Supplemental Data. Zhao et al. 2007. SAD2, an importin β-like protein, is required for UV-B response in *Arabidopsis* by mediating MYB4 nuclear trafficking.



## Supplemental Figure 1. Complementation of *sad2* mutants by the *SAD2* gene.

(A) Twelve-day-old seedlings of wild type, sad2-1, and a sad2-1 complemented line (com-1) were treated with UV-B (5.3 mW/cm<sup>2</sup>) for 10 min. Photographs were taken after a three-day incubation in the growth chamber.

(**B**) Twelve-day-old seedlings of wild type, *sad2-1*, and two *35S:SAD2* transgenic lines (in the *sad2-1* mutant) were treated with UV-B ( $5.3 \text{ mW/cm}^2$ ) for 10 min. Photographs were taken after a three-day incubation in the growth chamber.

(C) Twelve-day-old seedlings of Col-0, *sad2-2*, and two *sad2-2* complemented line (com-4 and com-6) were treated with UV-B ( $5.3 \text{ mW/cm}^2$ ) for 12 min. Photographs were taken after a three-day incubation in the growth chamber.



**Supplemental Figure 2. Expression of SAD2 homologs At3g59020 and At1g26170 in wild type and their corresponding mutants SALK\_052799 and SALK\_043918.** Total RNA was extracted from 12-day-old seedlings of wild type and the mutants. The resulting cDNAs were used for quantitative real time PCR analysis. Error bars indicate SD (n=3).



## Supplemental Figure 3. Transient expression of *MYB4-GFP* in wild-type and *sad2-2* protoplasts.

MYB4-GFP nuclear localization in wild-type (left) or *sad2-2* mutant (right) protoplasts. Top panels, confocal GFP images; low panels, combined bright-field, chloroplast autoflorescence and GFP images. (Left) A protoplast showing typical nuclear localized MYB4-GFP in wild type. (Right) A protoplast showing nuclear and cytoplasmic localized MYB4-GFP in the *sad2-2* mutant.

-3010	ACGATAGTGG TTTGTA	ATTIA CCAATIAACA	AGAAGAAAGA	AAAATGTAAC	AAACAAGAAA	AGGCTCGGCA	AAGAAATGAA	AAAATCTCAA	CTTAAGAAAT
-2910	AAAAATGTAG ACGCAC	CAATT AAATACCTTC	ACATTIATAT	ACATTGGTGG	ATATGGACCT	CTCTATCCCT	ATTATATTCC	ACTCTTIACA	AATGGTGTGG
-2810	TGTGACAAGT TATGTG	GTATA ATTAATCATC	CACCGTCACC	AACCATCCAC	CTTATTTCA	CGTCTCGIAA	GGGAAACAGA	TCATAGIAGC	ATCTTACTCT
-2710	TCTGARATIA AAGACI	TCIAT CAGTTIATCA	CAACTCAACT	ATTATGGAAA	ACTTAACTTA	TTCTTTGGTC	GTCAATAAAA	TCIAATCTTT	ACCTTGAGAT
-2610	CAAGGTGATC TTAATT	ICTTG TATCTGAATA	CGCAAAGTTG	ATAAATTAAAA	TCAAACAAAT	GAATCCATTA	TTAAAAAAT	AATAATAAAG	TGGAAGGTGA
-2510	ACCANATCCC ACGTCC	CCAAC CGCATACGGA	CCTAAATAAT	ATATAGTTTT	TTTTTGTTTT	TGGCAGCAAC	CTAAATAATA	TAATTATCCT	ACTCTTTTTT
-2410	AATATCAGTA TATTTA	ACTIA AAGAAAATGC	CAAATTAATC	AGTACATTGT	GATTTCGCTT	CIATATATA	TTTGTGACAC	AAGTTTTGCT	TATTATATAT
-2310	AGCACATCGC TATTTC	CCTCC ACGTCATTIA	CAATCCCATT	AGTAGTACTA	CIAACAAGIA	ATAACATATT	ATTCCTAAAA	CAAAAAAAAA	AAAAAAAAA
-2210	ACAGAGAGAA TAATTO	CACCT GGAGAACTAT	TATTCTCCCA	TGATGTTAAA	AAACGTTTTG	CATGIAGIGT	TGCTGCATTT	GGTTTTTCAT	AAAACAATAT
-2110	TACGAATTTG TCTCTT	IACAA TTTAGTTGCA	AGAAAAAAGA	AAGAGCAGTA	AATAAGTTAA	TTGGGTATAA	ATAGTCAATG	TGAAAAACTG	ACTGATTGGG
-2010	GTTTAATTTT GATTCA	AGATG TAAATGGACG	TAAACTTTTG	TTGATGAATT	GAAGAATCTT	GGCCTTTAGC	TAAGAACCIA	ACCTTCIAGA	AGAGGGCCAT
-1910	CATCATGCAT GAGGTO	GAGTG ATTTTGIACC	AATAGATIAA	ACAAATTGAA	ATTCAACTAC	TCTCTCTCTC	TCTCTCTCTC	TTTTTCGGTT	TTTTCATCTT
-1810	TTTCAAIAAA CCATIA	ATTCT TTTTCGTTTC	TTCTCACATT	TTCCACCIAA	CTIACCAAAT	TTCACAATTA	AGTTCAACTT	TTTTTTGTTIA	GCATACATGG
-1710	ACAGTACACA GTAGAT	IACIA IAGTTIAATT	ATTCTCTCCT	ATATACTGTT	ATGTGTTCIA	TTCTTCAACT	ATTCTCCTGA	CATACGAATT	ACTACATACG
-1610	TATATGATIA GTGTTC	STCGA TCGIATTCIA	AAAATATAGA	TACGATTAGT	GCIATAATAA	TATTCCGTCC	AGTTAGAGTT	CAACATIATT	TATAAAAAAA
-1510	CTCTTAATAA GTCTTG	SATTT TTCAAGTCTC	TAATATGAAA	GAAATAGAAG	TTGGTTAGAG	AAAACCATTC	TAAGTCAAGG	TTCTAGAAGG	CACATTCTTT
-1410	AATTCAAATA GTTTAT	TCATA TATGTATATT	TCIPATTIAT	ATGIATGTGT	CATGGTGGTT	CTTGTTGIAT	TGTTTTTATA	CTGAAAIATT	AAAGAAACAT
-1310	GAGCATCATC ACAAAA	IATTT TAAACATGAA	GTGCTTGTCA	TTTGGTGAGA	GTAATTTGAA	AACCATATAT	AAGTTACAAG	TIATCCTGCC	CACACATATA
-1210	ATTAGTIATT TGATAN	ATGCT TTGTTTAATT	AGCAAGTGAT	TGIATIAGGG	TIAAGTTCIA	GATATATIAT	TGATTAAAAA	AACAATAACT	AATCCAGTGC
-1110	AGTCTATATA TTAGAG	GAAAA GACTGTTGAC	CAGTACAACA	AAAACCTCAT	AGGCTATATA	GTTGACCTGC	ACTTGTCCAA	AAAACACTCA	TIAACTTIAC
-1010	CACCIACCIC CACIAC	CTTCA TIAIATCTTC	TCTTCGTIAT	TGCTACCAAA	TIATTCAAGT	TTCCCCTTCC	TTTGTIAGAC	CCAAATTTTT	ACTTGTGACC
-910	TATAATATCT GGCGAT	IAAAA GCCATTCACA	AACTTTTTGT	TTIACTGAAT	TTIAGGTTTT	CIACATIAAT	TTTCACCCGC	CIAAGTTTIA	CIACAAACTT
-810	AATTCATACG ATAGGT	IAAGA GACTCCAAAA	TAAAAAAAAA	AAATTACTGT	TTGIACIAAA	TCGGTCGAAG	TTAAAAGACG	ATTTGTCAAT	AAATGIACAC
-710	AGTCGAAIAC TCGAAI	TTGTC ATGIATTGAT	TAATTTCTTG	ACAGAGTTGG	TTTATATTT	GIACIAAAIA	AAACTTGTTG	CAAAGTAAAA	AAAGAAAGAA
-610	AAAAAATIAA AGAAGI	IAGCT AAATAATTTT	GGTTTATGIA	TATACGAACA	CGAGAAATTT	CTTTGATIAC	TATATATATA	TATATATATA	ATTIAAGTCA
-510	GAAATATIAA ATTTGT	TTGTC ATGATIATIA	AAAAAATGTC	ATAGCTTTAT	CAAAAGACIA	TGATGCCATA	TATGTCAAGC	TTCTCACTIA	TTGTACCAAA
-410	ACGAAAGGCC ACCATA	ACACT ACTCATTCAA	ATCCATCCCA	CCAACTCACA	TCIAGAAGCA	ATTATAAGTT	CAACTCTCTT	TCTCTCTCCT	TTTTCTATCAT
-310	CIAGAAGCAT TTGTGT	IATAT ATATATATGT	GTGIAIATTC	CTCTCIAGCT	TIAAGTCAAA	ACCCTATATA	AACTATACAC	CAAAGCTTTG	AACCTTCAAC
-210	CAAACCCAAA ATCCAA	AGTGC CCCACCAAAT	GCTTCAATCC	TCTTCCACIA	CACAAAAAAA	CAACTIAATC	CCTTTAIACC	CTTTTAGCCA	AAACCCTCGC
-110	TAAAAGCCAA TCCCTC	CAATA TAAAATAACA	AGIAGAATTG	ATCTGCCIAT	ATATAAGATT	TTGAGACGAA	ATAAGATCIA	AACCACAAGA	AAGAAAGIAA
-10	ACATAAAAGT ATG								
	Promoter fragments	No. 14	No.	. 15	No. 16				
	cis-elements	AC-I	AC	-11	AC-III	MYB-1			
	Promoter:GUS	> MY	MYB4 35smini: GUS		→ N	YB4:GUS			

Supplemental Figure 4. A schematic representation of MYB4 binding *cis*-elements in the *MYB4* 5' upstream sequence.