Supplementary materials

Fruit size control by a zinc finger protein regulating pericarp cell size in tomato

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Supplementary materials include:
Supplementary Figure S1-3
Supplementary Table S1
Figure S1. expression changes of cyclin genes in the whole fruits by altered *SlPZF1* expression

Total RNA was extracted from pooled samples of three plants of the RNAi, OE and wild type at the same developmental stages. Pre, young flower buds preanthesis; AnFl, anthesis flowers; Fr2/3, fruits at 2 and 3 DPA; Fr5, Fr7 and Fr10 are fruits at 5, 7 and 10 DPA, respectively. Relative expression level was normalized to *SleIF4a6* and data are means ± sd. n=3.
Figure S2. Co-expression analysis of SlPZF1 during fruit development

a, expression pattern of SlPZF1 in M82 fruits. b, expression pattern of PZF12 in M82 fruits. c, gene ontology analysis of genes co-expressing with SlPZF1 during fruit development. Enriched GO-slim terms were identified from the 1137 genes co-expressing with SlPZF1 in M82 fruits (correlation coefficient ≥0.7) by PATHER with a cutoff of fold enrichment >2 and FDR <0.05 (http://go.pantherdb.org/). The images in (a, b) were obtained from TEA (http://tea.solgenomics.net/expression_viewer/).
Figure S3. SlPZF1 interacted with PZFIs in N. benthamiana leaves.

a, subcellular localization of YFP alone and YFP fused with SlPZF1 and five PZFIs. b, BiFC verification of the interactions between SlPZF1 and five PZFIs in N.benthamiana leaves. Except YFP alone (a), merged images of YFP, autofluorescence and bright field were shown here, the single channel images of YFP signals were presented in Figure 8. YFPN, N-terminal part of YFP; YFPC, C-terminal part of YFP. Scale bar = 20 μm.
### Supplementary table 1. Information of primers used in this study

| Primer names | Sequence (5'-3') | Genes | Product sizes | Notes |
|--------------|------------------|-------|---------------|-------|
| **Primers used for constructing vectors of plant transformation** | | | | |
| xp0687 | GCTCTAGAGCCATGGCAATGGGGGAGAAGA | *SIPZF1* | 2754bp | construction of overexpression vector |
| xp0688 | CGAGCTCTTAGGCTTTGACAGATTACACAAAAACAA | | | |
| xp0791 | TGCTCTAGAGGCGCGGCGTTATCTGAGTATAAGTAAAGGAAAAG | *SIPZF1* | 395bp | RNAi construct |
| | | | | |
| xp0792 | CCGGATCCATTTAAATAAATAGTAGGATTTCAGCTACATC | | | |
| xp1027 | CGCGGATCCTTTCAAGATTCTATCTCCTTCAACAAC | *SIPZF1* | 2300bp | pSIPZF1::GUS |
| xp1073 | CCGGAATTCTATCATACACAAGGTGAGTACAGATC | | | |
| **Primers used for genotyping** | | | | |
| xp0515 | CTACACAGCCATCGGCTTCCAG | *HygR* | 787bp | |
| xp0516 | CGTTATGTTTATCGGCACTTTG | | | |
| xp0517 | AAAGCCAAGCAGACATTTAGGA | *BastaR* | 957bp | nt 181-1137 on pFGC5941 |
| xp0518 | AGATACGCTGACACGCCAAG | | | |
| **qRT-PCR primers** | | | | |
| xp0560 | TGGAACTTCTTTCTGGGGTAC | *SIPZF1* | 400bp | Solyc07g063970 |
| xp0561 | TTCGACAGAGCGACGACATTTTAT | | | |
| xp1163 | CTCTGAAGCACCACACTTGG | *SlCYCB1;1* | 148bp | Solyc06g073610 |
| xp1164 | AAGAGGGGCAACAGCAGATCT | | | |
| xp2491 | GGGATGTATTTTTGGCCGAGA | *SlCDKB1* | 187bp | Solyc10g074720 |
| ID    | Sequence                        | Gene    | Length | Accession   |
|-------|---------------------------------|---------|--------|-------------|
| xp2492 | GAACAGCAGAGGCAAGTTC             | SlCDKB2 | 150bp  | Solyc04g082840 |
| xp2493 | GGGAGGGTACCTATGGAAG             | SlCYCA2;1 | 168bp  | Solyc06g065680 |
| xp2494 | CCCTTGAGAGCATTCTGAGG            |         |        |             |
| xp2495 | CAAGCACAAGTCAAGGACCA           | SlCYCA1;1 | 209bp  | Solyc11g005090 |
| xp2496 | AGCCTTCCTGTTTCAAGCAA           |         |        |             |
| xp2497 | CCGTTTTCTCACTCCTCCTCAA         |         |        |             |
| xp2498 | SlCYCA1;1                       |         |        |             |
| xp2499 | SlCDKB2                         |         |        |             |
| xp2500 | AAGTGGCAGAAAGGCAAGGAATG         |         |        |             |
| xp2501 | SlCDKB2                         |         |        |             |
| xp2502 | SlCDKB2                         |         |        |             |
| xp2503 | SlCDKB2                         |         |        |             |
| xp2504 | SlCDKB2                         |         |        |             |
| xp2505 | SlCDKB2                         |         |        |             |
| xp2506 | SlCDKB2                         |         |        |             |
| xp2507 | SlCDKB2                         |         |        |             |
| xp2508 | SlCDKB2                         |         |        |             |
| xp2509 | SlCDKB2                         |         |        |             |
| xp2510 | SlCDKB2                         |         |        |             |
| xp2511 | SlCDKB2                         |         |        |             |
| xp2512 | SlCDKB2                         |         |        |             |
| xp2513 | SlCDKB2                         |         |        |             |
| xp2514 | SlCDKB2                         |         |        |             |
| xp2515 | SlCDKB2                         |         |        |             |
| xp2516 | SlCDKB2                         |         |        |             |
| xp2517 | SlCDKB2                         |         |        |             |
| xp2518 | SlCDKB2                         |         |        |             |
| xp2519 | SlCDKB2                         |         |        |             |
| xp2520 | SlCDKB2                         |         |        |             |
| xp2521 | SlCDKB2                         |         |        |             |
| xp2522 | SlCDKB2                         |         |        |             |
| xp2523 | SlCDKB2                         |         |        |             |
| xp2524 | SlCDKB2                         |         |        |             |
| xp2525 | SlCDKB2                         |         |        |             |
| xp2526 | SlCDKB2                         |         |        |             |
| xp2527 | SlCDKB2                         |         |        |             |
| xp2528 | SlCDKB2                         |         |        |             |
| xp2529 | SlCDKB2                         |         |        |             |
| xp2530 | SlCDKB2                         |         |        |             |
| xp2531 | SlCDKB2                         |         |        |             |
| xp2532 | SlCDKB2                         |         |        |             |
| xp2533 | SlCDKB2                         |         |        |             |
| xp2534 | SlCDKB2                         |         |        |             |
| xp2535 | SlCDKB2                         |         |        |             |
| xp2536 | SlCDKB2                         |         |        |             |

**Primers used for subcellular localization and BiFC**

| ID    | Primer 1  | Primer 2  | Accession   | Length |
|-------|-----------|-----------|-------------|--------|
| XP7094 | ggg GGTACC | ATGACACAAATCTTCAAAATATGG | Solyc01g006400 | 779bp  |
| XP7095 | aaa GTCGAC | CTTCACTCATCATTGGATAGCT | Solyc09g074830 | 1449bp |
| XP7707 | aaaaaa GGTACC | CTTAATGCGAGAAAGACCAAAGTTGA | Solyc09g072570 | 1449bp  | BiFC |
| XP7603 | aaaaa GTCGAC | | | |
| Accession | Description | Sequence Details | Annotation |
|-----------|-------------|-----------------|------------|
| XP6989    |             | TCAGTGAAGGAAGTCCTTCATTGGA | BiFC 1398bp |
| XP6990    |             | aaaaaa GGTACC ATGTCTAGAGGCTCTGTTTTCAGAG | 01g079350 |
| XP6987    |             | aaaaaa GGTACC ATGTACAAATATAAATGGACCTTTT | BiFC 1342bp |
| XP7220    |             | aaaaaa GTCGAC TCAAGCCTGCTCTTCTCACGAATT | 03g116830 |
| XP6985    |             | aaaaaa GGTACC ATGGGGTATTTTGCTGAAAGAGGT | BiFC 2793bp |
| XP6986    |             | aaaaaa GGTACC TTAATTACAGGGGCTACTACCTGGTT | c11g068960 |
| XP7094    |             | ggg GGTACC ATGACACAAATCATTCAAATATGGAA | Subcellular localization 779bp |
| XP7095    |             | aaaa GTCGAC CTCATTACATCATCTTGGATAGCTT | 01g006400 |
| XP7707    |             | aaaaaa GGTACC CTTAATGCAGAAAGCAAGAATTGG | Subcellular localization 1449bp |
| XP7603    |             | aaaaaaa GTCGAC TCAGTGAAAGGAAGTCCTTCATTGGA | 09g072570 |
| XP6989    |             | aaaaaaa GGTACC ATGTCTAGAGGCTCTGTTTTCAGAG | BiFC 1398bp |
| XP6990    |             | aaaaaaa GGTACC ATGTCTAGAGGCTCTGTTTTCAGAG | 01g079350 |
| XP6987    |             | aaaaaaa GGTACC ATGTACAAATATAATGGACCTTTT | BiFC 1342bp |
| XP7220    |             | aaaaaaa GTCGAC TCAAGCCTGCTCTTCTCACGAATT | 03g116830 |
| XP6985    |             | aaaaaaa GGTACC ATGGGGTATTTTGCTGAAAGAGGT | BiFC 2793bp |
| XP6986    |             | aaaaaa GGTACC ATGGGGTATTTTGCTGAAAGAGGT | c11g068960 |
| Accession | Sequence 1 | Sequence 2 | Description                  |
|-----------|------------|------------|------------------------------|
| XP6986    | aaaaaa GGTACC TTAATTACAGGGTCTACTACCTGTT | XP6991 aaaaaa GGTACC ATGGGGGAGAAGAAGAATAT | PZF1/Solyc0 7g063970 1284bp Subcellular localization and BiFC |
| XP6992    | aaaaaa GTCGAC TTAGGCTTTGCAAGATTACCAAAAA | | |