Supplementary Material

Profiling of the SELF-PRUNING 6A (SP6A) candidate interacting proteins in *Solanum tuberosum*

Enshuang Wang, Tengfei Liu, Xiaomeng Sun, Shenglin Jing, Tingting Zhou, Tiantian Liu, Botao Song

Figure S1 Identification of CFU and insertion fragments from the secondary library.
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Supplementary Table S1 Putative interaction proteins of StSP6A identified from the Y2H library
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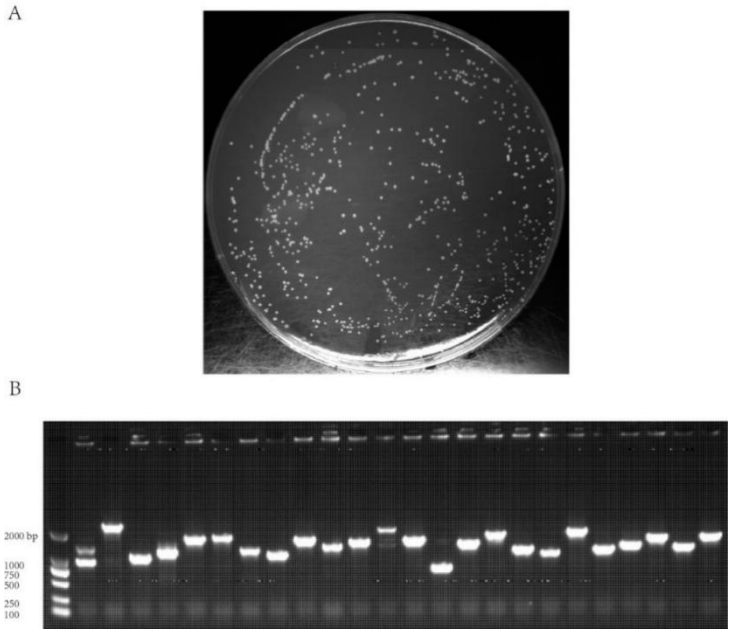


Figure S1 Identification of CFU and insertion fragments from the secondary library
A: Identification of library cell density. B: Identification of insertion fragments by PCR (Lane 2-25) and Marker DL2000 (Lane 1).

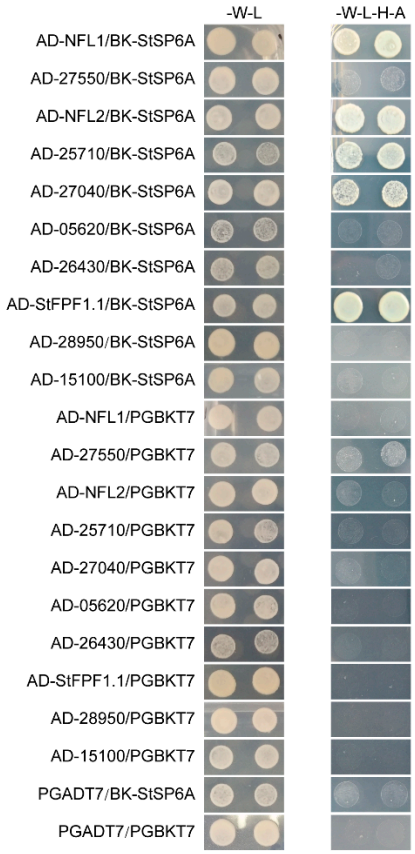


Figure S2 Validate the interaction between StSP6A and the interactors by yeast two-hybrid assay. Ten interactors were selected. The BK-StSP6A and its interactors were co-expressed in yeast strain AH109. -W-L (medium without tryptophan and leucine); -W-L-H-A (medium without tryptophan, leucine, histidine and adenine). BK (pGBKT7) and AD (pGADT7) are the bait and prey vectors, respectively.

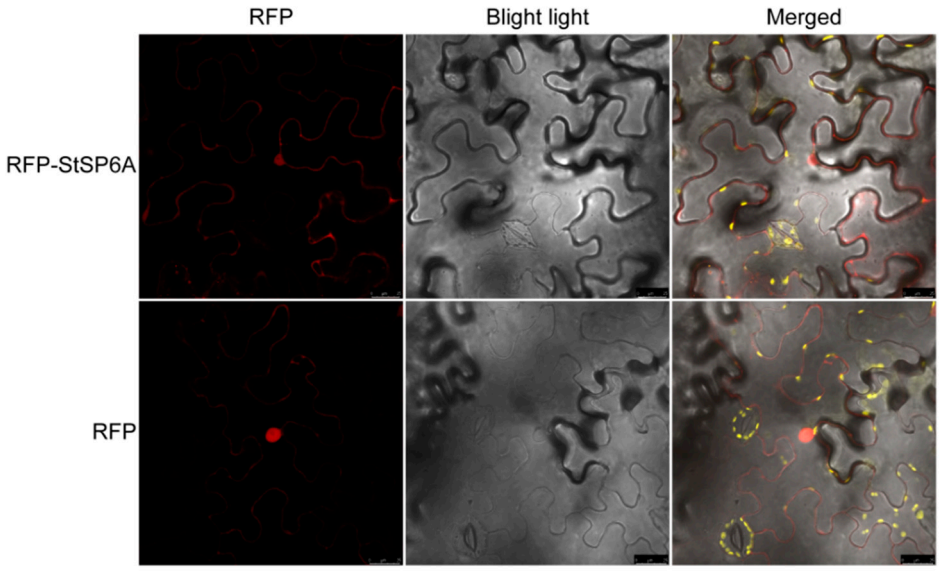


Figure S3 Subcellular localization of StSP6A

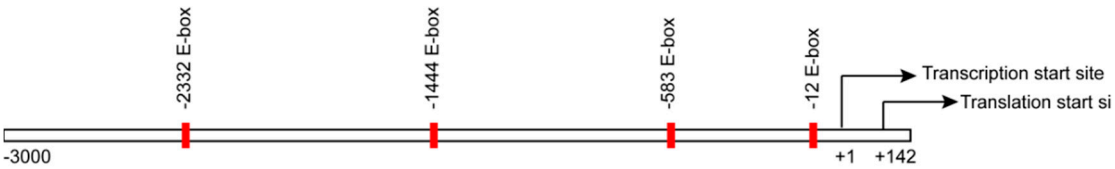


Figure S4 Promoter analyses of *StGA2ox*. 3000 bp fragments of the *StGA2ox* promoter were selected for analyzing.

Supplementary Table S1 Putative interaction proteins of StSP6A identified from the Y2H library

Locus name	Annotation	frequency
Soltu.DM.08G022890.1	2Fe-2S ferredoxin-like superfamily protein	1
Soltu.DM.06G027300.2	40s ribosomal protein SA	1
Soltu.DM.12G000940.1	5'-AMP-activated protein kinase beta-2 subunit protein	1
Soltu.DM.07G005190.1	60S acidic ribosomal protein family	2
Soltu.DM.05G000980.3	6-phosphogluconolactonase	1
Soltu.DM.06G015100.1	Acyl-CoA N-acyltransferases （NAT） superfamily protein	2
Soltu.DM.03G000330.1	ATP sulfurylase	1
Soltu.DM.09G007020.1	basic pathogenesis-related protein	1
Soltu.DM.02G026970.1	basic HLH protein	2
Soltu.DM.02G007350.1	basic HLH protein	1
Soltu.DM.10G027550.1	beta-1,3-glucanase	1
Soltu.DM.01G045950.1	CAP （Cysteine-rich secretory proteins） superfamily protein	1
Soltu.DM.12G000130.1	chromomethylase	1
Soltu.DM.01G042420.2	clathrin adaptor complexes medium subunit family protein	1
Soltu.DM.09G001860.1	Concanavalin A-like lectin protein kinase family protein	1
Soltu.DM.02G025390.1	conserved hypothetical protein	1
Soltu.DM.03G003130.1	conserved hypothetical protein	1
Soltu.DM.09G019380.1	conserved hypothetical protein	1
Soltu.DM.04G037140.1	Cupredoxin superfamily protein	6
Soltu.DM.08G027040.1	cytochrome P450, family 76, subfamily C, polypeptide	1
Soltu.DM.02G034200.2	DCD （Development and Cell Death） domain protein	1
Soltu.DM.11G022820.1	DNA-directed RNA polymerase, RBP11-like	2
Soltu.DM.05G025710.1	DNAJ homologue	1
Soltu.DM.01G051590.2	expansin-like A1	1
Soltu.DM.10G025630.2	FASCICLIN-like arabinogalactan protein 17 precursor	2
Soltu.DM.12G024780.1	fatty acyl-ACP thioesterases B	1
Soltu.DM.01G021950.1	flowering promoting factor	1
Soltu.DM.06G000550.1	glutathione S-transferase phi	2
Soltu.DM.12G005020.1	glutathione S-transferase phi	1
Soltu.DM.01G041440.1	glutathione S-transferase zeta	1
Soltu.DM.12G004790.1	glyceraldehyde-3-phosphate dehydrogenase B subunit	1
Soltu.DM.03G024400.1	glyceraldehyde-3-phosphate dehydrogenase C subunit	1
Soltu.DM.05G010790.1	glyceraldehyde-3-phosphate dehydrogenase C2	1
Soltu.DM.12G005890.1	Granulin repeat cysteine protease family protein	1
Soltu.DM.06G005620.1	GTP binding Elongation factor Tu family protein	1
Soltu.DM.04G035870.2	GTP-binding protein, HflX	1
Soltu.DM.01G024990.1	HIT zinc finger ;PAPA-1-like conserved region	1
Soltu.DM.04G026490.1	hypothetical protein	6
Soltu.DM.08G028950.1	hypothetical protein	1
Soltu.DM.06G031500.1	metallothionein 2A	1
Soltu.DM.09G027700.1	MLP-like protein	1
Soltu.DM.04G036070.1	Papain family cysteine protease	1
Soltu.DM.03G014310.1	peptide met sulfoxide reductase	1
Soltu.DM.04G024830.1	phosphoribosyl-aminoimidazole synthetase （PUR5）	2
Soltu.DM.12G022950.1	photosynthetic electron transfer C	2
Soltu.DM.05G026770.1	photosystem I light harvesting complex gene	1

Locus name	Annotation	frequency
Soltu.DM.02G001740.1	photosystem II stability, chloroplast （HCF136）	1
Soltu.DM.04G021720.1	Pollen Ole e 1 allergen and extensin family protein	1
Soltu.DM.07G025540.1	polyubiquitin	5
Soltu.DM.04G004650.3	Pyruvate kinase family protein	1
Soltu.DM.06G024950.1	receptor for activated C kinase 1B	1
Soltu.DM.04G006090.1	Ribosomal protein L10 family protein	1
Soltu.DM.06G034170.1	Ribosomal protein L14p/L23e family protein	1
Soltu.DM.06G002880.1	Ribosomal protein S4 （RPS4A） family protein	1
Soltu.DM.09G016990.1	Ribosomal protein S8e family protein	1
Soltu.DM.02G025840.2	Ribulose bisphosphate carboxylase family protein	4
Soltu.DM.02G025810.1	Ribulose bisphosphate carboxylase family protein	4
Soltu.DM.02G007030.4	Ribulose bisphosphate carboxylase family protein	1
Soltu.DM.03G004480.1	Ribulose bisphosphate carboxylase family protein	1
Soltu.DM.11G016190.1	Rieske （2Fe-2S） domain-containing protein	1
Soltu.DM.04G025730.2	root cap 1 （RCP1）	1
Soltu.DM.09G029630.1	S-adenosyl-L-homocysteine hydrolase	1
Soltu.DM.04G025070.2	S-adenosyl-L-methionine-dependent methyltransferases superfamily protein	2
Soltu.DM.03G017000.1	S-adenosyl-L-methionine-dependent methyltransferases superfamily protein	1
Soltu.DM.01G040830.1	S-adenosylmethionine synthetase	1
Soltu.DM.07G026830.1	SHV3-like	2
Soltu.DM.08G026430.1	Subtilase family protein	2
Soltu.DM.03G037270.1	Subtilase family protein	1
Soltu.DM.06G003240.2	thiaminC	1
Soltu.DM.12G029650.1	thioredoxin M-type	1
Soltu.DM.06G027910.5	Transketolase family protein	2
Soltu.DM.10G019950.1	tubulin beta	1
Soltu.DM.11G015010.1	Ubiquinol-cytochrome C reductase iron-sulfur subunit	1
Soltu.DM.02G027730.3	voltage dependent anion channel	2
Soltu.DM.03G008530.1	voltage dependent anion channel	2
Soltu.DM.02G009970.1	voltage dependent anion channel	3
Soltu.DM.04G037150.1	Zim17-type zinc finger protein	1

Supplementary Table S2. A list of primers used in this study

Primer name	Sequence(5'-3')	Target gene	Amplicon (bp)	Vector	Usage
BK-SP6A-EcoRI-F	ATGGCCATGGAGGCCGAATTCATGCC TAGAGTTGATCCATTGAT	Soltu.DM.05G026370.1	564	pGBKT7	Y2H assay
BK-SP6A-SalI-R	ATGCGGCCGCTGCAGGTCGACTTATG CGCGACGTCCTCC	Soltu.DM.05G026370.1	564	pGBKT7	Y2H assay
AD-FPF1.1-EcoRI-F	ATGGAGGCCAGTGAATTCATGTCTG GTGTTTGGGTATTC	Soltu.DM.01G021950.1	321	pGADT7	Y2H assay
AD-FPF1.1-BamHI-R	CTCGAGCTCGATGGATCCCTACATGT CCCTAACTTCAAAC	Soltu.DM.01G021950.1	321	pGADT7	Y2H assay
AD-NFL1-EcoRI-F	ATGGAGGCCAGTGAATTCATGGAGC TCACTCAACAAGATT	Soltu.DM.02G026970.1	1008	pGADT7	Y2H assay
AD-NFL1-BamHI-R	CTCGAGCTCGATGGATCCTCATAGA CATCTTCCTCCATAA	Soltu.DM.02G026970.1	1008	pGADT7	Y2H assay
AD-NFL2-EcoRI-F	ATGGAGGCCAGTGAATTCATGGAGC TTAGTGAACATGATAT	Soltu.DM.02G007350.1	981	pGADT7	Y2H assay
AD-NFL2-BamHI-R	CTCGAGCTCGATGGATCCCTAAAGA CATCTTCCTCCAAAGC	Soltu.DM.02G007350.1	981	pGADT7	Y2H assay
AD-25710-EcoRI-F	ATGGAGGCCAGTGAATTCATGTTTG GGAGGGCACCGAAGA	Soltu.DM.05G025710.1	1260	pGADT7	Y2H assay
AD-25710-BamHI-R	CTCGAGCTCGATGGATCCTTACTGTT GTGCACATTGAACTC	Soltu.DM.05G025710.1	1260	pGADT7	Y2H assay
AD-27040-EcoRI-F	ATGGAGGCCAGTGAATTCATGGCAC AGCAATTTGAAATTT	Soltu.DM.08G027040.1	1488	pGADT7	Y2H assay
AD-27040-BamHI-R	CTCGAGCTCGATGGATCCTCATTTTC TTGCCTTGGGAATC	Soltu.DM.08G027040.1	1488	pGADT7	Y2H assay
AD-28950-EcoRI-F	ATGGAGGCCAGTGAATTCATGTCTTC AATGCAATGCTACA	Soltu.DM.08G028950.1	624	pGADT7	Y2H assay
AD-28950-BamHI-R	CTCGAGCTCGATGGATCCTTAGCAAT GACGCTCGTCATCG	Soltu.DM.08G028950.1	624	pGADT7	Y2H assay
AD-27550-EcoRI-F	ATGGAGGCCAGTGAATTCATGGCTT GTACCAAACTACATT	Soltu.DM.10G027550.1	1035	pGADT7	Y2H assay
AD-27550-BamHI-R	CTCGAGCTCGATGGATCCCTAGTTGA AACTGATCGCGTAT	Soltu.DM.10G027550.1	1035	pGADT7	Y2H assay
AD-05620-EcoRI-F	ATGGAGGCCAGTGAATTCATGGGTA AGGAGAAGATTCACA	Soltu.DM.06G005620.1	1347	pGADT7	Y2H assay
AD-05620-BamHI-R	CTCGAGCTCGATGGATCCTCACTTTC CCTTCTTCTGGGCA	Soltu.DM.06G005620.1	1347	pGADT7	Y2H assay
AD-26430-EcoRI-F	ATGGAGGCCAGTGAATTCATGGGAT TCTTGAAAATC	Soltu.DM.08G026430.1	2238	pGADT7	Y2H assay
AD-26430-BamHI-R	CTCGAGCTCGATGGATCCCTAGGCT AACACAACTGCAA	Soltu.DM.08G026430.1	2238	pGADT7	Y2H assay
AD-15100-EcoRI-F	ATGGAGGCCAGTGAATTCATGCAGA TCTTTGTGAAAACTC	Soltu.DM.06G015100.1	1374	pGADT7	Y2H assay
AD-15100-BamHI-R	CTCGAGCTCGATGGATCCTTAAAAA CCACCACGGAGACGG	Soltu.DM.06G015100.1	1374	pGADT7	Y2H assay
CYFP-NFL1-BamHI-F	TTCCAGATTACGCTGGATCCATGGAG CTCACTCAACAAGATT	Soltu.DM.02G026970.1	1008	CYFP	BiFC
CYFP-NFL1-SalI-R	CCGAATTCACTAGTGTCGACTCATAG ACATCTTCCTCCATAA	Soltu.DM.02G026970.1	1008	CYFP	BiFC
CYFP-NFL2-BamHI-F	TTCCAGATTACGCTGGATCCATGGAG CTTAGTGAACATGATAT	Soltu.DM.02G007350.1	981	CYFP	BiFC

CYFP-NFL2-SalI-R	CCGAATTCACTAGTGTCGACCTAAAG ACATCTTCCTCCAAAGC	Soltu.DM.02G007350.1	981	CYFP	BiFC
CYFP-FPF1.1-BamHI-F	TTCCAGATTACGCTGGATCCATGTCT GGTGTTTGGGTATTC	Soltu.DM.01G021950.1	321	CYFP	BiFC
CYFP-FPF1.1-SalI-R	CCGAATTCACTAGTGTCGACCTACAT GTCCCTAACTTCAAAC	Soltu.DM.01G021950.1	321	CYFP	BiFC
NYFP-SP6A-BamHI-F	CTGAGGAGGATCTTGGATCCATGCCT AGAGTTGATCCATTGAT	Soltu.DM.05G026370.1	561	NYFP	BiFC
NYFP-SP6A-SalI-R	CCGAATTCACTAGTGTCGACTTATGC GCGACGTCCTCC	Soltu.DM.05G026370.1	561	NYFP	BiFC
PB7-NFL1-Bsp1407I-F	CTCGGCATGGACGAGCTGTACAAGAT GGAGCTCACTCAACAAGAT	Soltu.DM.02G026970.1	1008	PB7GWF2	Subcellular localization
PB7-NFL1-Bsp1407I-R	CGGGATATCACCACTTTGTACATTATC ATAGACATCTTCCTCCATAA	Soltu.DM.02G026970.1	1008	PB7GWF2	Subcellular localization
PB7-NFL2-Bsp1407I-F	CTCGGCATGGACGAGCTGTACAAGAT GGAGCTTAGTGAACATGATAT	Soltu.DM.02G007350.1	981	PB7GWF2	Subcellular localization
PB7-NFL2-Bsp1407I-R	CGGGATATCACCACTTTGTACATTACT AAAGACATCTTCCTCCAAAGC	Soltu.DM.02G007350.1	981	PB7GWF2	Subcellular localization
PB7-FPF1.1-Bsp1407I-F	CTCGGCATGGACGAGCTGTACAAGAT GTCTGGTGTTTGGGTATTC	Soltu.DM.01G021950.1	321	PB7GWF2	Subcellular localization
PB7-FPF1.1-Bsp1407I-R	CGGGATATCACCACTTTGTACATTACT ACATGTCCCTAACTTCAAAC	Soltu.DM.01G021950.1	321	PB7GWF2	Subcellular localization
SP6A-RFP-SpeI-F	CCTGCAGGCGGCCGCACTAGTATGC CTAGAGTTGATCCATTGAT	Soltu.DM.05G026370.1	561	PB7WGR2	Subcellular localization
SP6A-RFP-SpeI-R	GACGTCCTCGGAGGAGGCCATTGCG CGACGTCCTCCA	Soltu.DM.05G026370.1	561	PB7WGR2	Subcellular localization
FPF_q_rev	CTAGTTGAGAACGCCGGTGACT	Soltu.DM.01G021950.1	127		qPCR
FPF_q_for	CCCATCCAAGAGAGTACAAATTCC	Soltu.DM.01G021950.1	127		qPCR
SP6A for	GACGATCTTCGCAACTTTTACA	Soltu.DM.05G026370.1	75		qPCR
SP6A rev	CCTCAAGTTAGGGTCGCTTG	Soltu.DM.05G026370.1	75		qPCR
qRT-NFL1-F	AGCATTAGGGCTTGAGGTGC	Soltu.DM.02G026970.1	128		qPCR
qRT-NFL1-R	ACAGAGCTTGCTTCACGTCT	Soltu.DM.02G026970.1	128		qPCR
qRT-NFL2-F	GCAAAGCCAGGGTTGTTGTT	Soltu.DM.02G007350.1	129		qPCR
qRT-NFL2-R	ATGCTCCCTTGCCTCAGAAC	Soltu.DM.02G007350.1	129		qPCR
RTef1α-F	ATTGGAAACGGATATGCTCCA	Soltu.DM.06G005620.1	101		qPCR
RTef1α-R	TCCTTACCTGAACGCCTGTCA	Soltu.DM.06G005620.1	101		qPCR