p10. Evidence suggests that it binds VLF-1 (3).

BV — *See* Budded virus.

Caspase — A category of proteases activated in the apoptotic pathway. There are two types: initiator and effector. Initiator caspases are regulatory and cleave and thereby activate effector caspases. Effector caspases carry out the apoptotic program.

Encapsulation — Encapsulation is a defense response in insects that is directed against objects that are too large to be phagocytose. It involves the accumulation of hemocytes that form a capsule around the object and often is accompanied with melanin deposition.

Enhancin — *See* Metalloproteinases

E-value — *See* Expect value.

Expect value — The E-value is an indication of the statistical significance of a specific pairwise sequence alignment and reflects a combination of the number of sequences in a database and the scoring system employed. The lower the E-value, the more significant the relatedness. An alignment with an E-value of 0.001 indicates that this amount of relatedness has a 1 in 1000 probability of occurring by chance alone. Although E-values often indicate convincing relatedness, they can be distorted by repeated amino acids and a variety of other factors.

F protein — This protein is thought to be the fusion protein of most baculoviruses with the exception of Group I, which use gp64 and hymenopteran viruses that do not encode homologs of either gp64 or F. F protein homologs are present, as env proteins in insect retroviruses, also called errantiviruses. Homologs are also present in some insect lineages.

GP64 — The envelope fusion protein used by Group I NPVs. It is related to the envelope fusion protein of a group of arthropod borne orthomyxoviruses, the thogotoviruses.

Granulosis viruses — A lineage of baculoviruses pathogenic for Lepidoptera, which normally have a single virion per ovoid-shaped occlusion body.

Granuloviruses — *See* Granulosis viruses.

Group I — One of two major lineages of lepidopteran NPVs; it is distinguished from other baculoviruses by using a different envelope fusion protein, gp64. Several other genes are also unique to this lineage.

Group II — One of two major lineages of lepidopteran NPVs; members are thought to use a fusion protein (F) to initiate infection

GV — *See* Granulosis viruses.

Homolog — Homolog is an inclusive term that indicates that two proteins are evolutionarily related. Homologs are divided into orthologs and paralogs. (ortho = exact) have homology resulting from speciation and are directly related evolutionarily to one another from a common ancestor via vertical descent, whereas (para = parallel) show relatedness that results from gene duplication. Often, this leads to one copy evolving a different function. Due to the presence of more than one lineage and the possible loss of one duplicate in some lineages, the phylogeny of paralogous proteins may not reflect a direct phylogenetic relationship via a common ancestor.

Homologous protein — *See* Homolog.

Homologous repeated sequences — These are often located at several sites in a baculovirus genome, which have been implicated as origins of DNA replication and transcriptional enhancers.

Hrs — *See* Homologous repeated sequences.

Late expression factor — In AcMNPV, these are factors that are involved in transient DNA replication or late transcription.

LEF — *See* Late expression factor.

Melanization — In insects, melanization involves the synthesis and deposition of melanin at the site of injury. It is regulated by a cascade of serine proteases that cleave and activate prophenoloxidase (to phenoloxidase) that is then able to catalyze the oxidation of phenols (e.g., tyrosine) to quinones (nonaromatic ring compounds), which then polymerize and form melanin (4).

Metalloproteinases — Metalloproteinases are peptidases that contain divalent cations as integral components of their structure (5). Baculoviruses encode a several members of this group of enzymes. They include enhancin, which is thought to enhance infectivity of some viruses by digesting the peritrophic membrane. Enhancin is

found in a few lepidopteran NPVs (e.g., Ld-, Cf-, and MacoNPV) and GVs (e.g., Ag-, As-, Tn-, XcGVs). Another group consists of stromelysin1-like metalloproteinases. Orthologs of this family are found in all sequenced GV genomes. The third metalloproteinase is cathepsin, which is found in most lepidopteran group I and II viruses, but is only present in three GVs genomes. It is not present in the genomes of the hymenopteran and dipteran viruses.

Midgut — The site of that baculovirus occlusion bodies are dissolved and infection is initiated. It is where food digestion takes place in lepidopteran larvae.

MNPV — Multiple (M) enveloped nucleocapsids. The morphology of nucleocapsids, in which multiple or single nucleocapsids are present within an envelope. MNPVs are found in Group I and II lepidopteran NPVs and are normally not present in GVs, or hymenopteran, or dipteran NPVs. Although characteristic of viral lineages, it does not appear to be a phylogenetic trait. *See also* SNPV.

Nuclear polyhedrosis virus — The most widely distributed type of baculovirus. NPVs replicate in the nucleus and usually produce polyhedron-shaped occlusion bodies containing more than one virion.

Nucleopolyhedrovirus — *See* Nuclear polyhedrosis virus.

Nudiviruses — A group of viruses pathogenic for invertebrates and related to baculoviruses. They have enveloped, rod-shaped nucleocapsids with large circular DNA genomes and share about 15 core genes with baculoviruses. However, they are not occluded and therefore are not included in the Baculoviridae.

NPV — *See* Nuclear polyhedrosis virus.

Occlusion-derived virus — Viruses that are derived from occlusion bodies. They obtain their envelope within the nucleus. Also called OV.

ODV — *See* Occlusion-derived virus.

Ortholog — *See* Homolog.

Paralog — *See* Homolog.

Peritrophic membrane — A tube-like membrane that separates food from the midgut epithelium. It is composed of chitin and protein.

per mouth — *See* per os.

per os — This refers to the route of infection of insects by ingestion.

Per os infectivity factors — Factors that are required for oral infection by ODV. An abbreviation that preceded this refers to yeast 'petite integration frequency' (PIF) mutants (6).

PIB — *See* Polyhedral inclusion bodies.

PIF — *See* Per os infectivity factors

PM — *See* Peritrophic membrane.

Polyhedral inclusion bodies — This refers to NPV occlusion bodies.

Sf-21 — *See* Sf-9.

Sf-9 — Sf-21 is a cell line that was derived from ovarian tissue from *Spodoptera frugiperda* pupae (7). Sf-9 cells are a clonal isolate derived from Sf21 cells. Both cell lines are permissive for AcMNPV infection.

SNPV — Singly (S) enveloped nucleocapsids. See MNPV

Tn-368 — A cell line derived from *Trichoplusia ni* that is permissive for AcMNPV infection. It was derived from ovarian tissue of a virgin adult (8).

Virogenic stroma — This is an electron dense chromatin-like structure in nuclei of baculovirus infected insects. A molecular scaffold that is believed to be produced for the replication of viral genomes and the assembly of nucleocapsids.

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