**Table S1.** Data quality of transcriptome sequencing of eucalypt hybrids and their parents.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample | Library | Raw  Reads | Raw  Bases | Clean  Reads | Clean  Bases | Error  Rate | Q20 | Q30 | GC  pct % |
| EC338-1 | FRAS230192178-1A | 47515774 | 7.13G | 46484356 | 6.97G | 0.02 | 98.05 | 94.73 | 51.09 |
| EC338-2 | FRAS230192179-1A | 42887700 | 6.43G | 41954540 | 6.29G | 0.02 | 97.93 | 94.46 | 51.19 |
| EC338-3 | FRAS230209768-1A | 51374302 | 7.71G | 49209662 | 7.38G | 0.02 | 98 | 94.38 | 51.19 |
| EC333-1 | FRAS230192180-1A | 39734450 | 5.96G | 38914584 | 5.84G | 0.02 | 98.06 | 94.75 | 50.58 |
| EC333-2 | FRAS230192181-1A | 41468672 | 6.22G | 40620656 | 6.09G | 0.02 | 97.96 | 94.5 | 51.21 |
| EC333-3 | FRAS230209769-1A | 46001662 | 6.9G | 44410908 | 6.66G | 0.03 | 97.48 | 93.53 | 51.64 |
| W-1 | FRAS230192182-1A | 50168332 | 7.53G | 48871946 | 7.33G | 0.02 | 98.1 | 94.78 | 49.68 |
| W-2 | FRAS230192183-1A | 44691972 | 6.7G | 43253182 | 6.49G | 0.02 | 97.95 | 94.59 | 49.8 |
| W-3 | FRAS230192184-1A | 49434360 | 7.42G | 47975448 | 7.2G | 0.02 | 97.96 | 94.42 | 49.66 |
| P-1 | FRAS230192185-1A | 44160454 | 6.62G | 42383048 | 6.36G | 0.02 | 97.9 | 94.39 | 50.81 |
| P-2 | XRAS230006854-4r | 46072424 | 6.91G | 45732072 | 6.86G | 0.03 | 97.82 | 93.73 | 48.75 |
| P-3 | FRAS230209770-1A | 40595960 | 6.09G | 38711270 | 5.81G | 0.03 | 97.54 | 93.71 | 50.63 |
| H-1 | FRAS230209771-1A | 42113188 | 6.32G | 41014490 | 6.15G | 0.03 | 97.61 | 93.81 | 51.65 |
| H-2 | FRAS230209812-1A | 48669912 | 7.3G | 47323484 | 7.1G | 0.03 | 97.55 | 93.82 | 52.18 |
| H-3 | XRAS230006855-2r | 45008802 | 6.75G | 44098734 | 6.61G | 0.03 | 97.65 | 93.82 | 51.72 |

Notes: Sample: Sample name. Library: Library number. Raw Reads: Number of reads in the original dataset. Raw Bases: Number of bases in the original dataset(raw base=raw reads\*150bp). Clean Reads：Number of reads after filtering raw data. Clean Bases：Number of reads after filtering raw data(clean base=clean reads\*150bp). Error Rate: The data's overall sequencing error rate. Q20: Percentage of total bases with Phred values greater than 20. Q30: Percentage of total bases with Phred values greater than 30. GC pct%: The percentage of G versus C in clean reads is calculated for all four bases.

**Table S2.** Presents a comparison of eucalypt hybrids and their parents with the E. grandis reference genome.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample | Total map (n/%) | Unique map (n/%) | Multi map (n/%) | read1 map (n/%) | read2 map (n/%) | Positive map (n/%) | Negative map (n/%) | Splice map (n/%) | Unsplice map (n/%) | Proper map (n/%) |
| EC338-1 | 40159966/86.39 | 38558167/82.95 | 1601799/3.45 | 19237051/41.38 | 19321116/41.56 | 19247863/41.41 | 19310304/41.54 | 14669935/31.56 | 23888232/51.39 | 34823836/74.92 |
| EC338-2 | 36211213/86.31 | 34796756/82.94 | 1414457/3.37 | 17370036/41.4 | 17426720/41.54 | 17363332/41.39 | 17433424/41.55 | 13227206/31.53 | 21569550/51.41 | 31446686/74.95 |
| EC338-3 | 42338677/86.04 | 40560287/82.42 | 1778390/3.61 | 20271145/41.19 | 20289142/41.23 | 20242786/41.14 | 20317501/41.29 | 15323738/31.14 | 25236549/51.28 | 36530762/74.23 |
| EC333-1 | 33544701/86.2 | 32214360/82.78 | 1330341/3.42 | 16070400/41.3 | 16143960/41.49 | 16078334/41.32 | 16136026/41.47 | 12578129/32.32 | 19636231/50.46 | 29221844/75.09 |
| EC333-2 | 35104775/86.42 | 33762517/83.12 | 1342258/3.3 | 16855306/41.49 | 16907211/41.62 | 16854963/41.49 | 16907554/41.62 | 12976420/31.95 | 20786097/51.17 | 30543652/75.19 |
| EC333-3 | 38005714/85.58 | 36545285/82.29 | 1460429/3.29 | 18276630/41.15 | 18268655/41.14 | 18226461/41.04 | 18318824/41.25 | 13812660/31.1 | 22732625/51.19 | 33019178/74.35 |
| W-1 | 40966127/83.82 | 39255844/80.32 | 1710283/3.5 | 19577756/40.06 | 19678088/40.26 | 19604178/40.11 | 19651666/40.21 | 14318448/29.3 | 24937396/51.03 | 34911134/71.43 |
| W-2 | 36207525/83.71 | 34720281/80.27 | 1487244/3.44 | 17359942/40.14 | 17360339/40.14 | 17341110/40.09 | 17379171/40.18 | 12643301/29.23 | 22076980/51.04 | 30911876/71.47 |
| W-3 | 40077327/83.54 | 38354230/79.95 | 1723097/3.59 | 19151315/39.92 | 19202915/40.03 | 19153905/39.92 | 19200325/40.02 | 13988035/29.16 | 24366195/50.79 | 34094218/71.07 |
| P-1 | 36247769/85.52 | 34844811/82.21 | 1402958/3.31 | 17394413/41.04 | 17450398/41.17 | 17388937/41.03 | 17455874/41.19 | 13905270/32.81 | 20939541/49.41 | 31567568/74.48 |
| P-2 | 38936463/85.14 | 37274764/81.51 | 1661699/3.63 | 18811318/41.13 | 18463446/40.37 | 18635037/40.75 | 18639727/40.76 | 15579472/34.07 | 21695292/47.44 | 32493534/71.05 |
| P-3 | 32957503/85.14 | 31624759/81.69 | 1332744/3.44 | 15797846/40.81 | 15826913/40.88 | 15783669/40.77 | 15841090/40.92 | 12584014/32.51 | 19040745/49.19 | 28631266/73.96 |
| H-1 | 35171695/85.75 | 33842523/82.51 | 1329172/3.24 | 16892358/41.19 | 16950165/41.33 | 16891991/41.19 | 16950532/41.33 | 12644630/30.83 | 21197893/51.68 | 30650360/74.73 |
| H-2 | 40426354/85.43 | 38905691/82.21 | 1520663/3.21 | 19384760/40.96 | 19520931/41.25 | 19405029/41.01 | 19500662/41.21 | 14155675/29.91 | 24750016/52.3 | 36117940/76.32 |
| H-3 | 37735187/85.57 | 36327633 | 1407554/3.19 | 18204108/41.28 | 18123525/41.1 | 18141086/41.14 | 18186547/41.24 | 13587218/30.81 | 22740415/51.57 | 32718452/74.19 |

Notes: Total Reads: After quality control, the sequencing data yielded a specific number of clean reads. Total map: The number of reads matched to the genome and their percentage. Unique map: The percentage and count of reads that aligned to a unique position in the reference genome, for further quantitative data analysis. Multi map: The quantity of sequencing reads and the corresponding proportion that underwent alignment against various positions within the genomic reference were scrutinized. read1 map: the number of read1s compared to the reference genome and their percentage, read2\_map: the number of read2s compared to the reference genome and their percentage. Positive map: The quantity of reads and their respective proportion in relation to the positive strand of the reference genome is under examination. Negative\_map：The quantity of sequences and their corresponding proportion when juxtaposed with the antisense strand of the foundational genetic blueprint. Splice map: The quantity and proportion of reads demonstrating a split-matched alignment with the genomic reference sequence. Unsplice map: The quantity of reads that did not align with the genome and their respective percentage. Proper map: The alignment of read pairs (read1 and read2) was conducted concurrently with an evaluation of their frequencies and proportions within the genomic sequence.

**Table S3.** Genes detected in eucalypt parents and their offspring.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gene  id | Gene  name | Gene  chr | Gene  start | Gene  end | Gene  strand | Gene  length | Gene  biotype | Gene  description | Sub-family | Family |
| 104422107 | LOC104422107 | NC\_052621.1 | 18302801 | 18304215 | + | 886 | protein\_coding | ribulose bisphosphate carboxylase small chain%2C chloroplastic && sp|P24007|RBS\_PYRPY Ribulose bisphosphate carboxylase small subunit, chloroplastic OS=Pyrus pyrifolia OX=3767 GN=RBCS PE=2 SV=1 && PF12338:Ribulose-1,5-bisphosphate carboxylase small subunit|PF00101:Ribulose bisphosphate carboxylase, small chain | - | - |
| 104444821 | LOC104444821 | NC\_052616.1 | 32742793 | 32743761 | - | 969 | protein\_coding | chlorophyll a-b binding protein of LHCII type 1 && sp|P27493|CB22\_TOBAC Chlorophyll a-b binding protein 21, chloroplastic OS=Nicotiana tabacum OX=4097 GN=CAB21 PE=2 SV=1 && PF00504:Chlorophyll A-B binding protein | - | - |
| 104425107 | LOC104425107 | NC\_052622.1 | 16631474 | 16632275 | + | 636 | protein\_coding | non-specific lipid-transfer protein 1 && sp|P85894|LTP1\_MORNI Non-specific lipid-transfer protein 1 OS=Morus nigra OX=85232 PE=1 SV=1 && PF00234:Protease inhibitor/seed storage/LTP family | - | - |
| 104434692 | LOC104434692 | NC\_052612.1 | 34560961 | 34562840 | - | 1068 | protein\_coding | chlorophyll a-b binding protein 36%2C chloroplastic && sp|P27518|CB21\_GOSHI Chlorophyll a-b binding protein 151, chloroplastic OS=Gossypium hirsutum OX=3635 GN=CAB-151 PE=2 SV=2 && PF00504:Chlorophyll A-B binding protein | - | - |

Notes: Gene id: Gene count. Sample: The quantification of each sample yielded a raw READ COUNT value.Gene name: The nomenclature of the genetic entity. Gene chr：The gene is located on a specific chromosome. Gene start: The gene's location on the chromosome is determined by its starting position. Gene end: The chromosomal locus where a gene is situated terminates at a specific position on the chromosome. Gene strand: Details regarding the positive and negative strands of the chromosome harboring the gene are being discussed. Gene length: The gene length is defined as the cumulative measure of all non-overlapping exon regions spanning from the initiation to the termination of a gene. Gene biotype: Various types of genes exist, including protein-coding genes, long-chain non-coding genes, among others. Gene description: The gene function description is detailed alongside reference genome annotation information preceding the initial && symbol, Swiss-Prot database annotation following the first && symbol, and Pfam database annotation subsequent to the second && symbol. Tf family：Annotation of gene transcription factor families.

**Table S4.** Genes in carbohydrate binding (GO-GSEA).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 172 | 104451739 | LOC104451739 |  |  | 26514 | -0.802 | -0.5163 | Yes |
| 173 | [104427375](https://www.affymetrix.com/LinkServlet?probeset=104451739" \o "https://www.affymetrix.com/LinkServlet?probeset=104451739) | LOC104427375 |  |  | 26517 | -0.802 | -0.514 | Yes |
| 174 | [120296231](https://www.affymetrix.com/LinkServlet?probeset=104427375" \o "https://www.affymetrix.com/LinkServlet?probeset=104427375) | LOC120296231 |  |  | 26644 | -0.819 | -0.5156 | Yes |
| 175 | [104425265](https://www.affymetrix.com/LinkServlet?probeset=120296231" \o "https://www.affymetrix.com/LinkServlet?probeset=120296231) | LOC104425265 |  |  | 26693 | -0.823 | -0.5146 | Yes |
| 176 | [120289673](https://www.affymetrix.com/LinkServlet?probeset=104425265" \o "https://www.affymetrix.com/LinkServlet?probeset=104425265) | LOC120289673 |  |  | 26739 | -0.834 | -0.5136 | Yes |
| 177 | [120291737](https://www.affymetrix.com/LinkServlet?probeset=120289673" \o "https://www.affymetrix.com/LinkServlet?probeset=120289673) | LOC120291737 |  |  | 26849 | -0.847 | -0.5145 | Yes |
| 178 | [120296079](https://www.affymetrix.com/LinkServlet?probeset=120291737" \o "https://www.affymetrix.com/LinkServlet?probeset=120291737) | LOC120296079 |  |  | 26857 | -0.847 | -0.5122 | Yes |
| 179 | [120292471](https://www.affymetrix.com/LinkServlet?probeset=120296079" \o "https://www.affymetrix.com/LinkServlet?probeset=120296079) | LOC120292471 |  |  | 26895 | -0.851 | -0.5109 | Yes |
| 180 | [104418351](https://www.affymetrix.com/LinkServlet?probeset=120292471" \o "https://www.affymetrix.com/LinkServlet?probeset=120292471) | LOC104418351 |  |  | 26948 | -0.858 | -0.51 | Yes |
| 181 | [104442507](https://www.affymetrix.com/LinkServlet?probeset=104418351" \o "https://www.affymetrix.com/LinkServlet?probeset=104418351) | LOC104442507 |  |  | 26995 | -0.859 | -0.5089 | Yes |
| 182 | [120292993](https://www.affymetrix.com/LinkServlet?probeset=104442507" \o "https://www.affymetrix.com/LinkServlet?probeset=104442507) | LOC120292993 |  |  | 27300 | -0.89 | -0.5159 | Yes |
| 183 | [104419218](https://www.affymetrix.com/LinkServlet?probeset=120292993" \o "https://www.affymetrix.com/LinkServlet?probeset=120292993) | LOC104419218 |  |  | 27326 | -0.895 | -0.514 | Yes |
| 184 | [104428058](https://www.affymetrix.com/LinkServlet?probeset=104419218" \o "https://www.affymetrix.com/LinkServlet?probeset=104419218) | LOC104428058 |  |  | 27408 | -0.913 | -0.5139 | Yes |
| 185 | [104427280](https://www.affymetrix.com/LinkServlet?probeset=104428058" \o "https://www.affymetrix.com/LinkServlet?probeset=104428058) | LOC104427280 |  |  | 27455 | -0.921 | -0.5126 | Yes |
| 186 | [104416546](https://www.affymetrix.com/LinkServlet?probeset=104427280" \o "https://www.affymetrix.com/LinkServlet?probeset=104427280) | LOC104416546 |  |  | 27523 | -0.935 | -0.5119 | Yes |
| 187 | [120296236](https://www.affymetrix.com/LinkServlet?probeset=104416546" \o "https://www.affymetrix.com/LinkServlet?probeset=104416546) | LOC120296236 |  |  | 27527 | -0.936 | -0.5093 | Yes |
| 188 | [104437884](https://www.affymetrix.com/LinkServlet?probeset=120296236" \o "https://www.affymetrix.com/LinkServlet?probeset=120296236) | LOC104437884 |  |  | 27534 | -0.937 | -0.5067 | Yes |
| 189 | [104419425](https://www.affymetrix.com/LinkServlet?probeset=104437884" \o "https://www.affymetrix.com/LinkServlet?probeset=104437884) | LOC104419425 |  |  | 27716 | -0.971 | -0.5095 | Yes |
| 190 | [120287022](https://www.affymetrix.com/LinkServlet?probeset=104419425" \o "https://www.affymetrix.com/LinkServlet?probeset=104419425) | LOC120287022 |  |  | 27847 | -0.988 | -0.5107 | Yes |
| 191 | [120295547](https://www.affymetrix.com/LinkServlet?probeset=120287022" \o "https://www.affymetrix.com/LinkServlet?probeset=120287022) | LOC120295547 |  |  | 27876 | -0.993 | -0.5086 | Yes |
| 192 | [120289765](https://www.affymetrix.com/LinkServlet?probeset=120295547" \o "https://www.affymetrix.com/LinkServlet?probeset=120295547) | LOC120289765 |  |  | 28053 | -1.033 | -0.5111 | Yes |
| 193 | [104424490](https://www.affymetrix.com/LinkServlet?probeset=120289765" \o "https://www.affymetrix.com/LinkServlet?probeset=120289765) | LOC104424490 |  |  | 28094 | -1.041 | -0.5093 | Yes |
| 194 | [104425264](https://www.affymetrix.com/LinkServlet?probeset=104424490" \o "https://www.affymetrix.com/LinkServlet?probeset=104424490) | LOC104425264 |  |  | 28144 | -1.054 | -0.5077 | Yes |
| 195 | [104450896](https://www.affymetrix.com/LinkServlet?probeset=104425264" \o "https://www.affymetrix.com/LinkServlet?probeset=104425264) | LOC104450896 |  |  | 28145 | -1.054 | -0.5046 | Yes |
| 196 | [104427563](https://www.affymetrix.com/LinkServlet?probeset=104450896" \o "https://www.affymetrix.com/LinkServlet?probeset=104450896) | LOC104427563 |  |  | 28282 | -1.087 | -0.5057 | Yes |
| 197 | [120290470](https://www.affymetrix.com/LinkServlet?probeset=104427563" \o "https://www.affymetrix.com/LinkServlet?probeset=104427563) | LOC120290470 |  |  | 28342 | -1.101 | -0.5043 | Yes |
| 198 | [104453202](https://www.affymetrix.com/LinkServlet?probeset=120290470" \o "https://www.affymetrix.com/LinkServlet?probeset=120290470) | LOC104453202 |  |  | 28611 | -1.164 | -0.5093 | Yes |
| 199 | [104435019](https://www.affymetrix.com/LinkServlet?probeset=104453202" \o "https://www.affymetrix.com/LinkServlet?probeset=104453202) | LOC104435019 |  |  | 28626 | -1.169 | -0.5063 | Yes |
| 200 | [104442597](https://www.affymetrix.com/LinkServlet?probeset=104435019" \o "https://www.affymetrix.com/LinkServlet?probeset=104435019) | LOC104442597 |  |  | 28659 | -1.177 | -0.5038 | Yes |
| 201 | [104425585](https://www.affymetrix.com/LinkServlet?probeset=104442597" \o "https://www.affymetrix.com/LinkServlet?probeset=104442597) | LOC104425585 |  |  | 28758 | -1.202 | -0.5034 | Yes |
| 202 | [104457009](https://www.affymetrix.com/LinkServlet?probeset=104425585" \o "https://www.affymetrix.com/LinkServlet?probeset=104425585) | LOC104457009 |  |  | 28782 | -1.208 | -0.5005 | Yes |
| 203 | [104452347](https://www.affymetrix.com/LinkServlet?probeset=104457009" \o "https://www.affymetrix.com/LinkServlet?probeset=104457009) | LOC104452347 |  |  | 28799 | -1.213 | -0.4974 | Yes |
| 204 | [104455878](https://www.affymetrix.com/LinkServlet?probeset=104452347" \o "https://www.affymetrix.com/LinkServlet?probeset=104452347) | LOC104455878 |  |  | 28840 | -1.226 | -0.4951 | Yes |
| 205 | [120288503](https://www.affymetrix.com/LinkServlet?probeset=104455878" \o "https://www.affymetrix.com/LinkServlet?probeset=104455878) | LOC120288503 |  |  | 28859 | -1.231 | -0.492 | Yes |
| 206 | [104435473](https://www.affymetrix.com/LinkServlet?probeset=120288503" \o "https://www.affymetrix.com/LinkServlet?probeset=120288503) | LOC104435473 |  |  | 28964 | -1.266 | -0.4915 | Yes |
| 207 | [104420744](https://www.affymetrix.com/LinkServlet?probeset=104435473" \o "https://www.affymetrix.com/LinkServlet?probeset=104435473) | LOC104420744 |  |  | 29015 | -1.284 | -0.4893 | Yes |
| 208 | [120294558](https://www.affymetrix.com/LinkServlet?probeset=104420744" \o "https://www.affymetrix.com/LinkServlet?probeset=104420744) | LOC120294558 |  |  | 29022 | -1.285 | -0.4857 | Yes |
| 209 | [108957345](https://www.affymetrix.com/LinkServlet?probeset=120294558" \o "https://www.affymetrix.com/LinkServlet?probeset=120294558) | LOC108957345 |  |  | 29054 | -1.297 | -0.4828 | Yes |
| 210 | [104437043](https://www.affymetrix.com/LinkServlet?probeset=108957345" \o "https://www.affymetrix.com/LinkServlet?probeset=108957345) | LOC104437043 |  |  | 29392 | -1.423 | -0.4893 | Yes |
| 211 | [120291983](https://www.affymetrix.com/LinkServlet?probeset=104437043" \o "https://www.affymetrix.com/LinkServlet?probeset=104437043) | LOC120291983 |  |  | 29424 | -1.436 | -0.486 | Yes |
| 212 | [104446144](https://www.affymetrix.com/LinkServlet?probeset=120291983" \o "https://www.affymetrix.com/LinkServlet?probeset=120291983) | LOC104446144 |  |  | 29432 | -1.439 | -0.4819 | Yes |
| 213 | [120289594](https://www.affymetrix.com/LinkServlet?probeset=104446144" \o "https://www.affymetrix.com/LinkServlet?probeset=104446144) | LOC120289594 |  |  | 29510 | -1.468 | -0.48 | Yes |
| 214 | [104442589](https://www.affymetrix.com/LinkServlet?probeset=120289594" \o "https://www.affymetrix.com/LinkServlet?probeset=120289594) | LOC104442589 |  |  | 29696 | -1.554 | -0.4813 | Yes |
| 215 | [104424015](https://www.affymetrix.com/LinkServlet?probeset=104442589" \o "https://www.affymetrix.com/LinkServlet?probeset=104442589) | LOC104424015 |  |  | 29716 | -1.563 | -0.4773 | Yes |
| 216 | [104453182](https://www.affymetrix.com/LinkServlet?probeset=104424015" \o "https://www.affymetrix.com/LinkServlet?probeset=104424015) | LOC104453182 |  |  | 29777 | -1.597 | -0.4744 | Yes |
| 217 | [104414070](https://www.affymetrix.com/LinkServlet?probeset=104453182" \o "https://www.affymetrix.com/LinkServlet?probeset=104453182) | LOC104414070 |  |  | 29827 | -1.622 | -0.4712 | Yes |
| 218 | [104427371](https://www.affymetrix.com/LinkServlet?probeset=104414070" \o "https://www.affymetrix.com/LinkServlet?probeset=104414070) | LOC104427371 |  |  | 29834 | -1.624 | -0.4665 | Yes |
| 219 | [120289599](https://www.affymetrix.com/LinkServlet?probeset=104427371" \o "https://www.affymetrix.com/LinkServlet?probeset=104427371) | LOC120289599 |  |  | 29986 | -1.707 | -0.4663 | Yes |
| 220 | [120294795](https://www.affymetrix.com/LinkServlet?probeset=120289599" \o "https://www.affymetrix.com/LinkServlet?probeset=120289599) | LOC120294795 |  |  | 29999 | -1.713 | -0.4616 | Yes |
| 221 | [104416038](https://www.affymetrix.com/LinkServlet?probeset=120294795" \o "https://www.affymetrix.com/LinkServlet?probeset=120294795) | LOC104416038 |  |  | 30004 | -1.716 | -0.4566 | Yes |
| 222 | [104425283](https://www.affymetrix.com/LinkServlet?probeset=104416038" \o "https://www.affymetrix.com/LinkServlet?probeset=104416038) | LOC104425283 |  |  | 30012 | -1.72 | -0.4517 | Yes |
| 223 | [104431708](https://www.affymetrix.com/LinkServlet?probeset=104425283" \o "https://www.affymetrix.com/LinkServlet?probeset=104425283) | LOC104431708 |  |  | 30124 | -1.791 | -0.45 | Yes |
| 224 | [104431212](https://www.affymetrix.com/LinkServlet?probeset=104431708" \o "https://www.affymetrix.com/LinkServlet?probeset=104431708) | LOC104431212 |  |  | 30177 | -1.823 | -0.4462 | Yes |
| 225 | [104416068](https://www.affymetrix.com/LinkServlet?probeset=104431212" \o "https://www.affymetrix.com/LinkServlet?probeset=104431212) | LOC104416068 |  |  | 30181 | -1.824 | -0.4409 | Yes |
| 226 | [104420740](https://www.affymetrix.com/LinkServlet?probeset=104416068" \o "https://www.affymetrix.com/LinkServlet?probeset=104416068) | LOC104420740 |  |  | 30192 | -1.831 | -0.4358 | Yes |
| 227 | [104434429](https://www.affymetrix.com/LinkServlet?probeset=104420740" \o "https://www.affymetrix.com/LinkServlet?probeset=104420740) | LOC104434429 |  |  | 30202 | -1.835 | -0.4306 | Yes |
| 228 | [120296238](https://www.affymetrix.com/LinkServlet?probeset=104434429" \o "https://www.affymetrix.com/LinkServlet?probeset=104434429) | LOC120296238 |  |  | 30220 | -1.844 | -0.4257 | Yes |
| 229 | [120293387](https://www.affymetrix.com/LinkServlet?probeset=120296238" \o "https://www.affymetrix.com/LinkServlet?probeset=120296238) | LOC120293387 |  |  | 30233 | -1.852 | -0.4206 | Yes |
| 230 | [104416600](https://www.affymetrix.com/LinkServlet?probeset=120293387" \o "https://www.affymetrix.com/LinkServlet?probeset=120293387) | LOC104416600 |  |  | 30282 | -1.888 | -0.4165 | Yes |
| 231 | [104427057](https://www.affymetrix.com/LinkServlet?probeset=104416600" \o "https://www.affymetrix.com/LinkServlet?probeset=104416600) | LOC104427057 |  |  | 30306 | -1.901 | -0.4116 | Yes |
| 232 | [104452523](https://www.affymetrix.com/LinkServlet?probeset=104427057" \o "https://www.affymetrix.com/LinkServlet?probeset=104427057) | LOC104452523 |  |  | 30314 | -1.907 | -0.4062 | Yes |
| 233 | [104453353](https://www.affymetrix.com/LinkServlet?probeset=104452523" \o "https://www.affymetrix.com/LinkServlet?probeset=104452523) | LOC104453353 |  |  | 30339 | -1.919 | -0.4013 | Yes |
| 234 | [104417063](https://www.affymetrix.com/LinkServlet?probeset=104453353" \o "https://www.affymetrix.com/LinkServlet?probeset=104453353) | LOC104417063 |  |  | 30396 | -1.965 | -0.3973 | Yes |
| 235 | [104427276](https://www.affymetrix.com/LinkServlet?probeset=104417063" \o "https://www.affymetrix.com/LinkServlet?probeset=104417063) | LOC104427276 |  |  | 30462 | -2.011 | -0.3934 | Yes |
| 236 | [120294798](https://www.affymetrix.com/LinkServlet?probeset=104427276" \o "https://www.affymetrix.com/LinkServlet?probeset=104427276) | LOC120294798 |  |  | 30519 | -2.059 | -0.389 | Yes |
| 237 | [104457401](https://www.affymetrix.com/LinkServlet?probeset=120294798" \o "https://www.affymetrix.com/LinkServlet?probeset=120294798) | LOC104457401 |  |  | 30538 | -2.089 | -0.3834 | Yes |
| 238 | [104440880](https://www.affymetrix.com/LinkServlet?probeset=104457401" \o "https://www.affymetrix.com/LinkServlet?probeset=104457401) | LOC104440880 |  |  | 30558 | -2.107 | -0.3778 | Yes |
| 239 | [104455879](https://www.affymetrix.com/LinkServlet?probeset=104440880" \o "https://www.affymetrix.com/LinkServlet?probeset=104440880) | LOC104455879 |  |  | 30578 | -2.127 | -0.3721 | Yes |
| 240 | [104433328](https://www.affymetrix.com/LinkServlet?probeset=104455879" \o "https://www.affymetrix.com/LinkServlet?probeset=104455879) | LOC104433328 |  |  | 30587 | -2.134 | -0.366 | Yes |
| 241 | [104440043](https://www.affymetrix.com/LinkServlet?probeset=104433328" \o "https://www.affymetrix.com/LinkServlet?probeset=104433328) | LOC104440043 |  |  | 30590 | -2.137 | -0.3598 | Yes |
| 242 | [104451077](https://www.affymetrix.com/LinkServlet?probeset=104440043" \o "https://www.affymetrix.com/LinkServlet?probeset=104440043) | LOC104451077 |  |  | 30618 | -2.158 | -0.3542 | Yes |
| 243 | [104449039](https://www.affymetrix.com/LinkServlet?probeset=104451077" \o "https://www.affymetrix.com/LinkServlet?probeset=104451077) | LOC104449039 |  |  | 30632 | -2.168 | -0.3482 | Yes |
| 244 | [104451920](https://www.affymetrix.com/LinkServlet?probeset=104449039" \o "https://www.affymetrix.com/LinkServlet?probeset=104449039) | LOC104451920 |  |  | 30766 | -2.271 | -0.3457 | Yes |
| 245 | [120289800](https://www.affymetrix.com/LinkServlet?probeset=104451920" \o "https://www.affymetrix.com/LinkServlet?probeset=104451920) | LOC120289800 |  |  | 30869 | -2.376 | -0.3419 | Yes |
| 246 | [104452592](https://www.affymetrix.com/LinkServlet?probeset=120289800" \o "https://www.affymetrix.com/LinkServlet?probeset=120289800) | LOC104452592 |  |  | 30882 | -2.395 | -0.3352 | Yes |
| 247 | [104440029](https://www.affymetrix.com/LinkServlet?probeset=104452592" \o "https://www.affymetrix.com/LinkServlet?probeset=104452592) | LOC104440029 |  |  | 30901 | -2.412 | -0.3286 | Yes |
| 248 | [104430597](https://www.affymetrix.com/LinkServlet?probeset=104440029" \o "https://www.affymetrix.com/LinkServlet?probeset=104440029) | LOC104430597 |  |  | 30985 | -2.503 | -0.3238 | Yes |
| 249 | [104442603](https://www.affymetrix.com/LinkServlet?probeset=104430597" \o "https://www.affymetrix.com/LinkServlet?probeset=104430597) | LOC104442603 |  |  | 30994 | -2.506 | -0.3166 | Yes |
| 250 | [108960421](https://www.affymetrix.com/LinkServlet?probeset=104442603" \o "https://www.affymetrix.com/LinkServlet?probeset=104442603) | LOC108960421 |  |  | 31005 | -2.511 | -0.3095 | Yes |
| 251 | [104455436](https://www.affymetrix.com/LinkServlet?probeset=108960421" \o "https://www.affymetrix.com/LinkServlet?probeset=108960421) | LOC104455436 |  |  | 31056 | -2.555 | -0.3035 | Yes |
| 252 | [104438704](https://www.affymetrix.com/LinkServlet?probeset=104455436" \o "https://www.affymetrix.com/LinkServlet?probeset=104455436) | LOC104438704 |  |  | 31057 | -2.557 | -0.296 | Yes |
| 253 | [104440879](https://www.affymetrix.com/LinkServlet?probeset=104438704" \o "https://www.affymetrix.com/LinkServlet?probeset=104438704) | LOC104440879 |  |  | 31061 | -2.563 | -0.2885 | Yes |
| 254 | [104430169](https://www.affymetrix.com/LinkServlet?probeset=104440879" \o "https://www.affymetrix.com/LinkServlet?probeset=104440879) | LOC104430169 |  |  | 31079 | -2.584 | -0.2814 | Yes |
| 255 | [104429110](https://www.affymetrix.com/LinkServlet?probeset=104430169" \o "https://www.affymetrix.com/LinkServlet?probeset=104430169) | LOC104429110 |  |  | 31085 | -2.591 | -0.2739 | Yes |
| 256 | [104424563](https://www.affymetrix.com/LinkServlet?probeset=104429110" \o "https://www.affymetrix.com/LinkServlet?probeset=104429110) | LOC104424563 |  |  | 31098 | -2.614 | -0.2665 | Yes |
| 257 | [104451790](https://www.affymetrix.com/LinkServlet?probeset=104424563" \o "https://www.affymetrix.com/LinkServlet?probeset=104424563) | LOC104451790 |  |  | 31113 | -2.631 | -0.2592 | Yes |
| 258 | [104451714](https://www.affymetrix.com/LinkServlet?probeset=104451790" \o "https://www.affymetrix.com/LinkServlet?probeset=104451790) | LOC104451714 |  |  | 31175 | -2.724 | -0.253 | Yes |
| 259 | [104447342](https://www.affymetrix.com/LinkServlet?probeset=104451714" \o "https://www.affymetrix.com/LinkServlet?probeset=104451714) | LOC104447342 |  |  | 31190 | -2.741 | -0.2454 | Yes |
| 260 | [120291350](https://www.affymetrix.com/LinkServlet?probeset=104447342" \o "https://www.affymetrix.com/LinkServlet?probeset=104447342) | LOC120291350 |  |  | 31194 | -2.753 | -0.2373 | Yes |
| 261 | [104456007](https://www.affymetrix.com/LinkServlet?probeset=120291350" \o "https://www.affymetrix.com/LinkServlet?probeset=120291350) | LOC104456007 |  |  | 31198 | -2.759 | -0.2292 | Yes |
| 262 | [104427378](https://www.affymetrix.com/LinkServlet?probeset=104456007" \o "https://www.affymetrix.com/LinkServlet?probeset=104456007) | LOC104427378 |  |  | 31211 | -2.779 | -0.2214 | Yes |
| 263 | [104428611](https://www.affymetrix.com/LinkServlet?probeset=104427378" \o "https://www.affymetrix.com/LinkServlet?probeset=104427378) | LOC104428611 |  |  | 31229 | -2.802 | -0.2136 | Yes |
| 264 | [104446289](https://www.affymetrix.com/LinkServlet?probeset=104428611" \o "https://www.affymetrix.com/LinkServlet?probeset=104428611) | LOC104446289 |  |  | 31249 | -2.835 | -0.2058 | Yes |
| 265 | [104421788](https://www.affymetrix.com/LinkServlet?probeset=104446289" \o "https://www.affymetrix.com/LinkServlet?probeset=104446289) | LOC104421788 |  |  | 31261 | -2.85 | -0.1977 | Yes |
| 266 | [104452340](https://www.affymetrix.com/LinkServlet?probeset=104421788" \o "https://www.affymetrix.com/LinkServlet?probeset=104421788) | LOC104452340 |  |  | 31274 | -2.867 | -0.1896 | Yes |
| 267 | [104434436](https://www.affymetrix.com/LinkServlet?probeset=104452340" \o "https://www.affymetrix.com/LinkServlet?probeset=104452340) | LOC104434436 |  |  | 31285 | -2.885 | -0.1814 | Yes |
| 268 | [104427372](https://www.affymetrix.com/LinkServlet?probeset=104434436" \o "https://www.affymetrix.com/LinkServlet?probeset=104434436) | LOC104427372 |  |  | 31298 | -2.902 | -0.1732 | Yes |
| 269 | [120286921](https://www.affymetrix.com/LinkServlet?probeset=104427372" \o "https://www.affymetrix.com/LinkServlet?probeset=104427372) | LOC120286921 |  |  | 31389 | -3.09 | -0.1669 | Yes |
| 270 | [120294680](https://www.affymetrix.com/LinkServlet?probeset=120286921" \o "https://www.affymetrix.com/LinkServlet?probeset=120286921) | LOC120294680 |  |  | 31401 | -3.108 | -0.1581 | Yes |
| 271 | [104428452](https://www.affymetrix.com/LinkServlet?probeset=120294680" \o "https://www.affymetrix.com/LinkServlet?probeset=120294680) | LOC104428452 |  |  | 31405 | -3.113 | -0.1489 | Yes |
| 272 | [104427380](https://www.affymetrix.com/LinkServlet?probeset=104428452" \o "https://www.affymetrix.com/LinkServlet?probeset=104428452) | LOC104427380 |  |  | 31412 | -3.12 | -0.1399 | Yes |
| 273 | [120286632](https://www.affymetrix.com/LinkServlet?probeset=104427380" \o "https://www.affymetrix.com/LinkServlet?probeset=104427380) | LOC120286632 |  |  | 31423 | -3.148 | -0.1309 | Yes |
| 274 | [104427381](https://www.affymetrix.com/LinkServlet?probeset=120286632" \o "https://www.affymetrix.com/LinkServlet?probeset=120286632) | LOC104427381 |  |  | 31430 | -3.16 | -0.1217 | Yes |
| 275 | [104456032](https://www.affymetrix.com/LinkServlet?probeset=104427381" \o "https://www.affymetrix.com/LinkServlet?probeset=104427381) | LOC104456032 |  |  | 31462 | -3.235 | -0.1131 | Yes |
| 276 | [120286923](https://www.affymetrix.com/LinkServlet?probeset=104456032" \o "https://www.affymetrix.com/LinkServlet?probeset=104456032) | LOC120286923 |  |  | 31473 | -3.259 | -0.1038 | Yes |
| 277 | [104428449](https://www.affymetrix.com/LinkServlet?probeset=120286923" \o "https://www.affymetrix.com/LinkServlet?probeset=120286923) | LOC104428449 |  |  | 31565 | -3.474 | -0.0964 | Yes |
| 278 | [120286925](https://www.affymetrix.com/LinkServlet?probeset=104428449" \o "https://www.affymetrix.com/LinkServlet?probeset=104428449) | LOC120286925 |  |  | 31584 | -3.524 | -0.0865 | Yes |
| 279 | [104427367](https://www.affymetrix.com/LinkServlet?probeset=120286925" \o "https://www.affymetrix.com/LinkServlet?probeset=120286925) | LOC104427367 |  |  | 31592 | -3.539 | -0.0763 | Yes |
| 280 | [120291996](https://www.affymetrix.com/LinkServlet?probeset=104427367" \o "https://www.affymetrix.com/LinkServlet?probeset=104427367) | LOC120291996 |  |  | 31724 | -3.959 | -0.0687 | Yes |
| 281 | [104414044](https://www.affymetrix.com/LinkServlet?probeset=120291996" \o "https://www.affymetrix.com/LinkServlet?probeset=120291996) | LOC104414044 |  |  | 31725 | -3.961 | -0.057 | Yes |
| 282 | [104440094](https://www.affymetrix.com/LinkServlet?probeset=104414044" \o "https://www.affymetrix.com/LinkServlet?probeset=104414044) | LOC104440094 |  |  | 31774 | -4.158 | -0.0462 | Yes |
| 283 | [120289670](https://www.affymetrix.com/LinkServlet?probeset=104440094" \o "https://www.affymetrix.com/LinkServlet?probeset=104440094) | LOC120289670 |  |  | 31779 | -4.173 | -0.0339 | Yes |
| 284 | [104427055](https://www.affymetrix.com/LinkServlet?probeset=120289670" \o "https://www.affymetrix.com/LinkServlet?probeset=120289670) | LOC104427055 |  |  | 31787 | -4.214 | -0.0217 | Yes |
| 285 | [104420736](https://www.affymetrix.com/LinkServlet?probeset=104427055" \o "https://www.affymetrix.com/LinkServlet?probeset=104427055) | LOC104420736 |  |  | 31794 | -4.251 | -0.0093 | Yes |
| 286 | [104419546](https://www.affymetrix.com/LinkServlet?probeset=104420736" \o "https://www.affymetrix.com/LinkServlet?probeset=104420736) | LOC104419546 |  |  | 31932 | -4.925 | 0.0009 | Yes |

**Table S5.** Genes in terpene synthase activity (GO-GSEA).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 1 | 104435491 | LOC104435491 |  |  | 3 | 4.995 | 0.0212 | Yes |
| 2 | 120292023 | LOC120292023 |  |  | 9 | 4.988 | 0.0424 | Yes |
| 3 | [104431307](https://www.affymetrix.com/LinkServlet?probeset=104435491" \o "https://www.affymetrix.com/LinkServlet?probeset=104435491) | LOC104431307 |  |  | 17 | 4.981 | 0.0635 | Yes |
| 4 | [104442026](https://www.affymetrix.com/LinkServlet?probeset=120292023" \o "https://www.affymetrix.com/LinkServlet?probeset=120292023) | LOC104442026 |  |  | 21 | 4.98 | 0.0846 | Yes |
| 5 | [104426794](https://www.affymetrix.com/LinkServlet?probeset=104431307" \o "https://www.affymetrix.com/LinkServlet?probeset=104431307) | LOC104426794 |  |  | 44 | 4.965 | 0.1052 | Yes |
| 6 | [120289312](https://www.affymetrix.com/LinkServlet?probeset=104442026" \o "https://www.affymetrix.com/LinkServlet?probeset=104442026) | LOC120289312 |  |  | 60 | 4.954 | 0.1259 | Yes |
| 7 | [104450191](https://www.affymetrix.com/LinkServlet?probeset=104426794" \o "https://www.affymetrix.com/LinkServlet?probeset=104426794) | LOC104450191 |  |  | 68 | 4.948 | 0.1468 | Yes |
| 8 | [104422073](https://www.affymetrix.com/LinkServlet?probeset=120289312" \o "https://www.affymetrix.com/LinkServlet?probeset=120289312) | LOC104422073 |  |  | 77 | 4.944 | 0.1677 | Yes |
| 9 | [104423654](https://www.affymetrix.com/LinkServlet?probeset=104450191" \o "https://www.affymetrix.com/LinkServlet?probeset=104450191) | LOC104423654 |  |  | 103 | 4.93 | 0.1879 | Yes |
| 10 | [108958990](https://www.affymetrix.com/LinkServlet?probeset=104422073" \o "https://www.affymetrix.com/LinkServlet?probeset=104422073) | LOC108958990 |  |  | 207 | 4.83 | 0.2053 | Yes |
| 11 | [120290740](https://www.affymetrix.com/LinkServlet?probeset=104423654" \o "https://www.affymetrix.com/LinkServlet?probeset=104423654) | LOC120290740 |  |  | 323 | 4.667 | 0.2216 | Yes |
| 12 | [104442836](https://www.affymetrix.com/LinkServlet?probeset=108958990" \o "https://www.affymetrix.com/LinkServlet?probeset=108958990) | LOC104442836 |  |  | 472 | 4.408 | 0.2358 | Yes |
| 13 | [104442834](https://www.affymetrix.com/LinkServlet?probeset=120290740" \o "https://www.affymetrix.com/LinkServlet?probeset=120290740) | LOC104442834 |  |  | 538 | 4.308 | 0.2522 | Yes |
| 14 | [104431518](https://www.affymetrix.com/LinkServlet?probeset=104442836" \o "https://www.affymetrix.com/LinkServlet?probeset=104442836) | LOC104431518 |  |  | 648 | 4.148 | 0.2664 | Yes |
| 15 | [104454904](https://www.affymetrix.com/LinkServlet?probeset=104442834" \o "https://www.affymetrix.com/LinkServlet?probeset=104442834) | LOC104454904 |  |  | 701 | 4.045 | 0.2821 | Yes |
| 16 | [104452558](https://www.affymetrix.com/LinkServlet?probeset=104431518" \o "https://www.affymetrix.com/LinkServlet?probeset=104431518) | LOC104452558 |  |  | 743 | 3.973 | 0.2978 | Yes |
| 17 | [104456309](https://www.affymetrix.com/LinkServlet?probeset=104454904" \o "https://www.affymetrix.com/LinkServlet?probeset=104454904) | LOC104456309 |  |  | 747 | 3.963 | 0.3146 | Yes |
| 18 | [104429381](https://www.affymetrix.com/LinkServlet?probeset=104452558" \o "https://www.affymetrix.com/LinkServlet?probeset=104452558) | LOC104429381 |  |  | 792 | 3.884 | 0.3298 | Yes |
| 19 | [104452559](https://www.affymetrix.com/LinkServlet?probeset=104456309" \o "https://www.affymetrix.com/LinkServlet?probeset=104456309) | LOC104452559 |  |  | 808 | 3.867 | 0.3459 | Yes |
| 20 | [104452556](https://www.affymetrix.com/LinkServlet?probeset=104429381" \o "https://www.affymetrix.com/LinkServlet?probeset=104429381) | LOC104452556 |  |  | 839 | 3.804 | 0.3612 | Yes |
| 21 | [104435858](https://www.affymetrix.com/LinkServlet?probeset=104452559" \o "https://www.affymetrix.com/LinkServlet?probeset=104452559) | LOC104435858 |  |  | 866 | 3.757 | 0.3764 | Yes |
| 22 | [104454860](https://www.affymetrix.com/LinkServlet?probeset=104452556" \o "https://www.affymetrix.com/LinkServlet?probeset=104452556) | LOC104454860 |  |  | 921 | 3.688 | 0.3905 | Yes |
| 23 | [104435401](https://www.affymetrix.com/LinkServlet?probeset=104435858" \o "https://www.affymetrix.com/LinkServlet?probeset=104435858) | LOC104435401 |  |  | 953 | 3.649 | 0.4051 | Yes |
| 24 | [104454882](https://www.affymetrix.com/LinkServlet?probeset=104454860" \o "https://www.affymetrix.com/LinkServlet?probeset=104454860) | LOC104454882 |  |  | 954 | 3.649 | 0.4207 | Yes |
| 25 | [120288878](https://www.affymetrix.com/LinkServlet?probeset=104435401" \o "https://www.affymetrix.com/LinkServlet?probeset=104435401) | LOC120288878 |  |  | 1147 | 3.367 | 0.429 | Yes |
| 26 | [120289974](https://www.affymetrix.com/LinkServlet?probeset=104454882" \o "https://www.affymetrix.com/LinkServlet?probeset=104454882) | LOC120289974 |  |  | 1168 | 3.344 | 0.4427 | Yes |
| 27 | [104435460](https://www.affymetrix.com/LinkServlet?probeset=120288878" \o "https://www.affymetrix.com/LinkServlet?probeset=120288878) | LOC104435460 |  |  | 1374 | 3.135 | 0.4496 | Yes |
| 28 | [120292774](https://www.affymetrix.com/LinkServlet?probeset=120289974" \o "https://www.affymetrix.com/LinkServlet?probeset=120289974) | LOC120292774 |  |  | 1399 | 3.112 | 0.4621 | Yes |
| 29 | [104427170](https://www.affymetrix.com/LinkServlet?probeset=104435460" \o "https://www.affymetrix.com/LinkServlet?probeset=104435460) | LOC104427170 |  |  | 2012 | 2.53 | 0.4536 | Yes |
| 30 | [120289357](https://www.affymetrix.com/LinkServlet?probeset=120292774" \o "https://www.affymetrix.com/LinkServlet?probeset=120292774) | LOC120289357 |  |  | 2187 | 2.418 | 0.4585 | Yes |
| 31 | [104435451](https://www.affymetrix.com/LinkServlet?probeset=104427170" \o "https://www.affymetrix.com/LinkServlet?probeset=104427170) | LOC104435451 |  |  | 2191 | 2.418 | 0.4687 | Yes |

**Table S6.** Genes in carbon-oxygen lyase activity, acting on phosphates (GO-GSEA).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 1 | 104435491 | LOC104435491 |  |  | 3 | 4.995 | 0.021 | Yes |
| 2 | 120292023 | LOC120292023 |  |  | 9 | 4.988 | 0.0419 | Yes |
| 3 | [104431307](https://www.affymetrix.com/LinkServlet?probeset=104435491" \o "https://www.affymetrix.com/LinkServlet?probeset=104435491) | LOC104431307 |  |  | 17 | 4.981 | 0.0627 | Yes |
| 4 | [104442026](https://www.affymetrix.com/LinkServlet?probeset=120292023" \o "https://www.affymetrix.com/LinkServlet?probeset=120292023) | LOC104442026 |  |  | 21 | 4.98 | 0.0836 | Yes |
| 5 | [104426794](https://www.affymetrix.com/LinkServlet?probeset=104431307" \o "https://www.affymetrix.com/LinkServlet?probeset=104431307) | LOC104426794 |  |  | 44 | 4.965 | 0.1039 | Yes |
| 6 | [120289312](https://www.affymetrix.com/LinkServlet?probeset=104442026" \o "https://www.affymetrix.com/LinkServlet?probeset=104442026) | LOC120289312 |  |  | 60 | 4.954 | 0.1243 | Yes |
| 7 | [104450191](https://www.affymetrix.com/LinkServlet?probeset=104426794" \o "https://www.affymetrix.com/LinkServlet?probeset=104426794) | LOC104450191 |  |  | 68 | 4.948 | 0.145 | Yes |
| 8 | [104422073](https://www.affymetrix.com/LinkServlet?probeset=120289312" \o "https://www.affymetrix.com/LinkServlet?probeset=120289312) | LOC104422073 |  |  | 77 | 4.944 | 0.1656 | Yes |
| 9 | [104423654](https://www.affymetrix.com/LinkServlet?probeset=104450191" \o "https://www.affymetrix.com/LinkServlet?probeset=104450191) | LOC104423654 |  |  | 103 | 4.93 | 0.1856 | Yes |
| 10 | [108958990](https://www.affymetrix.com/LinkServlet?probeset=104422073" \o "https://www.affymetrix.com/LinkServlet?probeset=104422073) | LOC108958990 |  |  | 207 | 4.83 | 0.2028 | Yes |
| 11 | [120290740](https://www.affymetrix.com/LinkServlet?probeset=104423654" \o "https://www.affymetrix.com/LinkServlet?probeset=104423654) | LOC120290740 |  |  | 323 | 4.667 | 0.2189 | Yes |
| 12 | [104442836](https://www.affymetrix.com/LinkServlet?probeset=108958990" \o "https://www.affymetrix.com/LinkServlet?probeset=108958990) | LOC104442836 |  |  | 472 | 4.408 | 0.2328 | Yes |
| 13 | [104442834](https://www.affymetrix.com/LinkServlet?probeset=120290740" \o "https://www.affymetrix.com/LinkServlet?probeset=120290740) | LOC104442834 |  |  | 538 | 4.308 | 0.2489 | Yes |
| 14 | [104431518](https://www.affymetrix.com/LinkServlet?probeset=104442836" \o "https://www.affymetrix.com/LinkServlet?probeset=104442836) | LOC104431518 |  |  | 648 | 4.148 | 0.263 | Yes |
| 15 | [104454904](https://www.affymetrix.com/LinkServlet?probeset=104442834" \o "https://www.affymetrix.com/LinkServlet?probeset=104442834) | LOC104454904 |  |  | 701 | 4.045 | 0.2784 | Yes |
| 16 | [104452558](https://www.affymetrix.com/LinkServlet?probeset=104431518" \o "https://www.affymetrix.com/LinkServlet?probeset=104431518) | LOC104452558 |  |  | 743 | 3.973 | 0.2939 | Yes |
| 17 | [104456309](https://www.affymetrix.com/LinkServlet?probeset=104454904" \o "https://www.affymetrix.com/LinkServlet?probeset=104454904) | LOC104456309 |  |  | 747 | 3.963 | 0.3106 | Yes |
| 18 | [104429381](https://www.affymetrix.com/LinkServlet?probeset=104452558" \o "https://www.affymetrix.com/LinkServlet?probeset=104452558) | LOC104429381 |  |  | 792 | 3.884 | 0.3256 | Yes |
| 19 | [104452559](https://www.affymetrix.com/LinkServlet?probeset=104456309" \o "https://www.affymetrix.com/LinkServlet?probeset=104456309) | LOC104452559 |  |  | 808 | 3.867 | 0.3414 | Yes |
| 20 | [104452556](https://www.affymetrix.com/LinkServlet?probeset=104429381" \o "https://www.affymetrix.com/LinkServlet?probeset=104429381) | LOC104452556 |  |  | 839 | 3.804 | 0.3565 | Yes |
| 21 | [104435858](https://www.affymetrix.com/LinkServlet?probeset=104452559" \o "https://www.affymetrix.com/LinkServlet?probeset=104452559) | LOC104435858 |  |  | 866 | 3.757 | 0.3716 | Yes |
| 22 | [104454860](https://www.affymetrix.com/LinkServlet?probeset=104452556" \o "https://www.affymetrix.com/LinkServlet?probeset=104452556) | LOC104454860 |  |  | 921 | 3.688 | 0.3854 | Yes |
| 23 | [104435401](https://www.affymetrix.com/LinkServlet?probeset=104435858" \o "https://www.affymetrix.com/LinkServlet?probeset=104435858) | LOC104435401 |  |  | 953 | 3.649 | 0.3999 | Yes |
| 24 | [104454882](https://www.affymetrix.com/LinkServlet?probeset=104454860" \o "https://www.affymetrix.com/LinkServlet?probeset=104454860) | LOC104454882 |  |  | 954 | 3.649 | 0.4153 | Yes |
| 25 | [120288878](https://www.affymetrix.com/LinkServlet?probeset=104435401" \o "https://www.affymetrix.com/LinkServlet?probeset=104435401) | LOC120288878 |  |  | 1147 | 3.367 | 0.4234 | Yes |
| 26 | [120289974](https://www.affymetrix.com/LinkServlet?probeset=104454882" \o "https://www.affymetrix.com/LinkServlet?probeset=104454882) | LOC120289974 |  |  | 1168 | 3.344 | 0.4369 | Yes |
| 27 | [104435460](https://www.affymetrix.com/LinkServlet?probeset=120288878" \o "https://www.affymetrix.com/LinkServlet?probeset=120288878) | LOC104435460 |  |  | 1374 | 3.135 | 0.4437 | Yes |
| 28 | [120292774](https://www.affymetrix.com/LinkServlet?probeset=120289974" \o "https://www.affymetrix.com/LinkServlet?probeset=120289974) | LOC120292774 |  |  | 1399 | 3.112 | 0.4561 | Yes |
| 29 | [104427170](https://www.affymetrix.com/LinkServlet?probeset=104435460" \o "https://www.affymetrix.com/LinkServlet?probeset=104435460) | LOC104427170 |  |  | 2012 | 2.53 | 0.4475 | Yes |
| 30 | [120289357](https://www.affymetrix.com/LinkServlet?probeset=120292774" \o "https://www.affymetrix.com/LinkServlet?probeset=120292774) | LOC120289357 |  |  | 2187 | 2.418 | 0.4522 | Yes |
| 31 | [104435451](https://www.affymetrix.com/LinkServlet?probeset=104427170" \o "https://www.affymetrix.com/LinkServlet?probeset=104427170) | LOC104435451 |  |  | 2191 | 2.418 | 0.4623 | Yes |

**Table S7.** Genes in carbon-oxygen lyase activity (GO-GSEA).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 1 | 104435491 | LOC104435491 |  |  | 3 | 4.995 | 0.0188 | Yes |
| 2 | 120292023 | LOC120292023 |  |  | 9 | 4.988 | 0.0375 | Yes |
| 3 | [104431307](https://www.affymetrix.com/LinkServlet?probeset=104435491" \o "https://www.affymetrix.com/LinkServlet?probeset=104435491) | LOC104431307 |  |  | 17 | 4.981 | 0.0561 | Yes |
| 4 | [104442026](https://www.affymetrix.com/LinkServlet?probeset=120292023" \o "https://www.affymetrix.com/LinkServlet?probeset=120292023) | LOC104442026 |  |  | 21 | 4.98 | 0.0748 | Yes |
| 5 | [104426794](https://www.affymetrix.com/LinkServlet?probeset=104431307" \o "https://www.affymetrix.com/LinkServlet?probeset=104431307) | LOC104426794 |  |  | 44 | 4.965 | 0.0929 | Yes |
| 6 | [120289312](https://www.affymetrix.com/LinkServlet?probeset=104442026" \o "https://www.affymetrix.com/LinkServlet?probeset=104442026) | LOC120289312 |  |  | 60 | 4.954 | 0.1112 | Yes |
| 7 | [104450191](https://www.affymetrix.com/LinkServlet?probeset=104426794" \o "https://www.affymetrix.com/LinkServlet?probeset=104426794) | LOC104450191 |  |  | 68 | 4.948 | 0.1297 | Yes |
| 8 | [104422073](https://www.affymetrix.com/LinkServlet?probeset=120289312" \o "https://www.affymetrix.com/LinkServlet?probeset=120289312) | LOC104422073 |  |  | 77 | 4.944 | 0.1481 | Yes |
| 9 | [104423654](https://www.affymetrix.com/LinkServlet?probeset=104450191" \o "https://www.affymetrix.com/LinkServlet?probeset=104450191) | LOC104423654 |  |  | 103 | 4.93 | 0.166 | Yes |
| 10 | [108958990](https://www.affymetrix.com/LinkServlet?probeset=104422073" \o "https://www.affymetrix.com/LinkServlet?probeset=104422073) | LOC108958990 |  |  | 207 | 4.83 | 0.181 | Yes |
| 11 | [120290740](https://www.affymetrix.com/LinkServlet?probeset=104423654" \o "https://www.affymetrix.com/LinkServlet?probeset=104423654) | LOC120290740 |  |  | 323 | 4.667 | 0.195 | Yes |
| 12 | [104442836](https://www.affymetrix.com/LinkServlet?probeset=108958990" \o "https://www.affymetrix.com/LinkServlet?probeset=108958990) | LOC104442836 |  |  | 472 | 4.408 | 0.207 | Yes |
| 13 | [104442834](https://www.affymetrix.com/LinkServlet?probeset=120290740" \o "https://www.affymetrix.com/LinkServlet?probeset=120290740) | LOC104442834 |  |  | 538 | 4.308 | 0.2212 | Yes |
| 14 | [104431518](https://www.affymetrix.com/LinkServlet?probeset=104442836" \o "https://www.affymetrix.com/LinkServlet?probeset=104442836) | LOC104431518 |  |  | 648 | 4.148 | 0.2335 | Yes |
| 15 | [104454904](https://www.affymetrix.com/LinkServlet?probeset=104442834" \o "https://www.affymetrix.com/LinkServlet?probeset=104442834) | LOC104454904 |  |  | 701 | 4.045 | 0.2472 | Yes |
| 16 | [104452558](https://www.affymetrix.com/LinkServlet?probeset=104431518" \o "https://www.affymetrix.com/LinkServlet?probeset=104431518) | LOC104452558 |  |  | 743 | 3.973 | 0.2609 | Yes |
| 17 | [104456309](https://www.affymetrix.com/LinkServlet?probeset=104454904" \o "https://www.affymetrix.com/LinkServlet?probeset=104454904) | LOC104456309 |  |  | 747 | 3.963 | 0.2758 | Yes |
| 18 | [104429381](https://www.affymetrix.com/LinkServlet?probeset=104452558" \o "https://www.affymetrix.com/LinkServlet?probeset=104452558) | LOC104429381 |  |  | 792 | 3.884 | 0.2891 | Yes |
| 19 | [104452559](https://www.affymetrix.com/LinkServlet?probeset=104456309" \o "https://www.affymetrix.com/LinkServlet?probeset=104456309) | LOC104452559 |  |  | 808 | 3.867 | 0.3032 | Yes |
| 20 | [104452556](https://www.affymetrix.com/LinkServlet?probeset=104429381" \o "https://www.affymetrix.com/LinkServlet?probeset=104429381) | LOC104452556 |  |  | 839 | 3.804 | 0.3167 | Yes |
| 21 | [104435858](https://www.affymetrix.com/LinkServlet?probeset=104452559" \o "https://www.affymetrix.com/LinkServlet?probeset=104452559) | LOC104435858 |  |  | 866 | 3.757 | 0.33 | Yes |
| 22 | [104454860](https://www.affymetrix.com/LinkServlet?probeset=104452556" \o "https://www.affymetrix.com/LinkServlet?probeset=104452556) | LOC104454860 |  |  | 921 | 3.688 | 0.3423 | Yes |
| 23 | [104435401](https://www.affymetrix.com/LinkServlet?probeset=104435858" \o "https://www.affymetrix.com/LinkServlet?probeset=104435858) | LOC104435401 |  |  | 953 | 3.649 | 0.3551 | Yes |
| 24 | [104454882](https://www.affymetrix.com/LinkServlet?probeset=104454860" \o "https://www.affymetrix.com/LinkServlet?probeset=104454860) | LOC104454882 |  |  | 954 | 3.649 | 0.3689 | Yes |
| 25 | [104430995](https://www.affymetrix.com/LinkServlet?probeset=104435401" \o "https://www.affymetrix.com/LinkServlet?probeset=104435401) | LOC104430995 |  |  | 1018 | 3.556 | 0.3804 | Yes |
| 26 | [120288878](https://www.affymetrix.com/LinkServlet?probeset=104454882" \o "https://www.affymetrix.com/LinkServlet?probeset=104454882) | LOC120288878 |  |  | 1147 | 3.367 | 0.3891 | Yes |
| 27 | [120289974](https://www.affymetrix.com/LinkServlet?probeset=104430995" \o "https://www.affymetrix.com/LinkServlet?probeset=104430995) | LOC120289974 |  |  | 1168 | 3.344 | 0.4011 | Yes |
| 28 | [104435460](https://www.affymetrix.com/LinkServlet?probeset=120288878" \o "https://www.affymetrix.com/LinkServlet?probeset=120288878) | LOC104435460 |  |  | 1374 | 3.135 | 0.4065 | Yes |
| 29 | [120292774](https://www.affymetrix.com/LinkServlet?probeset=120289974" \o "https://www.affymetrix.com/LinkServlet?probeset=120289974) | LOC120292774 |  |  | 1399 | 3.112 | 0.4175 | Yes |
| 30 | [104427170](https://www.affymetrix.com/LinkServlet?probeset=104435460" \o "https://www.affymetrix.com/LinkServlet?probeset=104435460) | LOC104427170 |  |  | 2012 | 2.53 | 0.4077 | Yes |
| 31 | [120289357](https://www.affymetrix.com/LinkServlet?probeset=120292774" \o "https://www.affymetrix.com/LinkServlet?probeset=120292774) | LOC120289357 |  |  | 2187 | 2.418 | 0.4114 | Yes |
| 32 | [104435451](https://www.affymetrix.com/LinkServlet?probeset=104427170" \o "https://www.affymetrix.com/LinkServlet?probeset=104427170) | LOC104435451 |  |  | 2191 | 2.418 | 0.4204 | Yes |
| 33 | [104421260](https://www.affymetrix.com/LinkServlet?probeset=120289357" \o "https://www.affymetrix.com/LinkServlet?probeset=120289357) | LOC104421260 |  |  | 2578 | 2.22 | 0.4167 | Yes |
| 34 | [104427202](https://www.affymetrix.com/LinkServlet?probeset=104435451" \o "https://www.affymetrix.com/LinkServlet?probeset=104435451) | LOC104427202 |  |  | 2627 | 2.199 | 0.4235 | Yes |
| 35 | [104423547](https://www.affymetrix.com/LinkServlet?probeset=104421260" \o "https://www.affymetrix.com/LinkServlet?probeset=104421260) | LOC104423547 |  |  | 3018 | 1.985 | 0.4187 | Yes |
| 36 | [104422552](https://www.affymetrix.com/LinkServlet?probeset=104427202" \o "https://www.affymetrix.com/LinkServlet?probeset=104427202) | LOC104422552 |  |  | 3120 | 1.935 | 0.4228 | Yes |
| 37 | [104438521](https://www.affymetrix.com/LinkServlet?probeset=104423547" \o "https://www.affymetrix.com/LinkServlet?probeset=104423547) | LOC104438521 |  |  | 3481 | 1.777 | 0.4181 | Yes |
| 38 | [104445701](https://www.affymetrix.com/LinkServlet?probeset=104422552" \o "https://www.affymetrix.com/LinkServlet?probeset=104422552) | LOC104445701 |  |  | 3549 | 1.746 | 0.4226 | Yes |
| 39 | [104456834](https://www.affymetrix.com/LinkServlet?probeset=104438521" \o "https://www.affymetrix.com/LinkServlet?probeset=104438521) | LOC104456834 |  |  | 3561 | 1.742 | 0.4289 | Yes |

**Table S8.** Genes in sesquiterpenoid and triterpenoid biosynthesis (KEGG-GSEA).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 1 | [novel.111](https://www.affymetrix.com/LinkServlet?probeset=novel.111" \o "https://www.affymetrix.com/LinkServlet?probeset=novel.111) | - |  |  | 97 | 4.682 | 0.057 | Yes |
| 2 | [108958990](https://www.affymetrix.com/LinkServlet?probeset=108958990" \o "https://www.affymetrix.com/LinkServlet?probeset=108958990) | LOC108958990 |  |  | 135 | 4.472 | 0.1133 | Yes |
| 3 | [104431518](https://www.affymetrix.com/LinkServlet?probeset=104431518" \o "https://www.affymetrix.com/LinkServlet?probeset=104431518) | LOC104431518 |  |  | 250 | 3.819 | 0.1587 | Yes |
| 4 | [104423654](https://www.affymetrix.com/LinkServlet?probeset=104423654" \o "https://www.affymetrix.com/LinkServlet?probeset=104423654) | LOC104423654 |  |  | 273 | 3.708 | 0.2056 | Yes |
| 5 | [104442834](https://www.affymetrix.com/LinkServlet?probeset=104442834" \o "https://www.affymetrix.com/LinkServlet?probeset=104442834) | LOC104442834 |  |  | 310 | 3.49 | 0.2493 | Yes |
| 6 | [104442836](https://www.affymetrix.com/LinkServlet?probeset=104442836" \o "https://www.affymetrix.com/LinkServlet?probeset=104442836) | LOC104442836 |  |  | 418 | 3.106 | 0.2858 | Yes |
| 7 | [104438521](https://www.affymetrix.com/LinkServlet?probeset=104438521" \o "https://www.affymetrix.com/LinkServlet?probeset=104438521) | LOC104438521 |  |  | 488 | 2.911 | 0.321 | Yes |
| 8 | [104450191](https://www.affymetrix.com/LinkServlet?probeset=104450191" \o "https://www.affymetrix.com/LinkServlet?probeset=104450191) | LOC104450191 |  |  | 716 | 2.45 | 0.3453 | Yes |
| 9 | [120289357](https://www.affymetrix.com/LinkServlet?probeset=120289357" \o "https://www.affymetrix.com/LinkServlet?probeset=120289357) | LOC120289357 |  |  | 718 | 2.446 | 0.3767 | Yes |
| 10 | [104438524](https://www.affymetrix.com/LinkServlet?probeset=104438524" \o "https://www.affymetrix.com/LinkServlet?probeset=104438524) | LOC104438524 |  |  | 748 | 2.411 | 0.4067 | Yes |
| 11 | [104431307](https://www.affymetrix.com/LinkServlet?probeset=104431307" \o "https://www.affymetrix.com/LinkServlet?probeset=104431307) | LOC104431307 |  |  | 752 | 2.403 | 0.4374 | Yes |
| 12 | [104422073](https://www.affymetrix.com/LinkServlet?probeset=104422073" \o "https://www.affymetrix.com/LinkServlet?probeset=104422073) | LOC104422073 |  |  | 877 | 2.239 | 0.4623 | Yes |
| 13 | [104450716](https://www.affymetrix.com/LinkServlet?probeset=104450716" \o "https://www.affymetrix.com/LinkServlet?probeset=104450716) | LOC104450716 |  |  | 951 | 2.152 | 0.4876 | Yes |
| 14 | [120289312](https://www.affymetrix.com/LinkServlet?probeset=120289312" \o "https://www.affymetrix.com/LinkServlet?probeset=120289312) | LOC120289312 |  |  | 1114 | 1.999 | 0.5082 | Yes |
| 15 | [104447805](https://www.affymetrix.com/LinkServlet?probeset=104447805" \o "https://www.affymetrix.com/LinkServlet?probeset=104447805) | LOC104447805 |  |  | 1427 | 1.763 | 0.521 | Yes |
| 16 | [104445174](https://www.affymetrix.com/LinkServlet?probeset=104445174" \o "https://www.affymetrix.com/LinkServlet?probeset=104445174) | LOC104445174 |  |  | 1595 | 1.665 | 0.5372 | Yes |
| 17 | [104418420](https://www.affymetrix.com/LinkServlet?probeset=104418420" \o "https://www.affymetrix.com/LinkServlet?probeset=104418420) | LOC104418420 |  |  | 1763 | 1.561 | 0.552 | Yes |
| 18 | [104454355](https://www.affymetrix.com/LinkServlet?probeset=104454355" \o "https://www.affymetrix.com/LinkServlet?probeset=104454355) | LOC104454355 |  |  | 1920 | 1.494 | 0.5662 | Yes |
| 19 | [104426794](https://www.affymetrix.com/LinkServlet?probeset=104426794" \o "https://www.affymetrix.com/LinkServlet?probeset=104426794) | LOC104426794 |  |  | 2300 | 1.335 | 0.5715 | Yes |
| 20 | [120289974](https://www.affymetrix.com/LinkServlet?probeset=120289974" \o "https://www.affymetrix.com/LinkServlet?probeset=120289974) | LOC120289974 |  |  | 2304 | 1.335 | 0.5885 | Yes |
| 21 | [104418125](https://www.affymetrix.com/LinkServlet?probeset=104418125" \o "https://www.affymetrix.com/LinkServlet?probeset=104418125) | LOC104418125 |  |  | 2442 | 1.288 | 0.6008 | Yes |
| 22 | [104449232](https://www.affymetrix.com/LinkServlet?probeset=104449232" \o "https://www.affymetrix.com/LinkServlet?probeset=104449232) | LOC104449232 |  |  | 2756 | 1.184 | 0.6062 | Yes |
| 23 | [104447373](https://www.affymetrix.com/LinkServlet?probeset=104447373" \o "https://www.affymetrix.com/LinkServlet?probeset=104447373) | LOC104447373 |  |  | 3071 | 1.097 | 0.6104 | Yes |

**Table S9.** Genes in phenylpropanoid biosynthesis (KEGG-GSEA).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 1 | 104445601 | LOC104445601 |  |  | 4 | 4.999 | 0.0094 | Yes |
| 2 | 104445600 | LOC104445600 |  |  | 16 | 4.997 | 0.0186 | Yes |
| 3 | [104453856](https://www.affymetrix.com/LinkServlet?probeset=104445601" \o "https://www.affymetrix.com/LinkServlet?probeset=104445601) | LOC104453856 |  |  | 31 | 4.996 | 0.0276 | Yes |
| 4 | [104438294](https://www.affymetrix.com/LinkServlet?probeset=104445600" \o "https://www.affymetrix.com/LinkServlet?probeset=104445600) | LOC104438294 |  |  | 88 | 4.986 | 0.0354 | Yes |
| 5 | [104426975](https://www.affymetrix.com/LinkServlet?probeset=104453856" \o "https://www.affymetrix.com/LinkServlet?probeset=104453856) | LOC104426975 |  |  | 146 | 4.976 | 0.0431 | Yes |
| 6 | [104456851](https://www.affymetrix.com/LinkServlet?probeset=104438294" \o "https://www.affymetrix.com/LinkServlet?probeset=104438294) | LOC104456851 |  |  | 243 | 4.954 | 0.0495 | Yes |
| 7 | [104453855](https://www.affymetrix.com/LinkServlet?probeset=104426975" \o "https://www.affymetrix.com/LinkServlet?probeset=104426975) | LOC104453855 |  |  | 349 | 4.93 | 0.0556 | Yes |
| 8 | [104452254](https://www.affymetrix.com/LinkServlet?probeset=104456851" \o "https://www.affymetrix.com/LinkServlet?probeset=104456851) | LOC104452254 |  |  | 395 | 4.914 | 0.0636 | Yes |
| 9 | [104415687](https://www.affymetrix.com/LinkServlet?probeset=104453855" \o "https://www.affymetrix.com/LinkServlet?probeset=104453855) | LOC104415687 |  |  | 400 | 4.913 | 0.0728 | Yes |
| 10 | [104415688](https://www.affymetrix.com/LinkServlet?probeset=104452254" \o "https://www.affymetrix.com/LinkServlet?probeset=104452254) | LOC104415688 |  |  | 405 | 4.91 | 0.082 | Yes |
| 11 | [104454445](https://www.affymetrix.com/LinkServlet?probeset=104415687" \o "https://www.affymetrix.com/LinkServlet?probeset=104415687) | LOC104454445 |  |  | 414 | 4.908 | 0.0911 | Yes |
| 12 | [104455395](https://www.affymetrix.com/LinkServlet?probeset=104415688" \o "https://www.affymetrix.com/LinkServlet?probeset=104415688) | LOC104455395 |  |  | 415 | 4.908 | 0.1005 | Yes |
| 13 | [104449485](https://www.affymetrix.com/LinkServlet?probeset=104454445" \o "https://www.affymetrix.com/LinkServlet?probeset=104454445) | LOC104449485 |  |  | 460 | 4.889 | 0.1084 | Yes |
| 14 | [104444152](https://www.affymetrix.com/LinkServlet?probeset=104455395" \o "https://www.affymetrix.com/LinkServlet?probeset=104455395) | LOC104444152 |  |  | 464 | 4.887 | 0.1176 | Yes |
| 15 | [104453315](https://www.affymetrix.com/LinkServlet?probeset=104449485" \o "https://www.affymetrix.com/LinkServlet?probeset=104449485) | LOC104453315 |  |  | 551 | 4.848 | 0.1242 | Yes |
| 16 | [104443712](https://www.affymetrix.com/LinkServlet?probeset=104444152" \o "https://www.affymetrix.com/LinkServlet?probeset=104444152) | LOC104443712 |  |  | 555 | 4.847 | 0.1333 | Yes |
| 17 | [104455132](https://www.affymetrix.com/LinkServlet?probeset=104453315" \o "https://www.affymetrix.com/LinkServlet?probeset=104453315) | LOC104455132 |  |  | 654 | 4.811 | 0.1394 | Yes |
| 18 | [104455140](https://www.affymetrix.com/LinkServlet?probeset=104443712" \o "https://www.affymetrix.com/LinkServlet?probeset=104443712) | LOC104455140 |  |  | 655 | 4.81 | 0.1486 | Yes |
| 19 | [104422587](https://www.affymetrix.com/LinkServlet?probeset=104455132" \o "https://www.affymetrix.com/LinkServlet?probeset=104455132) | LOC104422587 |  |  | 886 | 4.709 | 0.1504 | Yes |
| 20 | [104430095](https://www.affymetrix.com/LinkServlet?probeset=104455140" \o "https://www.affymetrix.com/LinkServlet?probeset=104455140) | LOC104430095 |  |  | 887 | 4.708 | 0.1593 | Yes |
| 21 | [104422800](https://www.affymetrix.com/LinkServlet?probeset=104422587" \o "https://www.affymetrix.com/LinkServlet?probeset=104422587) | LOC104422800 |  |  | 1016 | 4.645 | 0.1642 | Yes |
| 22 | [104433339](https://www.affymetrix.com/LinkServlet?probeset=104430095" \o "https://www.affymetrix.com/LinkServlet?probeset=104430095) | LOC104433339 |  |  | 1017 | 4.645 | 0.173 | Yes |
| 23 | [104418455](https://www.affymetrix.com/LinkServlet?probeset=104422800" \o "https://www.affymetrix.com/LinkServlet?probeset=104422800) | LOC104418455 |  |  | 1133 | 4.587 | 0.1782 | Yes |
| 24 | [104437652](https://www.affymetrix.com/LinkServlet?probeset=104433339" \o "https://www.affymetrix.com/LinkServlet?probeset=104433339) | LOC104437652 |  |  | 1156 | 4.574 | 0.1862 | Yes |
| 25 | [104437651](https://www.affymetrix.com/LinkServlet?probeset=104418455" \o "https://www.affymetrix.com/LinkServlet?probeset=104418455) | LOC104437651 |  |  | 1220 | 4.532 | 0.1929 | Yes |
| 26 | [104433684](https://www.affymetrix.com/LinkServlet?probeset=104437652" \o "https://www.affymetrix.com/LinkServlet?probeset=104437652) | LOC104433684 |  |  | 1272 | 4.507 | 0.1999 | Yes |
| 27 | [104454440](https://www.affymetrix.com/LinkServlet?probeset=104437651" \o "https://www.affymetrix.com/LinkServlet?probeset=104437651) | LOC104454440 |  |  | 1450 | 4.398 | 0.2027 | Yes |
| 28 | [104450635](https://www.affymetrix.com/LinkServlet?probeset=104433684" \o "https://www.affymetrix.com/LinkServlet?probeset=104433684) | LOC104450635 |  |  | 1506 | 4.359 | 0.2093 | Yes |
| 29 | [104456852](https://www.affymetrix.com/LinkServlet?probeset=104454440" \o "https://www.affymetrix.com/LinkServlet?probeset=104454440) | LOC104456852 |  |  | 1532 | 4.341 | 0.2168 | Yes |
| 30 | [104441575](https://www.affymetrix.com/LinkServlet?probeset=104450635" \o "https://www.affymetrix.com/LinkServlet?probeset=104450635) | LOC104441575 |  |  | 1832 | 4.185 | 0.2155 | Yes |
| 31 | [120291593](https://www.affymetrix.com/LinkServlet?probeset=104456852" \o "https://www.affymetrix.com/LinkServlet?probeset=104456852) | LOC120291593 |  |  | 1970 | 4.094 | 0.219 | Yes |
| 32 | [104437195](https://www.affymetrix.com/LinkServlet?probeset=104441575" \o "https://www.affymetrix.com/LinkServlet?probeset=104441575) | LOC104437195 |  |  | 1974 | 4.089 | 0.2267 | Yes |
| 33 | [104450510](https://www.affymetrix.com/LinkServlet?probeset=120291593" \o "https://www.affymetrix.com/LinkServlet?probeset=120291593) | LOC104450510 |  |  | 1992 | 4.08 | 0.2339 | Yes |
| 34 | [104431840](https://www.affymetrix.com/LinkServlet?probeset=104437195" \o "https://www.affymetrix.com/LinkServlet?probeset=104437195) | LOC104431840 |  |  | 2145 | 3.986 | 0.2368 | Yes |
| 35 | [104438293](https://www.affymetrix.com/LinkServlet?probeset=104450510" \o "https://www.affymetrix.com/LinkServlet?probeset=104450510) | LOC104438293 |  |  | 2173 | 3.969 | 0.2435 | Yes |
| 36 | [120294767](https://www.affymetrix.com/LinkServlet?probeset=104431840" \o "https://www.affymetrix.com/LinkServlet?probeset=104431840) | LOC120294767 |  |  | 2254 | 3.92 | 0.2484 | Yes |
| 37 | [120296049](https://www.affymetrix.com/LinkServlet?probeset=104438293" \o "https://www.affymetrix.com/LinkServlet?probeset=104438293) | LOC120296049 |  |  | 2264 | 3.913 | 0.2556 | Yes |
| 38 | [104445602](https://www.affymetrix.com/LinkServlet?probeset=120294767" \o "https://www.affymetrix.com/LinkServlet?probeset=120294767) | LOC104445602 |  |  | 2272 | 3.906 | 0.2628 | Yes |
| 39 | [104437647](https://www.affymetrix.com/LinkServlet?probeset=120296049" \o "https://www.affymetrix.com/LinkServlet?probeset=120296049) | LOC104437647 |  |  | 2332 | 3.868 | 0.2684 | Yes |
| 40 | [120296044](https://www.affymetrix.com/LinkServlet?probeset=104445602" \o "https://www.affymetrix.com/LinkServlet?probeset=104445602) | LOC120296044 |  |  | 2429 | 3.812 | 0.2726 | Yes |
| 41 | [104417080](https://www.affymetrix.com/LinkServlet?probeset=104437647" \o "https://www.affymetrix.com/LinkServlet?probeset=104437647) | LOC104417080 |  |  | 2538 | 3.744 | 0.2764 | Yes |
| 42 | [104450451](https://www.affymetrix.com/LinkServlet?probeset=120296044" \o "https://www.affymetrix.com/LinkServlet?probeset=120296044) | LOC104450451 |  |  | 2553 | 3.736 | 0.2831 | Yes |
| 43 | [104430395](https://www.affymetrix.com/LinkServlet?probeset=104417080" \o "https://www.affymetrix.com/LinkServlet?probeset=104417080) | LOC104430395 |  |  | 2563 | 3.733 | 0.2899 | Yes |
| 44 | [104455389](https://www.affymetrix.com/LinkServlet?probeset=104450451" \o "https://www.affymetrix.com/LinkServlet?probeset=104450451) | LOC104455389 |  |  | 2636 | 3.688 | 0.2947 | Yes |
| 45 | [104441401](https://www.affymetrix.com/LinkServlet?probeset=104430395" \o "https://www.affymetrix.com/LinkServlet?probeset=104430395) | LOC104441401 |  |  | 2685 | 3.655 | 0.3001 | Yes |
| 46 | [104416462](https://www.affymetrix.com/LinkServlet?probeset=104455389" \o "https://www.affymetrix.com/LinkServlet?probeset=104455389) | LOC104416462 |  |  | 2690 | 3.651 | 0.307 | Yes |
| 47 | [104443731](https://www.affymetrix.com/LinkServlet?probeset=104441401" \o "https://www.affymetrix.com/LinkServlet?probeset=104441401) | LOC104443731 |  |  | 2770 | 3.601 | 0.3114 | Yes |
| 48 | [120294448](https://www.affymetrix.com/LinkServlet?probeset=104416462" \o "https://www.affymetrix.com/LinkServlet?probeset=104416462) | LOC120294448 |  |  | 2829 | 3.564 | 0.3163 | Yes |
| 49 | [104431976](https://www.affymetrix.com/LinkServlet?probeset=104443731" \o "https://www.affymetrix.com/LinkServlet?probeset=104443731) | LOC104431976 |  |  | 2833 | 3.563 | 0.323 | Yes |
| 50 | [120296047](https://www.affymetrix.com/LinkServlet?probeset=120294448" \o "https://www.affymetrix.com/LinkServlet?probeset=120294448) | LOC120296047 |  |  | 3010 | 3.469 | 0.3241 | Yes |
| 51 | [104419698](https://www.affymetrix.com/LinkServlet?probeset=104431976" \o "https://www.affymetrix.com/LinkServlet?probeset=104431976) | LOC104419698 |  |  | 3158 | 3.389 | 0.326 | Yes |
| 52 | [104455394](https://www.affymetrix.com/LinkServlet?probeset=120296047" \o "https://www.affymetrix.com/LinkServlet?probeset=120296047) | LOC104455394 |  |  | 3198 | 3.368 | 0.3312 | Yes |
| 53 | [104417991](https://www.affymetrix.com/LinkServlet?probeset=104419698" \o "https://www.affymetrix.com/LinkServlet?probeset=104419698) | LOC104417991 |  |  | 3213 | 3.361 | 0.3372 | Yes |
| 54 | [104456751](https://www.affymetrix.com/LinkServlet?probeset=104455394" \o "https://www.affymetrix.com/LinkServlet?probeset=104455394) | LOC104456751 |  |  | 3231 | 3.352 | 0.343 | Yes |
| 55 | [104453243](https://www.affymetrix.com/LinkServlet?probeset=104417991" \o "https://www.affymetrix.com/LinkServlet?probeset=104417991) | LOC104453243 |  |  | 3268 | 3.334 | 0.3483 | Yes |
| 56 | [104442380](https://www.affymetrix.com/LinkServlet?probeset=104456751" \o "https://www.affymetrix.com/LinkServlet?probeset=104456751) | LOC104442380 |  |  | 3298 | 3.324 | 0.3537 | Yes |
| 57 | [120294132](https://www.affymetrix.com/LinkServlet?probeset=104453243" \o "https://www.affymetrix.com/LinkServlet?probeset=104453243) | LOC120294132 |  |  | 3311 | 3.316 | 0.3596 | Yes |
| 58 | [120296045](https://www.affymetrix.com/LinkServlet?probeset=104442380" \o "https://www.affymetrix.com/LinkServlet?probeset=104442380) | LOC120296045 |  |  | 3352 | 3.296 | 0.3646 | Yes |
| 59 | [120296048](https://www.affymetrix.com/LinkServlet?probeset=120294132" \o "https://www.affymetrix.com/LinkServlet?probeset=120294132) | LOC120296048 |  |  | 3518 | 3.21 | 0.3656 | Yes |
| 60 | [104437427](https://www.affymetrix.com/LinkServlet?probeset=120296045" \o "https://www.affymetrix.com/LinkServlet?probeset=120296045) | LOC104437427 |  |  | 3594 | 3.169 | 0.3693 | Yes |

**Table S10.** Genes in plant-pathogen interaction (KEGG-GSEA).

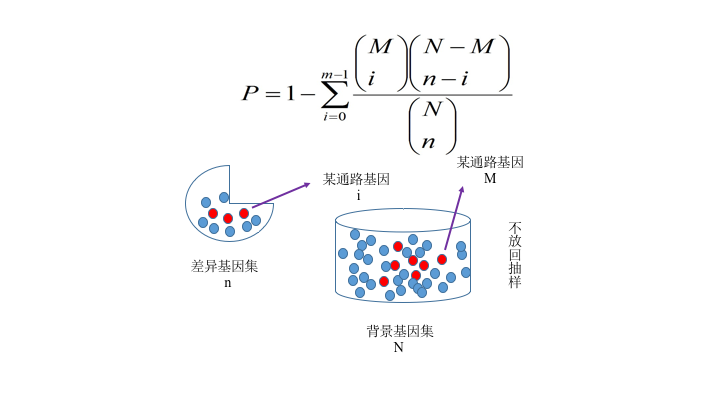
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 177 | 104449494 | LOC104449494 |  |  | 27613 | -1.939 | -0.4521 | Yes |
| 178 | 104416970 | LOC104416970 |  |  | 27628 | -1.945 | -0.4491 | Yes |
| 179 | [104422137](https://www.affymetrix.com/LinkServlet?probeset=104449494" \o "https://www.affymetrix.com/LinkServlet?probeset=104449494) | LOC104422137 |  |  | 27672 | -1.962 | -0.4471 | Yes |
| 180 | [104414302](https://www.affymetrix.com/LinkServlet?probeset=104416970" \o "https://www.affymetrix.com/LinkServlet?probeset=104416970) | LOC104414302 |  |  | 27711 | -1.975 | -0.4448 | Yes |
| 181 | [120287568](https://www.affymetrix.com/LinkServlet?probeset=104422137" \o "https://www.affymetrix.com/LinkServlet?probeset=104422137) | LOC120287568 |  |  | 27727 | -1.98 | -0.4418 | Yes |
| 182 | [104414483](https://www.affymetrix.com/LinkServlet?probeset=104414302" \o "https://www.affymetrix.com/LinkServlet?probeset=104414302) | LOC104414483 |  |  | 27758 | -1.99 | -0.4393 | Yes |
| 183 | [104421232](https://www.affymetrix.com/LinkServlet?probeset=120287568" \o "https://www.affymetrix.com/LinkServlet?probeset=120287568) | LOC104421232 |  |  | 27869 | -2.029 | -0.4392 | Yes |
| 184 | [104443414](https://www.affymetrix.com/LinkServlet?probeset=104414483" \o "https://www.affymetrix.com/LinkServlet?probeset=104414483) | LOC104443414 |  |  | 27960 | -2.061 | -0.4384 | Yes |
| 185 | [104444272](https://www.affymetrix.com/LinkServlet?probeset=104421232" \o "https://www.affymetrix.com/LinkServlet?probeset=104421232) | LOC104444272 |  |  | 28021 | -2.089 | -0.4366 | Yes |
| 186 | [104433916](https://www.affymetrix.com/LinkServlet?probeset=104443414" \o "https://www.affymetrix.com/LinkServlet?probeset=104443414) | LOC104433916 |  |  | 28067 | -2.105 | -0.4344 | Yes |
| 187 | [104456380](https://www.affymetrix.com/LinkServlet?probeset=104444272" \o "https://www.affymetrix.com/LinkServlet?probeset=104444272) | LOC104456380 |  |  | 28105 | -2.117 | -0.4318 | Yes |
| 188 | [104448458](https://www.affymetrix.com/LinkServlet?probeset=104433916" \o "https://www.affymetrix.com/LinkServlet?probeset=104433916) | LOC104448458 |  |  | 28180 | -2.146 | -0.4304 | Yes |
| 189 | [104423255](https://www.affymetrix.com/LinkServlet?probeset=104456380" \o "https://www.affymetrix.com/LinkServlet?probeset=104456380) | LOC104423255 |  |  | 28299 | -2.195 | -0.4303 | Yes |
| 190 | [104443940](https://www.affymetrix.com/LinkServlet?probeset=104448458" \o "https://www.affymetrix.com/LinkServlet?probeset=104448458) | LOC104443940 |  |  | 28364 | -2.22 | -0.4284 | Yes |
| 191 | [104448722](https://www.affymetrix.com/LinkServlet?probeset=104423255" \o "https://www.affymetrix.com/LinkServlet?probeset=104423255) | LOC104448722 |  |  | 28415 | -2.246 | -0.426 | Yes |
| 192 | [104443936](https://www.affymetrix.com/LinkServlet?probeset=104443940" \o "https://www.affymetrix.com/LinkServlet?probeset=104443940) | LOC104443936 |  |  | 28429 | -2.252 | -0.4225 | Yes |
| 193 | [104419928](https://www.affymetrix.com/LinkServlet?probeset=104448722" \o "https://www.affymetrix.com/LinkServlet?probeset=104448722) | LOC104419928 |  |  | 28507 | -2.288 | -0.4209 | Yes |
| 194 | [104423668](https://www.affymetrix.com/LinkServlet?probeset=104443936" \o "https://www.affymetrix.com/LinkServlet?probeset=104443936) | LOC104423668 |  |  | 28511 | -2.289 | -0.417 | Yes |
| 195 | [104433709](https://www.affymetrix.com/LinkServlet?probeset=104419928" \o "https://www.affymetrix.com/LinkServlet?probeset=104419928) | LOC104433709 |  |  | 28536 | -2.297 | -0.4138 | Yes |
| 196 | [104445156](https://www.affymetrix.com/LinkServlet?probeset=104423668" \o "https://www.affymetrix.com/LinkServlet?probeset=104423668) | LOC104445156 |  |  | 28599 | -2.331 | -0.4117 | Yes |
| 197 | [120285870](https://www.affymetrix.com/LinkServlet?probeset=104433709" \o "https://www.affymetrix.com/LinkServlet?probeset=104433709) | LOC120285870 |  |  | 28608 | -2.335 | -0.4078 | Yes |
| 198 | [104456273](https://www.affymetrix.com/LinkServlet?probeset=104445156" \o "https://www.affymetrix.com/LinkServlet?probeset=104445156) | LOC104456273 |  |  | 28656 | -2.357 | -0.4052 | Yes |
| 199 | [104444452](https://www.affymetrix.com/LinkServlet?probeset=120285870" \o "https://www.affymetrix.com/LinkServlet?probeset=120285870) | LOC104444452 |  |  | 28663 | -2.361 | -0.4013 | Yes |
| 200 | [120286843](https://www.affymetrix.com/LinkServlet?probeset=104456273" \o "https://www.affymetrix.com/LinkServlet?probeset=104456273) | LOC120286843 |  |  | 28668 | -2.362 | -0.3973 | Yes |
| 201 | [104441710](https://www.affymetrix.com/LinkServlet?probeset=104444452" \o "https://www.affymetrix.com/LinkServlet?probeset=104444452) | LOC104441710 |  |  | 28766 | -2.41 | -0.3961 | Yes |
| 202 | [104428053](https://www.affymetrix.com/LinkServlet?probeset=120286843" \o "https://www.affymetrix.com/LinkServlet?probeset=120286843) | LOC104428053 |  |  | 28767 | -2.411 | -0.3919 | Yes |
| 203 | [104456403](https://www.affymetrix.com/LinkServlet?probeset=104441710" \o "https://www.affymetrix.com/LinkServlet?probeset=104441710) | LOC104456403 |  |  | 28836 | -2.442 | -0.3898 | Yes |
| 204 | [104419657](https://www.affymetrix.com/LinkServlet?probeset=104428053" \o "https://www.affymetrix.com/LinkServlet?probeset=104428053) | LOC104419657 |  |  | 28966 | -2.51 | -0.3894 | Yes |
| 205 | [104451514](https://www.affymetrix.com/LinkServlet?probeset=104456403" \o "https://www.affymetrix.com/LinkServlet?probeset=104456403) | LOC104451514 |  |  | 28984 | -2.522 | -0.3856 | Yes |
| 206 | [104421651](https://www.affymetrix.com/LinkServlet?probeset=104419657" \o "https://www.affymetrix.com/LinkServlet?probeset=104419657) | LOC104421651 |  |  | 29059 | -2.559 | -0.3834 | Yes |
| 207 | [104426329](https://www.affymetrix.com/LinkServlet?probeset=104451514" \o "https://www.affymetrix.com/LinkServlet?probeset=104451514) | LOC104426329 |  |  | 29167 | -2.624 | -0.3822 | Yes |
| 208 | [104422924](https://www.affymetrix.com/LinkServlet?probeset=104421651" \o "https://www.affymetrix.com/LinkServlet?probeset=104421651) | LOC104422924 |  |  | 29193 | -2.64 | -0.3784 | Yes |
| 209 | [104448798](https://www.affymetrix.com/LinkServlet?probeset=104426329" \o "https://www.affymetrix.com/LinkServlet?probeset=104426329) | LOC104448798 |  |  | 29200 | -2.644 | -0.3739 | Yes |
| 210 | [104421646](https://www.affymetrix.com/LinkServlet?probeset=104422924" \o "https://www.affymetrix.com/LinkServlet?probeset=104422924) | LOC104421646 |  |  | 29251 | -2.668 | -0.3709 | Yes |
| 211 | [120293261](https://www.affymetrix.com/LinkServlet?probeset=104448798" \o "https://www.affymetrix.com/LinkServlet?probeset=104448798) | LOC120293261 |  |  | 29314 | -2.696 | -0.3681 | Yes |
| 212 | [104441713](https://www.affymetrix.com/LinkServlet?probeset=104421646" \o "https://www.affymetrix.com/LinkServlet?probeset=104421646) | LOC104441713 |  |  | 29395 | -2.738 | -0.3658 | Yes |
| 213 | [104438492](https://www.affymetrix.com/LinkServlet?probeset=120293261" \o "https://www.affymetrix.com/LinkServlet?probeset=120293261) | LOC104438492 |  |  | 29460 | -2.769 | -0.363 | Yes |
| 214 | [104444268](https://www.affymetrix.com/LinkServlet?probeset=104441713" \o "https://www.affymetrix.com/LinkServlet?probeset=104441713) | LOC104444268 |  |  | 29477 | -2.778 | -0.3586 | Yes |
| 215 | [108960305](https://www.affymetrix.com/LinkServlet?probeset=104438492" \o "https://www.affymetrix.com/LinkServlet?probeset=104438492) | LOC108960305 |  |  | 29491 | -2.785 | -0.3542 | Yes |
| 216 | [120287703](https://www.affymetrix.com/LinkServlet?probeset=104444268" \o "https://www.affymetrix.com/LinkServlet?probeset=104444268) | LOC120287703 |  |  | 29610 | -2.86 | -0.3529 | Yes |
| 217 | [104450406](https://www.affymetrix.com/LinkServlet?probeset=108960305" \o "https://www.affymetrix.com/LinkServlet?probeset=108960305) | LOC104450406 |  |  | 29634 | -2.873 | -0.3486 | Yes |
| 218 | [104432889](https://www.affymetrix.com/LinkServlet?probeset=120287703" \o "https://www.affymetrix.com/LinkServlet?probeset=120287703) | LOC104432889 |  |  | 29653 | -2.88 | -0.3442 | Yes |
| 219 | [104419049](https://www.affymetrix.com/LinkServlet?probeset=104450406" \o "https://www.affymetrix.com/LinkServlet?probeset=104450406) | LOC104419049 |  |  | 29656 | -2.881 | -0.3392 | Yes |
| 220 | [104450465](https://www.affymetrix.com/LinkServlet?probeset=104432889" \o "https://www.affymetrix.com/LinkServlet?probeset=104432889) | LOC104450465 |  |  | 29718 | -2.924 | -0.336 | Yes |
| 221 | [104443368](https://www.affymetrix.com/LinkServlet?probeset=104419049" \o "https://www.affymetrix.com/LinkServlet?probeset=104419049) | LOC104443368 |  |  | 29739 | -2.937 | -0.3315 | Yes |
| 222 | [104429436](https://www.affymetrix.com/LinkServlet?probeset=104450465" \o "https://www.affymetrix.com/LinkServlet?probeset=104450465) | LOC104429436 |  |  | 29742 | -2.938 | -0.3265 | Yes |
| 223 | [104437953](https://www.affymetrix.com/LinkServlet?probeset=104443368" \o "https://www.affymetrix.com/LinkServlet?probeset=104443368) | LOC104437953 |  |  | 29836 | -2.997 | -0.3241 | Yes |
| 224 | [104427319](https://www.affymetrix.com/LinkServlet?probeset=104429436" \o "https://www.affymetrix.com/LinkServlet?probeset=104429436) | LOC104427319 |  |  | 29870 | -3.02 | -0.3199 | Yes |
| 225 | [120287698](https://www.affymetrix.com/LinkServlet?probeset=104437953" \o "https://www.affymetrix.com/LinkServlet?probeset=104437953) | LOC120287698 |  |  | 29978 | -3.1 | -0.3178 | Yes |
| 226 | [104425716](https://www.affymetrix.com/LinkServlet?probeset=104427319" \o "https://www.affymetrix.com/LinkServlet?probeset=104427319) | LOC104425716 |  |  | 29980 | -3.101 | -0.3125 | Yes |
| 227 | [104443369](https://www.affymetrix.com/LinkServlet?probeset=120287698" \o "https://www.affymetrix.com/LinkServlet?probeset=120287698) | LOC104443369 |  |  | 30053 | -3.141 | -0.3092 | Yes |
| 228 | [104456341](https://www.affymetrix.com/LinkServlet?probeset=104425716" \o "https://www.affymetrix.com/LinkServlet?probeset=104425716) | LOC104456341 |  |  | 30127 | -3.206 | -0.3059 | Yes |
| 229 | [104425342](https://www.affymetrix.com/LinkServlet?probeset=104443369" \o "https://www.affymetrix.com/LinkServlet?probeset=104443369) | LOC104425342 |  |  | 30159 | -3.225 | -0.3013 | Yes |
| 230 | [104456407](https://www.affymetrix.com/LinkServlet?probeset=104456341" \o "https://www.affymetrix.com/LinkServlet?probeset=104456341) | LOC104456407 |  |  | 30207 | -3.257 | -0.2971 | Yes |
| 231 | [104454049](https://www.affymetrix.com/LinkServlet?probeset=104425342" \o "https://www.affymetrix.com/LinkServlet?probeset=104425342) | LOC104454049 |  |  | 30269 | -3.294 | -0.2932 | Yes |
| 232 | [104437523](https://www.affymetrix.com/LinkServlet?probeset=104456407" \o "https://www.affymetrix.com/LinkServlet?probeset=104456407) | LOC104437523 |  |  | 30271 | -3.295 | -0.2875 | Yes |
| 233 | [120286810](https://www.affymetrix.com/LinkServlet?probeset=104454049" \o "https://www.affymetrix.com/LinkServlet?probeset=104454049) | LOC120286810 |  |  | 30337 | -3.339 | -0.2837 | Yes |
| 234 | [104426306](https://www.affymetrix.com/LinkServlet?probeset=104437523" \o "https://www.affymetrix.com/LinkServlet?probeset=104437523) | LOC104426306 |  |  | 30371 | -3.378 | -0.2789 | Yes |
| 235 | [104442385](https://www.affymetrix.com/LinkServlet?probeset=120286810" \o "https://www.affymetrix.com/LinkServlet?probeset=120286810) | LOC104442385 |  |  | 30430 | -3.425 | -0.2747 | Yes |
| 236 | [104444270](https://www.affymetrix.com/LinkServlet?probeset=104426306" \o "https://www.affymetrix.com/LinkServlet?probeset=104426306) | LOC104444270 |  |  | 30451 | -3.442 | -0.2693 | Yes |
| 237 | [104425417](https://www.affymetrix.com/LinkServlet?probeset=104442385" \o "https://www.affymetrix.com/LinkServlet?probeset=104442385) | LOC104425417 |  |  | 30471 | -3.46 | -0.2639 | Yes |
| 238 | [104449707](https://www.affymetrix.com/LinkServlet?probeset=104444270" \o "https://www.affymetrix.com/LinkServlet?probeset=104444270) | LOC104449707 |  |  | 30528 | -3.507 | -0.2596 | Yes |
| 239 | [120287409](https://www.affymetrix.com/LinkServlet?probeset=104425417" \o "https://www.affymetrix.com/LinkServlet?probeset=104425417) | LOC120287409 |  |  | 30545 | -3.519 | -0.2539 | Yes |
| 240 | [104416990](https://www.affymetrix.com/LinkServlet?probeset=104449707" \o "https://www.affymetrix.com/LinkServlet?probeset=104449707) | LOC104416990 |  |  | 30572 | -3.536 | -0.2486 | Yes |
| 241 | [104442040](https://www.affymetrix.com/LinkServlet?probeset=120287409" \o "https://www.affymetrix.com/LinkServlet?probeset=120287409) | LOC104442040 |  |  | 30659 | -3.606 | -0.245 | Yes |
| 242 | [120295517](https://www.affymetrix.com/LinkServlet?probeset=104416990" \o "https://www.affymetrix.com/LinkServlet?probeset=104416990) | LOC120295517 |  |  | 30666 | -3.611 | -0.2389 | Yes |
| 243 | [104422003](https://www.affymetrix.com/LinkServlet?probeset=104442040" \o "https://www.affymetrix.com/LinkServlet?probeset=104442040) | LOC104422003 |  |  | 30690 | -3.636 | -0.2333 | Yes |
| 244 | [104453847](https://www.affymetrix.com/LinkServlet?probeset=120295517" \o "https://www.affymetrix.com/LinkServlet?probeset=120295517) | LOC104453847 |  |  | 30833 | -3.754 | -0.2311 | Yes |
| 245 | [104448267](https://www.affymetrix.com/LinkServlet?probeset=104422003" \o "https://www.affymetrix.com/LinkServlet?probeset=104422003) | LOC104448267 |  |  | 30852 | -3.77 | -0.2251 | Yes |
| 246 | [104425834](https://www.affymetrix.com/LinkServlet?probeset=104453847" \o "https://www.affymetrix.com/LinkServlet?probeset=104453847) | LOC104425834 |  |  | 30859 | -3.775 | -0.2187 | Yes |
| 247 | [104417001](https://www.affymetrix.com/LinkServlet?probeset=104448267" \o "https://www.affymetrix.com/LinkServlet?probeset=104448267) | LOC104417001 |  |  | 31014 | -3.91 | -0.2167 | Yes |
| 248 | [104422757](https://www.affymetrix.com/LinkServlet?probeset=104425834" \o "https://www.affymetrix.com/LinkServlet?probeset=104425834) | LOC104422757 |  |  | 31034 | -3.927 | -0.2105 | Yes |
| 249 | [120294306](https://www.affymetrix.com/LinkServlet?probeset=104417001" \o "https://www.affymetrix.com/LinkServlet?probeset=104417001) | LOC120294306 |  |  | 31045 | -3.937 | -0.2039 | Yes |
| 250 | [104423509](https://www.affymetrix.com/LinkServlet?probeset=104422757" \o "https://www.affymetrix.com/LinkServlet?probeset=104422757) | LOC104423509 |  |  | 31081 | -3.976 | -0.1981 | Yes |
| 251 | [120293645](https://www.affymetrix.com/LinkServlet?probeset=120294306" \o "https://www.affymetrix.com/LinkServlet?probeset=120294306) | LOC120293645 |  |  | 31096 | -3.988 | -0.1916 | Yes |
| 252 | [104456406](https://www.affymetrix.com/LinkServlet?probeset=104423509" \o "https://www.affymetrix.com/LinkServlet?probeset=104423509) | LOC104456406 |  |  | 31187 | -4.061 | -0.1873 | Yes |
| 253 | [104444445](https://www.affymetrix.com/LinkServlet?probeset=120293645" \o "https://www.affymetrix.com/LinkServlet?probeset=120293645) | LOC104444445 |  |  | 31198 | -4.07 | -0.1805 | Yes |
| 254 | [104446729](https://www.affymetrix.com/LinkServlet?probeset=104456406" \o "https://www.affymetrix.com/LinkServlet?probeset=104456406) | LOC104446729 |  |  | 31254 | -4.118 | -0.1751 | Yes |
| 255 | [104442133](https://www.affymetrix.com/LinkServlet?probeset=104444445" \o "https://www.affymetrix.com/LinkServlet?probeset=104444445) | LOC104442133 |  |  | 31304 | -4.163 | -0.1694 | Yes |
| 256 | [104427433](https://www.affymetrix.com/LinkServlet?probeset=104446729" \o "https://www.affymetrix.com/LinkServlet?probeset=104446729) | LOC104427433 |  |  | 31328 | -4.185 | -0.1628 | Yes |
| 257 | [120294405](https://www.affymetrix.com/LinkServlet?probeset=104442133" \o "https://www.affymetrix.com/LinkServlet?probeset=104442133) | LOC120294405 |  |  | 31339 | -4.197 | -0.1558 | Yes |
| 258 | [104451769](https://www.affymetrix.com/LinkServlet?probeset=104427433" \o "https://www.affymetrix.com/LinkServlet?probeset=104427433) | LOC104451769 |  |  | 31426 | -4.276 | -0.151 | Yes |
| 259 | [104429873](https://www.affymetrix.com/LinkServlet?probeset=120294405" \o "https://www.affymetrix.com/LinkServlet?probeset=120294405) | LOC104429873 |  |  | 31465 | -4.309 | -0.1447 | Yes |
| 260 | [104444068](https://www.affymetrix.com/LinkServlet?probeset=104451769" \o "https://www.affymetrix.com/LinkServlet?probeset=104451769) | LOC104444068 |  |  | 31472 | -4.313 | -0.1374 | Yes |
| 261 | [104425137](https://www.affymetrix.com/LinkServlet?probeset=104429873" \o "https://www.affymetrix.com/LinkServlet?probeset=104429873) | LOC104425137 |  |  | 31510 | -4.354 | -0.1309 | Yes |
| 262 | [104444418](https://www.affymetrix.com/LinkServlet?probeset=104444068" \o "https://www.affymetrix.com/LinkServlet?probeset=104444068) | LOC104444418 |  |  | 31521 | -4.365 | -0.1237 | Yes |
| 263 | [104422220](https://www.affymetrix.com/LinkServlet?probeset=104425137" \o "https://www.affymetrix.com/LinkServlet?probeset=104425137) | LOC104422220 |  |  | 31535 | -4.372 | -0.1164 | Yes |
| 264 | [104428600](https://www.affymetrix.com/LinkServlet?probeset=104444418" \o "https://www.affymetrix.com/LinkServlet?probeset=104444418) | LOC104428600 |  |  | 31541 | -4.383 | -0.109 | Yes |
| 265 | [104443366](https://www.affymetrix.com/LinkServlet?probeset=104422220" \o "https://www.affymetrix.com/LinkServlet?probeset=104422220) | LOC104443366 |  |  | 31568 | -4.412 | -0.1021 | Yes |
| 266 | [104454739](https://www.affymetrix.com/LinkServlet?probeset=104428600" \o "https://www.affymetrix.com/LinkServlet?probeset=104428600) | LOC104454739 |  |  | 31570 | -4.413 | -0.0944 | Yes |
| 267 | [104425347](https://www.affymetrix.com/LinkServlet?probeset=104443366" \o "https://www.affymetrix.com/LinkServlet?probeset=104443366) | LOC104425347 |  |  | 31580 | -4.416 | -0.087 | Yes |
| 268 | [104444265](https://www.affymetrix.com/LinkServlet?probeset=104454739" \o "https://www.affymetrix.com/LinkServlet?probeset=104454739) | LOC104444265 |  |  | 31586 | -4.426 | -0.0795 | Yes |
| 269 | [120294824](https://www.affymetrix.com/LinkServlet?probeset=104425347" \o "https://www.affymetrix.com/LinkServlet?probeset=104425347) | LOC120294824 |  |  | 31623 | -4.458 | -0.0728 | Yes |
| 270 | [104453031](https://www.affymetrix.com/LinkServlet?probeset=104444265" \o "https://www.affymetrix.com/LinkServlet?probeset=104444265) | LOC104453031 |  |  | 31629 | -4.461 | -0.0652 | Yes |
| 271 | [104450370](https://www.affymetrix.com/LinkServlet?probeset=120294824" \o "https://www.affymetrix.com/LinkServlet?probeset=120294824) | LOC104450370 |  |  | 31637 | -4.464 | -0.0577 | Yes |
| 272 | [104426344](https://www.affymetrix.com/LinkServlet?probeset=104453031" \o "https://www.affymetrix.com/LinkServlet?probeset=104453031) | LOC104426344 |  |  | 31639 | -4.466 | -0.0499 | Yes |
| 273 | [120293654](https://www.affymetrix.com/LinkServlet?probeset=104450370" \o "https://www.affymetrix.com/LinkServlet?probeset=104450370) | LOC120293654 |  |  | 31643 | -4.47 | -0.0422 | Yes |
| 274 | [104448346](https://www.affymetrix.com/LinkServlet?probeset=104426344" \o "https://www.affymetrix.com/LinkServlet?probeset=104426344) | LOC104448346 |  |  | 31644 | -4.47 | -0.0344 | Yes |
| 275 | [104434125](https://www.affymetrix.com/LinkServlet?probeset=120293654" \o "https://www.affymetrix.com/LinkServlet?probeset=120293654) | LOC104434125 |  |  | 31660 | -4.481 | -0.0271 | Yes |
| 276 | [104445200](https://www.affymetrix.com/LinkServlet?probeset=104448346" \o "https://www.affymetrix.com/LinkServlet?probeset=104448346) | LOC104445200 |  |  | 31701 | -4.51 | -0.0205 | Yes |
| 277 | [104440808](https://www.affymetrix.com/LinkServlet?probeset=104434125" \o "https://www.affymetrix.com/LinkServlet?probeset=104434125) | LOC104440808 |  |  | 31704 | -4.513 | -0.0127 | Yes |
| 278 | [104426307](https://www.affymetrix.com/LinkServlet?probeset=104445200" \o "https://www.affymetrix.com/LinkServlet?probeset=104445200) | LOC104426307 |  |  | 31756 | -4.559 | -0.0063 | Yes |
| 279 | [104444267](https://www.affymetrix.com/LinkServlet?probeset=104440808" \o "https://www.affymetrix.com/LinkServlet?probeset=104440808) | LOC104444267 |  |  | 32042 | -4.796 | -0.0069 | Yes |
| 280 | [104456528](https://www.affymetrix.com/LinkServlet?probeset=104426307" \o "https://www.affymetrix.com/LinkServlet?probeset=104426307) | LOC104456528 |  |  | 32073 | -4.816 | 0.0006 | Yes |
| 281 | [104444424](https://www.affymetrix.com/LinkServlet?probeset=104444267" \o "https://www.affymetrix.com/LinkServlet?probeset=104444267) | LOC104444424 |  |  | 32100 | -4.832 | 0.0082 | Yes |

**Table S11.** Genes in flavonoid biosynthesis (KEGG-GSEA).

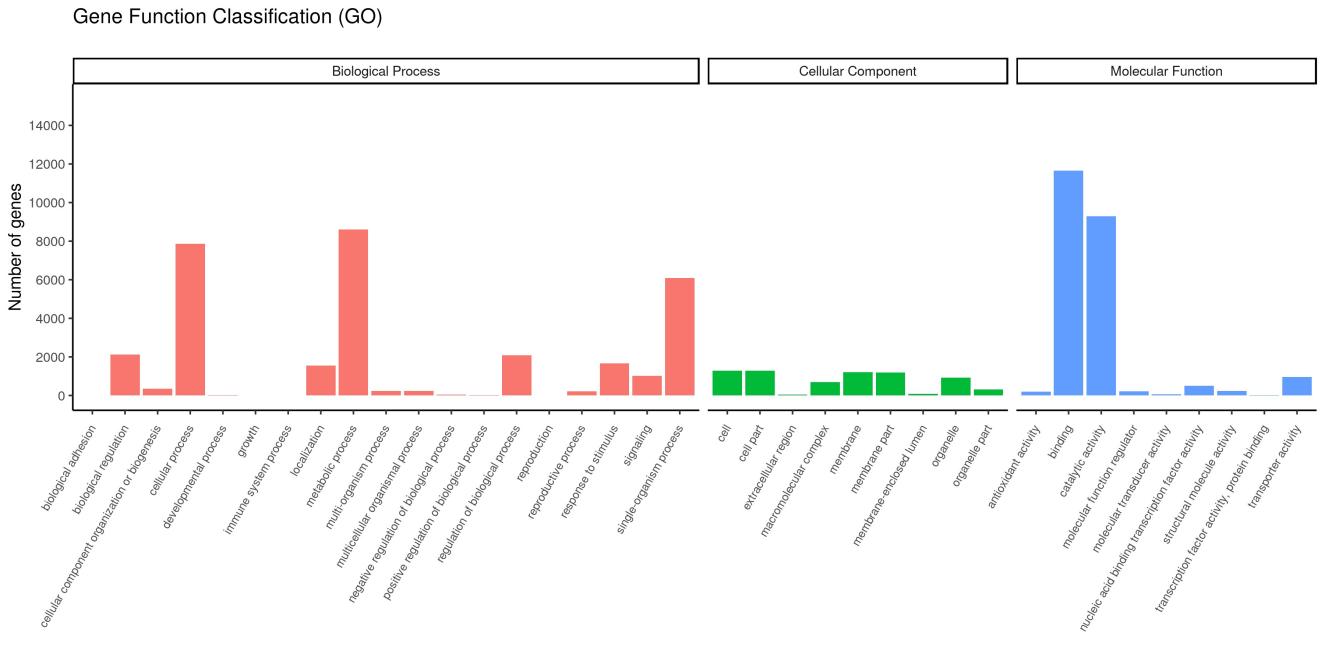
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PROBE | DESCRIPTION  (from dataset) | GENE SYMBOL | GENE\_TITLE | RANK IN GENE LIST | RANK METRIC SCORE | RUNNING ES | CORE ENRICHMENT |
| 1 | 104456052 | LOC104456052 |  |  | 13 | 4.998 | 0.0227 | Yes |
| 2 | 104426975 | LOC104426975 |  |  | 146 | 4.976 | 0.0416 | Yes |
| 3 | [104415687](https://www.affymetrix.com/LinkServlet?probeset=104456052" \o "https://www.affymetrix.com/LinkServlet?probeset=104456052) | LOC104415687 |  |  | 400 | 4.913 | 0.0565 | Yes |
| 4 | [104415688](https://www.affymetrix.com/LinkServlet?probeset=104426975" \o "https://www.affymetrix.com/LinkServlet?probeset=104426975) | LOC104415688 |  |  | 405 | 4.91 | 0.079 | Yes |
| 5 | [104455395](https://www.affymetrix.com/LinkServlet?probeset=104415687" \o "https://www.affymetrix.com/LinkServlet?probeset=104415687) | LOC104455395 |  |  | 415 | 4.908 | 0.1014 | Yes |
| 6 | [104415137](https://www.affymetrix.com/LinkServlet?probeset=104415688" \o "https://www.affymetrix.com/LinkServlet?probeset=104415688) | LOC104415137 |  |  | 470 | 4.886 | 0.1223 | Yes |
| 7 | [104443712](https://www.affymetrix.com/LinkServlet?probeset=104455395" \o "https://www.affymetrix.com/LinkServlet?probeset=104455395) | LOC104443712 |  |  | 555 | 4.847 | 0.1421 | Yes |
| 8 | [104455132](https://www.affymetrix.com/LinkServlet?probeset=104415137" \o "https://www.affymetrix.com/LinkServlet?probeset=104415137) | LOC104455132 |  |  | 654 | 4.811 | 0.1613 | Yes |
| 9 | [104455140](https://www.affymetrix.com/LinkServlet?probeset=104443712" \o "https://www.affymetrix.com/LinkServlet?probeset=104443712) | LOC104455140 |  |  | 655 | 4.81 | 0.1836 | Yes |
| 10 | [104428803](https://www.affymetrix.com/LinkServlet?probeset=104455132" \o "https://www.affymetrix.com/LinkServlet?probeset=104455132) | LOC104428803 |  |  | 666 | 4.806 | 0.2055 | Yes |
| 11 | [120294781](https://www.affymetrix.com/LinkServlet?probeset=104455140" \o "https://www.affymetrix.com/LinkServlet?probeset=104455140) | LOC120294781 |  |  | 692 | 4.794 | 0.2268 | Yes |
| 12 | [104430095](https://www.affymetrix.com/LinkServlet?probeset=104428803" \o "https://www.affymetrix.com/LinkServlet?probeset=104428803) | LOC104430095 |  |  | 887 | 4.708 | 0.2426 | Yes |
| 13 | [120294785](https://www.affymetrix.com/LinkServlet?probeset=120294781" \o "https://www.affymetrix.com/LinkServlet?probeset=120294781) | LOC120294785 |  |  | 1052 | 4.624 | 0.2589 | Yes |
| 14 | [104432776](https://www.affymetrix.com/LinkServlet?probeset=104430095" \o "https://www.affymetrix.com/LinkServlet?probeset=104430095) | LOC104432776 |  |  | 1380 | 4.441 | 0.2693 | Yes |
| 15 | [104450635](https://www.affymetrix.com/LinkServlet?probeset=120294785" \o "https://www.affymetrix.com/LinkServlet?probeset=120294785) | LOC104450635 |  |  | 1506 | 4.359 | 0.2855 | Yes |
| 16 | [104449845](https://www.affymetrix.com/LinkServlet?probeset=104432776" \o "https://www.affymetrix.com/LinkServlet?probeset=104432776) | LOC104449845 |  |  | 1884 | 4.149 | 0.293 | Yes |
| 17 | [104431840](https://www.affymetrix.com/LinkServlet?probeset=104450635" \o "https://www.affymetrix.com/LinkServlet?probeset=104450635) | LOC104431840 |  |  | 2145 | 3.986 | 0.3034 | Yes |
| 18 | [120294767](https://www.affymetrix.com/LinkServlet?probeset=104449845" \o "https://www.affymetrix.com/LinkServlet?probeset=104449845) | LOC120294767 |  |  | 2254 | 3.92 | 0.3182 | Yes |
| 19 | [120296049](https://www.affymetrix.com/LinkServlet?probeset=104431840" \o "https://www.affymetrix.com/LinkServlet?probeset=104431840) | LOC120296049 |  |  | 2264 | 3.913 | 0.336 | Yes |
| 20 | [120296044](https://www.affymetrix.com/LinkServlet?probeset=120294767" \o "https://www.affymetrix.com/LinkServlet?probeset=120294767) | LOC120296044 |  |  | 2429 | 3.812 | 0.3485 | Yes |
| 21 | [104455389](https://www.affymetrix.com/LinkServlet?probeset=120296049" \o "https://www.affymetrix.com/LinkServlet?probeset=120296049) | LOC104455389 |  |  | 2636 | 3.688 | 0.3592 | Yes |
| 22 | [120290178](https://www.affymetrix.com/LinkServlet?probeset=120296044" \o "https://www.affymetrix.com/LinkServlet?probeset=120296044) | LOC120290178 |  |  | 2737 | 3.626 | 0.3728 | Yes |
| 23 | [104443731](https://www.affymetrix.com/LinkServlet?probeset=104455389" \o "https://www.affymetrix.com/LinkServlet?probeset=104455389) | LOC104443731 |  |  | 2770 | 3.601 | 0.3885 | Yes |
| 24 | [120294448](https://www.affymetrix.com/LinkServlet?probeset=120290178" \o "https://www.affymetrix.com/LinkServlet?probeset=120290178) | LOC120294448 |  |  | 2829 | 3.564 | 0.4031 | Yes |
| 25 | [104431976](https://www.affymetrix.com/LinkServlet?probeset=104443731" \o "https://www.affymetrix.com/LinkServlet?probeset=104443731) | LOC104431976 |  |  | 2833 | 3.563 | 0.4195 | Yes |
| 26 | [120296047](https://www.affymetrix.com/LinkServlet?probeset=120294448" \o "https://www.affymetrix.com/LinkServlet?probeset=120294448) | LOC120296047 |  |  | 3010 | 3.469 | 0.4301 | Yes |
| 27 | [104455394](https://www.affymetrix.com/LinkServlet?probeset=104431976" \o "https://www.affymetrix.com/LinkServlet?probeset=104431976) | LOC104455394 |  |  | 3198 | 3.368 | 0.4399 | Yes |
| 28 | [104453243](https://www.affymetrix.com/LinkServlet?probeset=120296047" \o "https://www.affymetrix.com/LinkServlet?probeset=120296047) | LOC104453243 |  |  | 3268 | 3.334 | 0.4531 | Yes |
| 29 | [120296045](https://www.affymetrix.com/LinkServlet?probeset=104455394" \o "https://www.affymetrix.com/LinkServlet?probeset=104455394) | LOC120296045 |  |  | 3352 | 3.296 | 0.4658 | Yes |
| 30 | [120296048](https://www.affymetrix.com/LinkServlet?probeset=104453243" \o "https://www.affymetrix.com/LinkServlet?probeset=104453243) | LOC120296048 |  |  | 3518 | 3.21 | 0.4755 | Yes |
| 31 | [104420450](https://www.affymetrix.com/LinkServlet?probeset=120296045" \o "https://www.affymetrix.com/LinkServlet?probeset=120296045) | LOC104420450 |  |  | 3735 | 3.085 | 0.4831 | Yes |
| 32 | [104432774](https://www.affymetrix.com/LinkServlet?probeset=120296048" \o "https://www.affymetrix.com/LinkServlet?probeset=120296048) | LOC104432774 |  |  | 3829 | 3.031 | 0.4942 | Yes |
| 33 | [104454463](https://www.affymetrix.com/LinkServlet?probeset=104420450" \o "https://www.affymetrix.com/LinkServlet?probeset=104420450) | LOC104454463 |  |  | 3974 | 2.951 | 0.5034 | Yes |
| 34 | [104436514](https://www.affymetrix.com/LinkServlet?probeset=104432774" \o "https://www.affymetrix.com/LinkServlet?probeset=104432774) | LOC104436514 |  |  | 4301 | 2.805 | 0.5062 | Yes |
| 35 | [104441153](https://www.affymetrix.com/LinkServlet?probeset=104454463" \o "https://www.affymetrix.com/LinkServlet?probeset=104454463) | LOC104441153 |  |  | 4394 | 2.761 | 0.5161 | Yes |
| 36 | [104441822](https://www.affymetrix.com/LinkServlet?probeset=104436514" \o "https://www.affymetrix.com/LinkServlet?probeset=104436514) | LOC104441822 |  |  | 4981 | 2.521 | 0.5096 | Yes |
| 37 | [104450636](https://www.affymetrix.com/LinkServlet?probeset=104441153" \o "https://www.affymetrix.com/LinkServlet?probeset=104441153) | LOC104450636 |  |  | 4985 | 2.52 | 0.5212 | Yes |

**Table S12.** WGCNA disease resistance related module genes.

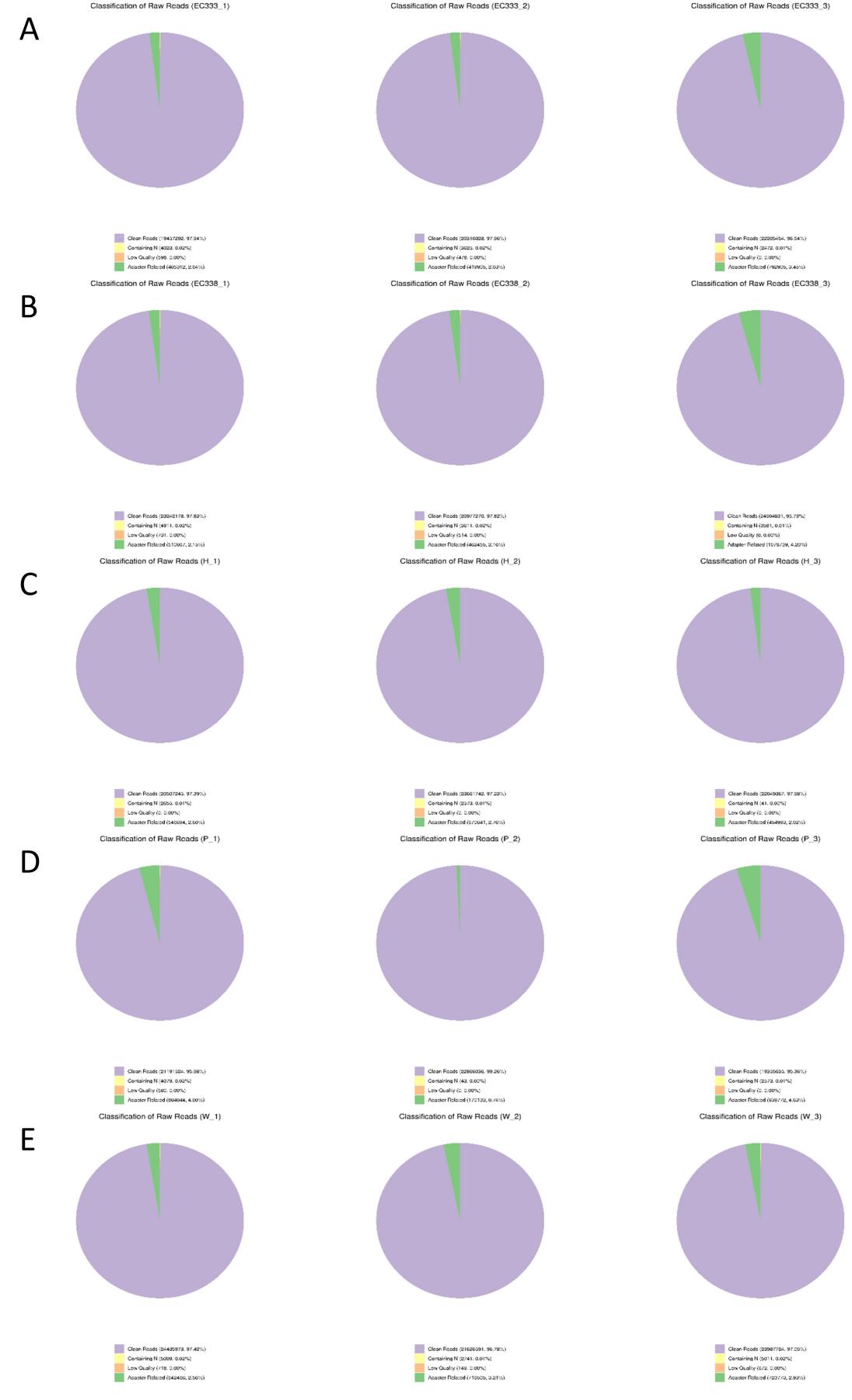
|  |  |  |  |
| --- | --- | --- | --- |
| EC338 positive correlation | | EC333 negative correlation | EC338 negative correlation with EC333 positive correlation |
| MEpink | MEtan | MEgreenyellow | MEsaddlebrown |
| 120291506 | 104453526 | 104436533 | 104448928 |
| 104449885 | 104453361 | 104430936 | 104445252 |
| 104450993 | 104424635 | 104456799 | 104424752 |
| 104437752 | 104441683 | 104425869 | 104426217 |
| 104426863 | 104438376 | 104422794 | 104419057 |
| 104414247 | 104420006 | 104438573 | 104442219 |
| 104456301 | 104436363 | 104432842 | 104450478 |
| 104448798 | 104416141 | 104448851 | 104418785 |
| 104422496 | 104421812 | 104454201 | 120285888 |
| 104453055 | 104424700 | 104433910 | 104423290 |
| 104436548 | 104453561 | 104424743 | 104421540 |
| 104432557 | 104450852 | 104418884 | 104426756 |
| 120286881 | 104426822 | 104456398 | 104440718 |
| 104438399 | 104424758 | 104425364 | 104442362 |
| 104422285 | 104433348 | 104422657 | 104426238 |
| 104426754 | 104432639 | 104453437 | 104415307 |
| 104457395 | 104422776 | 104454528 | 104448299 |
| 104449214 | 104424352 | 104422772 | 104436313 |
| 104436828 | 104424857 | 104414528 | 104437500 |
| 104437634 | 104418942 | 104450253 | 104419579 |
| 104432680 | 104448773 | 104449883 | 104444319 |
| 104449932 | 104446877 | 104448922 | 104443488 |
| 104433742 | 104415854 | 104453387 | 104442156 |
| 104445600 | 104426272 | 104421700 | 104422238 |
| 104438051 | 104438200 | 104454478 | 104418194 |
| 120286245 | 104418682 | 104422033 | 104433932 |
| 104448025 | 104445410 | 104415747 | 104422733 |
| 104453382 | 104424281 | 104434133 | 104449414 |
| 104433374 | 104425564 | 104449524 | 104449514 |
| 104427965 | 104415970 | 104449017 | 104434231 |
| 104437235 | 104449269 | 104441483 | 104443645 |
| 104424418 | 104454685 | 104453137 | 104419491 |
| 104437563 | 104449552 | 104415636 | 104445334 |
| 104442991 | 104424607 | 104418419 | 104449108 |
| 104450773 | 104450696 | 104421278 | 104414803 |
| 104415766 | 104424265 | 104418447 | 104437444 |
| 104426029 | 104436026 | 104423234 | 104437686 |
| 104418982 | 104427640 | 104419004 | 104452645 |
| 104423225 | 104438362 | 104442024 | 104439186 |
| 104454440 | 104426686 | 104423010 | 104418438 |
| 104437963 | 104448228 | 104421366 | 104418123 |
| 104433743 | 104438032 | 104445221 | 104421174 |
| 104449880 | 104436102 | 104449346 | 104448238 |
| 104443648 | 104443998 | 104457394 | 104453159 |
| 104445011 | 120295714 | 104443370 | 104445581 |
| 120290849 | 120290287 | 104444274 | 104434797 |
| 104443766 | 104447964 | 104448687 | 104415261 |
| 104436144 | 104419394 | 104449800 | 104437139 |
| 104441236 | 104432674 | 104456509 | 104424280 |
| 104436438 | 104453664 | 104450348 | 104454643 |
| 104424824 | 104419153 | 108957826 | 104422167 |
| 104453344 | 104434227 | 104422205 | 104423517 |
| 104448513 | 108953833 | 104448621 | 104433230 |
| 104441814 | 104453006 | 104449037 | 104415355 |
| 104421865 | 104438956 | 104457257 | 104440607 |
| 104441984 | 104432695 | 104440995 | 104438177 |
| 104450695 | 104442338 | 104415966 | 104432922 |
| 104418469 | 120286445 | 104457306 | 104421365 |
| 104421518 | 104419452 | 104436914 | 104425409 |
| 104440778 | 104441822 | 104454242 | 104453569 |
| 104437522 | 104449364 | 104437360 | 104454575 |
| 104422374 | 104449641 | 104435840 | novel.947 |
| 104456998 | 104425622 | 104448334 | 104426834 |
| 104419496 | 104418972 | 104441438 | 104415216 |
| 104415921 | 104433644 | 120288118 | 104419946 |
| 104421465 | 104444640 | 104456107 | 104421694 |
| 104452661 | 104456901 | 104442291 | 104437756 |
| 104437431 | 104450778 | 104427041 | 104423200 |
| 104442372 | 104441782 | 104442314 | 104438995 |
| 104456057 | 104456818 | 104414087 | 104436631 |
| 104456708 | 104445331 | 104441203 | 104423281 |
| 104419878 | 104417657 | 104425375 | 104438076 |
| 104416031 | 104457369 | 104449867 | 104447678 |
| 104444123 | 120294343 | 104423630 | 104448964 |
| 104419151 | 104449594 | 104415777 | 104445486 |
| 104441735 | 104433170 | 104438025 | 120292498 |
| 104449254 | 104448131 | novel.1622 | 104437412 |
| 104449581 | 104432980 | 104426582 | 104450743 |
| 104435040 | 104426089 | 104426164 | 104438321 |
| 104423243 | 104419274 | 104422669 | 104454500 |
| 120295464 | 104449114 | 104437575 | 104442188 |
| 104438128 | 104441118 | 104443465 | 104454956 |
| 104453990 | 108960239 | 104430240 | 104428484 |
| 104425616 | 104428535 | 104421324 | 104424701 |
| 104426317 | 104456553 | 104415502 | 104439201 |
| 104420028 | 104424445 | 104424517 | 104449028 |
| 104457015 | 104423111 | 104423871 | 120290955 |
| 104415031 | 104448335 | 104435888 | 104418598 |
| 104441401 | 104454319 | 104453630 | 104452636 |
| 104419488 | 104454512 | novel.1035 | 104438235 |
| 104456282 | 104424755 | 104423177 | 104440862 |
| 104444805 | 104450385 | 104442162 | 104421241 |
| 104423801 | 104434095 | 104450226 | 104451300 |
| 104421292 | 104453654 | novel.1162 | 120289452 |
| 104434014 | 104418676 | 104449593 | 104422226 |
| 104421714 | 104450064 | 104425022 | 108953866 |
| 120293510 | 104432967 | 104443245 | 104437180 |
| 104445843 | 104454410 | 104419880 | 120290834 |
| 104418455 | 104456827 | 104418792 | 104438221 |
| 104433138 | 104418891 | 104432593 | 104429512 |
| 104446012 | 104422779 | 104430414 | novel.1786 |
| 104421139 | 104437483 | 104433280 | 120291533 |
| 104414945 | 104422748 | 104447794 | 104423643 |
| 104418784 | 104424261 | 104436258 | 104448013 |
| 104452358 | 104445845 | 104422143 | 104431467 |
| 104433896 | 104423740 | 104422663 | 120294741 |
| 104453121 | 120289195 | 104440765 | 120288281 |
| 104435955 | 104421200 | 104419852 | 104453150 |
| 104436280 | 104450312 | 104427368 | 104438806 |
| 104450574 | 104425468 | 104419730 | 120286682 |
| 104426648 | 104424697 | 104437570 | 120286768 |
| 104456147 | 104424302 | 104452616 | 104440226 |
| 104414388 | 104425161 | 104448877 | 104435465 |
| 104447095 | 104436716 | 104442335 | 120285974 |
| 104457115 | 104425812 | 104445761 | 104418293 |
| 104449282 | 104450013 | 104414127 | 120288294 |
| 104444321 | 120294605 | 120288142 | 104448186 |
| 104419737 | 104447940 | 104448999 | 120286090 |
| 104415254 | 104442278 | 104437729 | 104448563 |
| 104421746 | 104414046 | 104433726 | 104430559 |
| 104452752 | 120291160 | 104418686 | 104420352 |
| 104421686 | 104433943 | 104448843 | 104435774 |
| 104426722 | 104450575 | 104440781 | 120292821 |
| 120293021 | 120290069 | 104426283 | 120287031 |
| 104433137 | 104441686 | 104420001 | 104425783 |
| 104443836 | 120294897 | 104426734 | 104422065 |
| 104422221 | 104438570 | 104415033 | novel.830 |
| 104432738 | 104449715 | 104453319 | 104427367 |
| 104424918 | 104428397 | 104437851 | 104438851 |
| 104421802 | 104425497 | 104445681 | 104414763 |
| 104418708 | 104416611 | 104444620 | 104448296 |
| 104421137 | 104433973 | 120296185 | 104451036 |
| 104447907 | 104434075 | 104456227 | 104436956 |
| 104424333 | 104422792 | 120292416 | 104423665 |
| 104416327 | 104453329 | 104429023 | 104430446 |
| 104454204 | 104452637 | 104416868 | 104418513 |
| 104456240 | 104456492 | 104437681 | 104451390 |
| 104433769 | 104433901 | 104435574 | 104426577 |
| 104446106 | 104438391 | 104418440 | 104453212 |
| 104448985 | 120293168 | 104425856 | 104438120 |
| 104434287 | 104426632 | 104423265 | 104428921 |
| 104441375 | 104426293 | 120288698 | 120294229 |
| 120292245 | 104436521 | 104447772 | 104456234 |
| 104456122 | 104456484 | 104414421 | 104438296 |
| 104436767 | 104443475 | 120287260 | 104456391 |
| 104425112 | 104422269 | 104427023 | 120287661 |
| 120295413 | 104449680 | 104447349 | 104437528 |
| 120289247 | 120295346 | 120289506 | 104432772 |
| 104448338 | 120288078 | 120292883 | 104422002 |
| 104442305 | 104441030 | 104415926 | 120293320 |
| 104442344 | 104448969 | 104429094 | 108953880 |
| 104442397 | 108958510 | 104449919 | 104419938 |
| 104414680 | 104418296 | 104441630 | 104436516 |
| 104441617 | 104442134 | 104421770 | 120286602 |
| 104449461 | 104439941 | 104449949 | 120291535 |
| 104433041 | 104437276 | 108960176 | novel.444 |
| 104444192 | 104432133 | 120292902 | 104418619 |
| 104454497 | 104457029 | 104450178 | 104415633 |
| 104453881 | 108958715 | 104429442 | 104437264 |
| 104453532 | 104423098 | 104418030 | novel.186 |
| 104439635 | 104424578 | 104438227 | 104449034 |
| 104443984 | 104418132 | 104420259 | 104425171 |
| 104414235 | 104425738 | 104444829 | 120288673 |
| 104436298 | 104449735 | 104453135 | 120294662 |
| 104415167 | 120288985 | 120291256 | 108960346 |
| 104444209 | 104420566 | 108955632 | 104445860 |
| 104426849 | 104418242 | novel.321 | 108953862 |
| 104445889 | 104456682 | 104448348 | 120291653 |
| 104442954 | 104437778 | 104425045 | 120289405 |
| 104450012 | novel.78 | novel.1216 | 104436777 |
| 104421048 | 104424796 | 104438632 | 104414132 |
| 104426678 | 104421655 | 104415589 | 104419000 |
| 104415826 | 104428685 | novel.1913 | 104426568 |
| 104448128 | 104441857 | 104449078 | 104445518 |
| 104433914 | 108957790 | 120289205 | novel.509 |
| 104441601 | 104427701 | 120287678 | 104423232 |
| 104436607 | 104425004 | 120294601 | 104447534 |
| 104441382 | 104422203 | 104441829 | 104438099 |
| 104415887 | 104453874 | 120288053 | 104447493 |
| 104448630 | 104429779 | 104445387 | 120291903 |
| 104449937 | 120289383 | 104456181 | 104448129 |
| 104425342 | novel.1028 | 104441042 | 104452638 |
| 104438521 | 120295332 | 104451733 | 120286762 |
| 104433925 | novel.1049 | 104418642 | 108954038 |
| 104425402 | 104419179 | 120290962 | 120286469 |
| 104418877 | 120289904 | 104422466 | 104436557 |
| 104454675 | 104422200 | 104456674 | 104451972 |
| 104449947 | 104436944 | 104443473 | 120289396 |
| 104448849 | 104432523 | 104421124 | 104441369 |
| 104433602 | 104418650 | novel.487 | 104440380 |
| 120285843 | 120291194 | 104448345 | 120289413 |
| 104436370 | 104423148 | 120294126 | 104455371 |
| 104435993 | 104425580 | 104426611 | 104434037 |
| 104454487 | 120293249 | 104429607 | 104423808 |
| 104443460 | novel.1524 | 104441501 | 104443861 |
| 104426019 | 104451346 | 104425702 | 104435980 |
| 104443714 | 104452353 | 104436735 | 104416167 |
| 120292225 | 120286157 | 104436493 | 104444677 |
| 104445742 | 104417796 | 104428899 | 104422120 |
| 104450693 | 108953817 | 104418377 | 104450674 |
| 104447214 | 104438578 | 104453837 | 104447063 |
| 104444095 | 104416959 | 104450513 | 120292471 |
| 104441673 | 104441379 | 104428618 | 120290268 |
| 104443724 | 108956857 | 104417826 |  |
| 104441250 | 104414781 | 104426338 |  |
| 104426336 | 120288966 | 104450047 |  |
| 104415878 | 120288914 | 104414269 |  |
| 104422236 | 120295478 | 104441942 |  |
| 104421736 | 104445185 | 104424144 |  |
| 104434077 | 104417002 | 104421989 |  |
| 104421722 | 120288220 | novel.1672 |  |
| 104435770 | 120289124 | 104438329 |  |
| 104415740 | 104433538 | 104424625 |  |
| 104450034 | 120294014 | 104441202 |  |
| 120286014 | 104454178 | 120291396 |  |
| 104450509 | 104445857 | 104449665 |  |
| 104450667 | novel.1761 | 104436867 |  |
| 104415531 | 104428611 | 104432193 |  |
| 104419485 | 120286242 | 120295748 |  |
| 104426286 | 104419584 | 9829715 |  |
| 104452930 | 104441497 | 120292926 |  |
| 104421829 | 104423055 | 108958880 |  |
| 104425651 | 120287655 | 108959091 |  |
| 104453024 | 104454103 | 104443967 |  |
| 104433607 | 108955670 | 104417187 |  |
| 104443684 | 108959095 | 104436198 |  |
| 104452428 | 104442763 | 104441101 |  |
| 104419602 | 120294301 | 104423023 |  |
| 104452456 | 120289624 | 104421669 |  |
| 104449958 | 104449203 | 104416625 |  |
| 104440726 | 120286013 | 104448288 |  |
| 104454001 | 104430513 | 104438524 |  |
| 104436406 | 108955011 | 104449546 |  |
| 104421249 | 104421565 | 108954914 |  |
| 104445265 | 104451624 | 104440282 |  |
| 104436736 | 120292169 | novel.1194 |  |
| 120287620 | 104456193 | novel.447 |  |
| 104420031 | 104456104 | 104434108 |  |
| 104421790 | 120286873 | 104453923 |  |
| 104444993 | 104426130 | 120288940 |  |
| 104418308 | 104418387 | 104437754 |  |
| 104436754 | 120292242 | novel.814 |  |
| 104421102 | novel.178 | 104424619 |  |
| 104422788 | 108955725 | 104441494 |  |
| 104441065 | 108955753 | 104420904 |  |
| 104441587 | 120296107 | 104431595 |  |
| 104424338 | 120288114 | 104437148 |  |
| 104436468 | 104420833 | 108955749 |  |
| 104438079 | 104422089 | 104457321 |  |
| 104453665 | 104448084 | 120292161 |  |
| 120294625 | 120291466 | 104414922 |  |
| 104438985 | 104414911 | 120296296 |  |
| 104426367 | 104436129 | 120291391 |  |
| 104414676 | 120291460 | 104430467 |  |
| 104441939 | 104437537 | 104420617 |  |
| 120289178 | 104426745 | 104437715 |  |
| 104421852 | 104415409 | novel.1340 |  |
| 104425861 | 108954913 | 108961003 |  |
| 104449631 | 104457045 | 104436189 |  |
| 104436696 | novel.1050 | 104440272 |  |
| 104456043 | 104423907 | 104444025 |  |
| 104452903 | 104443769 | 104436191 |  |
| novel.1053 | 104422355 | 104424819 |  |
| 104441764 | 104436902 | 104421215 |  |
| 104447360 | 104418268 | 104438317 |  |
| 104420419 | 104440716 | 120291999 |  |
| 104431307 | 104440839 | 104438830 |  |
| 104444541 | 104432520 | 104449252 |  |
| 104424219 | 120290659 | 104437751 |  |
| 104432931 | 104442693 | 104414725 |  |
| 104425146 | 120291464 | 120287321 |  |
| 104421473 | 120287738 | 120292270 |  |
| 104421052 | 104424408 | 104418326 |  |
| 104448183 | 104422051 | 104426759 |  |
| 104456353 | novel.393 | novel.1603 |  |
| 104414105 | novel.1521 | 104419706 |  |
| 104414444 | 104436133 | 104419346 |  |
| 104449420 | novel.351 | 104449845 |  |
| 104423888 | 120292968 | 104419280 |  |
| novel.348 | 104423735 | 104438794 |  |
| 120287701 | 120291470 | 120293988 |  |
| 104432545 | novel.549 | 104449082 |  |
| 104445018 | 104448367 | 104452449 |  |
| 104435133 | 104456465 | 104436062 |  |
| 104418180 | 104454530 | 104418187 |  |
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**Figure S1.** Schematic of differential gene enrichment analysis.

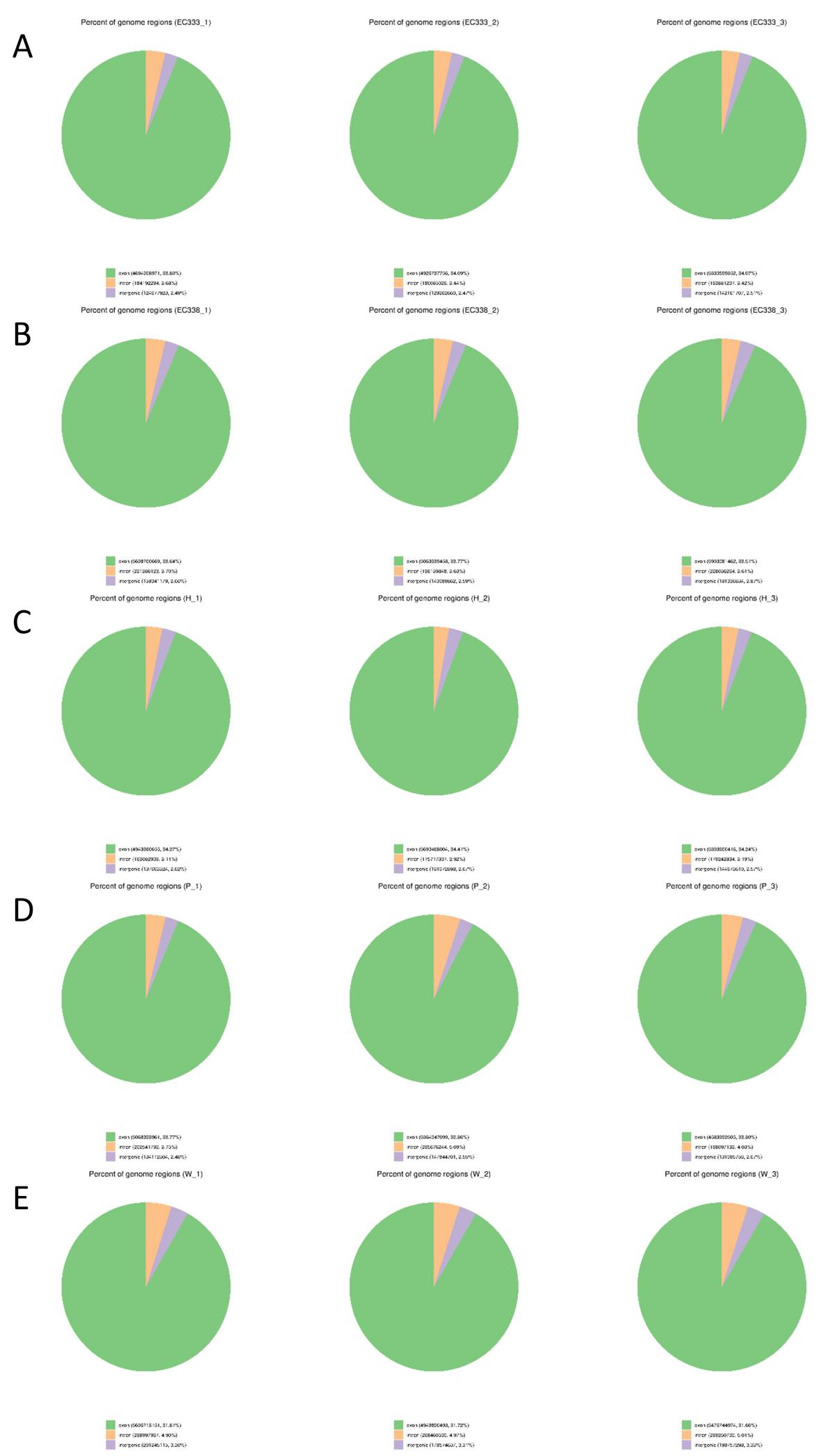


**Figure S2.** Statistical map of gene classification according to GO annotations for all genes annotated at level 2, png format (bitmap).



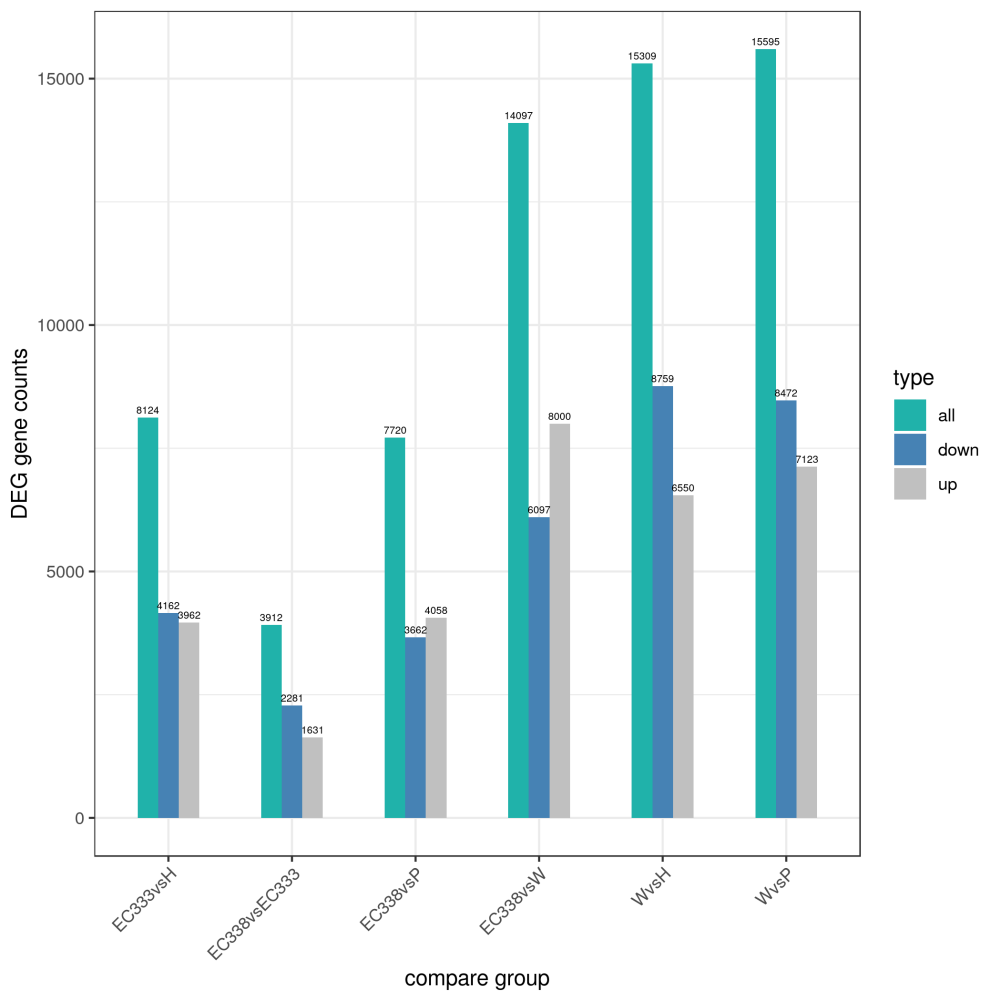
**Figure S3.** Sample sequencing data filtering.

Adapter related: percentage of reads with adapters, Containing N: percentage of reads with N bases, Low quality: percentage of reads with low sequencing quality, Clean reads: percentage of clean reads.

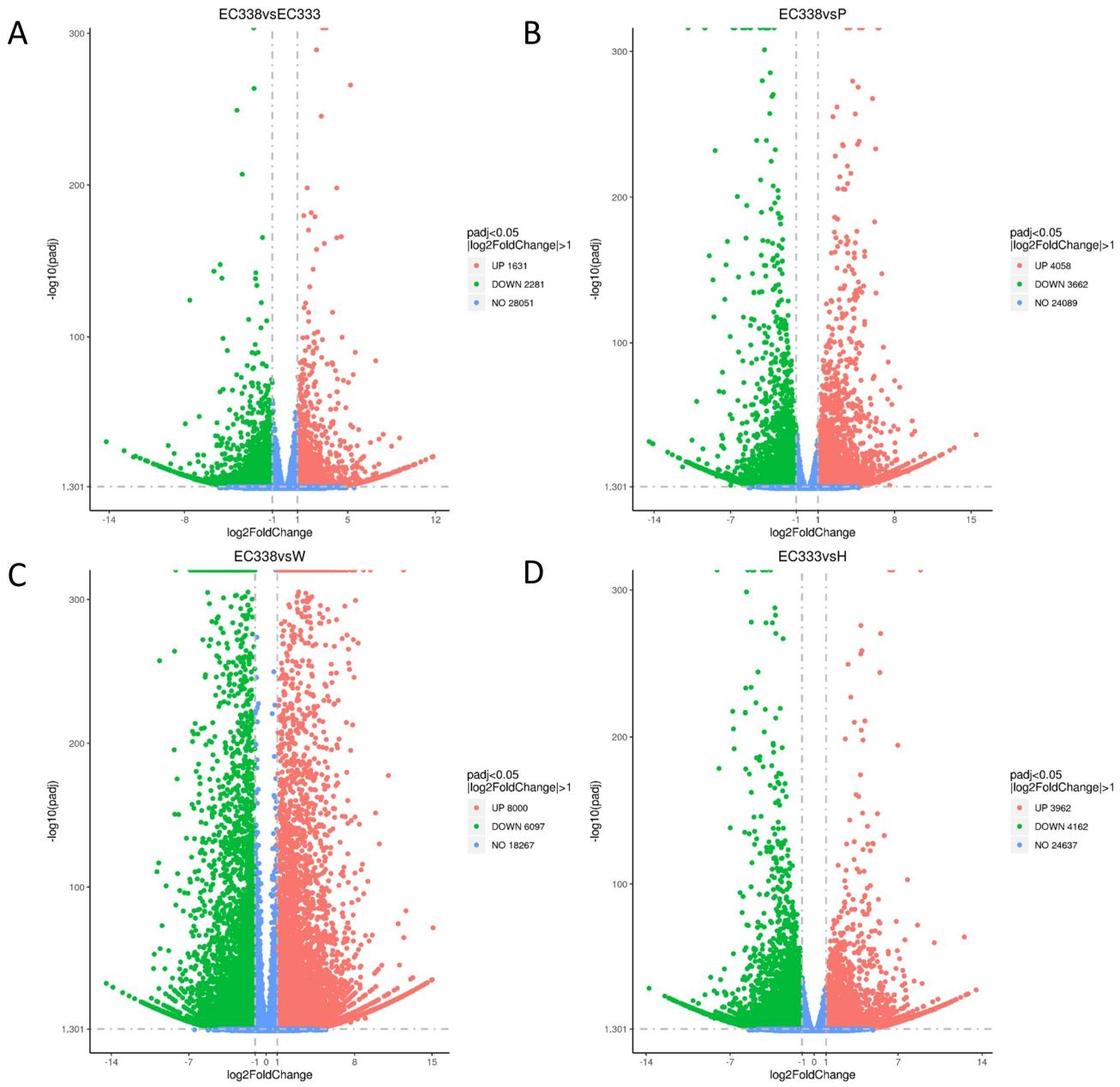


**Figure S4.** Distribution of sequenced reads in genomic regions of eucalypt hybrids.

Exon: the number of bases compared to the exonic region of the genome and its percentage of the number of bases compared to the reference genome, Intron: the number of bases compared to the intronic region of the genome and its percentage of the number of bases compared to the reference genome, Intergenic: the number of bases compared to the intergenic region and its percentage of the number of bases compared to the reference genome. Intergenic: the number of bases matched to intergenic regions and their percentage of the number of bases matched to the reference genome.



**Figure S5.** Histogram of the number of differential genes for each comparison combination (blue and gray indicate up- and down-regulated genes, respectively, and numbers indicate the number of genes).



**Figure S6.** Volcano of differentially expressed genes for four pairs of genotypes (the more off-center the horizontal axis is, the greater the multiplicity of differences; the more the vertical axis is toward the top of the plot, the more significant the differences are; the dashed line indicates the threshold line for the differential gene screening criteria).