

## Supplementary Information

### A Global View of Transcriptome Dynamics During Male Floral Bud

#### Development in *Populus tomentosa*

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## Supplementary Information

**Figure S1.** Length distribution of the transcripts and assembled unigenes.

**Figure S2.** Global analysis of the transcriptome datasets. **A**, Distribution of the top BLASTX hits for unigenes in the non-redundant protein (Nr) database. **B**, Cluster of Orthologous Groups (COG) classifications in *P. tomentosa*. **C**, Gene Ontology (GO) assignment of *P. tomentosa* unigenes.

**Figure S3.** Global view of the expressed genes. **A**, Principal components analysis of the eight samples in this study. **B**, Proportion of the expressed genes (based on fragments per kilobase of transcript per million mapped reads; FPKM) during the eight stages of flower development.

**Figure S4.** GO enrichment during flower development. The 20 significantly enriched GO (biological process, molecular function and cellular component) categories containing the up- and down-regulated genes of the eight stages of flower development.

**Figure S5.** GO enrichment during the various stages of flower development with respect to the preceding stage. Five significantly enriched biological process GO terms in the up-regulated genes during the various stages of flower development with respect to the preceding stage.

**Figure S6.** Expression patterns of differentially expressed transcription factors (TFs). **A**, The top 15 differentially expressed TFs during various stages of flower development. **B**, Hierarchical cluster analysis and **C**, K-means clustering of the differentially expressed TFs during the eight developmental stages. Black numbers on the top are the number of genes for each cluster; the red numbers are the cluster labels.

**Figure S7.** Expression profiles of MIKC\* MADS-box genes in the floral transcriptome, and the identification of those genes by RT-qPCR. **A**, Heatmap

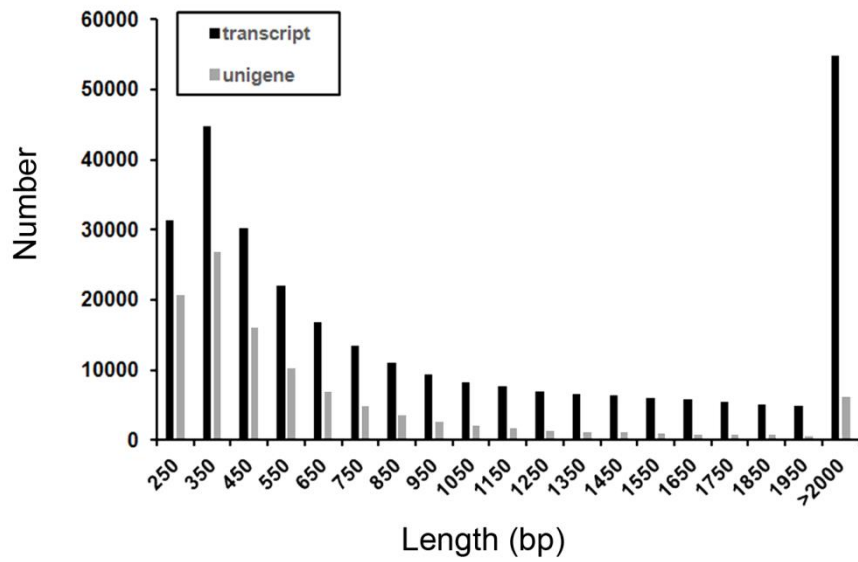
showing the expression patterns of the identified MIKC\* MADS-box genes in the floral transcriptome of *P. tomentosa*. **B**, RT-qPCR validation of the MIKC\* MADS-box gene expression levels in floral buds. The blue and pink lines were derived from the RNA-seq and RT-qPCR data, respectively.

**Figure S8.** Expression profiles of receptor-like kinase (RLK) genes in the floral transcriptome and their RT-qPCR validation. **A**, Hierarchical cluster analysis of the RLK genes expressed during the eight stages. **B**, RT-qPCR validation of the expression profiles obtained by RNA-seq.

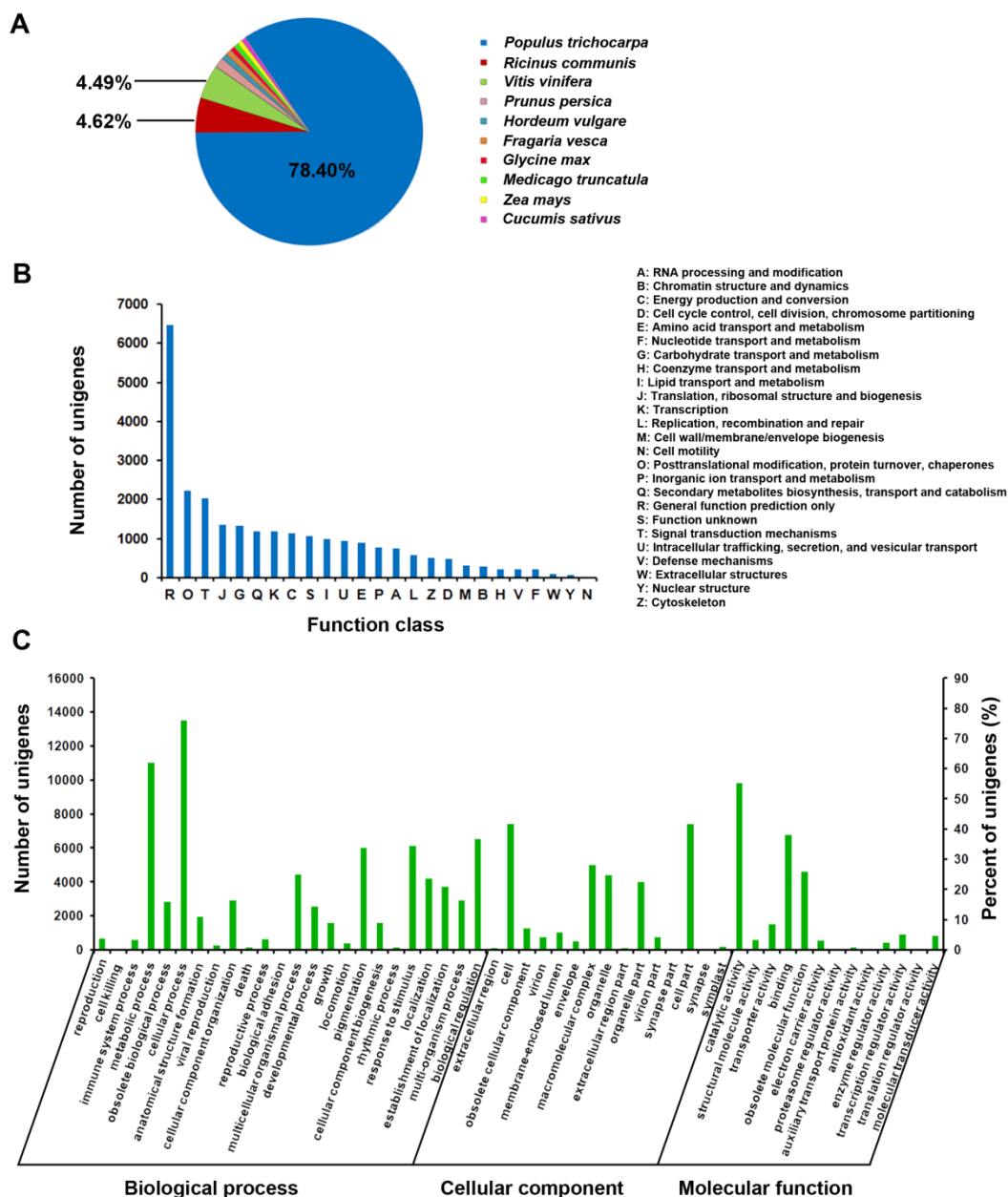
**Figure S9.** Expression profiles of the genes involved in anther, tapetum, and pollen development. **A**, Heat map of gene expression. **B**, RT-qPCR confirmation of the expression profiles obtained by RNA-seq transcriptome analysis. The blue and pink lines were derived from the RNA-seq and RT-qPCR data, respectively. The values are means  $\pm$  SD. ACOS5, ACYL-COA SYNTHASE; AMS, ABORTED MICROSPORES; CYP, CYTOCHROME P450; EMS1, EXCESS MICROSPOROCYTES1;  $\beta$ GLU, BETA-1,3-GLUCANASE; OLE, OLEOSIN; PME, PECTIN METHYLESTERASE; POE1, POLLEN OLE E 1 ALLERGEN AND EXTENSIN; SKU5, MONOCOPPER OXIDASE; TDF, DEFECTIVE IN MERISTEM DEVELOPMENT AND FUNCTION; TPD1, TAPETUM DETERMINANT1.

**Table S1.** Selected floral-related genes in co-expression network.

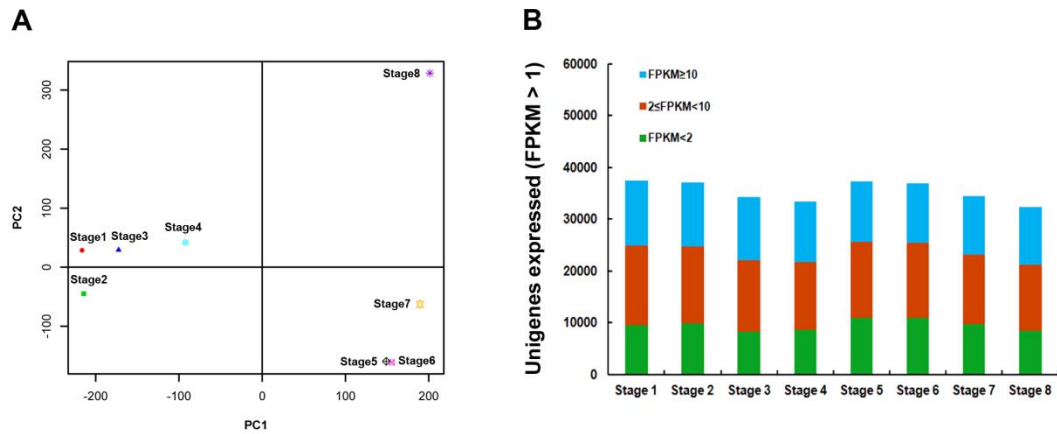
**Table S2.** Primer sequences used in the RT-qPCR analysis performed in this study.



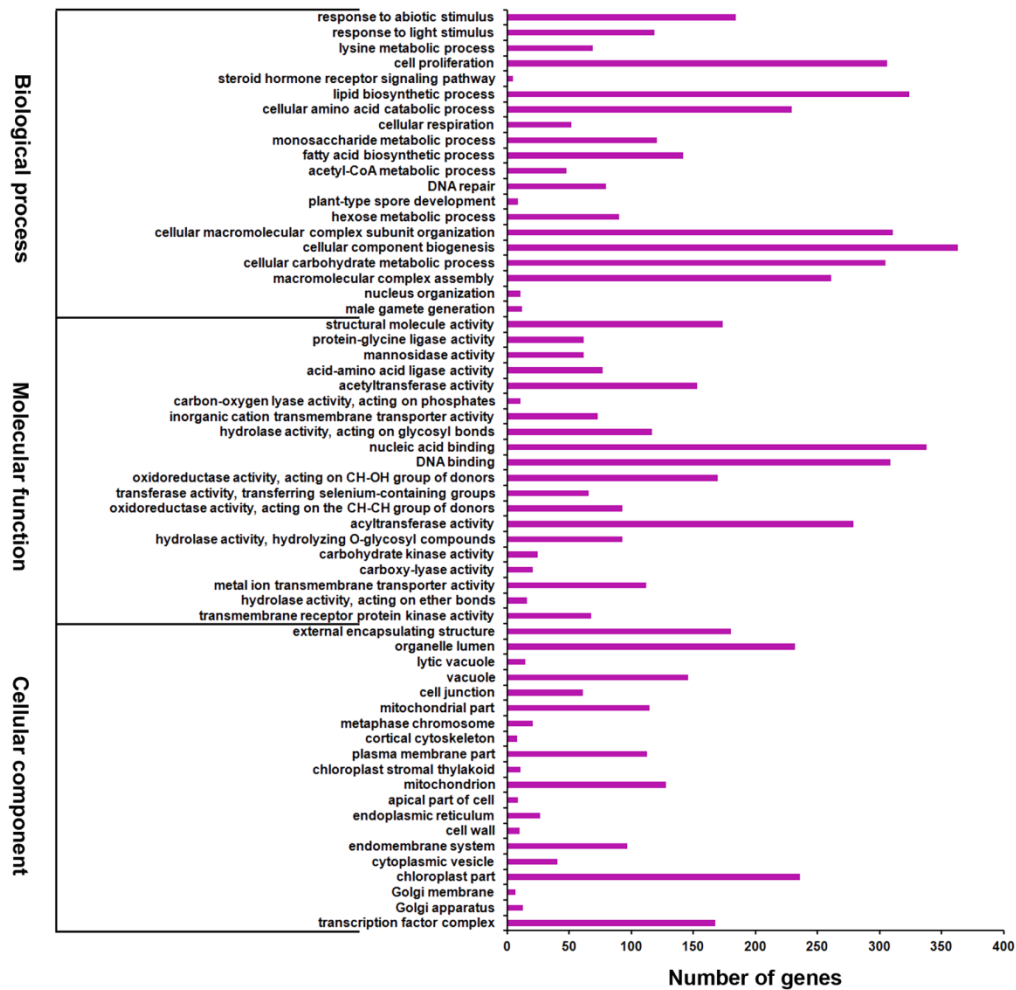
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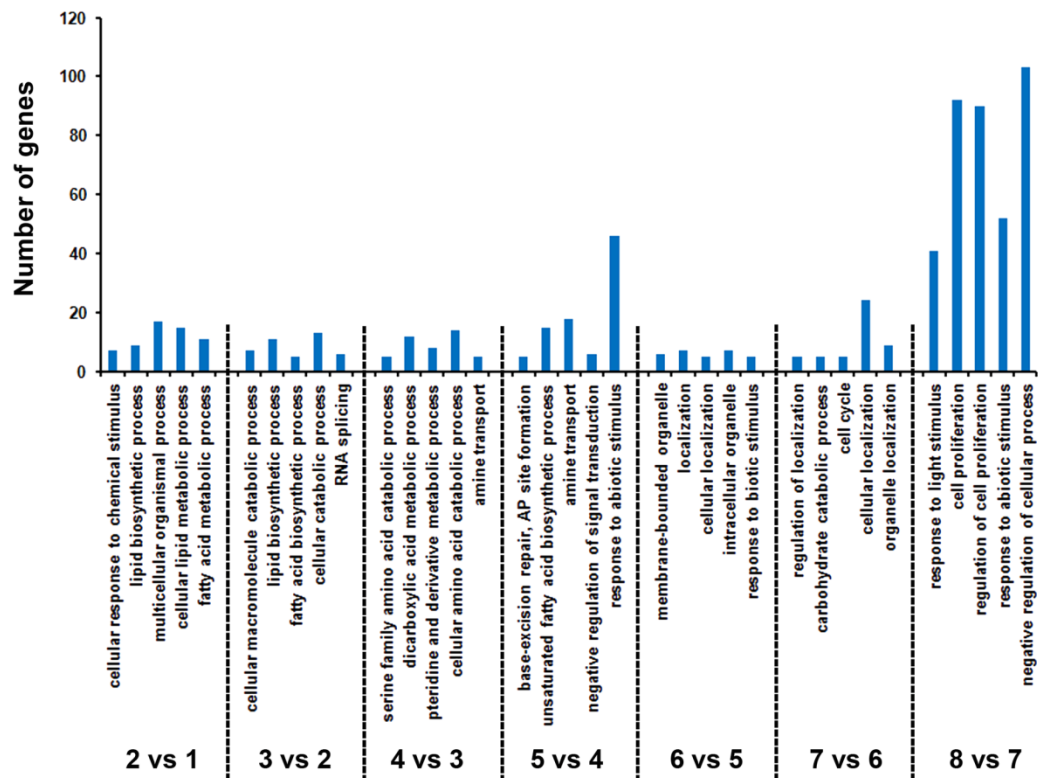
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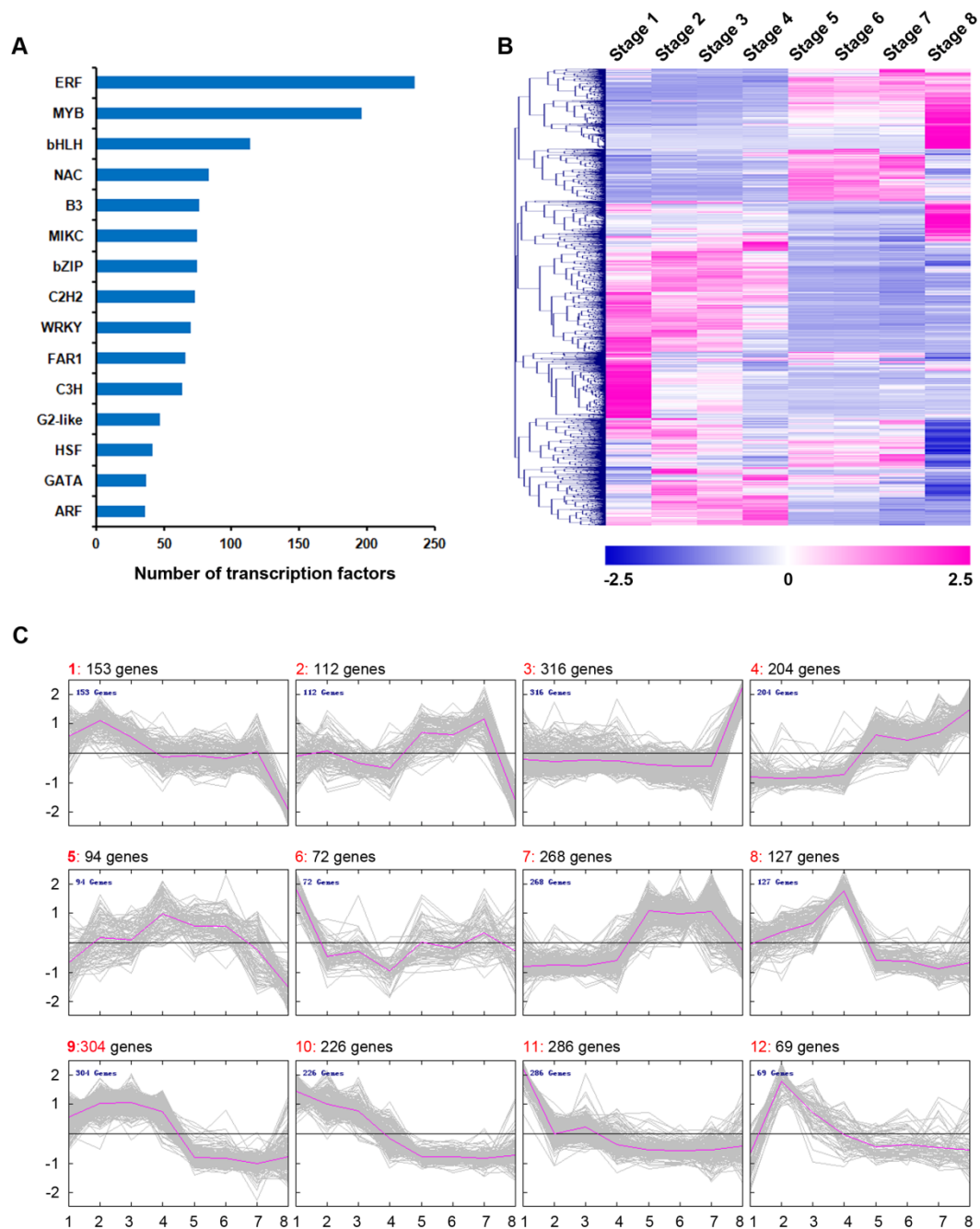
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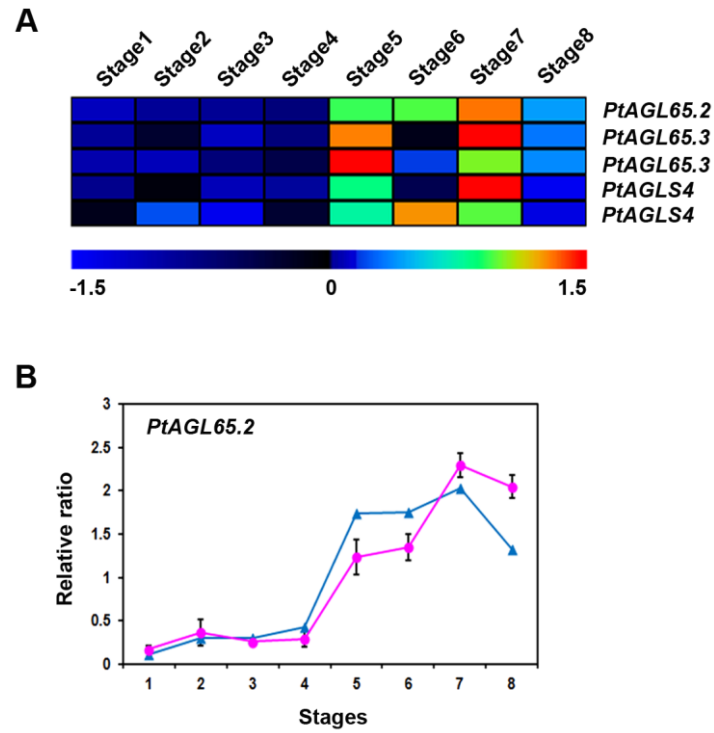
**Figure S4.** GO enrichment during flower development. The 20 significantly enriched GO (biological process, molecular function and cellular component) categories containing the up- and down-regulated genes of the eight stages of flower development.



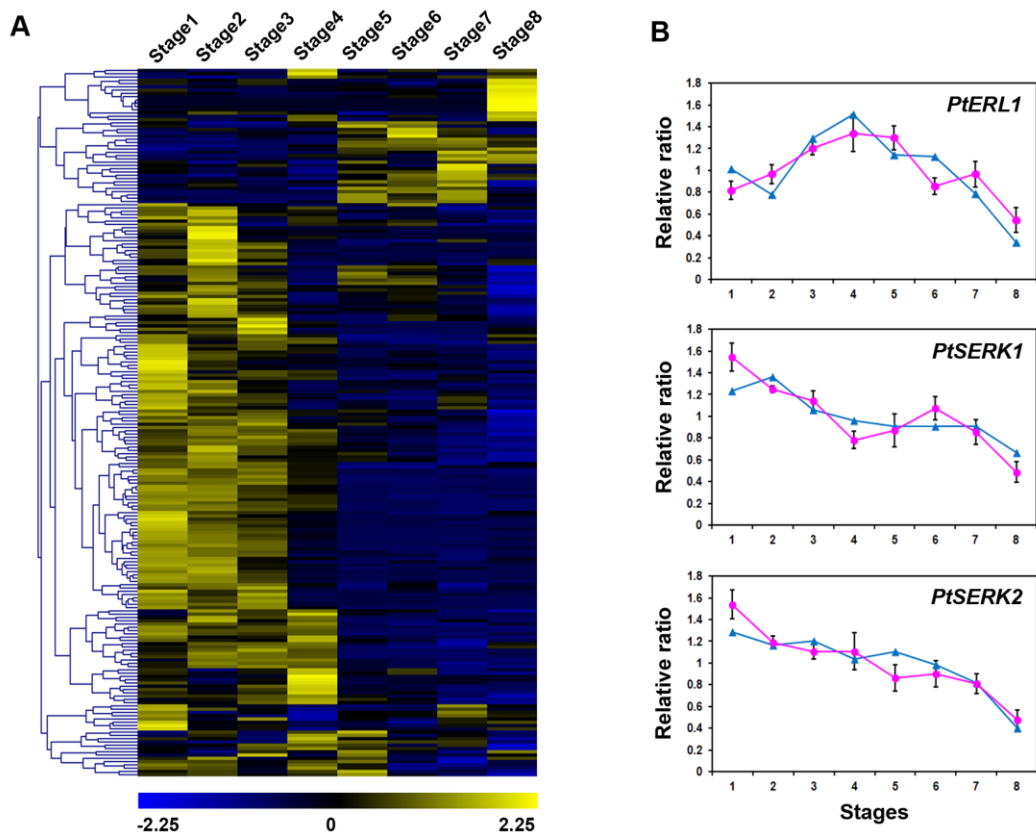
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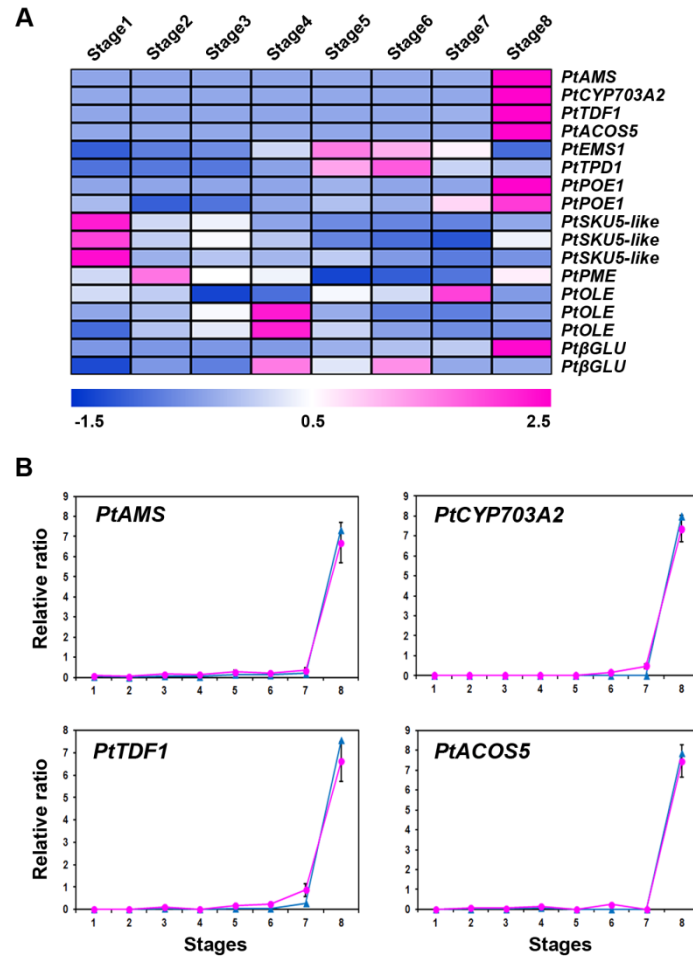
**Figure S6.** Expression patterns of differentially expressed transcription factors (TFs). **A**, The top 15 differentially expressed TFs during various stages of flower development. **B**, Hierarchical cluster analysis and **C**, K-means clustering of the differentially expressed TFs during the eight developmental stages. Black numbers on the top are the number of genes for each cluster; the red numbers are the cluster labels.



**Figure S7.** Expression profiles of MIKC\* MADS-box genes in the floral transcriptome, and the identification of those genes by RT-qPCR. **A**, Heatmap showing the expression patterns of the identified MIKC\* MADS-box genes in the floral transcriptome of *P. tomentosa*. **B**, RT-qPCR validation of the MIKC\* MADS-box gene expression levels in floral buds. The blue and pink lines were derived from the RNA-seq and RT-qPCR data, respectively.



**Figure S8.** Expression profiles of receptor-like kinase (RLK) genes in the floral transcriptome and their RT-qPCR validation. **A**, Hierarchical cluster analysis of the RLK genes expressed during the eight stages. **B**, RT-qPCR validation of the expression profiles obtained by RNA-seq.



**Figure S9.** Expression profiles of the genes involved in anther, tapetum, and pollen development. **A**, Heat map of gene expression. **B**, RT-qPCR confirmation of the expression profiles obtained by RNA-seq transcriptome analysis. The blue and pink lines were derived from the RNA-seq and RT-qPCR data, respectively. The values are means  $\pm$  SD. ACOS5, ACYL-COA SYNTHASE; AMS, ABORTED MICROSPORES; CYP, CYTOCHROME P450; EMS1, EXCESS MICROSPOROCYTES1;  $\beta$ GLU, BETA-1,3-GLUCANASE; OLE, OLEOSIN; PME, PECTIN METHYLESTERASE; POE1, POLLEN OLE E 1 ALLERGEN AND EXTENSIN; SKU5, MONOCOPPER OXIDASE; TDF, DEFECTIVE IN MERISTEM DEVELOPMENT AND FUNCTION; TPD1, TAPETUM DETERMINANT1.

**Table S1** Selected floral-related genes in co-expression network.

| <i>Populus</i> V3.0 | gene name       | unigene       | stage 1 | stage 2 | stage 3 | stage 4 | stage 5 | stage 6 | stage 7 | stage 8 |
|---------------------|-----------------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Potri.016G064300    | <i>AMP1.1</i>   | comp645841_c0 | 2.14    | 2.22    | 2.1     | 1.43    | 2.35    | 1.73    | 2.05    | 2.61    |
| Potri.006G153300    | <i>AMP1.2</i>   | comp646623_c0 | 3.44    | 3.37    | 3.16    | 3.43    | 1.41    | 1.65    | 1.82    | 0.69    |
| Potri.018G128300    | <i>ARP6</i>     | comp650372_c1 | 14.56   | 12.86   | 13.04   | 12.64   | 14.08   | 13.04   | 11.29   | 9.01    |
| Potri.005G195400    | <i>ASHH1</i>    | comp655703_c0 | 27.25   | 33.11   | 39.07   | 37.03   | 20.54   | 22.73   | 32.11   | 28.79   |
| Potri.008G003200    | <i>ATFYPP3</i>  | comp652578_c1 | 81.24   | 78.56   | 73.51   | 80.85   | 123.6   | 109.9   | 125.6   | 106.89  |
| Potri.001G244100    | <i>ATVGT1.1</i> | comp645949_c0 | 25.61   | 32      | 29.64   | 34.67   | 22.37   | 18.78   | 18.33   | 11.49   |
| Potri.019G055600    | <i>ATVGT1.2</i> | comp648924_c2 | 18.53   | 21.79   | 19.49   | 18.27   | 31.3    | 31.94   | 36.05   | 23      |
| Potri.002G232800    | <i>ATX1</i>     | comp655578_c0 | 41.29   | 25.2    | 27.11   | 16.29   | 15.05   | 17.58   | 17.07   | 11.49   |
| Potri.002G001000    | <i>ATXR7</i>    | comp655771_c0 | 11.42   | 11.93   | 13.2    | 9.67    | 7.81    | 9.96    | 5.23    | 2.58    |
| Potri.007G078100    | <i>BIN1</i>     | comp655678_c0 | 43.05   | 43.3    | 31.53   | 24.06   | 11.62   | 9.97    | 9.77    | 8.29    |
| Potri.006G203000    | <i>BLH1</i>     | comp651968_c0 | 129.99  | 296.41  | 227.3   | 203.08  | 245.31  | 237.88  | 234.75  | 100.99  |
| Potri.002G159900    | <i>CRP</i>      | comp655976_c0 | 33.32   | 39.48   | 33.27   | 27.13   | 26.39   | 25.39   | 27.83   | 5.77    |
| Potri.001G420400    | <i>DDL</i>      | comp644312_c0 | 24.14   | 29.07   | 31.07   | 42.11   | 72      | 71.26   | 63.86   | 27.82   |
| Potri.005G109500    | <i>FDP</i>      | comp655407_c0 | 71.67   | 59.18   | 51.67   | 38.03   | 51.06   | 46.02   | 46.77   | 26.07   |
| Potri.014G075200    | <i>FWA.1</i>    | comp607810_c0 | 89.11   | 98.66   | 85.32   | 37.71   | 22.56   | 27.67   | 19.17   | 12.3    |
| Potri.004G020400    | <i>FWA.2</i>    | comp650383_c0 | 35.51   | 44.83   | 45.37   | 27.28   | 9.61    | 9.29    | 11.45   | 7.56    |
| Potri.015G034100    | <i>FWA.3</i>    | comp653619_c0 | 17.19   | 16.04   | 9.62    | 8.88    | 3.59    | 2.25    | 1.05    | 0.32    |
| Potri.003G052400    | <i>FWA.4</i>    | comp653719_c1 | 64.55   | 75.81   | 73.36   | 51.89   | 41.92   | 35.49   | 26.4    | 20.89   |
| Potri.015G141800    | <i>FWA.5</i>    | comp653737_c0 | 7.29    | 9.49    | 9.49    | 6.39    | 5.08    | 5.12    | 2.95    | 3.1     |
| Potri.014G152000    | <i>FWA.6</i>    | comp656037_c0 | 57.33   | 70.87   | 64.26   | 61.26   | 76.6    | 72.58   | 77.71   | 54.1    |
| Potri.006G201900    | <i>HAP2B</i>    | comp652355_c0 | 1.19    | 1.97    | 1.93    | 3.53    | 1.48    | 1.25    | 1.07    | 1.03    |
| Potri.007G045300    | <i>ICU2</i>     | comp650780_c0 | 6.26    | 4.65    | 5.07    | 5.13    | 2.81    | 2.38    | 3.74    | 6.38    |
| Potri.013G046700    | <i>JMJ14.1</i>  | comp595650_c0 | 11.06   | 8.37    | 6.93    | 3.97    | 6.98    | 5.97    | 7.18    | 4.05    |

|                  |                |               |        |        |        |        |        |        |        |        |
|------------------|----------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Potri.002G037300 | <i>JMJ14.2</i> | comp652984_c0 | 16.13  | 12.5   | 12.58  | 11.45  | 21.67  | 17.84  | 19.23  | 13.58  |
| Potri.001G440900 | <i>JMJ14.3</i> | comp654970_c0 | 4.09   | 2.51   | 2.29   | 2.74   | 4.49   | 2.81   | 4.15   | 2.14   |
| Potri.008G073700 | <i>LAC8.1</i>  | comp634635_c0 | 19.27  | 13.89  | 17.52  | 19.42  | 6.9    | 6.89   | 3.37   | 4.49   |
| Potri.013G152700 | <i>LAC8.2</i>  | comp648767_c0 | 70.74  | 49.66  | 72.64  | 77.6   | 8.88   | 7.19   | 5.93   | 3.92   |
| Potri.011G127600 | <i>LDL2</i>    | comp649209_c0 | 10.52  | 10.64  | 10.3   | 9.47   | 10.35  | 8.1    | 9.19   | 5.21   |
| Potri.002G013100 | <i>LSD1</i>    | comp650980_c0 | 11.5   | 8.81   | 8.26   | 7.8    | 10.37  | 8.74   | 10.78  | 6.7    |
| Potri.010G227200 | <i>LSD1.3</i>  | comp655541_c0 | 14.94  | 16.8   | 15.39  | 14.44  | 12.69  | 12.31  | 10.5   | 5.03   |
| Potri.005G071900 | <i>LMI1</i>    | comp653987_c1 | 609.43 | 865.1  | 667.28 | 544.86 | 175.87 | 179.41 | 129.93 | 315.22 |
| Potri.004G126600 | <i>MIF1</i>    | comp596808_c0 | 3.55   | 2.12   | 2.03   | 0.95   | 0.13   | 0.24   | 0.06   | 0.56   |
| Potri.015G103900 | <i>MMP</i>     | comp633745_c0 | 9.06   | 5.05   | 6.76   | 5.16   | 4.13   | 6.33   | 3.72   | 3.8    |
| Potri.008G089000 | <i>NAP</i>     | comp632298_c0 | 0.56   | 5.21   | 1.39   | 5.17   | 78.36  | 78.53  | 114.98 | 27.58  |
| Potri.004G020300 | <i>PCFS4</i>   | comp654344_c0 | 10.82  | 12.13  | 11.35  | 10.66  | 10.14  | 9.91   | 9.62   | 3.95   |
| Potri.002G104000 | <i>PGI</i>     | comp646616_c0 | 52.84  | 37.37  | 37.5   | 35.18  | 49.28  | 45.92  | 52.18  | 42.52  |
| Potri.001G207700 | <i>PIE1</i>    | comp655800_c0 | 10.18  | 10.24  | 8.85   | 7.84   | 8.99   | 8.26   | 7.31   | 1.89   |
| Potri.004G213300 | <i>PNF.1</i>   | comp636783_c0 | 6.83   | 5.84   | 3.88   | 1.82   | 0.95   | 0.84   | 0.67   | 0.84   |
| Potri.009G009900 | <i>PNF.2</i>   | comp652582_c0 | 31.21  | 30.91  | 30.48  | 19.55  | 6.33   | 6.59   | 6.76   | 7.85   |
| Potri.007G032700 | <i>PNY.1</i>   | comp610306_c0 | 4.7    | 6.73   | 4.96   | 3.21   | 1.35   | 0.63   | 0.94   | 0.98   |
| Potri.010G197300 | <i>PNY.2</i>   | comp640054_c0 | 18.4   | 18.57  | 20.34  | 19.2   | 6.69   | 6.23   | 5.42   | 9.74   |
| Potri.009G120800 | <i>PNY.3</i>   | comp655040_c0 | 80.73  | 103.17 | 79.22  | 46.31  | 51.29  | 53.19  | 61.08  | 49.67  |
| Potri.003G180100 | <i>PRE</i>     | comp654070_c0 | 12.31  | 11.49  | 8.88   | 8.58   | 16.1   | 16.27  | 17.53  | 6.29   |
| Potri.004G064300 | <i>AG1</i>     | comp637467_c0 | 4.86   | 30.64  | 42.01  | 83.61  | 83.74  | 81.23  | 88.07  | 162.49 |
| Potri.014G074100 | <i>AGL6</i>    | comp595601_c0 | 4.13   | 7.44   | 9.13   | 9.78   | 15.37  | 14.1   | 16.4   | 61.45  |
| Potri.012G132600 | <i>AGL6-L2</i> | comp608102_c1 | 10.79  | 17.7   | 20.64  | 24.65  | 4.16   | 4.49   | 2.56   | 7.17   |
| Potri.010G154100 | <i>AP1</i>     | comp625282_c1 | 33.01  | 95.18  | 101.52 | 109.19 | 327.2  | 343.94 | 373.81 | 463.33 |
| Potri.002G028400 | <i>AP3.1</i>   | comp618279_c0 | 2.07   | 15.69  | 20.34  | 32.71  | 31.09  | 28.56  | 28.05  | 53.09  |
| Potri.007G017000 | <i>AP3.2</i>   | comp636167_c0 | 9.15   | 39.79  | 68.6   | 172.96 | 269.43 | 235.71 | 172.42 | 280.24 |

|                  |                   |               |        |        |        |        |        |        |        |        |
|------------------|-------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Potri.012G062300 | <i>FUL</i>        | comp599057_c0 | 19.19  | 44.24  | 42.75  | 45.15  | 45.59  | 48.92  | 56.43  | 166.86 |
| Potri.004G115400 | <i>FUL-L2</i>     | comp646569_c0 | 16.08  | 15.9   | 19.15  | 14.68  | 15.01  | 12.74  | 11.3   | 34     |
| Potri.015G106900 | <i>LFY</i>        | comp627910_c0 | 14.3   | 41.46  | 35.56  | 15.66  | 10.82  | 9.38   | 10.82  | 23.16  |
| Potri.002G079000 | <i>PI2</i>        | comp651100_c1 | 15.75  | 75.66  | 117.24 | 250.07 | 306.35 | 293.51 | 291.34 | 370.83 |
| Potri.001G328400 | <i>SEP/AGL6-L</i> | comp619848_c0 | 0.15   | 0      | 0.29   | 0      | 6.63   | 5.13   | 14.67  | 5.77   |
| Potri.004G115500 | <i>SEP1</i>       | comp636886_c0 | 13.98  | 42.5   | 59.88  | 119.16 | 213.79 | 198.91 | 232.18 | 545.65 |
| Potri.008G098400 | <i>SEP2</i>       | comp617509_c0 | 27.22  | 61.91  | 60.65  | 87.18  | 44.54  | 44.42  | 53.03  | 158.95 |
| Potri.001G058400 | <i>SEP3</i>       | comp623420_c0 | 12.77  | 44.12  | 56.84  | 61.73  | 97.65  | 95.55  | 113.99 | 223.07 |
| Potri.019G077200 | <i>STK2</i>       | comp641584_c0 | 0.04   | 0.27   | 0.48   | 0.51   | 0.4    | 0.14   | 0.25   | 15.19  |
| Potri.015G098400 | <i>TM8</i>        | comp627453_c0 | 31.66  | 42.34  | 25.7   | 13.07  | 5.48   | 6.67   | 3.16   | 21.03  |
| Potri.005G114700 | <i>WUSa</i>       | comp625070_c0 | 0.3    | 0.86   | 4.54   | 12.13  | 4.65   | 4.95   | 1.21   | 3.53   |
| Potri.001G225700 | <i>RPI2.1</i>     | comp607444_c0 | 3.01   | 0.9    | 0.93   | 2.32   | 3.02   | 1.83   | 2.88   | 5.1    |
| Potri.010G115300 | <i>RPI2.2</i>     | comp641786_c0 | 57.99  | 16.85  | 18.93  | 14.46  | 22.18  | 21.7   | 18.83  | 18.59  |
| Potri.005G052000 | <i>RPI2.3</i>     | comp644034_c0 | 26.53  | 20.97  | 17.49  | 24.75  | 17.22  | 13.86  | 10.92  | 21.66  |
| Potri.013G152600 | <i>SEF</i>        | comp652963_c0 | 41.37  | 33.32  | 41.06  | 40.19  | 9.19   | 11.19  | 6.39   | 4.63   |
| Potri.008G183000 | <i>TEL1</i>       | comp654460_c0 | 13.84  | 12.49  | 7.07   | 18     | 32.65  | 31.65  | 16.69  | 4.49   |
| Potri.002G079100 | <i>EFS.1</i>      | comp656045_c0 | 13.21  | 11.55  | 9.67   | 6.96   | 9.41   | 8.54   | 10.23  | 3.88   |
| Potri.005G182100 | <i>EFS.2</i>      | comp648623_c1 | 2.89   | 3.07   | 2.18   | 2.14   | 2.38   | 2.43   | 2.62   | 0.27   |
| Potri.013G083800 | <i>T1N6_2</i>     | comp631491_c1 | 2.23   | 2.27   | 1.84   | 1.26   | 0.21   | 0.11   | 0      | 0.49   |
| Potri.013G064400 | <i>UBC1.1</i>     | comp632489_c0 | 152.59 | 176.29 | 184.81 | 218.31 | 325.36 | 305.75 | 378.17 | 370.84 |
| Potri.010G216200 | <i>TOE1.2</i>     | comp651523_c0 | 3.93   | 3.77   | 2.77   | 2.11   | 6.96   | 6.81   | 7.37   | 6.77   |
| Potri.016G084500 | <i>TOE1.1</i>     | comp652358_c0 | 93.08  | 73.1   | 66.54  | 58.12  | 162.82 | 163.09 | 181.46 | 176.28 |
| Potri.007G046200 | <i>AP2.15</i>     | comp650314_c0 | 32.68  | 52.5   | 51.26  | 51.8   | 46.49  | 51.24  | 45.92  | 35.16  |
| Potri.010G216200 | <i>SMZ.1</i>      | comp651523_c0 | 3.93   | 3.77   | 2.77   | 2.11   | 6.96   | 6.81   | 7.37   | 6.77   |
| Potri.016G084500 | <i>SMZ.2</i>      | comp652358_c0 | 93.08  | 73.1   | 66.54  | 58.12  | 162.82 | 163.09 | 181.46 | 176.28 |

|                  |               |               |        |        |       |       |        |        |        |        |
|------------------|---------------|---------------|--------|--------|-------|-------|--------|--------|--------|--------|
| Potri.007G046200 | <i>SMZ.3</i>  | comp650314_c0 | 32.68  | 52.5   | 51.26 | 51.8  | 46.49  | 51.24  | 45.92  | 35.16  |
| Potri.008G045300 | <i>SNZ.1</i>  | comp651523_c0 | 3.93   | 3.77   | 2.77  | 2.11  | 6.96   | 6.81   | 7.37   | 6.77   |
| Potri.016G084500 | <i>SNZ.2</i>  | comp652358_c0 | 93.08  | 73.1   | 66.54 | 58.12 | 162.82 | 163.09 | 181.46 | 176.28 |
| Potri.005G092700 | <i>HUA2</i>   | comp655284_c0 | 10.69  | 17.23  | 11.39 | 14.28 | 14.83  | 14.08  | 16.43  | 6.97   |
| Potri.010G176300 | <i>HUA1.2</i> | comp649041_c1 | 87.93  | 104.08 | 89.88 | 73.53 | 72.33  | 69.9   | 73.34  | 61.24  |
| Potri.008G080300 | <i>HUA1.1</i> | comp639588_c0 | 72.03  | 67.87  | 66.82 | 54.02 | 40.83  | 43.6   | 34.66  | 34.89  |
| Potri.017G042500 | <i>HEN4</i>   | comp653730_c1 | 11.63  | 11.07  | 7.83  | 6.14  | 6.96   | 6.46   | 8.05   | 4.36   |
| Potri.013G145400 | <i>ULT1</i>   | comp651726_c0 | 48.22  | 44.04  | 44.72 | 35.33 | 72.51  | 56.41  | 51.95  | 87.68  |
| Potri.008G118300 | <i>PAN</i>    | comp643218_c0 | 9.61   | 17.48  | 17.13 | 8.18  | 7.42   | 6.4    | 3.78   | 2.69   |
| Potri.002G072900 | <i>SEU</i>    | comp643473_c0 | 25.37  | 36.4   | 24.02 | 25.71 | 34.45  | 30.33  | 33.87  | 6.08   |
| Potri.006G248100 | <i>LUG.1</i>  | comp653250_c0 | 59.51  | 51.36  | 56.9  | 45.27 | 73.83  | 72.61  | 122.39 | 33.21  |
| Potri.003G178600 | <i>LUG.2</i>  | comp655527_c0 | 58.85  | 62.6   | 58.4  | 53.43 | 50.8   | 52.71  | 55.85  | 37.8   |
| Potri.002G241800 | <i>LUG.3</i>  | comp649498_c0 | 40.93  | 43.07  | 46.19 | 35.13 | 34.74  | 33.9   | 45.5   | 43.99  |
| Potri.001G160900 | <i>UFO</i>    | comp651487_c0 | 5.09   | 8.76   | 6.66  | 3.09  | 1.59   | 0.84   | 0.81   | 1.33   |
| Potri.004G203900 | <i>CEN1</i>   | comp627567_c0 | 13.44  | 1.94   | 0.33  | 0.06  | 0      | 0      | 0      | 0.04   |
| Potri.007G010800 | <i>SVP1</i>   | comp633343_c1 | 45.87  | 29.73  | 34    | 21.41 | 7.19   | 5.13   | 5.16   | 7.26   |
| Potri.005G155300 | <i>SVP2</i>   | comp636774_c0 | 87.33  | 49.27  | 43.37 | 24.88 | 4.18   | 5.9    | 2.98   | 4.49   |
| Potri.007G115200 | <i>SVP-L1</i> | comp648986_c0 | 153.77 | 121.16 | 87.59 | 65.42 | 31.22  | 35.99  | 29.97  | 23.71  |
| Potri.017G044200 | <i>SVP-L3</i> | comp633238_c1 | 62.46  | 65.5   | 46.34 | 32.71 | 8.46   | 7.52   | 6.35   | 6.33   |
| Potri.007G115000 | <i>SVP-L5</i> | comp625082_c0 | 13.34  | 5.96   | 3.65  | 4.26  | 2.57   | 2.39   | 2.13   | 3.58   |
| Potri.014G074200 | <i>SOC1</i>   | comp629998_c0 | 161.2  | 98.88  | 82.11 | 52.69 | 62.14  | 63.64  | 44.61  | 113.94 |
| Potri.003G119700 | <i>SOC3.1</i> | comp636933_c2 | 28.68  | 21.26  | 17.42 | 14.62 | 13.43  | 15.34  | 17.58  | 14.9   |
| Potri.001G112400 | <i>SOC3.2</i> | comp641584_c0 | 0.04   | 0.27   | 0.48  | 0.51  | 0.04   | 0.14   | 0.25   | 15.19  |
| Potri.008G077700 | <i>FT1</i>    | comp635896_c0 | 5.88   | 3.45   | 2.71  | 2.7   | 8.77   | 7.86   | 27.62  | 30.04  |

**Table S2** Primer sequences used in the RT-qPCR analysis performed in this study.

| <b>Name</b>       | <b>Unigene</b> | <b>Forward (5'-3')</b> | <b>Reverse (5'-3')</b>  |
|-------------------|----------------|------------------------|-------------------------|
| <i>PtAGL65.2</i>  | comp648690_c1  | CCTGCCCTTTGTGATCTCGT   | CAGCGAGAAGAAGCCAGTGA    |
| <i>PtSOC1.1</i>   | comp629998_c0  | ACACAAACAAGCAGCCTGTT   | CCTGATTCTTTCTCGCACGG    |
| <i>PtFLC2</i>     | comp639876_c0  | GTCTCAGTGTGCTTACCCCT   | CTACCATGGGCCTGTGAAGT    |
| <i>PtFLC4</i>     | comp646395_c0  | TGCACATATCACACGGCTTC   | TCTTGCTGCCAAAGTTGCAT    |
| <i>PtSVP1</i>     | comp633343_c1  | TGTGCAACTCAAATGGCCCC   | GTTTCCCAGCGCTTGTCCAA    |
| <i>PtSVP2.2</i>   | comp636774_c0  | GGAAAGAGACCTGCCCTTGTTG | TTCAGCATCAGATGGCCAACC   |
| <i>PtSVP-L1</i>   | comp648986_c0  | GGAGAGAGACCGAGCACAAA   | TCATCACTCTTTCTTCTCCTGCT |
| <i>PtAP1.2</i>    | comp625282_c1  | CCGCCCTTAAACACATTTCGG  | TGCGTCTGATACCATGGACC    |
| <i>PtFUL</i>      | comp599057_c0  | TTCCTCAATTCCCGTTGCCA   | AAAGAAGGACAAGGCGCTCC    |
| <i>PtAP3.1</i>    | comp618279_c0  | CAACTGATATGCTGCGGACG   | TGGGATGCCACTAACTTGCT    |
| <i>PtAP3.2</i>    | comp636167_c0  | ATTGATCATCTGCGCGGTCT   | TGCATAGAGGTTGGAAGCCC    |
| <i>PtPI2</i>      | comp651100_c1  | CTGAGGCATCTGAAAGGGCA   | GCACTCTCTTCCATGGCCAT    |
| <i>PtAG1</i>      | comp637467_c0  | CCAGCTTCTCCGAGCAAAGA   | CGAGAAACTGCTGCACTTGG    |
| <i>PtSTK2</i>     | comp641584_c0  | GTACGCCAACAACAACAGCA   | CAGCATCGCCCATTAAGTGC    |
| <i>PtSEP1.1</i>   | comp636886_c0  | AGCTCCACTCTACCTCTCCC   | TGGTGGGTGTTTCTCTCTCTC   |
| <i>PtSEP3.1</i>   | comp623420_c0  | GCGTACTCCACATCTTCTGCA  | TTGGCCCTCTAAGCAGCAAAG   |
| <i>PtSPL9</i>     | comp653646_c0  | TGGAGCTGGAAATTGGGCAT   | CCTTCCCCTGCTTCACCAT     |
| <i>PtSPL12</i>    | comp649925_c0  | ATGGATTGAGCAGGCACCAA   | GCCGTGCAAATGGAGGAATG    |
| <i>PtSPL16</i>    | comp615410_c0  | ACGGGAACAAAGGGAGCTTT   | TATTGCTGGAGGGCTAGGGT    |
| <i>PtSPL29</i>    | comp648892_c0  | TGCACTGTTGGCAAATTCGG   | CCAGCACTGCCAAATCATCG    |
| <i>PtAMS</i>      | comp645514_c0  | GCACCGACGAAACCAAAACA   | TCGTTGCAATCCGAGTGTGA    |
| <i>PtCYP703A2</i> | comp642924_c0  | GTACCAGAGTCACGCCAAGT   | ATCAACACTCATGGGCTGGG    |
| <i>PtTDF1</i>     | comp625870_c0  | ACCAACTCTTCAACCATGGCA  | CCAAGATGCGGTCAACAAAGG   |
| <i>PtACOS5</i>    | comp629367_c0  | AGCGAGTCCCCATCTTGTCTT  | AGATCCCAGCTGCTTGTGTTG   |
| <i>PtERL1</i>     | comp655599_c0  | GGCATTCCCAATTCCCTCCA   | GGGGTTTGTGCGTTGTCTC     |

|                      |               |                       |                        |
|----------------------|---------------|-----------------------|------------------------|
| <i>PtSERK1</i>       | comp642221_c0 | GATCTCCACCATTTGCCCCA  | TGGGTCCTCTTCAGCAGGTA   |
| <i>PtSERK2</i>       | comp608894_c0 | CCTTACTGTTTGCTGCCCCCT | AGCCACCAATGAGCCATCTG   |
| <i>PtLFY</i>         | comp627910_c0 | GCTTTCACGGCGAGTTTGTT  | TTTGCTGCCGTGTAGTACCT   |
| <i>PtWUSa</i>        | comp625070_c0 | AATGGTGCGGTTACTGTTGGG | ATCTTTTCAGCGGCTTCCTGG  |
| <i>PtWOX13a</i>      | comp648607_c0 | TTGCTCCATCTGCCAGTACG  | ATCAGCCGTAGTGCCAAACA   |
| <i>PtCO1</i>         | comp639018_c0 | AATCAGCCCGGCAGTAAACA  | GCCTCCTCTTTCTTGACCT    |
| <i>PtFT1</i>         | comp635896_c0 | TTGGCCATGAACTGTGTGCT  | ACTCTCCCTCTGGCAGTTGAA  |
| <i>PtCEN1</i>        | comp627567_c0 | TCAACGTTTCCTTGCAGCTGT | GGAAGGGAGGTGGTGAGCTAT  |
| <i>Populus ACTIN</i> |               | GAGGGAAGCCAAGATAGAGC  | CGGAATCCACGAGACTACATAC |

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