

Supplementary information

A novel laminin β gene *BmLanB1-w* regulates wing-specific cell adhesion in silkworm, *Bombyx mori*

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2 Supplementary Figures

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Supplementary Figure legends

Figure S1 - Numbers of laminins in various species. We identified laminin genes in *Caenorhabditis elegans*, *Bombyx mori*, *Plutella xylostella*, *Heliconius melpomene*, *Danaus plexippus*, *Tribolium castaneum*, and *Apis mellifera*. Numbers of laminins in *Homo sapiens*, *Mus musculus*, and *Drosophila melanogaster* are listed based on previous studies^{8, 26}. Note that the numbers of laminins are different among the four lepidopterans. An extra α chain is present in *P. xylostella* and an additional β chain is observed in silkworm.

Figure S2 - Phylogenetic analysis of laminin β in various species. Maximum likelihood tree was constructed based on the amino acid sequences of laminin β . Two distinct orthologous groups are observed in the tree representing insects and vertebrates, respectively. Abbreviations, Bm: *Bombyx mori*, Dm: *Drosophila melanogaster*, Am: *Apis mellifera*, Aa: *Aedes aegypti*, Tc: *Tribolium castaneum*, Hs: *Homo sapiens*, Dr: *Danio rerio*, Ce: *Caenorhabditis elegans*. Accession NO.s: HsLan β 1 (NP_002282.2), HsLan β 2 (NP_002283.3), HsLan β 3 (NP_000219.2), HsLan β 4 (NP_031382.2), DrLan β 1a (NP_775382.1), DrLan β 1b (NP_001264059.1), DrLan β 2 (NP_001229974.1), DrLan β 2I (XP_692838.6), DrLan β 3 (XP_700808.5), DrLan β 4 (NP_775383.1), AmLanB1 (XP_001122457.2), TcLanB1 (XP_008199694.1), DmLanB1 (NP_476618.1), AaLanB1 (XP_001657107.1), CeLanB1 (NP_500734.2).

Figure S1.

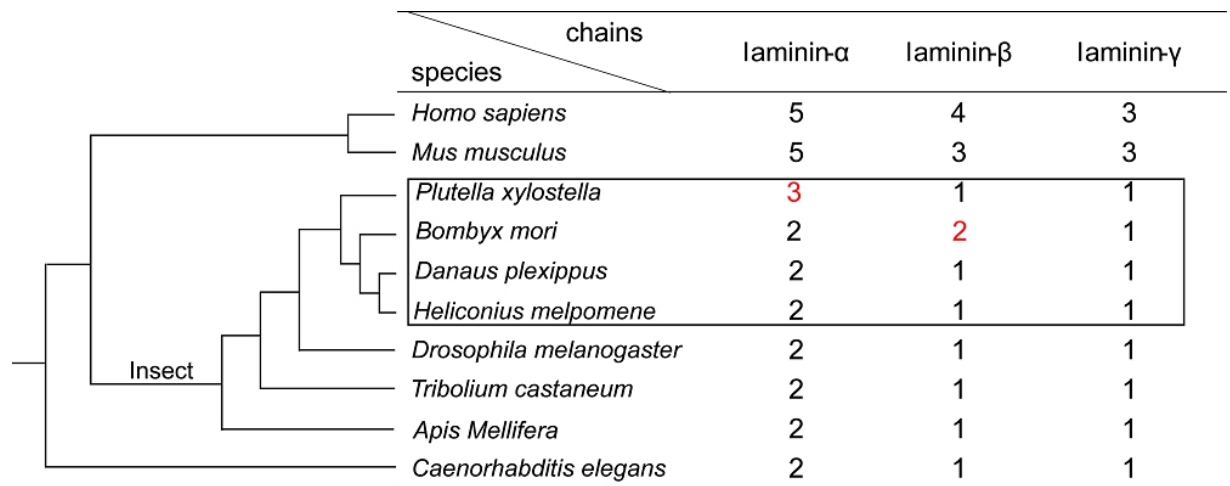


Figure S2.

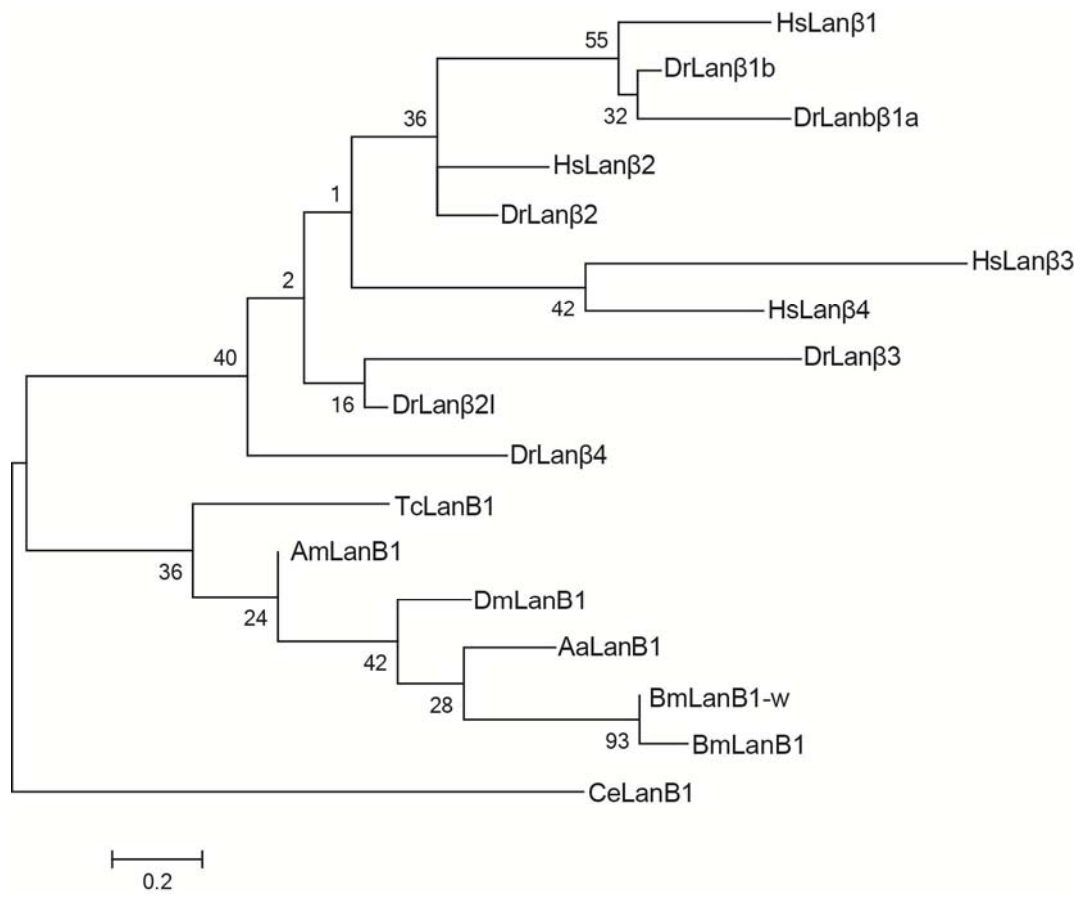


Table S1 –The primers used in this work.

Object	Name	Sequence (5'–3')	
Linkage analysis	S2213-F	GCCTTTATTAACGGATGCGGG	
	S2213-R	AATGAGCGATTTAGTGGGCAA	
	S1309-F	TTACAACTTTGAGATGCGATTTT	
	S1309-R	GCAGATTTAATCGGCGTTCCC	
	S1311-F	ACTACCCGTAGTTGTAATTTGATCTTTT	
	S1311-R	ACGTGTTTGGTTTGCTCGCT	
	M1-F	CTCTAGCAAGAGCGGTGGTT	
	M1-R	ACTCTGCCTTACCTTCTTCGT	
	M2-F	CTCTGAAGACATTCCGCTAA	
	M2-R	TACGACAATGACGCAAGG	
	M000915-F	GTGCTGGCGTTGTGATTAG	
	M000915-R	CCACTTCCTGGGCTGACT	
	primers for cloning	5'RACE-GSP	GTATCGGTAGGTCCGCCAGGTTTTT
		5'RACE-nestGSP	GCAGAGTAGCGTTGGTAGAATCG
		3'RACE-GSP	ACGAGGCTCAAGCAGCACAAGATG
3'RACE-nestGSP		ACAAATGTTGCTGGACCGTGCTAC	
P1 -F		AGAGACTACACCGCAGTATGAT	
P1 -R		AAAGCCCAAGCGAGGA	
P2 -F		GGGTGGGTCATTAGACCACG	
P2 -R		TGAGGAGATAATGAGCCTACGG	
P3-F		GAATACCGCTGGAGATAGTTG	
P3-R		GTGCCCGTTCCTTGA	
P4-F		CTTGAAGCCCTACGATTACGA	
P4-R		GCTACATACACAACATACATACGC	
Quantitative RT–PCR		BmLanB1-wQ-F	CGAGGCTCAAGCAGCACAAGA
		BmLanB1-wQ-R	CGGTAAATGCGAAAGTCGTAATC
		BGIBMGA002018Q-F	CAACTGCGGCGGTGAGAC
	BGIBMGA002018Q-R	CCCATAAACGGCTGGTAGAAG	

BGIBMGA000910Q-F TGGAACTGGATGTGACCCTTG

BGIBMGA000910Q-R TTGTGTATGCTCCTGTGGCG

BGIBMGA002114Q-F CAATGAATCCAGGCTTCTCGC

BGIBMGA002114Q-R TCGGCTATCAAACGGTCCAG

BGIBMGA001218Q-F GGTATTCCCCGCTTTTCACG

BGIBMGA001218Q-R CAGGTGTGGGCTGGACATCTT

sw22934 -F TTCGTA CTGGCTCTTCTCGT

sw22934 -R CAAAGTTGATAGCAATTCCCT

RNAi

BmLanB1-wdsRNA1-F TAATACGACTCACTATAGGGAGAATCTGCCAGTAATAATGCCAATC

BmLanB1-wdsRNA1-R TAATACGACTCACTATAGGGAGAGCTTCGTAGCACGGTCCAG

BmLanB1-wdsRNA2-F TAATACGACTCACTATAGGGAGAAGCGGAACTCAAAGCAAGA

BmLanB1-wdsRNA2-R TAATACGACTCACTATAGGGAGACGAAAAACATTTAAGGGCAT

BmLanB1-wdsRNA3-F TAATACGACTCACTATAGGGAGAGTTGAAGCCCTACGATTACGA

BmLanB1-wdsRNA3-R TAATACGACTCACTATAGGGAGAGCACAATATCTGTAGTTCTCGGA

Table S2 – Abbreviation table of proteins used in phylogenetic trees

Abbreviation	Species	Subunits	Accession NO.
Dmwb	<i>Drosophila melanogaster</i>	laminin α	AAD31714
DmLanA	<i>Drosophila melanogaster</i>	laminin α	AAF50672
DmLanB1	<i>Drosophila melanogaster</i>	laminin β	AAF52563
DmLanB2	<i>Drosophila melanogaster</i>	laminin γ	AAF50238
AmLan α 1,2	<i>Apis mellifera</i>	laminin α	XP_006571726
AmLanA	<i>Apis mellifera</i>	laminin α	XP_396118
AmLanB1	<i>Apis mellifera</i>	laminin β	XP_001122457
AmLanB2	<i>Apis mellifera</i>	laminin γ	XP_003249128
AaLan α 1,2	<i>Aedes aegypti</i>	laminin α	XP_001653373
AaLanA	<i>Aedes aegypti</i>	laminin α	XP_001659481
AaLanB1	<i>Aedes aegypti</i>	laminin β	XP_001657107
AaLanB2	<i>Aedes aegypti</i>	laminin γ	XP_001650503
TcLan α 1,2	<i>Tribolium castaneum</i>	laminin α	XP_008194088
TcLanA	<i>Tribolium castaneum</i>	laminin α	XP_972827
TcLanB1	<i>Tribolium castaneum</i>	laminin β	EFA11219
TcLanB2	<i>Tribolium castaneum</i>	laminin γ	XP_968632
HsLan α 2	<i>Homo sapiens</i>	laminin α	XP_005267038
HsLan α 3	<i>Homo sapiens</i>	laminin α	NP_001121189
HsLanB1	<i>Homo sapiens</i>	laminin β	AAA59482
HsLanB2	<i>Homo sapiens</i>	laminin γ	AAA59492
CeLanA	<i>Caenorhabditis elegans</i>	laminin α	BAA32347
CeLanB1	<i>Caenorhabditis elegans</i>	laminin β	NP_500734
CeLanB2	<i>Caenorhabditis elegans</i>	laminin γ	NP_509204