

Genome-Wide Identification and Characterization of the AREB/ABF/ABI5 Subfamily Members from *Solanum tuberosum*

Supplementary Materials

Table 1. Primers used in this research.

Primer	Sequence (5'-3')	Related Experiment
qRTStAREB1F	CCCCAAGCAAACAACAGTGG	q-RT-PCR
qRTStAREB1R	CATAACTCCGCCTTGAGCCA	q-RT-PCR
qRTStAREB2F	GGCAGTCATCTATCTATTCG	q-RT-PCR
qRTStAREB2R	CAACTCATCCATGTTTCATTG	q-RT-PCR
qRTStABI5F	GAGGCAGTGGATTCCCACAA	q-RT-PCR
qRTStABI5R	CACTACTTGCCCGTAGCCAA	q-RT-PCR
qRTStAREB3F	TGGTGTGGAGAGGGGAGAA	q-RT-PCR
qRTStAREB3R	ACTTCATCCACAGTCCGCTG	q-RT-PCR
qRTStABL1F	GGAACGGATTACGGGGTGT	q-RT-PCR
qRTStABL1R	TCCTGCCACACCTGATCAAC	q-RT-PCR
qRTStABL2F	GGGGAAATGATTACGGGGCA	q-RT-PCR
qRTStABL2R	TCTTGCCACACCTCATCGAC	q-RT-PCR
qRTStAREB4F	CAAGCAACCCAAAACCTGG	q-RT-PCR
qRTStAREB4R	TGCTGTGTTGAAGACGTGGT	q-RT-PCR
ef1 α -RTF	ATTGGAAACGGATATGCTCCA	q-RT-PCR
ef1 α -RTR	TCCTTACCTGAACGCCTGTCA	q-RT-PCR
GFPStAREB1F	ATTACGCCGAGGTCATGGGATCTTACATGAATTT	Subcellular localization
GFPStAREB1R	TAGGGAAGAGGCTACCAAGGTCCTGTCAGTG	Subcellular localization
GFPStAREB2F	ATTACGCCGAGGTCATGGGGAGTAATTATCATT	Subcellular localization
GFPStAREB2R	TAGGGAAGAGGTTACCATGGACCAGTTTGTG	Subcellular localization
GFPStABI5F	ATTACGCCGAGGTCATGGGAGTACCAGAATCAGA	Subcellular localization
GFPStABI5R	TAGGGAAGAGGTC AAGGGCAACTAAAGCTCC	Subcellular localization
GFPStAREB3F	ATTACGCCGAGGTCATGGGATCTTACTTGAACTT	Subcellular localization
GFPStAREB3R	TAGGGAAGAGGCTACCAAGGTCCTGTCAGTG	Subcellular localization
GFPStABL1F	ATTACGCCGAGGTCATGGGATCTCAGGGTGGTGG	Subcellular localization
GFPStABL1R	TAGGGAAGAGGTTAGACGGGCGCGGAGCTTG	Subcellular localization
GFPStABL2F	ATTACGCCGAGGTCATGGTAATACAAGGGATGGG	Subcellular localization
GFPStABL2R	TAGGGAAGAGGTCAGATAGGGCCTGAACTTG	Subcellular localization
GFPStAREB4F	ATTACGCCGAGGTCATGGGATCTTACCTGAACTT	Subcellular localization
GFPStAREB4R	TAGGGAAGAGGCTACCAAGTCCCGTCACTG	Subcellular localization
BKStAREB1F	GGCCATGGAGGCCGAATTCATGGGATCTTACATGAATTT C	Transactivation activity
BKStAREB1R	GCGGCCGCTGCAGGTCGACGCTACCAAGGTCCTGTCAG TG	Transactivation activity
BKStAREB2F	GGCCATGGAGGCCGAATTCATGGGGAGTAATTATCATT GCGGCCGCTGCAGGTCGACGTTACCATGGACCAGTTT	Transactivation activity
BKStAREB2R	TG	Transactivation activity
BKStABI5F	GGCCATGGAGGCCGAATTCATGGGAGTACCAGAATCAG A	Transactivation activity
BKStABI5R	GCGGCCGCTGCAGGTCGACGTCAAGGGCAACTAAAGC TCC	Transactivation activity
BKStAREB3F	GGCCATGGAGGCCGAATTCATGGGATCTTACTTGAACTT GCGGCCGCTGCAGGTCGACGCTACCAAGGTCCTGTCAG	Transactivation activity
BKStAREB3R	TG	Transactivation activity
BKStABL1F	GGCCATGGAGGCCGAATTCATGGGATCTCAGGGTGGTG G	Transactivation activity

BKStABL1R	GCGGCCGCTGCAGGTCGACGTTAGACGGGCGGGAGC TTG	Transactivation activity
BKStABL2F	GGCCATGGAGGCCGAATTCATGGTAATACAAGGGATGG G	Transactivation activity
BKStABL2R	GCGGCCGCTGCAGGTCGACGTCAGATAGGGCCTGAACT TG	Transactivation activity
BKStAREB4F	GGCCATGGAGGCCGAATTCATGGGATCTTACCTGAACT T	Transactivation activity
BKStAREB4R	GCGGCCGCTGCAGGTCGACGCTACCAAGTCCCGTCAC TG	Transactivation activity
42bStAREB1F	AATCGGATGGTTCAACTAGTATGGGATCTTACATGAATT TC	Protein expression
42bStAREB1R	CGAGTGCGGCCGCAAGCTTCTACCAAGGTCCTGTCAGT G	Protein expression
42bStAREB2F	AATCGGATGGTTCAACTAGTATGGGGAGTAATTATCATT T	Protein expression
42bStAREB2R	CGAGTGCGGCCGCAAGCTTTTACCATGGACCAGTTTGT G	Protein expression
42bStABI5F	AATCGGATGGTTCAACTAGTATGGGAGTACCAGAATCA GA	Protein expression
42bStABI5R	CGAGTGCGGCCGCAAGCTTTCAAGGGCAACTAAAGCT CC	Protein expression
42bStAREB3F	AATCGGATGGTTCAACTAGTATGGGATCTTACTTGAACT T	Protein expression
42bStAREB3R	CGAGTGCGGCCGCAAGCTTCTACCAAGGTCCTGTCAGT G	Protein expression
42bStABL1F	AATCGGATGGTTCAACTAGTATGGGATCTCAGGGTGGT GG	Protein expression
42bStABL1R	CGAGTGCGGCCGCAAGCTTTTAGACGGGCGGGAGCTT G	Protein expression
42bStABL2F	AATCGGATGGTTCAACTAGTATGGTAATACAAGGGATG GG	Protein expression
42bStABL2R	CGAGTGCGGCCGCAAGCTTTCAGATAGGGCCTGAACTT G	Protein expression
42bStAREB4F	AATCGGATGGTTCAACTAGTATGGGATCTTACCTGAACT T	Protein expression
42bStAREB4R	CGAGTGCGGCCGCAAGCTTCTACCAAGTCCCGTCACT G	Protein expression
42bStAREB1pF	AATCGGATGGTTCAACTAGTGATACATCGTCTCTTTCAC C	Protein expression
42bStAREB2pF	AATCGGATGGTTCAACTAGTGATACACCTTCTGTATCTC C	Protein expression
42bStABI5pF	AATCGGATGGTTCAACTAGTGATAATGTGGGCCAATAC GG	Protein expression
42bStAREB3pF	AATCGGATGGTTCAACTAGTAACAGGCCATCTCCTTCCC C	Protein expression
42bStAREB4pF	AATCGGATGGTTCAACTAGTGATACATCTTCTCTTTCAC C	Protein expression

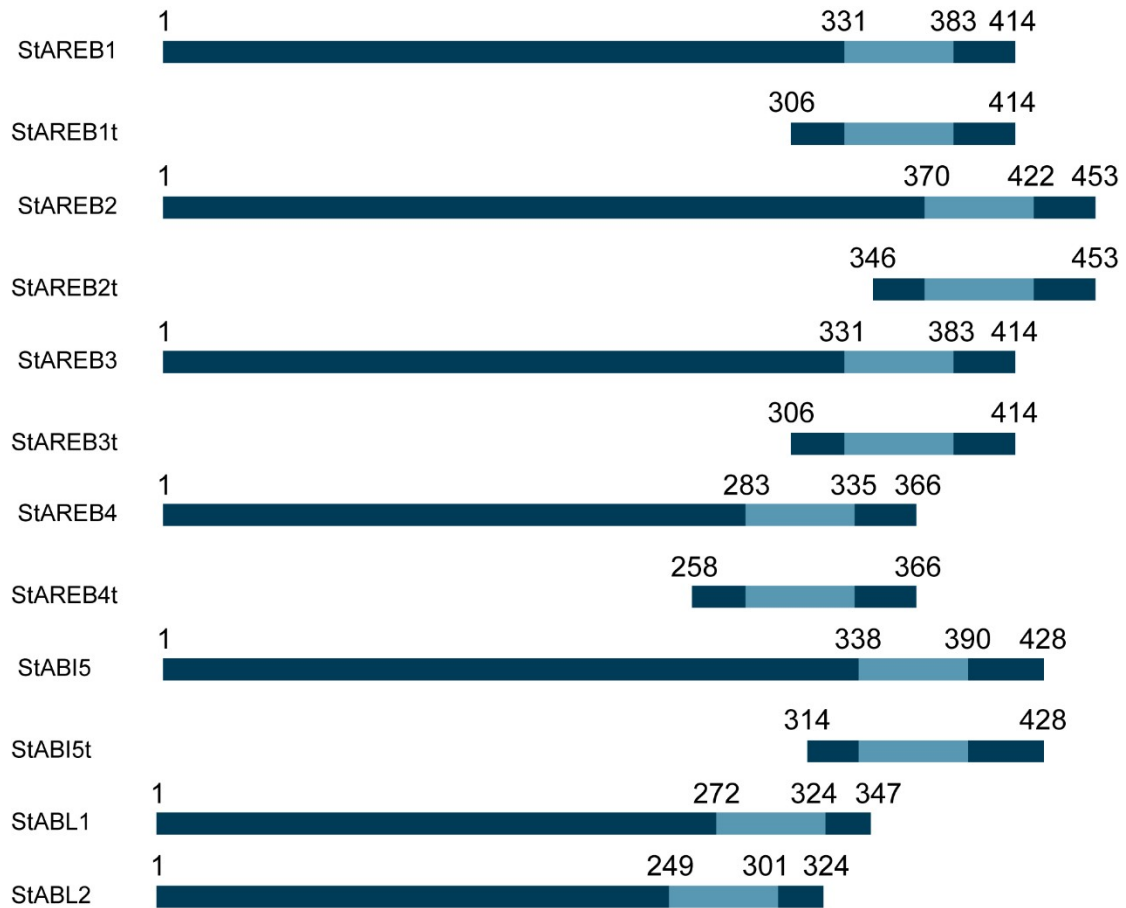


Figure 1. Schematic representation of the full length and truncation of AREB/ABF/ABI5 proteins used for protein expression. The conserved basic domain/leucine zipper (bZIP) domains are indicated by red color. The numbers above designate the amino acid positions of the regions.

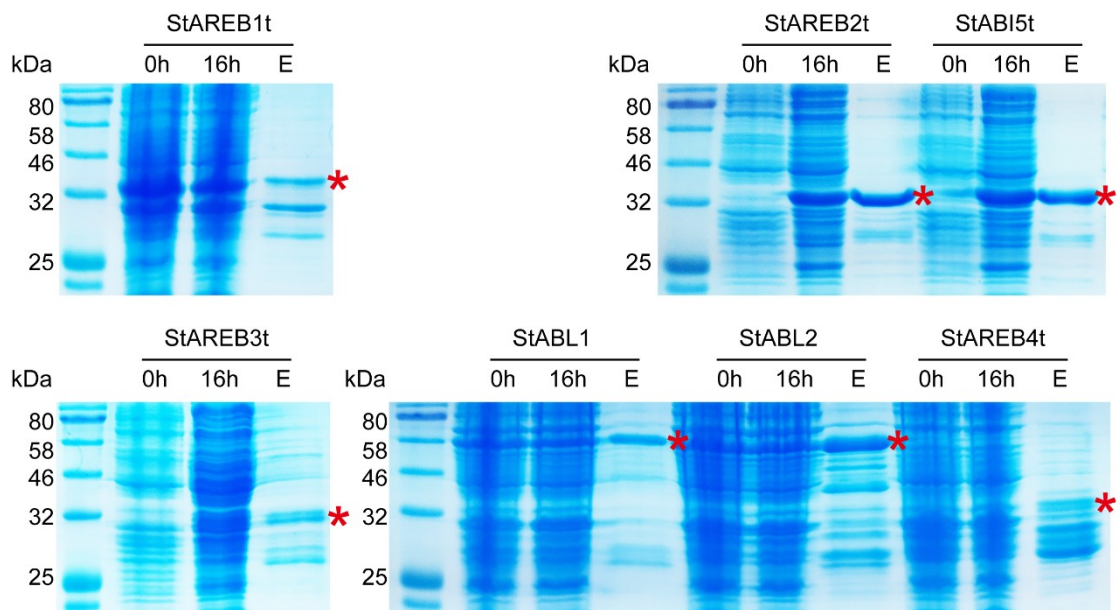


Figure 2. SDS-PAGE of recombinant StAREB1t, StAREB2t, StAREB3t, StAREB4t, StABI5, StABL1, and StABL2. The recombinant proteins containing N-terminal GST-tags were expressed in *Escherichia coli* after induction with 0.4 mM IPTG. Extracts of *E. coli* BL21 before (0 h) and after induction (16 °C for 16 h) and the proteins purified with GST affinity resin (E) are shown after SDS-PAGE.

	10	20	30	40	50	60	70	
StAREB2/1-453	MGSNYHFKNFGNEPPGEGGSGGGGGGGKQLGNFGLPRQSS IYSLTFDEFLSSTGGSGKDFGSMNMDL LKN IWNAEENQ							
StABF1/1-453	MGSNYHFKNFGNEPPGEGGSGGGGGGGKQLGNFGLPRQSS IYSLTFDEFLSSTGGSGKDFGSMNMDL LKN IWNAEENQ							
	80	90	100	110	120	130	140	150
StAREB2/1-453	T IGGPG I NGQEVGVPRGHLQRQGS L T L PRTL SHKT V DEVRDMSKEHGGGKDGNSVGVPPN I PQTQRQQT FGE I T LEEF							
StABF1/1-453	T IGGPG I NGQEVGVPRGHLQRQGS L T L PRTL SHKT V DEVRDMSKEHGGGKDGNSVGVPPN I PQTQRQQT FGE I T LEEF							
	160	170	180	190	200	210	220	230
StAREB2/1-453	LVRAGVVREDAL F AAKSNNTGG I FGDLSYAGNNTGLAFGYQQANRRNTGLMAGS I PNKNGETV I QTANL PLNVNGVRST							
StABF1/1-453	LVRAGVVREDAQ F AAKSNNTGG I FGDLSYAGNNTGLAFGYQQANRRNTGLMAGS I PNKNGETV I QTANL PLNVNGVRST							
	240	250	260	270	280	290	300	310
StAREB2/1-453	QQQLRPQQLQQNHQPQQQPQQQP I FPKQPALPYGAPMA I P NSGQLGSPGMRVGMVG I PDPALNSNF I QGT ALMGGGMN							
StABF1/1-453	QQQLRPQQLQQNHQPQQQPQQQP I FPKQPALPYGAPMA I P NSGQLGSPGMRVGMVG I PDPALNSNF I QGN ALMGGGMN							
	320	330	340	350	360	370	380	390
StAREB2/1-453	MVLGASGVTVAT ASPGVSSDGLGKSN GDT P SVSPVYVFN GGLRGRKYSTVEKVVERQR RMIKNRESAARS RARKQ							
StABF1/1-453	MVLGASGVTVAT ASPGVSSDGLGKSN GDT P SVSPVYVFN GGLRGRKYSTVEKVVERQR RMIKNRESAARS RARKQ							
	400	410	420	430	440	450		
StAREB2/1-453	AYTMELEAEVAKL KEENDELQKKQEEMLEMQKNQVMMEMNL HKGAKRRCL RRTQTGPW							
StABF1/1-453	AYTMELEAEVAKL KEENDELQKKQEEMLEMQKNQVMMEMNL HKGAKRRCL RRTQTGPW							

Figure 3. The protein sequences alignment between StAREB2 and StABF1.

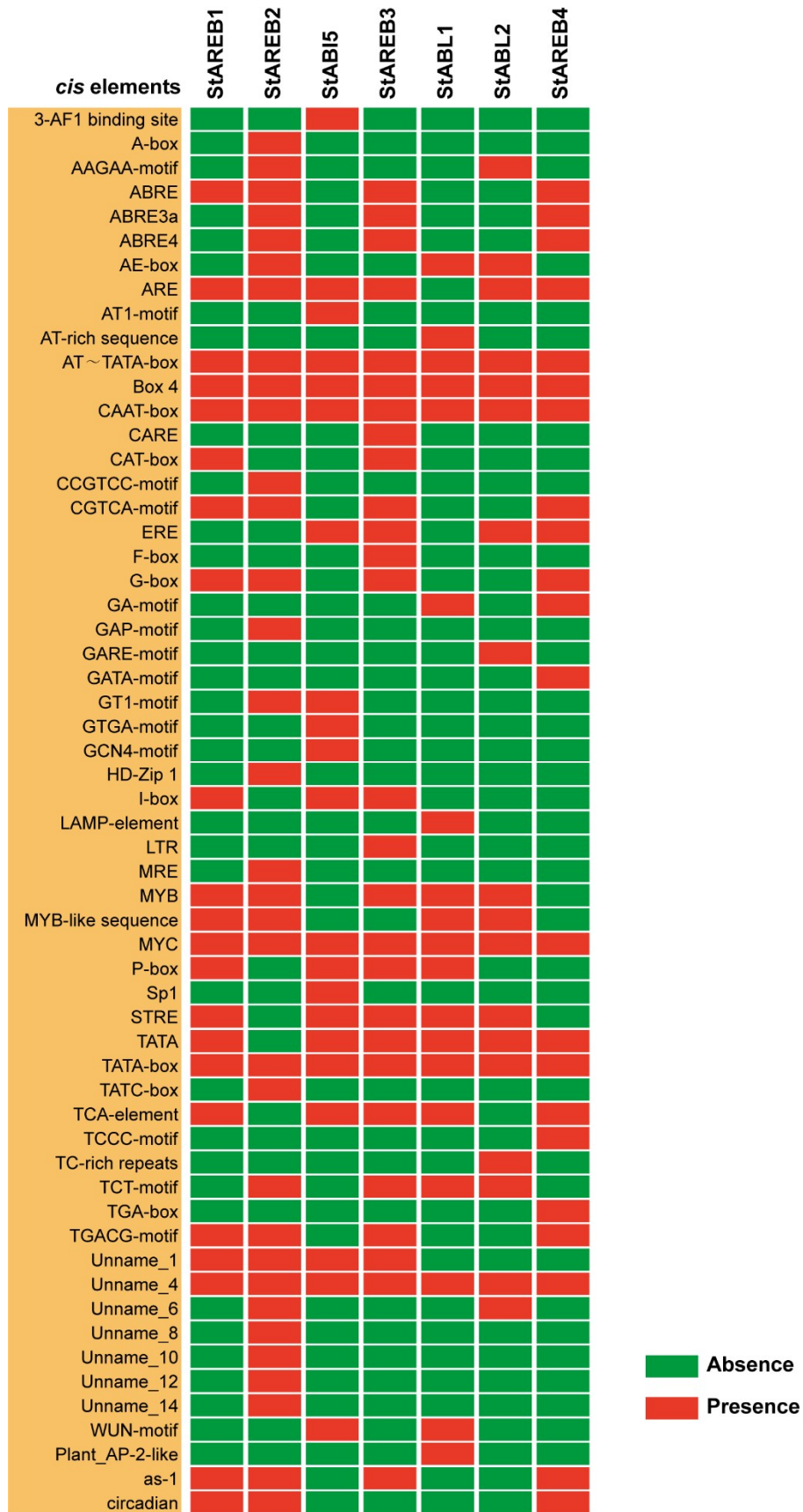


Figure 4. List of *cis* elements in *AREB/ABF/ABI5* promoters of *Solanum tuberosum*.