

# The application of a biostimulant based on tannins affects root architecture and improves tolerance to salinity in tomato plants

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## Supplementary Files

**Supplementary Table 1:** qPCR conditions used for the amplification of both target and reference genes.

| Phase                | Time   | Temperature |       |
|----------------------|--------|-------------|-------|
| Initial denaturation | 10 min | 95°C        |       |
| Denaturation         | 15 sec | 95°C        | ← 45X |
| Annealing            | 20 sec | 57°C        |       |
| Extension            | 30 sec | 72°C        |       |
|                      | 60 sec | 95°C        |       |
| Melting curve        | 30 sec | 55°C        |       |
|                      | 30 sec | 95°C        |       |

22 **Supplementary Table 2:** Nucleotide primer sequences of reference and target genes used for the qPCR analysis.

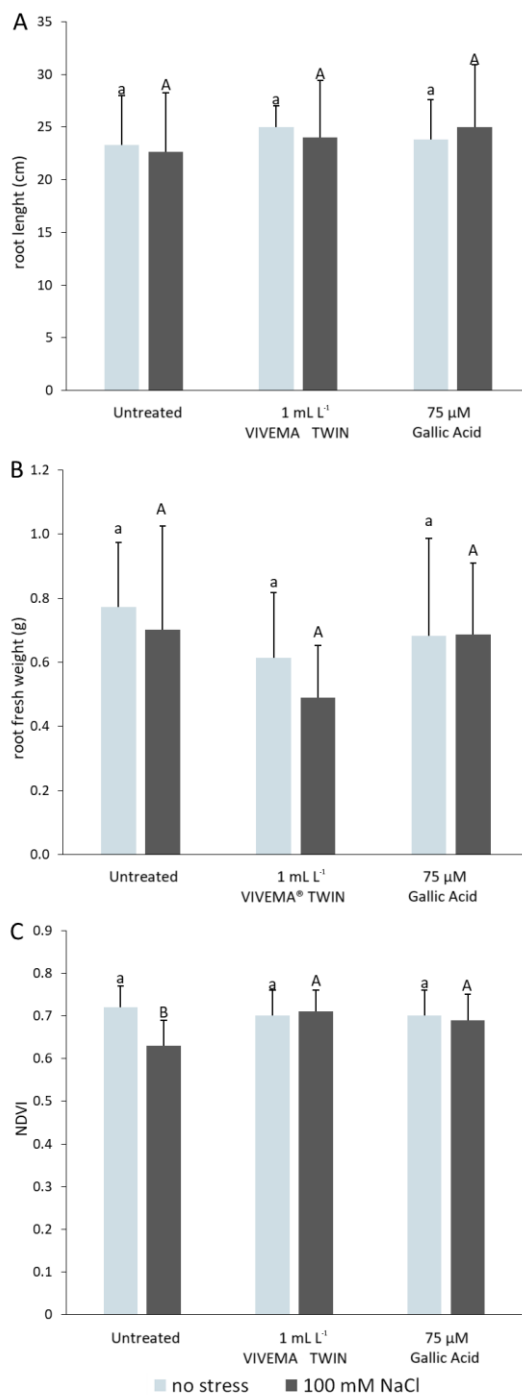
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| Accession Number | ID (SolGenomics) | Genes   |                 | Nucleotide Sequences  |
|------------------|------------------|---|-----------------|---|
| XM_004252513.4   | Solyc12g056750   | <i>WRKY transcription factor 61</i>                   | <i>WRKYTF61</i> | <b>F</b> AGTGTTCAATTCGAGGATGCA<br><b>R</b> AGCTTTCATGATTGTGTTTGCCT  |
| XM_015217355.1   | Solyc04g082550   | <i>Trehalose 6-phosphate phosphatase</i>              | <i>T6PP</i>     | <b>F</b> TGGAACAAAGGTCATGCATTGG<br><b>R</b> TGGTGTCTTTTGGAGCAGCA    |
| XM_006358777.2   | Solyc05g024410   | <i>Na<sup>+</sup>/H<sup>+</sup> exchanger 8</i>       | <i>NHE8</i>     | <b>F</b> TGATTTGCAAGGATGTGCTCC<br><b>R</b> CTAGCGGCTTTCCCAATCGA     |
| AK329746.1       | Solyc10g084910   | <i>C<sub>2</sub>H<sub>2</sub> zinc finger protein</i> | <i>C2H2ZnFP</i> | <b>F</b> TTAGAAAACAAGGGCATGGAGC<br><b>R</b> GAAGTTCAAATCGTGGATCTGTG |
| XM_015210287.2   | Solyc02g081340   | <i>Glutathione S-transferase</i>                      | <i>GSF</i>      | <b>F</b> AAGCCACCTCCCTAGCCTTA<br><b>R</b> TGGGCCGGGTAACATCTCTA      |
| XM_004251487.4   | Solyc12g006050   | <i>Major facilitator superfamily protein</i>          | <i>MFSP</i>     | <b>F</b> AACAAACGAAGGGAAAACGCG<br><b>R</b> TCGAGTTGTCCAACGTAGGC     |
| XM_015223407.2   | Solyc06g084330   | <i>Early-responsive to dehydration stress</i>         | <i>ERD</i>      | <b>F</b> TGAGCACCAAAGAGGCTTCC<br><b>R</b> ACTGTATCCTTCACCACCGC      |
| XM_015233991.2   | Solyc10g009580   | <i>Glycosyltransferase</i>                            | <i>GST</i>      | <b>F</b> ATGTGTCGGTTGGTGGATTT<br><b>R</b> GTCTGCAAAGAGAGGCCAAG      |
| XM_015228135.2   | Solyc08g005610   | <i>Xyloglucan endotransglucosylase-hydrolase 5</i>    | <i>XETGH</i>    | <b>F</b> TCCCCGGTACACTCTTCAAC<br><b>R</b> ATGAATGACCCGAGCAAATC      |
| XM_004235321.4   | Solyc03g098010   | <i>Phosphate starvation inducible gene</i>            | <i>TPSII</i>    | <b>F</b> GATCATTGCCTTGAGCACAT<br><b>R</b> TTCAACCCTTTCACGTCTCC      |

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26 **Supplementary Figure 1:** Root length (A), root fresh weight (B) and NDVI (C) of plants  
 27 treated with 1 mL L<sup>-1</sup> VIVEMA TWIN, 75 μM Gallic Acid, or water. Roots were collected 2  
 28 weeks after the treatment, whereas NDVI index was measured before plant collection. The  
 29 biometric parameters were evaluated on both unstressed and 100 mM NaCl stressed plants.  
 30 Bars represent the means ± SD of twenty biological replicates. Among the same series,  
 31 statistical differences are indicated by different letters (ANOVA, Tukey-Kramer's post-hoc  
 32 test,  $p \leq 0.05$ ).

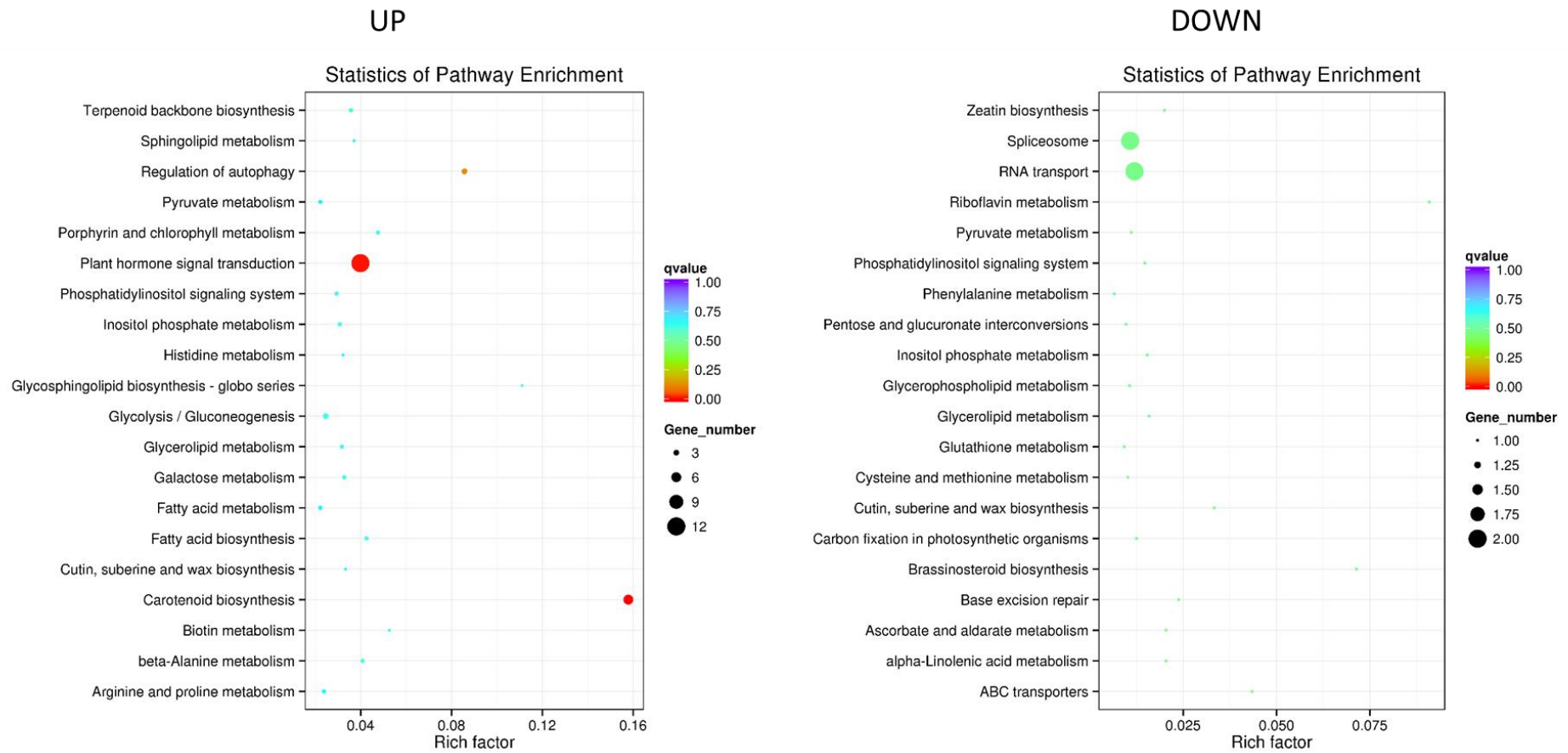


34 **Supplementary Figure 2:** Gene Ontology (GO) enrichment bar charts of differentially expressed genes (DEGs) of tomato plants that were treated  
 35 with 1 mL L<sup>-1</sup> VIVEMA TWIN and 100 mM salt stress or only with 100 mM salt stress (control). Panel A shows the top 30 upregulated enriched GO  
 36 terms, meanwhile Panel B the top 30 downregulated GO terms. In both panels, the colors represent different GO types, and in particular those involved  
 37 in biological process (green color) or in cellular component and molecular function (orange color).  
 38



39  
 40

41 **Supplementary Figure 3:** Kyoto Encyclopedia of Genes and Genomes (KEGG) enrichment scatter plots of plants treated with 100 mM NaCl stress  
 42 and 1 mL L<sup>-1</sup> VIVEMA TWIN or only with salt stress (control). Panel A displays the 20 most significant enriched pathways for upregulated genes,  
 43 meanwhile Panel B the most significant 20 enriched pathways for downregulated genes. The differentially expressed genes were grouped into gene  
 44 pathways using the pathway enrichment analysis with the KEGG database and KOBAS software. In both panels, X-axis represents the name of the  
 45 pathway and the Y-axis represents the Rich Factor. The size stands for the number of difference genes and the colour stands for different Q-values.  
 46 The size of the circle is proportional to the number of enriched genes.  
 47



49 **Supplementary Table 3:** List of all Differentially Expressed Genes (DEGs) found in plant  
 50 roots treated with 100 mM NaCl and 1 mL L<sup>-1</sup> VIVEMA TWIN versus roots treated with 100  
 51 mM NaCl only. For each Gene, the ID (gene identification code), FC (fold change), log<sub>2</sub>FC  
 52 (log<sub>2</sub> fold change), pval (*p* value), padj (*p* value adjusted) are reported.  
 53

| Gene_id          | log <sub>2</sub> FC | FC   | pval | padj |
|------------------|---------------------|------|------|------|
| Solyc05g015890.3 | 2.86                | 7.24 | 0.00 | 0.03 |
| Solyc10g076670.2 | 1.70                | 3.26 | 0.00 | 0.04 |
| Solyc12g096930.2 | 1.65                | 3.13 | 0.00 | 0.00 |
| Solyc06g051560.3 | 1.57                | 2.97 | 0.00 | 0.00 |
| Solyc12g056750.2 | 1.56                | 2.95 | 0.00 | 0.00 |
| Solyc11g011340.2 | 1.52                | 2.86 | 0.00 | 0.01 |
| Solyc04g082550.2 | 1.46                | 2.76 | 0.00 | 0.00 |
| Solyc02g077980.2 | 1.32                | 2.50 | 0.00 | 0.00 |
| Solyc03g007340.3 | 1.32                | 2.50 | 0.00 | 0.02 |
| Solyc05g016710.2 | 1.32                | 2.49 | 0.00 | 0.05 |
| Solyc10g009580.3 | 1.31                | 2.48 | 0.00 | 0.00 |
| Solyc01g057170.3 | 1.30                | 2.47 | 0.00 | 0.00 |
| Solyc06g050800.3 | 1.30                | 2.46 | 0.00 | 0.02 |
| Novel00272       | 1.25                | 2.39 | 0.00 | 0.02 |
| Solyc12g042600.2 | 1.23                | 2.34 | 0.00 | 0.01 |
| Solyc07g054840.3 | 1.22                | 2.34 | 0.00 | 0.01 |
| Solyc00g272810.1 | 1.18                | 2.26 | 0.00 | 0.00 |
| Solyc04g078900.3 | 1.17                | 2.25 | 0.00 | 0.03 |
| Solyc02g079290.3 | 1.16                | 2.23 | 0.00 | 0.02 |
| Solyc10g055460.2 | 1.14                | 2.21 | 0.00 | 0.00 |
| Solyc05g024410.3 | 1.13                | 2.19 | 0.00 | 0.01 |
| Solyc05g050220.3 | 1.11                | 2.16 | 0.00 | 0.00 |
| Solyc05g055460.1 | 1.10                | 2.15 | 0.00 | 0.00 |
| Solyc04g009910.3 | 1.06                | 2.09 | 0.00 | 0.00 |
| Solyc10g084910.2 | 1.06                | 2.08 | 0.00 | 0.02 |
| Solyc04g071770.3 | 1.05                | 2.07 | 0.00 | 0.00 |
| Solyc03g025720.3 | 1.03                | 2.04 | 0.00 | 0.01 |
| Solyc06g072870.2 | 1.01                | 2.01 | 0.00 | 0.00 |
| Solyc12g010820.2 | 0.98                | 1.97 | 0.00 | 0.02 |
| Novel00183       | 0.96                | 1.95 | 0.00 | 0.00 |
| Solyc02g083000.1 | 0.96                | 1.94 | 0.00 | 0.03 |
| Solyc04g007470.3 | 0.95                | 1.93 | 0.00 | 0.01 |
| Solyc06g066540.1 | 0.95                | 1.93 | 0.00 | 0.00 |
| Solyc02g081340.3 | 0.94                | 1.92 | 0.00 | 0.01 |
| Solyc07g040680.3 | 0.94                | 1.92 | 0.00 | 0.00 |
| Solyc04g076710.3 | 0.92                | 1.90 | 0.00 | 0.00 |
| Solyc06g076400.3 | 0.92                | 1.89 | 0.00 | 0.00 |
| Solyc12g044390.2 | 0.90                | 1.87 | 0.00 | 0.02 |
| Solyc01g109120.3 | 0.90                | 1.87 | 0.00 | 0.00 |
| Solyc01g006720.3 | 0.90                | 1.86 | 0.00 | 0.00 |
| Solyc11g066880.2 | 0.88                | 1.84 | 0.00 | 0.00 |
| Solyc09g097960.3 | 0.88                | 1.84 | 0.00 | 0.00 |
| Solyc12g006050.2 | 0.86                | 1.81 | 0.00 | 0.02 |

|                  |      |      |      |      |
|------------------|------|------|------|------|
| Solyc11g010930.2 | 0.85 | 1.81 | 0.00 | 0.01 |
| Solyc08g013900.3 | 0.85 | 1.80 | 0.00 | 0.00 |
| Solyc04g005380.3 | 0.84 | 1.80 | 0.00 | 0.00 |
| Solyc02g089190.2 | 0.84 | 1.79 | 0.00 | 0.00 |
| Solyc08g075320.3 | 0.84 | 1.78 | 0.00 | 0.00 |
| Solyc03g111100.1 | 0.83 | 1.77 | 0.00 | 0.00 |
| Solyc06g084330.3 | 0.83 | 1.77 | 0.00 | 0.00 |
| Solyc10g081840.2 | 0.82 | 1.77 | 0.00 | 0.00 |
| Solyc08g005610.3 | 0.82 | 1.76 | 0.00 | 0.00 |
| Solyc01g087590.3 | 0.81 | 1.76 | 0.00 | 0.00 |
| Solyc06g072710.3 | 0.81 | 1.76 | 0.00 | 0.00 |
| Solyc12g006640.2 | 0.81 | 1.75 | 0.00 | 0.04 |
| Solyc04g015200.3 | 0.80 | 1.75 | 0.00 | 0.00 |
| Solyc05g054890.3 | 0.78 | 1.72 | 0.00 | 0.05 |
| Solyc07g062520.3 | 0.78 | 1.72 | 0.00 | 0.02 |
| Solyc10g080730.2 | 0.78 | 1.71 | 0.00 | 0.00 |
| Solyc11g005930.2 | 0.77 | 1.70 | 0.00 | 0.05 |
| Solyc04g071140.3 | 0.77 | 1.70 | 0.00 | 0.00 |
| Solyc01g096320.3 | 0.76 | 1.70 | 0.00 | 0.00 |
| Solyc05g009320.3 | 0.76 | 1.70 | 0.00 | 0.01 |
| Solyc03g118450.1 | 0.76 | 1.70 | 0.00 | 0.01 |
| Solyc11g011970.2 | 0.76 | 1.69 | 0.00 | 0.00 |
| Solyc06g051550.3 | 0.74 | 1.67 | 0.00 | 0.00 |
| Solyc07g006130.2 | 0.74 | 1.67 | 0.00 | 0.00 |
| Solyc04g081900.3 | 0.74 | 1.66 | 0.00 | 0.01 |
| Solyc04g076950.3 | 0.73 | 1.66 | 0.00 | 0.00 |
| Solyc09g009150.1 | 0.73 | 1.66 | 0.00 | 0.00 |
| Solyc01g096280.2 | 0.71 | 1.64 | 0.00 | 0.00 |
| Solyc01g080580.3 | 0.71 | 1.64 | 0.00 | 0.00 |
| Solyc03g120020.3 | 0.71 | 1.63 | 0.00 | 0.01 |
| Solyc04g072890.3 | 0.70 | 1.63 | 0.00 | 0.04 |
| Novel00572       | 0.70 | 1.63 | 0.00 | 0.00 |
| Solyc03g115850.3 | 0.70 | 1.62 | 0.00 | 0.01 |
| Solyc04g074950.3 | 0.70 | 1.62 | 0.00 | 0.01 |
| Solyc12g013620.2 | 0.70 | 1.62 | 0.00 | 0.01 |
| Solyc12g088230.2 | 0.70 | 1.62 | 0.00 | 0.00 |
| Solyc03g096670.3 | 0.69 | 1.62 | 0.00 | 0.00 |
| Solyc07g065060.2 | 0.68 | 1.61 | 0.00 | 0.04 |
| Solyc08g075280.3 | 0.68 | 1.60 | 0.00 | 0.01 |
| Solyc01g107240.3 | 0.68 | 1.60 | 0.00 | 0.02 |
| Solyc03g116530.3 | 0.67 | 1.59 | 0.00 | 0.03 |
| Solyc02g078210.3 | 0.67 | 1.59 | 0.00 | 0.03 |
| Solyc06g048750.3 | 0.67 | 1.59 | 0.00 | 0.03 |
| Solyc12g095810.2 | 0.64 | 1.56 | 0.00 | 0.00 |
| Solyc01g107170.2 | 0.64 | 1.56 | 0.00 | 0.04 |
| Solyc07g063420.3 | 0.64 | 1.56 | 0.00 | 0.03 |
| Solyc06g010060.1 | 0.64 | 1.56 | 0.00 | 0.00 |
| Solyc10g005460.3 | 0.64 | 1.55 | 0.00 | 0.00 |
| Solyc11g010170.2 | 0.63 | 1.55 | 0.00 | 0.01 |

|                  |      |      |      |      |
|------------------|------|------|------|------|
| Solyc03g007370.3 | 0.63 | 1.55 | 0.00 | 0.00 |
| Solyc02g093890.1 | 0.63 | 1.55 | 0.00 | 0.01 |
| Solyc03g116280.3 | 0.63 | 1.55 | 0.00 | 0.00 |
| Solyc07g064900.3 | 0.63 | 1.54 | 0.00 | 0.00 |
| Solyc10g083670.2 | 0.63 | 1.54 | 0.00 | 0.00 |
| Solyc03g118130.3 | 0.63 | 1.54 | 0.00 | 0.04 |
| Solyc02g090890.3 | 0.62 | 1.54 | 0.00 | 0.00 |
| Solyc08g065500.2 | 0.62 | 1.54 | 0.00 | 0.00 |
| Solyc03g120640.3 | 0.62 | 1.54 | 0.00 | 0.00 |
| Solyc10g007070.3 | 0.61 | 1.53 | 0.00 | 0.00 |
| Solyc06g071060.2 | 0.61 | 1.53 | 0.00 | 0.00 |
| Solyc04g072895.1 | 0.61 | 1.53 | 0.00 | 0.00 |
| Solyc11g016940.2 | 0.61 | 1.53 | 0.00 | 0.02 |
| Solyc03g116710.3 | 0.61 | 1.52 | 0.00 | 0.01 |
| Solyc07g006850.2 | 0.61 | 1.52 | 0.00 | 0.00 |
| Solyc05g008390.3 | 0.61 | 1.52 | 0.00 | 0.01 |
| Solyc08g007080.3 | 0.61 | 1.52 | 0.00 | 0.00 |
| Solyc12g007070.2 | 0.60 | 1.52 | 0.00 | 0.00 |
| Solyc01g058260.3 | 0.60 | 1.51 | 0.00 | 0.00 |
| Solyc02g088910.3 | 0.60 | 1.51 | 0.00 | 0.00 |
| Solyc09g065020.3 | 0.59 | 1.51 | 0.00 | 0.05 |
| Solyc07g065810.2 | 0.59 | 1.51 | 0.00 | 0.01 |
| Solyc03g121880.3 | 0.59 | 1.51 | 0.00 | 0.00 |
| Solyc04g081290.3 | 0.59 | 1.50 | 0.00 | 0.00 |
| Solyc02g071090.3 | 0.59 | 1.50 | 0.00 | 0.03 |
| Solyc04g054930.3 | 0.59 | 1.50 | 0.00 | 0.00 |
| Solyc02g076920.3 | 0.58 | 1.50 | 0.00 | 0.00 |
| Solyc02g081330.3 | 0.58 | 1.49 | 0.00 | 0.00 |
| Solyc04g056310.3 | 0.58 | 1.49 | 0.00 | 0.00 |
| Solyc09g090790.3 | 0.57 | 1.49 | 0.00 | 0.00 |
| Solyc09g005660.3 | 0.57 | 1.48 | 0.00 | 0.00 |
| Solyc03g116270.3 | 0.57 | 1.48 | 0.00 | 0.00 |
| Solyc04g076820.1 | 0.56 | 1.47 | 0.00 | 0.00 |
| Solyc04g053130.3 | 0.56 | 1.47 | 0.00 | 0.05 |
| Solyc11g008030.2 | 0.55 | 1.47 | 0.00 | 0.03 |
| Solyc10g079620.2 | 0.55 | 1.47 | 0.00 | 0.00 |
| Solyc04g077980.1 | 0.54 | 1.46 | 0.00 | 0.00 |
| Solyc02g081170.3 | 0.54 | 1.45 | 0.00 | 0.00 |
| Solyc04g008210.2 | 0.54 | 1.45 | 0.00 | 0.00 |
| Solyc01g111570.3 | 0.53 | 1.45 | 0.00 | 0.00 |
| Solyc01g096880.3 | 0.53 | 1.45 | 0.00 | 0.00 |
| Solyc05g052980.3 | 0.53 | 1.44 | 0.00 | 0.01 |
| Solyc02g070670.3 | 0.53 | 1.44 | 0.00 | 0.00 |
| Solyc12g089220.2 | 0.53 | 1.44 | 0.00 | 0.00 |
| Solyc01g009935.1 | 0.52 | 1.44 | 0.00 | 0.01 |
| Novel00122       | 0.52 | 1.43 | 0.00 | 0.02 |
| Solyc12g005880.2 | 0.52 | 1.43 | 0.00 | 0.02 |
| Solyc11g010120.2 | 0.52 | 1.43 | 0.00 | 0.00 |
| Solyc01g106253.1 | 0.52 | 1.43 | 0.00 | 0.04 |



|                  |      |      |      |      |
|------------------|------|------|------|------|
| Solyc11g013083.1 | 0.51 | 1.43 | 0.00 | 0.01 |
| Solyc07g043590.3 | 0.51 | 1.43 | 0.00 | 0.00 |
| Solyc02g090310.1 | 0.51 | 1.43 | 0.00 | 0.00 |
| Solyc02g086860.3 | 0.51 | 1.42 | 0.00 | 0.00 |
| Solyc02g085610.3 | 0.51 | 1.42 | 0.00 | 0.00 |
| Solyc03g121870.3 | 0.51 | 1.42 | 0.00 | 0.03 |
| Solyc11g018690.2 | 0.51 | 1.42 | 0.00 | 0.00 |
| Solyc10g080980.2 | 0.51 | 1.42 | 0.00 | 0.01 |
| Solyc05g012210.3 | 0.50 | 1.42 | 0.00 | 0.00 |
| Solyc04g078730.2 | 0.50 | 1.42 | 0.00 | 0.01 |
| Solyc03g095310.3 | 0.50 | 1.42 | 0.00 | 0.03 |
| Solyc04g016060.1 | 0.50 | 1.42 | 0.00 | 0.00 |
| Solyc02g079280.3 | 0.50 | 1.41 | 0.00 | 0.02 |
| Solyc03g093270.3 | 0.50 | 1.41 | 0.00 | 0.03 |
| Solyc04g081020.3 | 0.50 | 1.41 | 0.00 | 0.01 |
| Solyc04g078360.2 | 0.50 | 1.41 | 0.00 | 0.00 |
| Solyc01g079865.1 | 0.50 | 1.41 | 0.00 | 0.02 |
| Solyc07g065250.3 | 0.49 | 1.41 | 0.00 | 0.00 |
| Solyc02g094180.3 | 0.49 | 1.41 | 0.00 | 0.03 |
| Solyc09g011370.2 | 0.49 | 1.41 | 0.00 | 0.00 |
| Solyc08g065610.3 | 0.49 | 1.41 | 0.00 | 0.00 |
| Solyc08g067310.1 | 0.49 | 1.41 | 0.00 | 0.02 |
| Solyc07g040990.3 | 0.49 | 1.40 | 0.00 | 0.00 |
| Solyc10g083460.1 | 0.49 | 1.40 | 0.00 | 0.04 |
| Solyc11g045610.2 | 0.49 | 1.40 | 0.00 | 0.01 |
| Solyc06g005070.2 | 0.48 | 1.40 | 0.00 | 0.04 |
| Solyc12g013810.2 | 0.48 | 1.40 | 0.00 | 0.01 |
| Solyc06g066600.3 | 0.48 | 1.40 | 0.00 | 0.02 |
| Solyc12g019740.2 | 0.47 | 1.39 | 0.00 | 0.02 |
| Solyc08g023440.3 | 0.47 | 1.39 | 0.00 | 0.00 |
| Solyc04g078850.3 | 0.47 | 1.39 | 0.00 | 0.01 |
| Solyc06g007120.3 | 0.47 | 1.39 | 0.00 | 0.00 |
| Solyc01g103990.3 | 0.47 | 1.39 | 0.00 | 0.03 |
| Solyc11g005560.2 | 0.47 | 1.39 | 0.00 | 0.00 |
| Solyc01g108840.3 | 0.47 | 1.39 | 0.00 | 0.01 |
| Solyc04g079300.3 | 0.47 | 1.39 | 0.00 | 0.00 |
| Solyc06g005470.3 | 0.47 | 1.39 | 0.00 | 0.04 |
| Solyc02g085670.3 | 0.47 | 1.38 | 0.00 | 0.02 |
| Solyc01g095460.3 | 0.46 | 1.38 | 0.00 | 0.00 |
| Solyc01g079650.3 | 0.46 | 1.38 | 0.00 | 0.01 |
| Solyc02g089115.1 | 0.46 | 1.37 | 0.00 | 0.01 |
| Solyc06g053960.3 | 0.46 | 1.37 | 0.00 | 0.01 |
| Solyc07g016170.3 | 0.45 | 1.37 | 0.00 | 0.00 |
| Solyc03g113270.3 | 0.45 | 1.37 | 0.00 | 0.00 |
| Solyc05g006980.3 | 0.45 | 1.37 | 0.00 | 0.00 |
| Solyc06g050300.2 | 0.45 | 1.37 | 0.00 | 0.02 |
| Solyc02g089120.3 | 0.45 | 1.36 | 0.00 | 0.02 |
| Solyc08g077440.3 | 0.45 | 1.36 | 0.00 | 0.02 |
| Solyc06g068450.2 | 0.45 | 1.36 | 0.00 | 0.00 |

|                  |      |      |      |      |
|------------------|------|------|------|------|
| Solyc04g054370.1 | 0.44 | 1.36 | 0.00 | 0.03 |
| Solyc01g006780.3 | 0.44 | 1.36 | 0.00 | 0.00 |
| Solyc06g062960.2 | 0.44 | 1.36 | 0.00 | 0.04 |
| Solyc12g006930.2 | 0.44 | 1.36 | 0.00 | 0.04 |
| Solyc12g008660.1 | 0.44 | 1.36 | 0.00 | 0.00 |
| Solyc03g044910.1 | 0.44 | 1.36 | 0.00 | 0.00 |
| Solyc09g092460.3 | 0.44 | 1.36 | 0.00 | 0.00 |
| Solyc02g091930.3 | 0.44 | 1.36 | 0.00 | 0.00 |
| Solyc03g115980.1 | 0.44 | 1.35 | 0.00 | 0.04 |
| Solyc07g044990.3 | 0.44 | 1.35 | 0.00 | 0.01 |
| Solyc12g038160.2 | 0.44 | 1.35 | 0.00 | 0.00 |
| Solyc05g024160.3 | 0.43 | 1.35 | 0.00 | 0.00 |
| Solyc11g012000.2 | 0.43 | 1.35 | 0.00 | 0.00 |
| Solyc02g069470.3 | 0.43 | 1.35 | 0.00 | 0.01 |
| Solyc01g096420.3 | 0.43 | 1.35 | 0.00 | 0.00 |
| Solyc05g007220.3 | 0.43 | 1.35 | 0.00 | 0.04 |
| Solyc02g085700.2 | 0.43 | 1.35 | 0.00 | 0.00 |
| Solyc09g075560.1 | 0.43 | 1.35 | 0.00 | 0.00 |
| Solyc03g117070.1 | 0.43 | 1.35 | 0.00 | 0.01 |
| Solyc12g089240.2 | 0.43 | 1.35 | 0.00 | 0.00 |
| Solyc01g006790.2 | 0.43 | 1.35 | 0.00 | 0.01 |
| Solyc01g079160.3 | 0.43 | 1.34 | 0.00 | 0.05 |
| Solyc12g056590.2 | 0.43 | 1.34 | 0.00 | 0.05 |
| Solyc08g082870.3 | 0.43 | 1.34 | 0.00 | 0.02 |
| Solyc01g010660.3 | 0.42 | 1.34 | 0.00 | 0.03 |
| Solyc05g014260.3 | 0.42 | 1.34 | 0.00 | 0.00 |
| Solyc06g068720.3 | 0.42 | 1.34 | 0.00 | 0.02 |
| Solyc06g074940.3 | 0.42 | 1.34 | 0.00 | 0.02 |
| Solyc04g006960.3 | 0.42 | 1.34 | 0.00 | 0.00 |
| Solyc09g075020.3 | 0.41 | 1.33 | 0.00 | 0.00 |
| Solyc01g108087.1 | 0.41 | 1.33 | 0.00 | 0.01 |
| Solyc02g078830.3 | 0.41 | 1.33 | 0.00 | 0.02 |
| Solyc04g063380.3 | 0.41 | 1.33 | 0.00 | 0.01 |
| Solyc12g015770.2 | 0.41 | 1.33 | 0.00 | 0.01 |
| Solyc04g054320.3 | 0.41 | 1.33 | 0.00 | 0.00 |
| Solyc01g097470.3 | 0.41 | 1.32 | 0.00 | 0.03 |
| Solyc09g074660.3 | 0.41 | 1.32 | 0.00 | 0.04 |
| Solyc01g105270.3 | 0.40 | 1.32 | 0.00 | 0.05 |
| Solyc07g054270.3 | 0.40 | 1.32 | 0.00 | 0.05 |
| Solyc02g071860.3 | 0.40 | 1.32 | 0.00 | 0.01 |
| Solyc02g091430.3 | 0.40 | 1.32 | 0.00 | 0.00 |
| Solyc07g024000.3 | 0.40 | 1.32 | 0.00 | 0.02 |
| Solyc03g007960.3 | 0.40 | 1.32 | 0.00 | 0.01 |
| Solyc12g005850.2 | 0.40 | 1.32 | 0.00 | 0.04 |
| Solyc05g015610.3 | 0.40 | 1.32 | 0.00 | 0.00 |
| Solyc05g013660.3 | 0.39 | 1.31 | 0.00 | 0.03 |
| Solyc02g083310.3 | 0.39 | 1.31 | 0.00 | 0.01 |
| Solyc05g021390.3 | 0.39 | 1.31 | 0.00 | 0.03 |
| Solyc02g084610.1 | 0.39 | 1.31 | 0.00 | 0.04 |

|                  |       |      |      |      |
|------------------|-------|------|------|------|
| Solyc04g025940.3 | 0.39  | 1.31 | 0.00 | 0.01 |
| Solyc11g013180.2 | 0.39  | 1.31 | 0.00 | 0.00 |
| Solyc03g083615.1 | 0.39  | 1.31 | 0.00 | 0.02 |
| Solyc03g118425.1 | 0.39  | 1.31 | 0.00 | 0.05 |
| Solyc08g081030.1 | 0.39  | 1.31 | 0.00 | 0.01 |
| Solyc01g111260.2 | 0.39  | 1.31 | 0.00 | 0.01 |
| Solyc02g081030.3 | 0.38  | 1.30 | 0.00 | 0.01 |
| Solyc08g061920.2 | 0.38  | 1.30 | 0.00 | 0.04 |
| Solyc01g087240.3 | 0.38  | 1.30 | 0.00 | 0.02 |
| Solyc12g056650.2 | 0.38  | 1.30 | 0.00 | 0.01 |
| Solyc07g007120.3 | 0.38  | 1.30 | 0.00 | 0.01 |
| Solyc01g079870.3 | 0.37  | 1.30 | 0.00 | 0.01 |
| Solyc00g009110.3 | 0.37  | 1.30 | 0.00 | 0.03 |
| Solyc01g099980.3 | 0.37  | 1.30 | 0.00 | 0.01 |
| Solyc04g079190.3 | 0.37  | 1.29 | 0.00 | 0.03 |
| Solyc03g121960.3 | 0.37  | 1.29 | 0.00 | 0.03 |
| Solyc01g067280.3 | 0.37  | 1.29 | 0.00 | 0.02 |
| Solyc11g069580.2 | 0.37  | 1.29 | 0.00 | 0.04 |
| Solyc11g072660.2 | 0.36  | 1.29 | 0.00 | 0.02 |
| Solyc12g089160.2 | 0.36  | 1.29 | 0.00 | 0.04 |
| Solyc11g073300.2 | 0.36  | 1.28 | 0.00 | 0.03 |
| Solyc10g007030.2 | 0.36  | 1.28 | 0.00 | 0.02 |
| Solyc03g119610.1 | 0.36  | 1.28 | 0.00 | 0.02 |
| Solyc04g074580.1 | 0.36  | 1.28 | 0.00 | 0.01 |
| Solyc04g012160.3 | 0.35  | 1.28 | 0.00 | 0.03 |
| Solyc03g007270.3 | 0.35  | 1.28 | 0.00 | 0.02 |
| Solyc06g050130.3 | 0.35  | 1.28 | 0.00 | 0.03 |
| Solyc05g015390.3 | 0.35  | 1.28 | 0.00 | 0.01 |
| Solyc12g005270.2 | 0.35  | 1.27 | 0.00 | 0.01 |
| Solyc08g077780.3 | 0.35  | 1.27 | 0.00 | 0.01 |
| Solyc12g006230.2 | 0.35  | 1.27 | 0.00 | 0.03 |
| Solyc06g076350.3 | 0.35  | 1.27 | 0.00 | 0.03 |
| Solyc07g052670.3 | 0.34  | 1.27 | 0.00 | 0.01 |
| Solyc10g076480.2 | 0.34  | 1.27 | 0.00 | 0.03 |
| Solyc03g097630.3 | 0.34  | 1.27 | 0.00 | 0.05 |
| Solyc11g013750.2 | 0.34  | 1.26 | 0.00 | 0.03 |
| Solyc01g106780.3 | 0.33  | 1.26 | 0.00 | 0.05 |
| Solyc04g080790.3 | 0.33  | 1.26 | 0.00 | 0.03 |
| Solyc08g074390.3 | 0.33  | 1.26 | 0.00 | 0.05 |
| Solyc01g095620.3 | 0.33  | 1.26 | 0.00 | 0.02 |
| Solyc03g111640.3 | 0.33  | 1.25 | 0.00 | 0.03 |
| Solyc09g008790.3 | 0.32  | 1.25 | 0.00 | 0.04 |
| Solyc03g111310.3 | 0.32  | 1.25 | 0.00 | 0.03 |
| Solyc11g072540.2 | 0.32  | 1.25 | 0.00 | 0.04 |
| Solyc01g086970.3 | 0.31  | 1.24 | 0.00 | 0.05 |
| Solyc06g082530.2 | 0.30  | 1.23 | 0.00 | 0.04 |
| Solyc03g123620.3 | -0.31 | 0.81 | 0.00 | 0.03 |
| Solyc12g045030.2 | -0.33 | 0.80 | 0.00 | 0.03 |
| Solyc12g005940.2 | -0.33 | 0.79 | 0.00 | 0.04 |

|                  |       |      |      |      |
|------------------|-------|------|------|------|
| Solyc04g008680.3 | -0.35 | 0.79 | 0.00 | 0.02 |
| Solyc08g007620.2 | -0.36 | 0.78 | 0.00 | 0.03 |
| Solyc09g091670.3 | -0.36 | 0.78 | 0.00 | 0.01 |
| Solyc03g093260.3 | -0.36 | 0.78 | 0.00 | 0.05 |
| Solyc01g010230.2 | -0.37 | 0.78 | 0.00 | 0.02 |
| Solyc03g097490.3 | -0.37 | 0.78 | 0.00 | 0.04 |
| Solyc01g103650.3 | -0.37 | 0.77 | 0.00 | 0.03 |
| Solyc02g078670.3 | -0.37 | 0.77 | 0.00 | 0.01 |
| Solyc02g087980.3 | -0.37 | 0.77 | 0.00 | 0.04 |
| Solyc04g008040.3 | -0.37 | 0.77 | 0.00 | 0.02 |
| Solyc07g065880.3 | -0.37 | 0.77 | 0.00 | 0.03 |
| Solyc05g054480.3 | -0.38 | 0.77 | 0.00 | 0.02 |
| Solyc09g010850.3 | -0.38 | 0.77 | 0.00 | 0.03 |
| Solyc04g080600.3 | -0.38 | 0.77 | 0.00 | 0.04 |
| Solyc10g007290.3 | -0.40 | 0.76 | 0.00 | 0.00 |
| Solyc08g008370.3 | -0.40 | 0.76 | 0.00 | 0.01 |
| Solyc03g083240.3 | -0.41 | 0.75 | 0.00 | 0.02 |
| Solyc06g075580.3 | -0.41 | 0.75 | 0.00 | 0.02 |
| Solyc01g073950.3 | -0.42 | 0.75 | 0.00 | 0.02 |
| Solyc06g076040.3 | -0.42 | 0.75 | 0.00 | 0.00 |
| Solyc03g033500.3 | -0.42 | 0.75 | 0.00 | 0.03 |
| Solyc02g067660.3 | -0.42 | 0.75 | 0.00 | 0.01 |
| Solyc11g007770.2 | -0.42 | 0.75 | 0.00 | 0.02 |
| Solyc06g059870.1 | -0.42 | 0.75 | 0.00 | 0.01 |
| Solyc01g014840.3 | -0.43 | 0.74 | 0.00 | 0.02 |
| Solyc11g007900.2 | -0.43 | 0.74 | 0.00 | 0.02 |
| Solyc11g012410.2 | -0.43 | 0.74 | 0.00 | 0.00 |
| Solyc01g081540.3 | -0.43 | 0.74 | 0.00 | 0.02 |
| Solyc11g072570.2 | -0.44 | 0.74 | 0.00 | 0.03 |
| Solyc11g007580.2 | -0.44 | 0.74 | 0.00 | 0.02 |
| Solyc12g005790.2 | -0.44 | 0.74 | 0.00 | 0.00 |
| Solyc03g058380.3 | -0.44 | 0.74 | 0.00 | 0.00 |
| Solyc07g032230.3 | -0.44 | 0.74 | 0.00 | 0.00 |
| Solyc01g058010.3 | -0.44 | 0.74 | 0.00 | 0.01 |
| Solyc03g119220.3 | -0.44 | 0.73 | 0.00 | 0.02 |
| Solyc09g009080.3 | -0.45 | 0.73 | 0.00 | 0.00 |
| Solyc10g008400.2 | -0.45 | 0.73 | 0.00 | 0.02 |
| Solyc01g111980.3 | -0.45 | 0.73 | 0.00 | 0.00 |
| Solyc03g083010.3 | -0.45 | 0.73 | 0.00 | 0.01 |
| Solyc06g009783.1 | -0.46 | 0.73 | 0.00 | 0.03 |
| Solyc03g045050.3 | -0.46 | 0.73 | 0.00 | 0.00 |
| Solyc03g097190.3 | -0.46 | 0.73 | 0.00 | 0.00 |
| Solyc05g005620.3 | -0.47 | 0.72 | 0.00 | 0.00 |
| Solyc02g077710.1 | -0.47 | 0.72 | 0.00 | 0.02 |
| Solyc10g005000.3 | -0.47 | 0.72 | 0.00 | 0.00 |
| Solyc12g005590.2 | -0.47 | 0.72 | 0.00 | 0.00 |
| Solyc03g058350.3 | -0.47 | 0.72 | 0.00 | 0.00 |
| Solyc10g008790.3 | -0.47 | 0.72 | 0.00 | 0.04 |
| Solyc06g005170.3 | -0.47 | 0.72 | 0.00 | 0.00 |

|                  |       |      |      |      |
|------------------|-------|------|------|------|
| Solyc06g060680.2 | -0.47 | 0.72 | 0.00 | 0.00 |
| Solyc12g098840.2 | -0.47 | 0.72 | 0.00 | 0.00 |
| Solyc05g007110.2 | -0.47 | 0.72 | 0.00 | 0.04 |
| Solyc03g119940.3 | -0.47 | 0.72 | 0.00 | 0.02 |
| Solyc03g005620.3 | -0.47 | 0.72 | 0.00 | 0.04 |
| Solyc05g053770.3 | -0.48 | 0.72 | 0.00 | 0.01 |
| Solyc12g011290.2 | -0.48 | 0.72 | 0.00 | 0.01 |
| Solyc05g011970.3 | -0.48 | 0.72 | 0.00 | 0.02 |
| Solyc06g008400.2 | -0.48 | 0.71 | 0.00 | 0.01 |
| Solyc12g100270.2 | -0.49 | 0.71 | 0.00 | 0.00 |
| Solyc05g008780.3 | -0.49 | 0.71 | 0.00 | 0.00 |
| Solyc02g085035.1 | -0.49 | 0.71 | 0.00 | 0.00 |
| Solyc07g006320.3 | -0.50 | 0.71 | 0.00 | 0.01 |
| Solyc04g007070.3 | -0.50 | 0.71 | 0.00 | 0.01 |
| Solyc11g006640.2 | -0.50 | 0.71 | 0.00 | 0.03 |
| Solyc11g010920.2 | -0.50 | 0.71 | 0.00 | 0.01 |
| Solyc06g067870.3 | -0.50 | 0.70 | 0.00 | 0.00 |
| Solyc08g007970.3 | -0.51 | 0.70 | 0.00 | 0.00 |
| Solyc06g062330.2 | -0.51 | 0.70 | 0.00 | 0.01 |
| Solyc06g008790.3 | -0.51 | 0.70 | 0.00 | 0.01 |
| Solyc04g071660.3 | -0.51 | 0.70 | 0.00 | 0.00 |
| Solyc04g072450.3 | -0.51 | 0.70 | 0.00 | 0.00 |
| Solyc03g119250.3 | -0.52 | 0.70 | 0.00 | 0.04 |
| Solyc07g018070.3 | -0.52 | 0.70 | 0.00 | 0.00 |
| Solyc09g091960.3 | -0.52 | 0.70 | 0.00 | 0.02 |
| Solyc06g072730.3 | -0.52 | 0.70 | 0.00 | 0.02 |
| Solyc03g115920.3 | -0.52 | 0.70 | 0.00 | 0.04 |
| Solyc05g044490.2 | -0.53 | 0.69 | 0.00 | 0.03 |
| Solyc08g080780.3 | -0.53 | 0.69 | 0.00 | 0.00 |
| Solyc11g069070.2 | -0.53 | 0.69 | 0.00 | 0.01 |
| Solyc04g081470.3 | -0.53 | 0.69 | 0.00 | 0.01 |
| Solyc11g071730.2 | -0.53 | 0.69 | 0.00 | 0.04 |
| Solyc07g056170.3 | -0.54 | 0.69 | 0.00 | 0.00 |
| Solyc11g071300.2 | -0.54 | 0.69 | 0.00 | 0.02 |
| Solyc02g062890.2 | -0.54 | 0.69 | 0.00 | 0.02 |
| Solyc04g071360.3 | -0.54 | 0.69 | 0.00 | 0.01 |
| Solyc01g057310.3 | -0.54 | 0.69 | 0.00 | 0.05 |
| Solyc11g008080.2 | -0.55 | 0.69 | 0.00 | 0.02 |
| Solyc09g005860.3 | -0.55 | 0.68 | 0.00 | 0.00 |
| Solyc04g015220.3 | -0.55 | 0.68 | 0.00 | 0.04 |
| Solyc03g032210.3 | -0.55 | 0.68 | 0.00 | 0.00 |
| Solyc05g006730.3 | -0.55 | 0.68 | 0.00 | 0.00 |
| Solyc10g083630.2 | -0.56 | 0.68 | 0.00 | 0.00 |
| Solyc04g025650.3 | -0.56 | 0.68 | 0.00 | 0.00 |
| Solyc06g082030.3 | -0.56 | 0.68 | 0.00 | 0.03 |
| Solyc03g119600.1 | -0.56 | 0.68 | 0.00 | 0.00 |
| Solyc10g018200.2 | -0.56 | 0.68 | 0.00 | 0.03 |
| Solyc11g044340.2 | -0.58 | 0.67 | 0.00 | 0.00 |
| Solyc04g015210.3 | -0.58 | 0.67 | 0.00 | 0.00 |

|                  |       |      |      |      |
|------------------|-------|------|------|------|
| Solyc07g065600.3 | -0.58 | 0.67 | 0.00 | 0.00 |
| Solyc02g093720.3 | -0.59 | 0.67 | 0.00 | 0.01 |
| Solyc12g014590.2 | -0.59 | 0.67 | 0.00 | 0.00 |
| Solyc02g021260.2 | -0.59 | 0.67 | 0.00 | 0.03 |
| Solyc12g014030.1 | -0.60 | 0.66 | 0.00 | 0.03 |
| Solyc12g009480.2 | -0.60 | 0.66 | 0.00 | 0.03 |
| Solyc05g010680.2 | -0.60 | 0.66 | 0.00 | 0.01 |
| Solyc07g053640.1 | -0.61 | 0.65 | 0.00 | 0.01 |
| Solyc04g007030.3 | -0.62 | 0.65 | 0.00 | 0.01 |
| Solyc08g082010.3 | -0.62 | 0.65 | 0.00 | 0.02 |
| Solyc07g041290.2 | -0.63 | 0.65 | 0.00 | 0.00 |
| Solyc07g009030.3 | -0.63 | 0.65 | 0.00 | 0.00 |
| Solyc02g071560.3 | -0.64 | 0.64 | 0.00 | 0.02 |
| Solyc12g013790.2 | -0.65 | 0.64 | 0.00 | 0.00 |
| Solyc07g065490.3 | -0.65 | 0.64 | 0.00 | 0.00 |
| Solyc12g014040.1 | -0.66 | 0.64 | 0.00 | 0.00 |
| Solyc05g014270.3 | -0.67 | 0.63 | 0.00 | 0.01 |
| Solyc02g069750.2 | -0.67 | 0.63 | 0.00 | 0.00 |
| Solyc01g108670.3 | -0.70 | 0.62 | 0.00 | 0.00 |
| Solyc05g055220.1 | -0.71 | 0.61 | 0.00 | 0.04 |
| Solyc01g102310.3 | -0.73 | 0.60 | 0.00 | 0.05 |
| Solyc04g005170.1 | -0.73 | 0.60 | 0.00 | 0.04 |
| Solyc12g036390.2 | -0.74 | 0.60 | 0.00 | 0.00 |
| Solyc12g005480.2 | -0.74 | 0.60 | 0.00 | 0.02 |
| Solyc07g049560.3 | -0.75 | 0.59 | 0.00 | 0.00 |
| Solyc01g057320.2 | -0.76 | 0.59 | 0.00 | 0.01 |
| Solyc01g100270.3 | -0.76 | 0.59 | 0.00 | 0.00 |
| Solyc06g072660.3 | -0.77 | 0.58 | 0.00 | 0.01 |
| Solyc06g016750.3 | -0.78 | 0.58 | 0.00 | 0.03 |
| Solyc06g069300.1 | -0.79 | 0.58 | 0.00 | 0.01 |
| Solyc04g082120.3 | -0.79 | 0.58 | 0.00 | 0.04 |
| Solyc01g090210.3 | -0.83 | 0.56 | 0.00 | 0.00 |
| Solyc06g059990.3 | -0.84 | 0.56 | 0.00 | 0.00 |
| Solyc05g007470.3 | -0.84 | 0.56 | 0.00 | 0.00 |
| Solyc03g123390.3 | -0.84 | 0.56 | 0.00 | 0.00 |
| Solyc09g010550.3 | -0.86 | 0.55 | 0.00 | 0.00 |
| Solyc08g082070.3 | -0.87 | 0.55 | 0.00 | 0.00 |
| Solyc03g093340.3 | -0.87 | 0.55 | 0.00 | 0.04 |
| Solyc08g007800.3 | -0.88 | 0.54 | 0.00 | 0.01 |
| Solyc07g008980.3 | -0.89 | 0.54 | 0.00 | 0.01 |
| Solyc04g082220.2 | -0.89 | 0.54 | 0.00 | 0.02 |
| Solyc09g091910.2 | -0.91 | 0.53 | 0.00 | 0.00 |
| Solyc07g006290.2 | -0.91 | 0.53 | 0.00 | 0.01 |
| Solyc10g085100.2 | -0.95 | 0.52 | 0.00 | 0.00 |
| Solyc02g091890.2 | -0.96 | 0.51 | 0.00 | 0.00 |
| Solyc10g007280.3 | -0.96 | 0.51 | 0.00 | 0.00 |
| Solyc11g010620.2 | -0.97 | 0.51 | 0.00 | 0.00 |
| Solyc07g054220.1 | -0.99 | 0.50 | 0.00 | 0.00 |
| Solyc08g060920.3 | -0.99 | 0.50 | 0.00 | 0.02 |

|                  |       |      |      |      |
|------------------|-------|------|------|------|
| Solyc03g025830.3 | -0.99 | 0.50 | 0.00 | 0.00 |
| Solyc10g006000.3 | -1.01 | 0.50 | 0.00 | 0.00 |
| Solyc08g066720.2 | -1.05 | 0.48 | 0.00 | 0.02 |
| Solyc05g009640.3 | -1.10 | 0.47 | 0.00 | 0.01 |
| Solyc11g010630.3 | -1.11 | 0.46 | 0.00 | 0.01 |
| Solyc08g067340.3 | -1.13 | 0.46 | 0.00 | 0.00 |
| Solyc04g005260.2 | -1.14 | 0.45 | 0.00 | 0.04 |
| Solyc08g006850.3 | -1.16 | 0.45 | 0.00 | 0.00 |
| Solyc06g065850.2 | -1.20 | 0.44 | 0.00 | 0.00 |
| Solyc03g119590.1 | -1.29 | 0.41 | 0.00 | 0.00 |
| Solyc01g090890.3 | -1.38 | 0.38 | 0.00 | 0.00 |
| Solyc03g005530.1 | -1.41 | 0.38 | 0.00 | 0.00 |
| Solyc03g095770.3 | -1.41 | 0.38 | 0.00 | 0.00 |
| Solyc10g085850.1 | -1.47 | 0.36 | 0.00 | 0.00 |
| Solyc01g014143.1 | -1.54 | 0.34 | 0.00 | 0.00 |
| Solyc05g008150.3 | -1.63 | 0.32 | 0.00 | 0.00 |
| Solyc02g086460.3 | -1.78 | 0.29 | 0.00 | 0.00 |
| Solyc04g015120.3 | -1.85 | 0.28 | 0.00 | 0.00 |
| Solyc12g006130.2 | -2.16 | 0.22 | 0.00 | 0.00 |
| Solyc09g007020.2 | -2.17 | 0.22 | 0.00 | 0.00 |
| Solyc03g098010.3 | -2.78 | 0.15 | 0.00 | 0.00 |

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