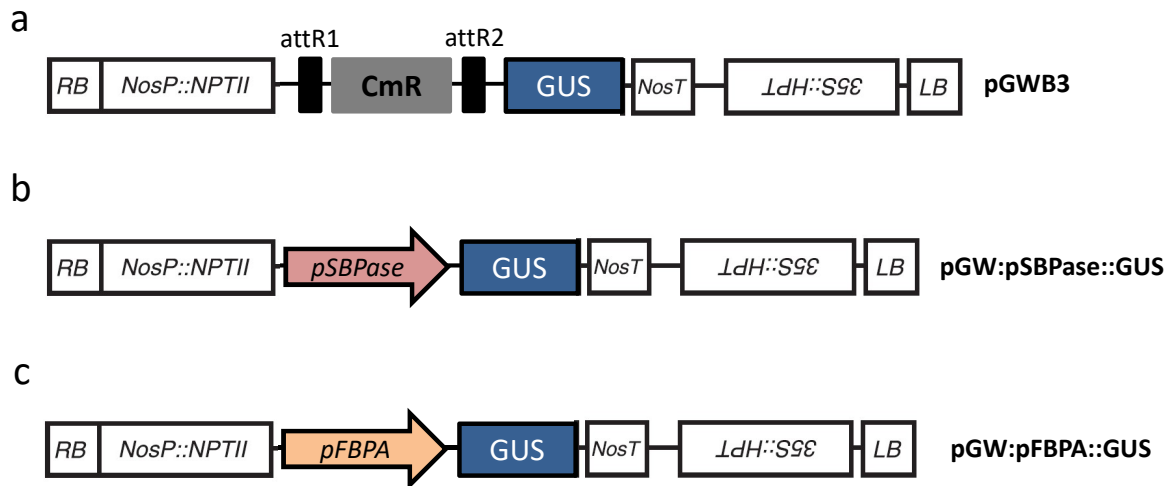
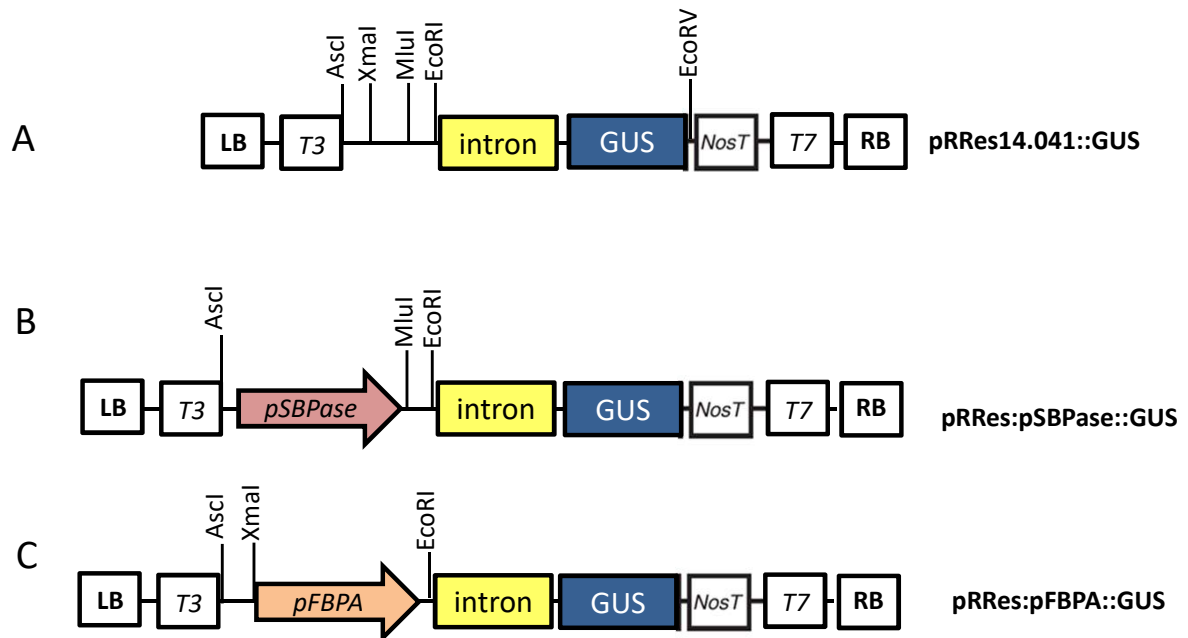
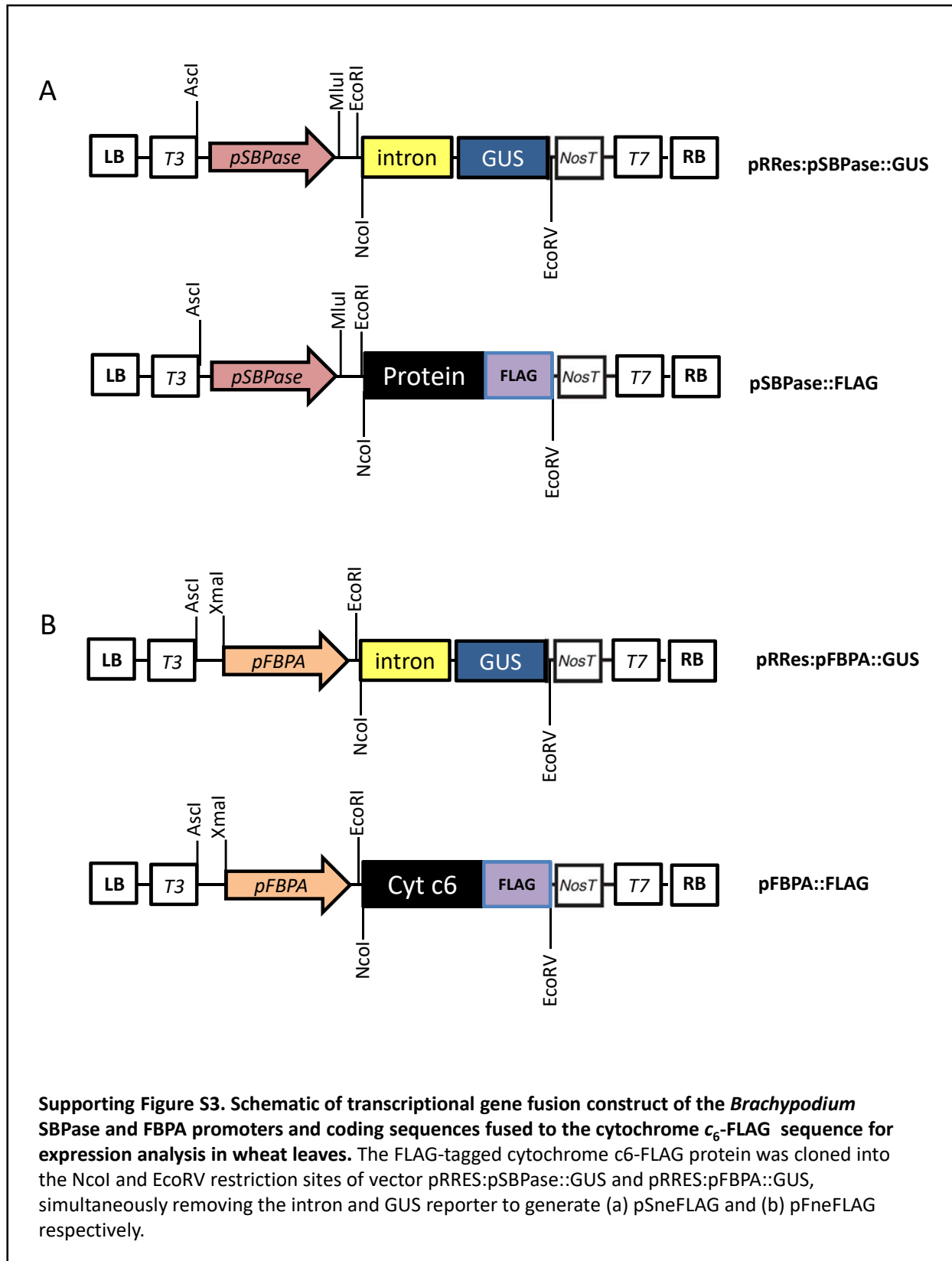




Supporting Figure S1. Schematic of transcriptional gene fusion constructs of the *Brachypodium* SBPase and FBPA promoters with the β -glucuronidase (GUS) reporter for expression analysis into *Nicotinia benthamiana* leaves. Genomic DNA of *Brachypodium* leaves was used to amplify the native promoters of *SBPase* and *FBPA*. They were cloned into the pENTR vector (Invitrogen). The resulting product was transferred into the (a) pGWB3 vector by LR recombination to make (b) pGW:pSBPase::GUS and (c) pGW:pFBPA::GUS.



Supporting Figure S2. Schematic of transcriptional gene fusion constructs of the *Brachypodium* SBPase and FBPA promoters with the β -glucuronidase (GUS) reporter for expression analysis in wheat leaves. Genomic DNA of *Brachypodium* leaves was used to amplify the native promoters of SBPase and FBPA and they were cloned into the corresponding restriction sites (pSBPase was cloned into the MluI and Ascl restriction sites and pFBPA was cloned into the EcoRI and Xmal restriction sites) of the (a) pRRes14.041 GUS vector to make (b) pRRes:pSBPase::GUS and (c) pRRes:pFBPA::GUS.



1 TCGACGTCCA TATGGCCCAG GACGGCGGCT TCGCTCCTAG TATTACCTCT GTTCACATAT
 61 GAATTCTATG AATAGTAAGT TCTCCGTGTT GCGGTGGTG ACAAGAATTT AGAATAGTAA
 121 TATTTTACGT GTGGTGTAAT TGACTGTCGC TGATTTTCTT AGACCATGAA ATCTTTCTTG
 181 GCCATGAAAA TGTGAAATCT TTCTTGACCA TGATTAGAGG TAAACTAGTA CTGTGTAGAA
 241 CACTTTGCCT TGGGAATTTT CAGATCCGTT AGTCTTAGGG AAATATGTTT TTTCCACCAA
 301 CCGGATTGTC TCGGAAGCTC TTTGTTTTGA TTCGTCTGTC ACTTGTAACT CAAT AAGGTT
 361 GAGTTCTTTT CAGTTTCTAG GACCGGTTTT TTCTAAAAGC TGATCTCACC TAGCTTCTTA
 421 GAGAAGCCGC ATCTTAGATT TAGCTAGGTT TCCAAAATAA TTTGGTAGCC CAATCAAATT
 481 TAGATGGTGA CTCTTCAGG AAGCTGGGG AGTG CAGCTT TTCGAGAAG CCGATCCAGG
 541 AAACCGAAAA GAACTGGCCC TACGACGTCT ATTGATTTTC TCCGTCAGTT TTTACTTTTT
 601 AGAAACGTAG GTCTAGTTGA GCTATTGAAT AGATGGGCCCT CTCATTTTGA TTTTGATTG
 661 GGATTTGTCG AACCGAGTCA ACCTGTGGTG ATTTATAACC TCTCTAAATT TCCGATTCTC
 721 AAAATGAAAA ACCTCTCTAA ATTTCTCTAA AAACCACTAT AAATAAGGCA AATGAGTGAA
 781 AACAGGCTGA GAACCTCTCGC TCCATATCCC GCCATATTTT TTCTCTTACA GCTCGTTTGA
 841 CACCAATCAT CTGGTTTAG AATTCTGAAA TTCAT TTTCA AAAATCAACT TATTTGATTG
 901 GCGCAAGATT GGCCACGGAA ATTCAATCTC AAAAATTTCA TAAAGTCACA CTATAAAGTC
 961 CAATTCCTAAA AATGGACGGT TAAATGGACG GCTAAGAAAT ATCCACTCCA TTCCACCTG
 1021 TACGAAAGCA CAGTGTGAT CAACAAGACA ACAAAGCTGG ATCAAATCCC TTGTCACGAA
 1081 CTACTGCGGG CGGTGCCACG AAAAGCCAAC TTGCAAAGTA AGGTCCGGAT GAAACCTCCT
 1141 AACTCCTAAG GCTAAGGGGC TGTTAAAACT TAATGTGGAT GCACCGTCTG ATGTAGATGA
 1201 ACTCCGAGGA ACA GACGTG TGTCATTATT TCCGGACTCC AAGGGCGATT TTGTGGTGGC
 1261 TACCTATAAG AAGTTTGC GG GTGTCTTGA CGTTCA TGT CCGGAAGCTT CTGCACTACA
 1321 CTTCCGACTC CTCGCACAAA TGGTGGGATG TAACAGGATG GTCATCGGTG GGTTGCACAA
 1381 CCAGGAAATG ATTGGTACCG CGAGCCAGCA CGAGCGATGA GGTACGGTGG AGCTGCGATC
 1441 TACGAAACT CAAGTTTCAG GCAGACGAGT CCGTGGACAT TCGTGGACAT ATCCTTCCAA
 1501 CATGCGCACC GCGAGTCAAA CATGGTGGCA CACGAACTTG CTCCGATGGC AAAGCATTC
 1561 CCCTCCGCTA CTTGGATCGA AACCCCACTT GGTAACATTA TACCTCTGCT CTTGGAAGAT
 1621 GTAACGGCTA TTGAAGCCTG GTAAATGGT ATTTGTGTCA AAAACAAAGA CAACAAAGCT
 1681 CGATCTCTAC ACCTTAGGAA TTCAGTTGAT GAAAA TAGCA GGACACTTCA CTGAATTTTT
 1741 TTGACGAGTA CACTTCACTG AATTTAATCC GATGTGTTAC GACTTACAAG TCGCGACTAA
 1801 TTAATCTGCC CCTCCCTTGC AAGCGCGCAC ATACGTACCG ACCCGATTGA TCACGTCCCA
 1861 GGAGGGCCAC ACAACCCACG GACGGTCGTC GCGCGCCCGG GGACGCTCCC GGCGCGCTCT
 1921 ATCTTCTCCC GCGCACGTC GCGCGCCGGC TTATCTGGTC CAGTCGTG* TCCGCCGTGT
 1981 GTGATCCCAA ATCCCCATC CGAGCTTAGC TGCAGCCGCA GGTAGGTCGC TCACCACGCA
 2041 ACGTAAATC GTATGACAAC TAAATAACAC ACTCCCCCT CCAAAGAAAA GCTTAAGCTC
 2101 AGTCCGCCTC GGTCACCTCG TCGGCGTCTA CCAGAGATTA CGGCGGCAGC TCGCATCGCA
 2161 GCATG

Supporting Figure S4. Sequence of and regulatory motifs in the 2 Kb upstream region of the *Brachypodium* SBPase gene . The different coloured boxed sequences represent the promoter motifs (see Figure 1).

1 TCATTGGACG TGTGATGTG CTGCGAGAAG CTATCGCCAT TGCTGAGGCA GAAGCTTGTG
 61 GCTTTTTTAT CTAGTAGCAG TCCTGGAGCA GCTGAAGAAG CTTGTGGTAA ACAGATTAAT
 121 GAGGTTTCTA AAGCAGCAGA GTTGAAGAGA GTTTGCTCAA ACTAGATGTC ACAACCTTCT
 181 ATGTCCAGAA TGAACACAG CCAGCACTAG TTTCCCAGCA ATTTGTACTT TTGTATGTTC
 241 CTGGAAAGGA AAGAATAAGC AGAGGAATCG CAAGGCTTTA CGAGTATCAC AATTCACAAG
 301 GAGTGGAGAT TGATGAACAC ATCTTTTGAA CAAGCAAGAG AAAGGAACTT GGCCCTGCT
 361 TGCCTTCTGG AGCTACAAAC CTGGACCTCA CCAGCCACGG TCCACCCGGT ATGTATGCAG
 421 AAACACATCCC ATCAGAGGCT GCCCTGACAG TCAGATTAAA TCAGAAGTTA ACTTCATTG
 481 TGTTCAACCA AATACATAAT GCCAGAGTAA ATGGAGATCA CGCATGATGC TTGATTTTCA
 541 ATTTCTGCTG GTTGAAACAA CTGAACTTAT GGTACCTTCG ATTGATATGC AGCCCAACAC
 601 ATGGTATCTT TTGTTTGTTA CGGAGGATAG AATGCATTAA ACTGAAGGAT AGACTGTGCT
 661 TCCTGTGCTT CATTACAAGT TAGCTTCAGA TGTGATGAAT TTATGTGCTG GCAGCAAAGG
 721 AAATAATTGT CTGTGCAAAC CTATCTTCTG CCTGAACTGA TGAAAGAAAT GATCAGCTG
 781 CACAGTAGAT GCATTAAACG ATGCTGATCA GAGTTAAGGT CTGGTGATA TGAAGCTTGT
 841 GATAGTGGAT GTTTTCTACT TTTTGTGTTA GGCATGCTCA TACTCTTTAC AGAAAAAGGC
 901 ACATACACCA CAGCAGGGAG TCTTGATGT ATTTCTCCCG AGTTATAGGA GATCATCTGA
 961 TTTAAGTAGG CCAACCTTGT GTACTTGTGA ACAATTTGTA ACTATCAGCT TTTGTTATTC
 1021 AATAGTAGTA AAATCCCTTT CATGGTACTC TGTGTCCTTT TTCATTGAGG GCAGTAGGTT
 1081 CCATATACCA ACTTGCTCTG TGATGTTAAT GTTTTGGTG ATTAGTGACA AGGGTGCTTA
 1141 ATTTCTTTTC TGATGTTAAT ATTTTGAAA ATCTTCACTC TGAAAAAAA ATGCATGTTC
 1201 ATATCCATGT TTCTCTAAAA ATAATCCATA GCCAGTGTGT GATACTTTCT ACTAGTTCCC
 1261 ACTAAATGCA TTGTGAAATT AAATTCTATA AAATTTTGTA ATTTCTAATA TTTAGTAAGG
 1321 GTAGAAACAG AGATTTTTTT CTTAATTTTA AATCATCATG TATCAGGAGT CGCAAAGGTC
 1381 CAGGAATGAT ATGCAAGATT GCTACATGGT TGGTATCCTC TTAATGTCAT CCTTGGCAGG
 1441 GAGTTGTGGT GGATATGCCT TCTGCTGCCA GGCACCTGGG CACAAGAAGA ATGGTGCTG
 1501 CCACACAAGC CACCCGTCAC CCTACAAACA ACTCACAGCT GGAATGGTTA TCACCAAAAC
 1561 AATGACAGAA AAAACTGTGT ATTCCACGTA ATTGATGGTT ACTGGCAAAA TTCATGGATG
 1621 TAATACATCA GGCATCTCA ACCGTCGAAA GATGCTCATG GGCACTACTC CTCGGCGAAA
 1681 TGCGCCCA CAAGACCAAGA ATTGTTTCATC AGCCAAGACC ATCCTTAAGG TCAAGAATGT
 1741 CCAGATAATA TTTATGGACG GTGCAGCGCA AACGATAAAA TTCCAGTATT GCAGATTTTA
 1801 CATGGTACAC AGAGAAGCTA AGGAAATCAT AGAGACAAGC ATGTGTCAGA GCCAGGACAA
 1861 AAACAGAAGG TGGCAAGAGG ATTGGAGCAA CCAATCACA GCCATTATA TCCAGAAGGC
 1921 CAGCCTCCAC CTCACAATC ATATCCTTTG TACTCAGGTA CTCACCCTTA AATCTGAGCA
 1981 GCGCTTCAC TTCTACCCCC CCCTAAGGAA AGGCTGCAAT TGCAAGCTTG TGTCAAAGAA
 2041 GAGGGTAGCA CCTGATCCTC TTGCCTTTGG AGCCAGAAAC AATG

Supporting Figure S5. Sequence of and regulatory motifs in the 2 Kb upstream region of the *Brachypodium* FBPA gene . The different coloured boxed sequences represent the promoter motifs (see Figure 1).