**Supporting Information**

PONE-D-11-21875

“Transcriptome Analysis of a Petal Anthocyanin Polymorphism in the Arctic Mustard, *Parrya nudicaulis*”

Table S1. Fate of reads generated during the transcriptome assembly and expression analysis.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Population | Color | Reads Generated | Reads Filtered Out1 | Reads Unaligned | Total Reads Aligned | Reads Multiply Aligned | Reads Uniquely Aligned2 |
| Savage River | Purple | 16,115,904 | 7,639,682 | 682,079 | 7,794,143 | 838,958 | 6,955,185 |
| Savage River | White | 15,292,542 | 7,404,300 | 833,217 | 7,055,025 | 762,493 | 6,292,532 |
| Twelve Mile | Purple | 26,204,412 | 13,014,324 | 2,067,396 | 11,122,692 | 1,247,278 | 9,875,414 |
| Twelve Mile | White | 28,734,954 | 13,475,305 | 3,960,608 | 11,299,041 | 1,261,580 | 10,037,461 |
| Totals |  | 86,347,812 | 41,533,611 | 7,543,300 | 37,270,901 | 4,110,309 | 33,160,592 |

1 Reads with greater than two mismatches were filtered out.

2 Only uniquely aligned reads were used in the expression analysis.

Table S2. Genes with consistently higher expression in purple compared to white petal samples.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Savage River (RPKM1) | 12 Mile Summit (RPKM) |  |  |  |
| TAIR Locus | Description | Purple  | White  | Purple  | White  | Mean RD2 | Consistency3 | P/W ratio |
| AT5G13930.1 | chalcone synthase/TT4 (transparent testa 4) | 4285.2 | 675.3 | 2334.1 | 302.4 | 0.86 | -0.03 | 7.03 |
| AT5G45950.1† | GDSL-motif lipase/ hydrolase family protein | 121.3 | 33.6 | 70.9 | 35.7 | 0.61 | 0.23 | 2.80 |
| AT4G19120.1 | ERD3 (early-responsive to dehydration 3) | 61.1 | 20.5 | 193.0 | 96.2 | 0.58 | 0.16 | 2.49 |
| AT1G06360.1 | fatty acid desaturase family protein | 204.6 | 112.8 | 23.4 | 7.2 | 0.57 | -0.24 | 2.53 |
| AT5G51750.1 | ATSBT1.3 (*Arabidopsis thaliana* subtilase 1.3) | 137.2 | 52.8 | 2.0 | 1.0 | 0.56 | 0.10 | 2.33 |
| AT1G29720.1 | protein kinase family protein | 195.7 | 63.5 | 174.7 | 99.5 | 0.55 | 0.25 | 2.42 |
| AT4G12270.1 | copper amine oxidase family protein | 13.4 | 6.8 | 152.6 | 65.3 | 0.53 | -0.08 | 2.15 |
| AT3G06550.3 | O-acetyltransferase family protein | 18.1 | 9.1 | 327.7 | 142.9 | 0.53 | -0.07 | 2.14 |

†Gene chosen for quantitative real-time PCR (qRT-PCR) validation

1 RPKM = Reads per kilobase exon per million uniquely mapped reads

2 Relative difference (RD) = (Purple RPKM – White RPKM)/max(Purple RPKM,White RPKM)

3 Consistency = RDSavageRiver - RD12MileSummit

Table S3. Genes with consistently higher expression in white compared to purple petal samples.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Savage River (RPKM1) | 12 Mile Summit (RPKM) |  |  |  |
| TAIR Locus | Description | Purple  | White  | Purple  | White  | Mean RD2 | Consistency3 | W/P ratio |
| AT2G31141.1† | 7SL RNA gene | 12.2 | 255.3 | 5.6 | 20.6 | -0.84 | -0.22 | 12.29 |
| AT1G10020.1† | unknown protein | 33.2 | 118.9 | 17.6 | 44.2 | -0.66 | -0.12 | 3.04 |
| AT3G01950.1 | unknown protein | 112.7 | 255.7 | 7.6 | 25.9 | -0.63 | 0.15 | 2.85 |
| AT5G55930.1 | OPT1 (oligopeptide transporter 1) | 49.4 | 177.7 | 179.1 | 353.4 | -0.61 | -0.23 | 2.79 |
| AT5G62560.1 | armadillo/beta-catenin repeat family protein /U-box domain | 31.9 | 113.0 | 21.1 | 40.2 | -0.60 | -0.24 | 2.73 |
| AT4G13850.3 | GR-RBP2 (glycine-rich RNA-binding protein 2) | 335.5 | 1061.5 | 89.1 | 184.4 | -0.60 | -0.17 | 2.62 |
| AT3G13224.1 | RNA recognition motif (RRM)-containing protein | 49.2 | 168.0 | 19.9 | 38.1 | -0.59 | -0.23 | 2.66 |
| AT5G48540.1 | 33 kDa secretory protein-related | 33.7 | 68.2 | 27.2 | 84.0 | -0.59 | 0.17 | 2.56 |
| AT1G76080.1† | CDSP32 (cp drought-induced 32 kD stress-induced protein) | 40.2 | 112.2 | 59.3 | 126.2 | -0.59 | -0.11 | 2.46 |
| AT1G48760.2 | delta-ADR (delta-adaptin) | 54.8 | 161.8 | 43.9 | 88.7 | -0.58 | -0.16 | 2.49 |
| AT2G23810.1 | TET8 (tetraspanin8) | 69.0 | 144.6 | 27.2 | 75.3 | -0.58 | 0.12 | 2.43 |
| AT3G30775.1† | ERD5 (early responsive to dehydration 5) | 55.5 | 98.7 | 28.5 | 89.4 | -0.56 | 0.24 | 2.46 |
| AT2G44581.1 | protein binding / zinc ion binding | 23.7 | 68.5 | 61.2 | 114.2 | -0.56 | -0.19 | 2.38 |
| AT2G17230.1† | EXL5 (exordium like 5) | 547.5 | 1266.9 | 253.3 | 568.9 | -0.56 | -0.01 | 2.28 |
| AT4G20260.1 | DREPP plasma membrane polypeptide family protein | 19.4 | 45.8 | 55.6 | 121.5 | -0.56 | -0.03 | 2.28 |
| AT2G21180.1 | unknown protein | 36.7 | 65.9 | 43.5 | 123.3 | -0.55 | 0.20 | 2.32 |
| AT3G13310.1 | DNAJ heat shock N-terminal domain-containing protein | 32.8 | 80.5 | 49.4 | 102.2 | -0.55 | -0.08 | 2.26 |
| AT3G19680.1 | unknown protein | 82.1 | 211.5 | 71.5 | 137.2 | -0.55 | -0.13 | 2.25 |
| AT1G61760.1 | harpin-induced protein-related / HIN1-related | 67.3 | 163.9 | 7.5 | 14.6 | -0.54 | -0.10 | 2.19 |
| AT5G35735.1 | auxin-responsive family protein | 53.6 | 97.1 | 14.7 | 37.4 | -0.53 | 0.16 | 2.18 |
| AT5G15410.2† | DND1 (defense no death 1) | 93.5 | 198.9 | 162.4 | 352.4 | -0.53 | 0.01 | 2.15 |
| AT3G47340.1 | ASN1 (glutamine-dependent asparagine synthase 1) | 82.9 | 164.4 | 14.5 | 32.9 | -0.53 | 0.07 | 2.13 |
| AT1G02170.1 | AMC1 (metacaspase 1) | 41.1 | 111.5 | 24.0 | 40.7 | -0.52 | -0.22 | 2.20 |
| AT2G26740.1 | ATSEH (*Arabidopsis thaliana* soluble epoxide hydrolase) | 31.6 | 64.1 | 63.6 | 132.1 | -0.51 | 0.01 | 2.05 |
| AT5G16570.1 | GLN1;4; glutamate-ammonia ligase | 52.6 | 89.2 | 23.3 | 57.8 | -0.50 | 0.19 | 2.09 |

†Genes chosen for quantitative real-time PCR (qRT-PCR) validation

1 RPKM = Reads per kilobase exon per million uniquely mapped reads

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3 Consistency = RDSavageRiver - RD12MileSummit