

Arabidopsis sterol carrier protein-2 is required for normal development of seeds and seedlings.

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### Supplementary material

Table S1. Ranking of genes with significantly altered expression in *Atscp2-1* relative to wt.

| <i>Gene</i> <sup>a</sup> | <i>Description</i> <sup>b</sup>                          | <i>M</i> <sup>c</sup> | <i>B-statistic</i> |
|--------------------------|--|-----------------------|--------------------|
| At3g30720                | Expressed protein  | 4.36                  | 14.20              |
| At3g14210                | myrosinase-associated protein                            | -4.03                 | 13.28              |
| At1g21400                | 2-oxoisovalerate dehydrogenase                           | 3.04                  | 12.79              |
| At3g47340                | Glu-dependent Asn synthetase                             | 3.05                  | 12.65              |
| ( <i>ASNI</i> )          |  |                       |                    |
| At1g10090                | Expressed protein  | 2.92                  | 12.37              |
| At3g45140                | lipoxygenase   | -2.80                 | 12.22              |
| ( <i>LOX2</i> )          |  |                       |                    |
| At4g01870                | tolB protein-related                                     | 3.38                  | 12.01              |
| At3g24420                | hydrolase, alpha/beta fold                               | 2.84                  | 12.01              |
| At1g52060                | jacalin lectin   | -3.72                 | 11.89              |
| At5g04960                | pectinesterase family protein                            | -2.40                 | 11.68              |
| At2g18193                | AAA-type ATPase  | -2.51                 | 11.59              |
| At2g47770                | benzodiazepine receptor-related                          | 2.69                  | 11.37              |
| At4g30650                | hydrophobic protein                                      | -2.25                 | 11.05              |
| At3g15670                | late embryogenesis abundant (LEA) protein                | 2.67                  | 10.97              |
| At1g48130                | peroxiredoxin  | 2.45                  | 10.85              |
| ( <i>PER1</i> )          |  |                       |                    |
| At5g20230                | plastocyanin-like  | 2.60                  | 10.82              |
| At1g11260                | glucose transporter                                      | 2.70                  | 10.77              |
| ( <i>STP1</i> )          |  |                       |                    |
| At1g79360                | transporter-related                                      | 2.29                  | 10.75              |
| At3g21720                | isocitrate lyase   | 2.16                  | 10.64              |
| At5g50600                | short-chain dehydrogenase/reductase (SDR) family protein | 2.71                  | 10.63              |
| At3g28300                | integrin-like protein At14a                              | -1.98                 | 10.31              |
| At1g08630                | Thr aldolase   | 3.58                  | 10.06              |
| ( <i>THA1</i> )          |  |                       |                    |
| At2g35300                | LEA group 1 protein                                      | 2.55                  | 9.98               |
| At4g368500               | PQ-loop repeat family protein                            | 2.19                  | 9.93               |
| At5g14470                | GHMP kinase-related protein                              | 2.95                  | 9.91               |
| At1g06570                | 4-hydroxyphenylpyruvate dioxygenase                      | 2.07                  | 9.84               |
| ( <i>PDS1</i> )          |  |                       |                    |
| At1g05240                | peroxidase   | -1.91                 | 9.82               |
| At4g15530                | pyruvate,orthophosphate dikinase                         | 2.34                  | 9.77               |
| At5g53970                | aminotransferase   | 1.89                  | 9.70               |
| At5g54010                | glycosyltransferase family protein                       | 2.10                  | 9.68               |

|                                  |   |       |      |
|----------------------------------|---|-------|------|
| At4g39940<br>( <i>AKN2</i> )     | adenosine-5'-phosphosulfate-kinase                  | -1.84 | 9.60 |
| At1g52050                        | jacalin lectin                                      | -2.77 | 9.55 |
| At3g48940                        | remorin   | -2.48 | 9.53 |
| At4g35770<br>( <i>SENI</i> )     | senescence-associated protein                       | 1.95  | 9.55 |
| At5g55730<br>( <i>FLA1</i> )     | fasciclin-like arabinogalactan-protein              | -1.81 | 9.44 |
| At3g20340                        | expressed protein                                   | 1.77  | 9.45 |
| At3g28720                        | expressed protein                                   | 2.16  | 9.38 |
| At1g73120                        | expressed protein                                   | 1.77  | 9.30 |
| At2g20520<br>( <i>FLA6</i> )     | fasciclin-like arabinogalactan-protein              | -2.49 | 9.27 |
| At1g54100<br>( <i>ALDH7B4</i> )  | aldehyde dehydrogenase                              | 1.69  | 9.17 |
| At5g64570<br>( <i>XYL4</i> )     | beta-xylosidase                                     | 1.94  | 9.16 |
| At4g25820<br>( <i>XTR9</i> )     | xyloglucan endotransglycosylase                     | -1.92 | 9.04 |
| At5g62490<br>( <i>AtHVA22b</i> ) | ABA-responsive protein AtHVA22b                     | 2.02  | 8.98 |
| At1g52400                        | glycosyl hydrolase family 1 protein                 | -2.75 | 8.92 |
| At5g49360<br>( <i>BXL1</i> )     | beta-xylosidase                                     | 1.87  | 8.89 |
| At4g37160                        | multi-copper oxidase type I protein                 | -1.79 | 8.87 |
| At4g25580                        | stress-responsive protein                           | 2.10  | 8.87 |
| At3g27630                        | expressed protein                                   | -2.16 | 8.86 |
| At3g15280                        | expressed protein                                   | 1.89  | 8.71 |
| At3g07700                        | ABC1 family protein                                 | 1.64  | 8.60 |
| At2g05540                        | glycine-rich protein                                | 1.63  | 8.58 |
| At2g43820                        | UDP-glucuronosyl/UDP-glucosyl transferase family    | 2.22  | 8.57 |
| At3g49960                        | peroxidase  | -2.05 | 8.47 |
| At5g10130                        | pollen Ole e 1 allergen and extensin family protein | -1.66 | 8.47 |
| At1g15330                        | CBS domain-containing protein                       | 2.63  | 8.46 |
| At5g14180                        | lipase  | 1.79  | 8.42 |
| At1g15380                        | lactoylglutathione lyase family protein             | 1.63  | 8.41 |
| At5g05500                        | pollen Ole e 1 allergen and extensin family protein | -1.56 | 8.41 |
| At1g73330<br>( <i>ATDR4</i> )    | protease inhibitor                                  | -2.98 | 8.35 |
| At1g72680                        | cinnamyl-alcohol dehydrogenase                      | 1.53  | 8.25 |
| At1g33110                        | MATE efflux family protein                          | 1.50  | 8.20 |
| At5g54370                        | LEA protein   | -2.98 | 8.14 |
| At5g38200                        | expressed protein                                   | 1.63  | 8.06 |
| At3g13750                        | beta-galactosidase                                  | 1.71  | 8.05 |
| At1g05240                        | peroxidase ATP11a                                   | -1.92 | 8.04 |
| At4g15760                        | monooxygenase                                       | 1.50  | 8.00 |
| At1g29660                        | GDSL-motif lipase/hydrolase family                  | -1.73 | 7.99 |

|                                 |   |       |      |
|---------------------------------|---|-------|------|
| At3g14990                       | 4-methyl-5(b-hydroxyethyl)-thiazole<br>monophosphate biosynthesis protein                 | 1.71  | 7.95 |
| At4g02270                       | pollen Ole e 1 allergen and extensin family<br>protein                                    | -1.96 | 7.88 |
| At3g26960                       | expressed protein   | -1.89 | 7.88 |
| At3g06850<br>( <i>BCE2</i> )    | branched chain alpha-keto acid<br>dehydrogenase E2 subunit (din3)                         | 1.59  | 7.83 |
| At3g07800                       | thymidine kinase  | -1.55 | 7.78 |
| At4g40090<br>( <i>AGP3</i> )    | arabinogalactan-protein   | 1.70  | 7.71 |
| At5g05410<br>( <i>DREB2A</i> )  | DREB2A is a member of the DREB<br>subfamily A-2 of ERF/AP2 transcription<br>factor family | 1.40  | 7.70 |
| At2g33790                       | pollen Ole e 1 allergen protein   | -2.36 | 7.70 |
| At4g26490                       | hypothetical protein  | -1.65 | 7.68 |
| At2g44080                       | expressed protein   | 1.45  | 7.61 |
| At4g02850                       | phenazine biosynthesis PhzC/PhzF family   | -1.49 | 7.59 |
| At2g37770                       | aldo/keto reductase family protein  | 1.79  | 7.56 |
| At3g15620<br>( <i>UVR3</i> )    | 6-4 photolyase  | 1.45  | 7.50 |
| At1g61580<br>( <i>ARPI</i> )    | 60S ribosomal protein L3  | -1.48 | 7.50 |
| At3g14900                       | expressed protein   | -1.60 | 7.49 |
| At1g48600                       | phosphoethanolamine N-methyltransferase 2   | -1.38 | 7.46 |
| At3g30775                       | proline oxidase   | 2.10  | 7.42 |
| At2g31980                       | cysteine proteinase inhibitor-related   | 1.82  | 7.41 |
| At5g60660                       | major intrinsic family protein  | -1.78 | 7.35 |
| At5g02440                       | expressed protein   | 1.39  | 7.35 |
| At1g22880                       | glycosyl hydrolase family 9 protein   | -1.43 | 7.32 |
| At5g56750                       | Ndr family protein  | 1.45  | 7.30 |
| At2g21880                       | Ras-related GTP-binding protein   | -1.46 | 7.27 |
| At4g39950<br>( <i>CYP79B2</i> ) | cytochrome P450 79B2  | -1.49 | 7.21 |

<sup>a</sup> *AtSCP2* was excluded from the ranking list.

<sup>b</sup> Descriptions are according to The Arabidopsis Information Resource (TAIR) at [www.arabidopsis.org](http://www.arabidopsis.org).

<sup>c</sup>  $M = \log_2$  differential expression relative to Col-0.

Table S2. Comparison of results from microarray and quantitative real-time reverse transcriptasePCR (qRT-PCR) analysis of gene expression in wt and *Atscp2-1* seedlings.

| <i>Gene</i>     | <i>Description<sup>a</sup></i>         | <i>Microarray<sup>b</sup></i> | <i>qRT-PCR<sup>b</sup></i> |
|-----------------|--|-------------------------------|----------------------------|
| At3g14210       | myrosinase-associated protein          | -                             | -                          |
| At1g21400       | 2-oxoisovalerate dehydrogenase         | +                             | +                          |
| At3g47340       | Glu-dependent Asn synthetase           | +                             | +                          |
| ( <i>ASNI</i> ) |  |                               |                            |
| At3g45140       | lipoxygenase                           | -                             | -                          |
| ( <i>LOX2</i> ) |  |                               |                            |
| At5g04960       | pectinesterase family protein          | -                             | -                          |
| At3g21720       | isocitrate lyase                       | +                             | +                          |
| At1g08630       | Thr aldolase                           | +                             | +                          |
| At1g06570       | 4-hydroxyphenylpyruvate                | +                             | +                          |
| ( <i>PDS1</i> ) | dioxygenase                            |                               |                            |
| At1g52050       | jacalin lectin                         | -                             | -                          |
| At5g55730       | fasciclin-like arabinogalactan-protein | -                             | -                          |
| ( <i>FLAI</i> ) |  |                               |                            |

<sup>a</sup> Descriptions are according to The Arabidopsis Information Resource (TAIR) at [www.arabidopsis.org](http://www.arabidopsis.org)

<sup>b</sup> Relative to the expression levels in *A. thaliana* Col-0, + indicates that the gene is up-regulated in *Atscp2-1*, while - indicates that the gene is down-regulated in *Atscp2-1*.