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**Supplementary Information**

# Constitutive expression of *Aechmea fasciata SPL14* (*AfSPL14*) accelerates flowering and changes the plant architecture in *Arabidopsis*

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**Table S1.** The sequences of SBP domains and accession numbers of selected plant SPL proteins for phylogenetic analysis.

| Protein Name | Sequences of SBP domains | Accession No |
|---|---|---|
| AtSPL1 | CQVENCEADLSKVKDYHRRHKVCEMHSKATSATVGGIL QRFCQQCSRFHLLQEFDEGKRSCRRRLAGHNKRRRK | AT2G47070 |
| AtSPL2 | CQVEGCNLDLSSAKDYHRKHRICENHSKFPKVVVSGVER RFCQQCSRFHCLSEFDEKKRSCRRRLSDHNARRRK | AT5G43270 |
| AtSPL3 | CQVESCTADMSKAKQYHKRHKVCQFHAKAPHVRISG-LHQRFCQQCSRFHALSEFDEAKRSCRRRLAGHNERRRK | AT2G33810 |
| AtSPL4 | CQVDRCTADMKEAKLYHRRHKVCEVHAKASSVFLSGLN QRFCQQCSRFHDLQEFDEAKRSCRRRLAGHNERRRK | AT1G53160 |
| AtSPL5 | CQVDRCTVNLTEAKQYYRRHRVCEVHAKASAATVAGV RQRFCQQCSRFHELPEFDEAKRSCRRRLAGHNERRRK | AT3G15270 |
| AtSPL6 | CQVYGCSKDLSSSKDYHKRHRVCEAHSKTSVVIVNGLEQ RFCQQCSRFHFLSEFDDGKRSCRRRLAGHNERRRK | AT1G69170 |
| AtSPL7 | CQVPDCEADISELKGYHKRHRVCLRCATASFVVLDGENK RYCQQCGKFHLLPDFDEGKRSCRRKLERHNNRRKR | AT5G18830 |
| AtSPL8 | CQAEGCNADLSHAKHYHRRHKVCEFHSKASTVVAAGL SQRFCQQCSRFHLLSEFDNGKRSCRKRLADHNRRRRK | AT1G02065 |
| AtSPL9 | CQVEGCGMDLTNAKGYYSRHRVCGVHSKTPKVTVAGIE QRFCQQCSRFHQLPEFDLEKRSCRRRLAGHNERRRK | AT2G42200 |
| AtSPL10 | CQIDGCELDLSSSKDYHRKHRVCETHSKCPKVVVSGLER RFCQQCSRFHAVSEFDEKKRSCRKRLSHHNARRRK | AT1G27370 |
| AtSPL11 | CQIDGCELDLSSAKGYHRKHKVCEKHSKCPKVSVSGLER RFCQQCSRFHAVSEFDEKKRSCRKRLSHHNARRRK | AT1G27360 |
| AtSPL12 | CQVDNCGADLSKVKDYHRRHKVCEIHSKATTALVGGIM QRFCQQCSRFHVLEEFDEGKRSCRRRLAGHNKRRRK | AT3G60030 |
| AtSPL13 | CLVDGCDSDFSNCREYHKRHKVCDVHSKTPVVTINGHK QRFCQQCSRFHALEEFDEGKRSCRKRLDGHNRRRRK | AT5G50570 |
| AtSPL14 | CQVDNCTEDLSHAKDYHRRHKVCEVHSKATKALVGKQ MQRFCQQCSRFHLLSEFDEGKRSCRRRLAGHNRRRRK | AT1G20980 |
| AtSPL15 | CQVEGCRMDLSNVKAYYSRHKVCCIHSKSSKVIVSG-LHQRFCQQCSRFHQLSEFDLEKRSCRRRLACHNERRRK | AT3G57920 |
| AtSPL16 | CQVDNCKEDLSIAKDYHRRHKVCEVHSKATKALVGKQ MQRFCQQCSRFHLLSEFDEGKRSCRRRLDGHNRRRRK | NP_177784.6 |
| OsSPL1 | CQVDGCTVNLSSARDYNKRHKVCEVHTKSGVVRIKNVE HRFCQQCSRFHFLQEFDEGKKSCRSRLAQHNRRRRK | XP_015614279.1 |
| OsSPL2 | CSVEGCAADLSKCVRDYHRRHKVCEAHSKTAVVTVAGQ QQRFCQQCSRFHLLGEFDEEKRSCRKRLDGHNKRRRK | XP_015611358.1 |
| OsSPL3 | CQVEGCNVDLSSAKPYHRKHRVCEPHSKTLKVIVAGLER RFCQQCSRFHGLAEFDQKKRSCRRRLHDHNARRRK | XP_015626884.1 |
| OsSPL4 | CQVEGCGVELVGVKDYHRKHRVCEAHSKFPRVVVAGQ ERRFCQQCSRFHALSEFDQKKRSCRRRLYDHNARRRK | XP_015623075.1 |

| | | |
|---|---|---|
| OsSPL5 | CQAEGCKADLSAAKHYHRRHKVCDFHAKAAAVLAAG KQQRFCQQCSRFHVLAEFDEAKRSCRKRLTEHNRRRRK | XP_015624330.1 |
| OsSPL6 | CQVEGCTADLTGVRDYHRRHKVCEMHAKATTAVVGNT VQRFCQQCSRFHPLQEFDEGKRSCRRRLAGHNRRRRK | XP_015631511.1 |
| OsSPL7 | CQVEGCDITLQGVKEYHRRHKVCEVHAKAPRVVVHGTE QRFCQQCSRFHVLAEFDDAKKSCRRRLAGHNERRRR | XP_015635344.1 |
| OsSPL8 | CQAEGCKADLSSAKRYHRRHKVCEHHSKAPVVVTAGGL HQRFCQQCSRFHLLDEFDDAKKSCRKRLADHNRRRRK | XP_015634037.1 |
| OsSPL9 | CQVPGCEADIRELKGYHRRHRVCLRCAHAAAVMLDGV QKRYCQQCGKFHILLDFDEDKRSCRRKLERHNKRRRR | XP_015640052.1 |
| OsSPL10 | CQAEGCKADLSGAKHYHRRHKVCEYHAKASVVAASGK QQRFCQQCSRFHVLTEFDEAKRSCRKRLAEHNRRRRK | XP_015642406.1 |
| OsSPL11 | CQVEGCGLELGGYKEYYRKHRVCEPHTKCLRVVVAGQD RRFCQQCSRFHAPSEFDQEKRSCRRRLSDHNARRRK | XP_015641499.1 |
| OsSPL12 | CQVEGCKVDLSSAREYHRKHKVCEAHSKAPKVIVSGLER RFCQQCSRFHGLAEFDQKKKSCRRRLSDHNARRRK | XP_015643462.1 |
| OsSPL13 | CQVERCGVDLSEAGRYNRRHKVCQTHSKEPVVLVAGLR QRFCQQCSRFHELTEFDDAKRSCRRRLAGHNERRRK | XP_015645415.1 |
| OsSPL14 | CQVEGCGADLSGIKNYYCRHKVCFMHSKAPRVVVAGLE QRFCQQCSRFHLLPEFDQGKRSCRRRLAGHNERRRR | XP_015650813.1 |
| OsSPL15 | CQVDDCRADLTNAKDYHRRHKVCEIHGKTTKALVGNQ MQRFCQQCSRFHPLSEFDEGKRSCRRRLAGHNRRRRK | XP_015649921.1 |
| OsSPL16 | CAVDGCKEDLSKCRDYHRRHKVCEAHSKTPLVVVSGRE MRFCQQCSRFHLLQEFDEAKRSCRKRLDGHNRRRRK | XP_015649377.1 |
| OsSPL17 | GGSGGGGGGGGGGDDVHGRHKVCYMHAKEPIVVVAG LEQRFCQQCSRFHQLPEFDQEKKSCRRRLAGHNERRRK | XP_015610961.1 |
| OsSPL18 | CAVDGCKADLSKHRDYHRRHKVCEPHSKTPVVVVSG-REMRFCQQCSRFHLLGEFDEAKRSCRKRLDGHNRRRRK | XP_015610873.1 |
| OsSPL19 | CSVDGCRSDLSRCRDYHRRHKVCEAHAKTPVVVVAGQE QRFCQQCSRFHNLAEFDDGKKSCRKRLDGHNRRRRK | XP_015617950.1 |
| PpSBP1 | CQAEGCKDDLSNAKHYHRRHKVCELHSKAPTVTVGGH TQRFCQQCSRFHHLGEFDEGKRSCRKRLADHNRRRRK | AJ968320 |
| PpSBP2 | CQVDGCTADLSRAKDYHRRHKVCEAHSKAPTTLVSRVR QRFCQQCSRFHPLDKFDEDKRSCRRRLAGHNKRRRK | CAI91313.1 |
| PpSBP3 | CQVQGCDADLSCCKDYHKRHKVCEMHSKAATAIAAGI EQRFCQQCSRFHVLKEFDEGKRSCRRRLAGHNQRRRK | CAI91301.1 |
| PpSBP4 | CQAEGCKTDLSTSKQYHRRHKVCELHSKAPNVQVGGQT QRFCQQCSRFHSLEEFDNGKRSCRKRLADHNRRRRK | AJ968319 |
| PpSBP5 | CQVPACGADLAGLKGYHQRHRVCLQCANSTTVILRDIP HRYCQQCGKFHVLSDFDEGKRSCRFKLERHNNRRRRK | ABM67299.1 |
| PpSBP6 | CQVEGCKADLSGCKDYHKRHKVCEMHSKAPKCIAAGIE QRFCQQCSRFHVLTEFDEGKRSCRRRLAGHNERRRK | ABM67300.1 |
| PpSBP7 | CQAEGCKSDLSTAKQYHRRHKVCELHSKAPNVVAGGQT QRFCQQCSRFHSLGEFDDGKRSCRKRLADHNRRRRK | ABM67301.1 |
| PpSBP8 | CQAEGCKFDLSLAKPYHRRHKVCELHSKAPNVIAGGQT QRFCQQCSRFHSLGEFDDGKRSCRKRLADHNRRRRK | XP_001775629.1 |
| PpSBP9 | CQAEGCKADLNVTKNYYRRHKVCEFHSKTPIVIVGGHT QRFCQQCSRFHRLGEFDDGKRSCRKRLADHNRRRRK | ABM67302.1 |
| PpSBP10 | CQVDGCTADLSKAKDYHRRHKVCETHSKASTAQVSRVT QRFCQQCSRFHALDQFDEGKRSCRRRLAGHNKRRRK | ABM67303.1 |
| PpSBP11 | CQVDACKADLSKAKDYYRRHKVCETHSKATKAPVSRLM QRFCQQCSRFHPLQEFDEGKRSCRRRLAGHNRRRRK | ABV03806.1 |
| PpSBP12 | CQAEGCKADLSQAKQYHRRHKVCEHHSKALNVVANG QTQRFCQQCSRFHLLGEFDDGKRSCRKRLADHNRRRRK | ABM67304.1 |
| PpSBP13 | CQVEGCKADLSGCKDYHKRHKVCEMHSKAPKCIAAGIE QRFCQQCSRFHVLTEFDEGKRSCRRRLAGHNERRRK | ABM67305.1 |

**Table S2.** The consensus sequences of the putative motifs of variable SPLs in group III identified by MEME software online (http://meme-suite.org/tools/meme).

| Motif name | Sequences |
|---|---|
| Motif 1 | YYCRHKVCYMHSKAPRVVVAGLEQRFCQQCSRFHQLPEFDQEKRSCRRRL |
| Motif 2 | RCQVEGCGVDLSGVK |
| Motif 3 | GLKFGKKIYFED |
| Motif 4 | ATDSSCALSLLSTQPWDHTT |
| Motif 5 | AGHNERRRKPQ |
| Motif 6 | PLSSRYGRJAPSLHEEPNRFR |
| Motif 7 | FVLDFSYPRVPSSVRDAWPAIQPGDRISGGIQWQGGVEPHGHRSAVAGY |
| Motif 8 | FDHSSHHMNWSL |
| Motif 9 | EPPPGQIHNGHFSGELELALQ |
| Motif 10 | QYMEDENT |

**Table S3.** Primers used in this study.

| Name | Sequences (from 5′ to 3′) |
|---|---|
| *AfSPL14* 5′ RACE GSP1 | GCG GCA TTA CTG GAG TTC GGT T |
| *AfSPL14* 5′ RACE GSP2 | GGT GGC GAC TCC TGA GAA GCA TT |
| *AfSPL14* 3′ RACE GSP1 | GTA GGA AAC CAC CTG TCC CTT TGT CA |
| *AfSPL14* 3′ RACE GSP2 | GAT TCG CCT CCG CTG CCC CTA A |
| *AfSPL14* cDNA F | CTC TCT CCC TCT CTC TGG GGT GTC T |
| *AfSPL14* cDNA R | GCT ATA GTT GGT CAT GAT CAC ATT A |
| *AfSPL14*-5outer | GGC ATT TCA TGT GAA CTG GGT C |
| *AfSPL14*-5inner | CGG CAT TAC TGG AGT TCG GTT A |
| *AfSPL14-pBD* F | CGG AAT TCA TGG AGA AGG GTT CGG GCT CCG TTG |
| *AfSPL14-pBD* R | AAC TGC AGC AGA GAC CAG TGC ATG CCG TGA |
| *AfSPL14N-pBD* F | GGA ATT CAT GGA GAA GGG TTC GGG CTC |
| *AfSPL14N-pBD* R | ACG CGT CGA CTG GTT TCC TAC GAC GCT CG |
| *AfSPL14C-pBD* F | GGA ATT CCC TGT CCC TTT GTC ATC TCG |
| *AfSPL14C-pBD* R | ACG CGT CGA CCT ACA GAG ACC AGT GCA TGC |
| *AfSPL14-OX* F | GGG GTA CCA TGG AGA AGG GTT CGG GCT CCG TTG |
| *AfSPL14-OX* R | GCG TCG ACC TAC AGA GAC CAG TGC ATG CCG TGA |
| *AfSPL14* qRT-PCR F | CTT CTT CTC ACC CAC GGA ACT |
| *AfSPL14* qRT-PCR R | ACA TGG CTA TGC GGC ATT AC |
| *AfACTB* qRT-PCR F | TAC AGT GTC TGG ATT GGG GG |
| *AfACTB* qRT-PCR R | CGG ATT CAT CAT ACT CAC CCT T |
| *AtLFY* qRT-PCR F | CGA GCA CGC TTG TGG GTA T |
| *AtLFY* qRT-PCR R | TTG CAA TCG TCT CCG TTC AG |
| *AtAP1* qRT-PCR F | TGG GTG GTC TGT ATC AAG AAG ATG |
| *AtAP1* qRT-PCR R | CCA AGG TTG CAG TTG TAA ACG |
| *AtAP2* qRT-PCR F | GGT GTT GCT TCT GGC TTT CC |
| *AtAP2* qRT-PCR R | GGT CCA CGC CGA CTC TTT T |
| *AtAP3* qRT-PCR F | GGA GAT TAC GAC TCA GTT CTT GGA T |
| *AtAP3* qRT-PCR R | GTG GTG ATG GTT CTG GTG GA |
| *AtFUL* qRT-PCR F | CAA CTT GTT GGC CGA GAC G |
| *AtFUL* qRT-PCR R | TGG AGC GCA GAT ATG GAT TC |
| *AtSOC1* qRT-PCR F | CTA AAC GTA AAC TCT TGG GA |
| *AtSOC1* qRT-PCR R | CAG AAC TTG GGC TAC TCT CT |
| *AtFT* qRT-PCR F | GGTGGAGAAGACCTCAGGAACT |
| *AtFT* qRT-PCR R | TGCCAAGCTGTCGAAACAATA |
| *AtACTB* qRT-PCR F | TGT GCC AAT CTA CGA GGG TTT |
| *AtACTB* qRT-PCR R | TTT CCC GCT CTG CTG TTG T |

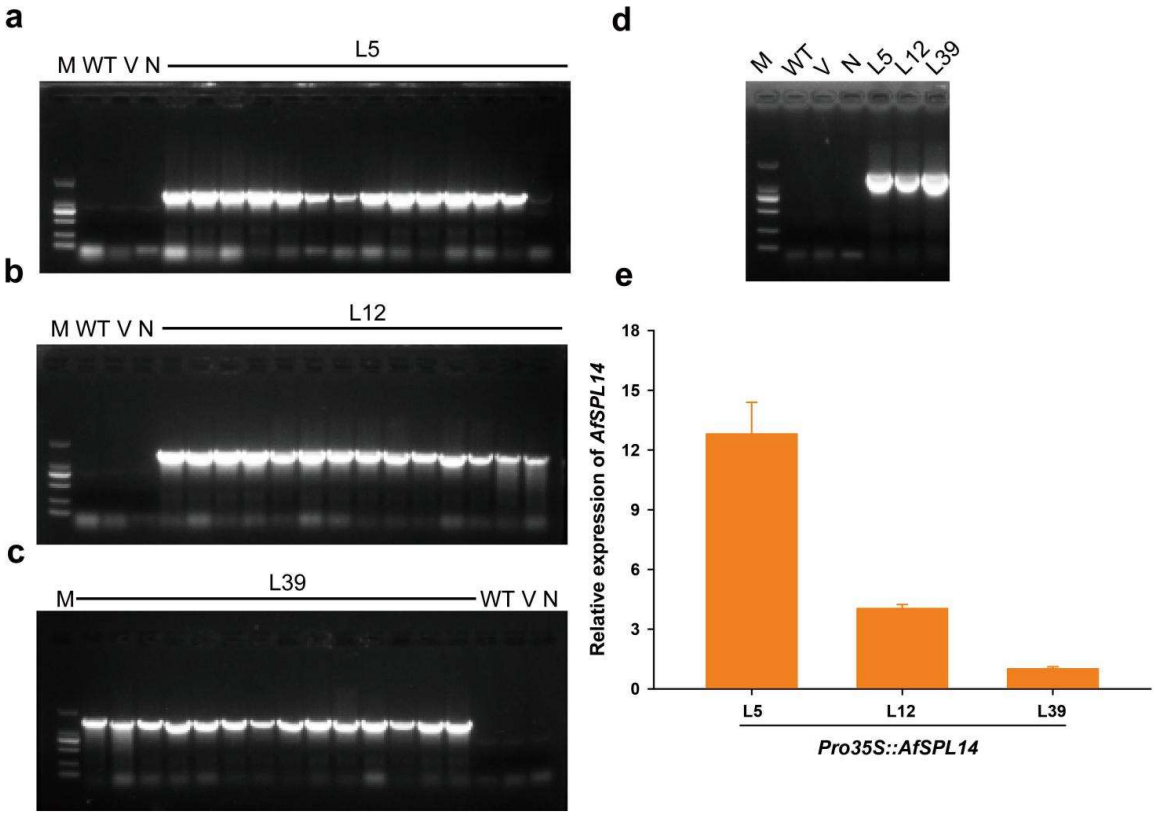


**Figure S1** Verification of *Pro35S::AfSPL14* transgenic plants. DNA of randomly selected T3 plants of variable lines (L5, L12, L39) were extracted and used for PCR verification using *AfSPL14-OX* F and *AfSPL14-OX* R primers (**a, b, c**). Furthermore, RNA of variable transgenic lines were also extracted, and PCR (**d**) or RT-qPCR (**e**) were conducted. M: DNA Ladder 2000; WT: the Wild Type; V: Vector; N: negative control which used double distilled $H_2O$ ($ddH_2O$) as templates in PCR.

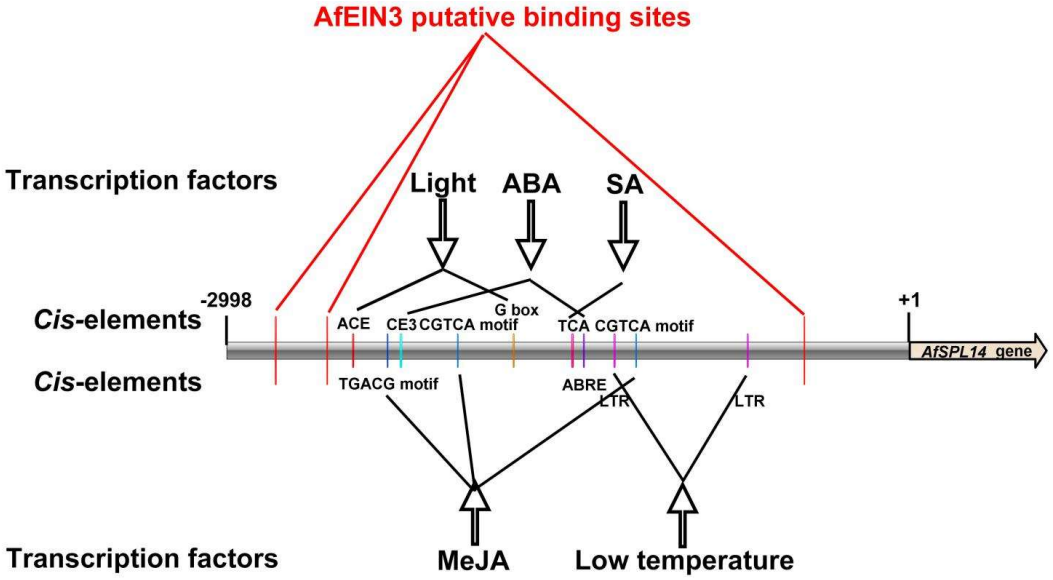


**Figure S2** Representative cis-elements enclosed in the nearly 3000-bp-length promoter sequence of *AfSPL14*. Amounts of cis-elements, which might response to light, abscisic acid (ABA), salicylic acid (SA), methyl jasmonate (MeJA), low temperature, etc, were within the promoter. Three 5′-ATGTA-3′ core sequences, which might interact with ETHYLENE INSENSITIVE 3 (EIN3), a crucial factor in ethylene signaling pathway that could activate or inhibit the expression of downstream genes in transcriptional level, were also within the promoter.