附件二，会议摘要模板

**Cloning and functional analysis of a novel larval midgut-specific gene *Slmg17* in *Spodoptera litura* by transgenetic manipulation**

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A cDNA, *Slmg17,* was cloned from the midgut of *Spodoptera litura*. *Slmg17* codes for a putative unknown protein (SLMG17) with a predicted molecular mass of 16.2 kDa and a pI of 3.49. No functionally known homologs of *Slmg17* were found in public sequence databases. Northern blot analysis revealed that this gene has four transcripts and highly and specifically expressed in the epithelium cells of the larval midgut. The deduced protein sequence contains five tandem repetitive motifs, each consisting of sixteen amino acid residues (xVIPEPVVMPxPxLPE). Homologues of *Slmg17* were identified in other seven lepidopteran insects, including *S. litorralis*, *S. exigua*, *S. frugiperda, Bombyx mori*, *Helicoverpa armigera* and *Choristoneura fumiferana*, but not in insects of other orders, such as *Drosophila melanogaster, Coccinella septempunctata Linnaeus, Harmonia axyridis* and *Zophobas morio.* These *Slmg17* homologues are highly conserved in sequence, sharing 87.7% to 99.4% amino acid identity. The expression of the gene was not affected by the treatments of juvenile hormone and 20-hydroecdysone, high temperature, starvation and infection of bacteria, but was up-regulated by baculovirus *Splt*MNPV in a dose- and time-dependent manner. Transgenetic system was developed for the first time for *S. litura.* Transgenetic larvae over-expressing *Slmg17* or expressing *Slmg17* dsRNA were generated by transgenetic manipulation and tested for biological function of *Slmg17*. It was found that the midgut epithelium of the larvae over-expressing *Slmg17* became thicker and more resistant to the baculovirus infection than the control, whereas the midgut epithelium of the larvae expressing dsRNA became thinner and more susceptible to the bacuolvirus infection thanthe control. Over-expressing *Slmg17* resulted in growth arrest of the treated animals.

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