

Supplemental Materials

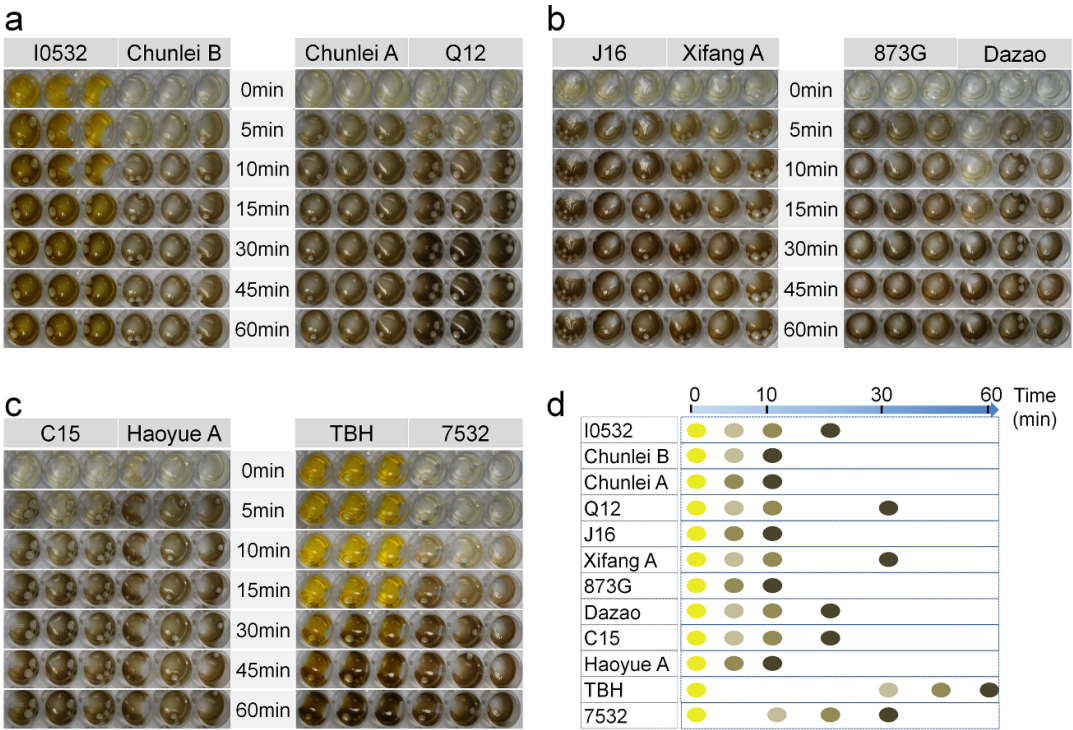


Figure S1. In vitro melanization of hemolymph of multiple silkworm varieties. **(a-c)** The melanization times of hemolymph from many varieties of silkworm. Silkworm varieties (strains) including I0532, Chunlei B, Chunlei A, Q12, J16, Xifang A, 873G, Dazao, C15, TBH and 7532. **(d)** Schematic diagram of hemolymph melanization times in vitro of multiple silkworm strains. According to the degree of melanization, there are four grades. The hemolymph just taken out is light yellow, and the beginning of oxidation and blackening is indicated by brown. The darker the color is, the deeper the degree of melanization is. Black means that the hemolymph is completely blackened.

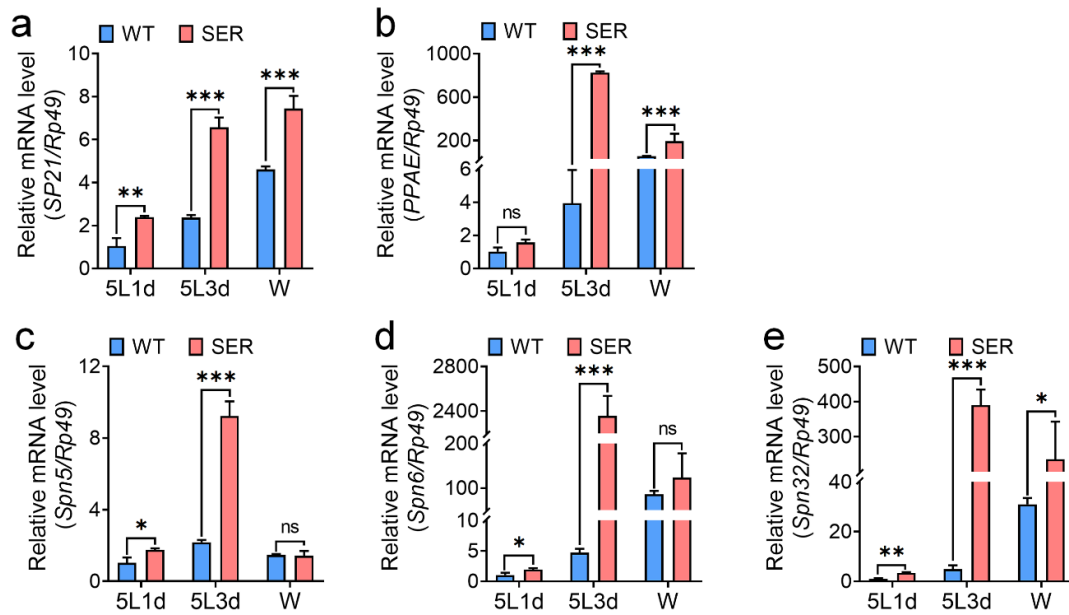


Figure S2. Changes in serine protease inhibitor gene transcription levels in fat body of transgenic silkworms. (a-e) qPCR was used to investigate the relative transcription level of genes. PPAE and SP21 are the positive regulatory genes that eventually activate PPO into PO; Spn5, Spn6 and Spn32 are the main member genes of the serine protease inhibitor family that are reversely regulated; and Rp49 was the internal reference gene. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ns, no significant difference between the two groups. $n = 3$ biological repeats.

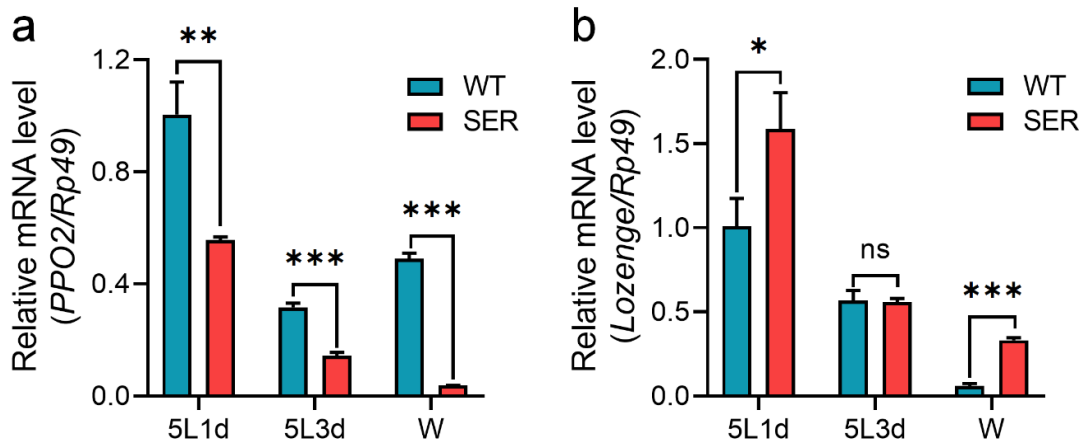


Figure S3. Changes in PPO2 and Lozenge gene transcription levels in hemolymph of transgenic silkworms. (a) PPO2, prophenoloxidase 2. (b) Lozenge. Rp49 was the internal reference gene. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ns, no significant difference between the two groups. $n = 3$ biological repeats.

Table S1. The primers used in the study

Gene name	Forward (5'→3')	Reverse (5'→3')	Gene ID
<i>CAT</i>	aatgtcggcggagatgtagacc	gcagcagcatccttgaggatgat	692456
<i>DDC</i>	ccaaccgctaactcgtat	ataaccacttccaactctgt	692675
<i>SP21</i>	cctatgattaccagtccaaca	ccttctcacacggatacac	100862834
<i>PAH</i>	cggctactgtcgtcctt	ggctggtattctgtgatgg	101742825
<i>PPAE</i>	ggaggaatcttgatgtagg	ctgatacggacacgcaat	692368
<i>PPO1</i>	gagaatatgtccgtgatgct	ggttctctgctgatgatgg	692758
<i>PPO2</i>	gttactctgtggcactgat	gtggaacatctggtggaat	693073
<i>Spn32</i>	cggaatgccaatcaagaag	ggatcatcaagtctgaagtct	100272196
<i>Spn5</i>	agccagacttagccaact	ccgattccgtgacctcta	692688
<i>Spn6</i>	ttctactaccgccttactct	tctcaacgatgacttctctg	100126553
<i>TH</i>	ctgatataggcgtgacgat	agaagattcactagcagcat	100270767
<i>TPX</i>	actacggagtgtgacg	tcgggcttgatggtctt	733003
<i>Cu/Zn-SOD</i>	tcgtggtgatgtagcggaact	cgacatggcgtacagcagaact	692639
<i>Mn-SOD</i>	gattcgagttgccggtgcttct	gcttggtgcctgtgcgagttct	692736
<i>Moricin</i>	gcaatgtctctggtgtca	gcgatattgatggctcttag	692365
<i>CecropinA</i>	ccagggtggaaactcttcaa	tttcgcttgccctatgac	693029
<i>Lebocin</i>	ggatatgttcgcagtgca	ggtaagtccagtatcaact	100146108
<i>Attacin</i>	gtgtagegttgttgtgtt	aggttccatccgagttca	692555
<i>Lozenge</i>	tcacaggagatagcataactc	gggtccatcttgattgattgag	101747006
<i>Rp49</i>	cgttaaggctcctagttcaca	cgtcactctgatgctgag	778453