

Figure Legends

Figure S1. Protein topology diagram of BmTsp.C The diagram labels the large extracellular loop (LEL), small extracellular loop (SEL), N-terminus, and C-terminus. The four transmembrane regions of the TM are represented by numbers 1-4. The conserved amino acid residues are marked in *red*, disulfide bonds formed between amino acid residues are represented by *blue* lines, and the post-translational modification of the protein is shaded with *green*.

Figure S2. Multiple sequence comparison of BmTsp.C. Identical amino acid residues are indicated by asterisks (*). The purple box represents the amino acid sequence 'Cys-Cys-Gly', while the yellow box represents 'Pro-X-Ser-Cys'. The red amino acid letters indicate conserved cysteine residues, and the blue lines represent the disulfide bond between conserved amino acid residues. The solid lines on the sequence represent secondary structures, and the black bidirectional arrows TM1-4 indicate transmembrane structures. The sequence was downloaded from the NCBI database.

Figure S3. Phylogenetic tree of BmTsp.C. The branches with a yellow background contain BmTsp.C and only with bootstrap value over 70 are labelled. The scale of 0.10 represents a certain amount of genetic difference, and the same color represents the same species. The figure includes abbreviated names of different species. Bm: *Bombyx mori*; Bma: *Bombyx mandarina*; Ms: *Mythimna separata*; Tn: *Trichoplusia ni*; Lg: *Leguminivora glycinivorella*; Cp: *Cydia pomonella*; Of: *Ostrinia furnacalis*; Hz: *Helicoverpa zea*; Pa: *Pararge aegeria*; Mj: *Maniola jurtina*; Cs: *Chilo suppressalis*; Se:

Spodoptera exigua; Sf: *Spodoptera frugiperda*; Ls: *Leptidea sinapis*; Mc: *Melitaea cinxia*; Zc: *Zerene cesonia*; Pr: *Pieris rapae*; At: *Amyelois transitella*; Pn: *Pieris napi*; Pb: *Pieris brassicae*; Po: *Phthorimaea operculella*; Pb: *Pieris brassicae*; Vt: *Vanessa tameamea*; Cc: *Colias croceus*; Pa: *Pararge aegeria*; Ba: *Bicyclus anynana*; Ni: *Nymphalis io*; Va: *Vanessa atalanta*; Vc: *Vanessa cardui*; Pi: *Plodia interpunctella*; Pg: *Pectinophora gossypiella*; Ta: *Tuta absoluta*; Ms: *Mythimna separata*; Dpp: *Danaus plexippus*; Pb: *Pieris brassicae*; Aa: *Aricia agestis*; Se: *Spodoptera exigua*; Pi: *Plodia interpunctella*; Po: *Phthorimaea operculella*; Mh: *Maniola hyperantus*.

Figure S4. Apoptotic signaling pathway of *BmTsp.C* The vesicle membrane protein GP64 on BmNPV interacts with the tetraspanin BmTsp.C to promote apoptosis. Black arrows indicate promotion and green arrows indicate inhibition.

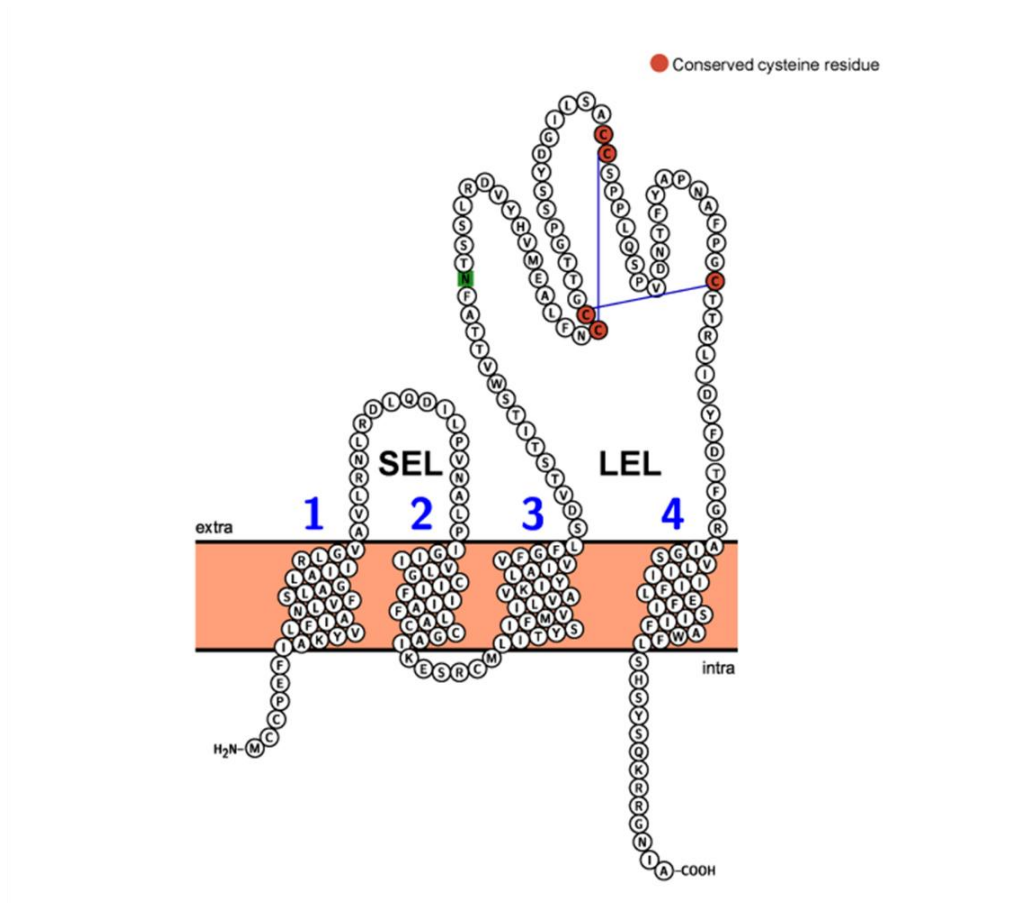


Figure S1. Protein topology diagram of BmTsp.C

	TM1	TM2	
BmTsp.C	α1	α2	
MsCD63			
GmCD63			
AalCD63			
CqCD63			
	α3	α4	
BmTsp.C			
MsCD63			
GmCD63			
AalCD63			
CqCD63			
	α5	α6	
BmTsp.C			
MsCD63			
GmCD63			
AalCD63			
CqCD63			
	α7	α8	
BmTsp.C			
MsCD63			
GmCD63			
AalCD63			
CqCD63			

Figure S2. Multiple sequence comparison of BmTsp.C

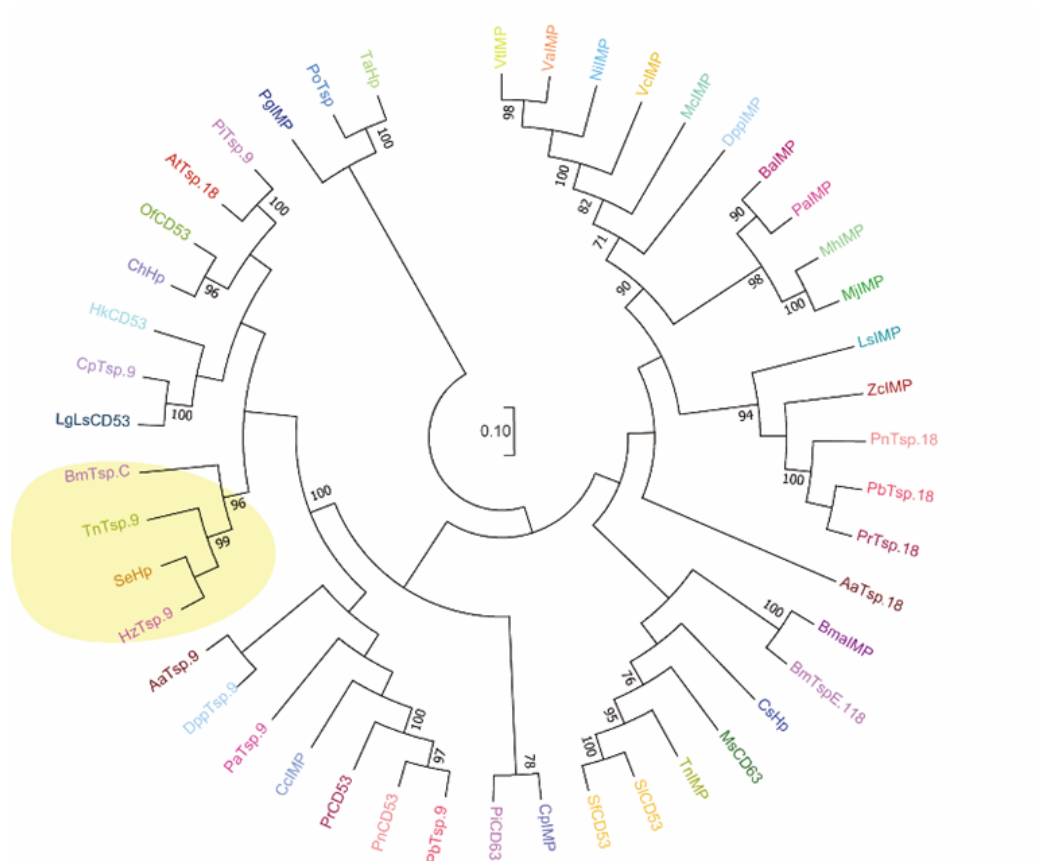


Figure S3. Phylogenetic tree of *BmTsp.C*

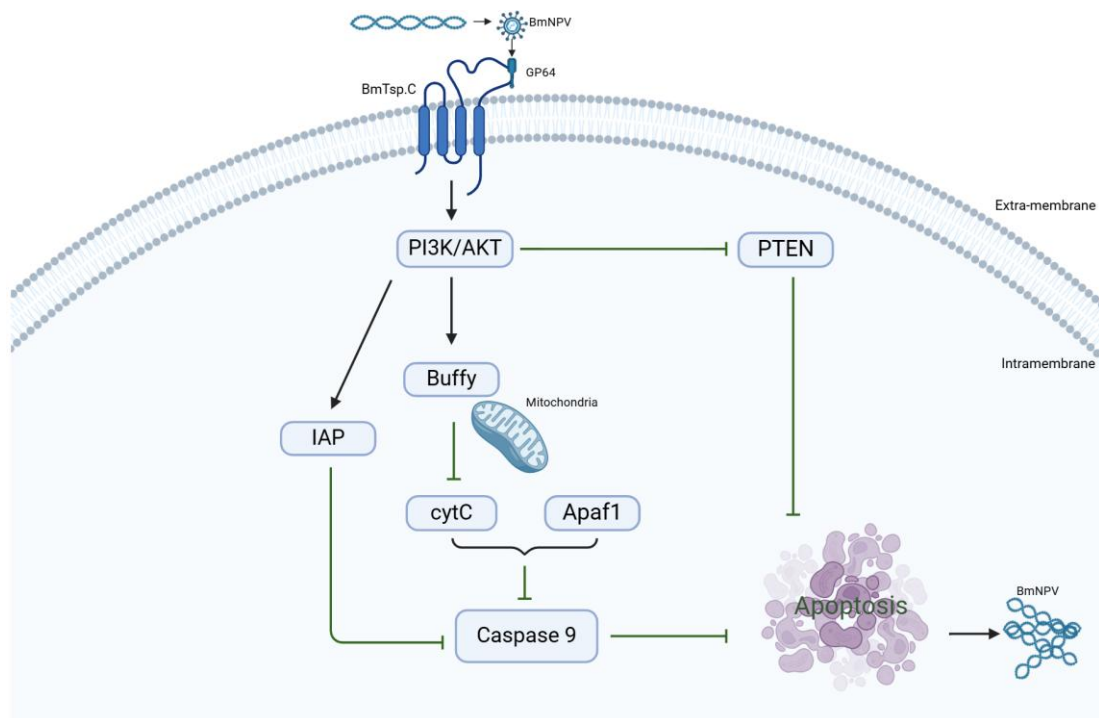


Figure S4. Apoptotic signaling pathway of *BmTsp.C*

Sequences of constructed phylogenetic tree

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-

>BmIMP

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WVT TAFNTSSLRDVYHVMEALF
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GSVLIIIFLEFISIIFAWFLSHSY
SQKRRGNIA

>BmCD53

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T

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>HzTsp.9

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>MjIMP

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>ChHp

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>SeHp

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>PxHp

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>BmTspE.118

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>AaTsp.18

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V

>SfHp

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