

**Supplementary Material 1:** Sequences, chromosomal positions, and strand information of *MATE* antisense transcripts identified in *Glycine soja* in this study.

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>**Gsoja\_MSTRG.77238.2** GenelID=Gsoja\_MSTRG.77238;Strand=+;Pos=Chr17:40635557-  
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>**Gsoja\_MSTRG.47510.1** GeneID=Gsoja\_MSTRG.47510;Strand=+;Pos=Chr11:1887315-1888221,

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>**Gsoja\_MSTRG.40293.1** GeneID=Gsoja\_MSTRG.40293;Strand=+;Pos=Chr09:38830162-38830941,

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>**Gsoja\_MSTRG.52475.35** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344812-45345072,45345247-45345366,45345415-45345497,

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>**Gsoja\_MSTRG.66724.1** GeneID=Gsoja\_MSTRG.66724;Strand=+;Pos=Chr15:8371058-8371331,

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>**Gsoja\_MSTRG.9426.1** GeneID=Gsoja\_MSTRG.9426;Strand=+;Pos=Chr03:461641-461920,467578-467757,

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>**Gsoja\_MSTRG.52475.34** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344787-45345006,45345181-45345246,45345421-45345540,

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>**Gsoja\_MSTRG.79812.1** GeneID=Gsoja\_MSTRG.79812;Strand=+;Pos=Chr18:23000838-23001216,  
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>**Gsoja\_MSTRG.52475.11** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344092-  
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>**Gsoja\_MSTRG.52475.1** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45317721-  
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45345654,45345862-45346016,  
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>**Gsoja\_MSTRG.52475.21** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344733-45344832,45345007-45345162,45345337-45345558,45345862-45345960,

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>**Gsoja\_MSTRG.82124.1** GeneID=Gsoja\_MSTRG.82124;Strand=-;Pos=Chr18:56849921-56850147,

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>**Gsoja\_MSTRG.52475.27** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344745-  
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>**Gsoja\_MSTRG.61707.53** GenelD=Gsoja\_MSTRG.61707;Strand=+;Pos=Chr14:2477112-  
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>**Gsoja\_MSTRG.5530.1** GeneID=Gsoja\_MSTRG.5530;Strand=+;Pos=Chr02:7820058-7820304,  
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>**Gsoja\_MSTRG.61707.51** GeneID=Gsoja\_MSTRG.61707;Strand=+;Pos=Chr14:2477094-  
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>**Gsoja\_MSTRG.9427.1** GeneID=Gsoja\_MSTRG.9427;Strand=+;Pos=Chr03:462346-463548,  
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>**Gsoja\_MSTRG.46128.1** GeneID=Gsoja\_MSTRG.46128;Strand=+;Pos=Chr10:48333319-48334810,

CTTCCCTATACAGCTAAAGACAAATTCCTGATAGATTCTCTCTCTCCCTTTGTCTTCTT  
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>**Gsoja\_MSTRG.52475.3** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45317721-  
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>**Gsoja\_MSTRG.52475.4** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344082-  
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CGTTTGAGATGATCCCGACGACGACGACGGCGAGGGGTTGTTGCCGCCGACGACGGTAA



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>**Gsoja\_MSTRG.66725.1** GeneID=Gsoja\_MSTRG.66725;Strand=+;Pos=Chr15:8373481-8373749,

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>**Gsoja\_MSTRG.39209.1** GeneID=Gsoja\_MSTRG.39209;Strand=-;Pos=Chr09:18275716-18275973,  
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>**Gsoja\_MSTRG.31243.1** GeneID=Gsoja\_MSTRG.31243;Strand=-;Pos=Chr07:44700847-44701086,  
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>**Gsoja\_MSTRG.52475.10** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344091-  
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>**Gsoja\_MSTRG.26928.1** GeneID=Gsoja\_MSTRG.26928;Strand=+;Pos=Chr06:48014148-48014350,  
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>**Gsoja\_MSTRG.28714.1** GeneID=Gsoja\_MSTRG.28714;Strand=-;Pos=Chr07:9568723-9570163,  
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>**Gsoja\_MSTRG.39208.1** GeneID=Gsoja\_MSTRG.39208;Strand=-;Pos=Chr09:18274868-18275081,  
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>**Gsoja\_MSTRG.77248.1** GeneID=Gsoja\_MSTRG.77248;Strand=+;Pos=Chr17:40638590-40638935,  
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>**Gsoja\_MSTRG.52475.20** GeneID=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344685-  
45344988,45345262-45345642,45345781-45345909,  
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>**Gsoja\_MSTRG.65596.1** GeneID=Gsoja\_MSTRG.65596;Strand=-;Pos=Chr15:2791444-2791644,

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>**Gsoja\_MSTRG.61707.54** GenelD=Gsoja\_MSTRG.61707;Strand=+;Pos=Chr14:2477194-  
2477299,2477345-2477548,2477711-2477905,

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TGCTTTGGTGGTCTGAAGGTGTAAGTGGTGGCTTTGGTTCTGAAGCTGTAAGTGGTG  
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>**Gsoja\_MSTRG.52475.30** GenelD=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344746-  
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>**Gsoja\_MSTRG.52475.17** GenelD=Gsoja\_MSTRG.52475;Strand=-;Pos=Chr11:45344330-  
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>**Gsoja\_MSTRG.9429.1** GenelD=Gsoja\_MSTRG.9429;Strand=+;Pos=Chr03:485756-486027,

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