

D-3 cDNA sequence of apolipophorin-III(apoLp-III) of *Spodoptera litura*

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In adult insects, apoLp-III associates with lipophorin during lipid loading and plays an important role in stabilization of lipophorin particle.

After partial DNA sequence of apoLp-III was identified from the analysis of RT-PCR product, we constructed cDNA library from adult fat body, screened cDNA library with PCR product as a probe and obtained full-length cDNA sequence. The 717 bp sequence of the apoLp-III cDNA has the open reading frame beginning with an ATG codon at nucleotide 71 and extending to nucleotide 634 and its NH₂-terminal amino acid begins with the 23th amino acid encoded by the cDNA sequence. Through the analysis of northern blots, apoLp-III mRNA levels of adult fat body are about 2.5-fold higher than last instar larval levels and apoLp-III mRNA is also identified in the ovary but not in the testis.

ApoLp-III DNA sequence of *S. litura* has high degree of homology with apoLp-III gene of *Manduca sexta* and *Bombyx mori*.

D-4 Purification and characterization of Biliverdin-binding Protein(BP) from the Haemolymph of *Helicoverpa assulta*

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Four biliverdin-binding protein(BPs) were identified in the larval haemolymph of the oriental tobacco budworm, *Helicoverpa assulta*. Among them, one biliverdin-binding protein(BP-1) was purified by ultracentrifugation with different density gradient and FPLC mono Q anion exchange chromatography.

All BPs were composed of subunits of 150kDa and their native molecular weights were estimated as 320kDa by gel filtration. Amino acid composition of BP-1 was rich in Ser, Asx, Glx, Lys, Ala but low in Cya, Met, Trp. The BP-1 contained triacylglycerol and phospholipid. In western blotting experiment, it was found that BP-1 is taken up to fat body 48 hours after last larva stops feeding and stored during pupation. It was also found that BP-1 is taken up to testis as well as ovary.