



5' CACCTAAATTGTAAGCGTTAATATTTTGTAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTTTT
 0 ++++++
 3' GTGGATTTAACATTCGCAATTATAAAACAATTTTAAGCGCAATTTAAAAACAATTTAGTCGAGTAAAAAA 70

5' AACCAATAGGCCGAAATCGGCAAAATCCCTTATAAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGG
 0 ++++++
 3' TTGGTTATCCGGCTTTAGCCGTTTGGGAATATTTAGTTTTCTTATCTGGCTCTATCCCAACTCACAAC 140

5' TTCCAGTTTGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAACCGTCTA
 0 ++++++
 3' AAGGTCAAACCTTGTCTCAGGTGATAATTTCTTGCACCTGAGGTTGCAGTTTCCCGCTTTTTGGCAGAT 210

5' TCAGGGCGATGGCCACTACGTGAACCATCACCTAATCAAGTTTTTTGGGGTTCGAGGTGCCGTAAAGCA
 0 ++++++
 3' AGTCCCGCTACCGGGTGATGCACTTGGTAGTGGGATTAGTTCAAAAACCCAGCTCCACGGCATTTCGT 280

5' CTAAATCGGAACCCCTAAAGGGAGCCCCGATTTAGAGCTTGACGGGGAAAGCCGGCGAACGTGGCGAGAA
 0 ++++++
 3' GATTTAGCCTTGGGATTTCCCTCGGGGGCTAAATCTCGAACTGCCCTTTCGGCCGCTTGCAACGCTCTT 350

5' AGGAAGGGAAGAAAGCGAAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCGGTCACGCTGCGCGTAAC
 0 ++++++
 3' TCCTTCCCTTCTTTCGCTTTCCTCGCCCGCATCCCGCGACCGTTTACATCGCCAGTGCAGCGGCATTG 420

5' CACCACACCCGCGCGCTTAATGCGCCGCTACAGGGCGCGTCCCATTGCCATTCAGGCTGCGCAACTGT
 0 ++++++
 3' GTGGTGTGGGCGGCGGAATTACGCGGCATGTCCCGCGCAGGGTAAGCGGTAAGTCCGACGCGTTGACA 490

5' TGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGC
 0 ++++++
 3' ACCCTTCCCGCTAGCCACGCCCGGAGAAGCGATAATGCGGTGACCGCTTTCCCCCTACACGACGTTCCG 560

5' GATTAAGTTGGGTAACGCCAGGGTTTTCCAGTCACGACGTTGTAAACGACGGCCAGTGAATTGTAATA
 0 ++++++
 3' CTAATTC AACCCATTGCGGTCCCAAAGGGTCAGTGCTGCAACATTTTGCTGCCGGTCACTTAACATTAT 630

5' CGACTCACTATAGGGCGAATTGGGTACAAGCTTATTTATTTTGTATGTTATATGTATTATATGTGACAC
 0 ++++++
 3' GCTGAGTGATATCCCGCTTAACCCATGTTTGAATAAATAAAACAATACAATATAACATAATATACAGTCTG 700

vermilion

5' ATAAAGAAAAGGAACACATCAAAATGTGATAACAAAGACTAAACAAGTAATTTTATTACACCAAACGACA
 0 ++++++
 3' TATTTCTTTTCCCTTGTGTAGTTTACACTATTGTTTCTGATTTGTTTCATTAATAAATAATGTGGTTTTGCTGT 770

vermilion

5' AAACAGTAGGCAGAACAACAACGCATAGCCAAACATTGACGAATTGGATACCCTGCCGATTGTCAGACA
 0 ++++++
 3' TTTGTCAATCCGTCTTGTGTTGTTGCGTATCGGTTTGTAACTGCTTAACCTATGGGACGGCTAACAGTCTGT 840

vermilion

5'	CTTTTGTGATCAGTTTCTTGCGAATGGTCTCGTCCAGCGGTGGAATCGCCTCGCGGGGAATCAGAAAAG	
o	+++++	910
3'	GAAACAACACTAGTCAAAGAACGCTTACCAGAGCAGGTCGCCACCTTAGCGGAGCGCCCCTTAGTCTTTTC	
o	vermilion	
o		
5'	TGGACAGATTGAACAGATCCAGAAACACCTTGTACCGATCACTGAAACCAAAAAAAAAACAAAGGGAGAAC	
o	+++++	980
3'	ACCTGTCTAACTTGTCTAGGTCTTTGTGGAACATGGCTAGTGACTTTGGTTTTTTTTTGGTTTCCCTCTTG	
o	vermilion	
o		
5'	AGTTTGAGTTCATTGATCCCCGATATAATCACATCTGCGATGATCACCTGAGAGTGGAGCGCAGATATTG	
o	+++++	1050
3'	TCAAACCTCAAGTAACTAGGGGCTATATTAGTGTAGACGCTACTAGTGGACTCTCACCTCGCGTCTATAAC	
o	vermilion	
o		
5'	ATAACCAGACGAGCCACCAGTGCCCAACTGTTGCGATCCAATCATGCGTTGCACCATGATCACGTGATTG	
o	+++++	1120
3'	TATTGGTCTGCTCGGTGGTCACGGGTTGACAACGCTAGGTTAGTACGCAACGTGGTACTAGTGCCTAAC	
o	vermilion	
o		
5'	TCTGCGGCGGGAATAGAAAGTATTTGGTTAGGAAAACCAGTCTTAAACATAAGATATATTTATAAAAGAG	
o	+++++	1190
3'	AGACGCCGCCCTTATCTTTCATAAACCAATCCTTTGGTCAGAATTTGTATTCTATATAAATATTTTCTC	
o	vermilion	
o		
5'	TATCAAAGAATGCAATACTTACATCTCCACTTGGTTATTAACGAGTCGATGTCCATGAGCAGGGTGAGCA	
o	+++++	1260
3'	ATAGTTTCTTACGTTATGAATGTAGAGGTGAACCAATAATTGCTCAGCTACAGGTACTCGTCCCACTCGT	
o	vermilion	
o		
5'	ACTGGTGTGGTTGGCTGAACCTGGGTTTCATCCCTATAGAAGGTGATCATGATGGCTCCCTGAAGGGCACG	
o	+++++	1330
3'	TGACCACACCAACCGACTTGGACCCAAGTAGGGATATCTTCCACTAGTACTACCGAGGGACTTCCCGTGC	
o	vermilion	
o		
5'	ATGGCTAAACCGGCGATCCCCACGACGCACCAGTGCATCGTGCCTGCCGGATCAAAGATGGAGCGATAC	
o	+++++	1400
3'	TACCGATTTGGCCGCTAGGGGTGCTGCGTGGTCACGTAGCACGTGACGGCCTAGTTTCTACCTCGCTATG	
o	vermilion	
o		
5'	ACCTCGCGTCGCTTCTCAATGTCCATGAGGCGGTAGTTTTTCGCCTTCTCCACGGGCTCCTCCATGGCGC	
o	+++++	1470
3'	TGGAGCGCAGCGAAGAGTTACAGGTACTCCGCCATCAAAAAGCGGAAGAGGTGCCCGAGGAGGTACCGCG	
o	vermilion	
o		
5'	TCTGTACCTGCGCCTCCAGGAATCGATCGACGCTCTCCTGAACTTGGCCCAGAAAGTTGAAGCCACTCTC	
o	+++++	1540
3'	AGACATGGACGCGGAGGTCCTTAGCTAGCTGCGAGAGGACTTTGAACCGGGTCTTCAACTTCGGTGAGAG	
o	vermilion	
o		

5'	CTCCAGTCCGGGCGTCCTCTCCAGCCATCGCTGCACTAGCTCCAGTAGCGAGGGATCTTTCTCCGAGTTG	
+	+++++	1610
3'	GAGGTCAGGCCCGCAGGAGAGGTCGGTAGCGACGTGATCGAGGTCATCGCTCCCTAGAAAGAGGCTCAAC	
o	vermilion	
o		
5'	CGAATCGAGTTCCGCGCCTCCTCGTCGCTAAAGACATCCGAGTACTTCTGGTTGTATCTCACCCGCTGCT	
+	+++++	1680
3'	GCTTAGCTCAAGGCGGGAGGAGCAGCGATTTCTGTAGGCTCATGAAGACCAACATAGAGTGGGCGACGA	
o	vermilion	
o		
5'	CTGTCAGAACTCCCAGCTTGTTCGATCAAACGGAAGTGCAGCGACTGAAAACCAGATGCGGGTGCCAG	
+	+++++	1750
3'	GACAGTCTTGAGGGTCGAACAAGAGCTAGTTTGCCTTGACGTCGCTGACTTTTGGTCTACGCCACGGTC	
o	vermilion	
o		
5'	GTACTIONGCGGAAGTCCATGAAGTCTAGCGGGGTCATGGTCTCCAGAATGGGCACTTGGTCCACCAGGAGC	
+	+++++	1820
3'	CATGAACGCCTTCAGTACTTCAGATCGCCCCAGTACCAGAGGCTTACCCGTGAACCAGGTGGTCCCTCG	
o	vermilion	
o		
5'	TGTACAAAGGAAGTTATAAACGGATTTTGGTAAGAGATTCAGAAAGCACTCACTTTTAGAATCAGAACCA	
+	+++++	1890
3'	ACATGTTTCCTTCAATATTTGCCATAAACCATTTCTCTAAGTCTTTCGTGAGTGAAAATCTTAGTCTTGGT	
o	vermilion	
o		
5'	CTCGGTTCAAGTCGCTTGACAATCTCCAGCGTCTTGGTTTCATCGATGACCTCTGCATCCAACATGTCTCG	
+	+++++	1960
3'	GAGCCAAGTCAGCGAACTGTTAGAGGTCGCAGAACCAGTAGCTACTGGAGACGTAGGTTGTACAGAGC	
o	vermilion	
o		
5'	TATGGAGTCGAACTCAAAGATGATCTGCTTGAACCAAAGCTCGTAGGCTGTGGCGAAGGTACTIONTAAATGC	
+	+++++	2030
3'	ATACCTCAGCTTGAGTTTCTACTAGACGAACTTGGTTTCGAGCATCCGACACCGCTTCCATGAATTTACG	
o	vermilion	
o		
5'	CATTGAGTGTGTGCATCAAAGTTGTAACCTACTCACCCGGTGCCTGATGATGAACAGATGCTCATCGT	
+	+++++	2100
3'	GTAACACAAACAGTAGTTTCAACATTTGGATGAGTGGGACCACGCACTACTACTTGTCTACGAGTAGCA	
o	vermilion	
o		
5'	GCACGGGTCGCTTGTCTCCTCGGACAGCATACTGGGCATCCAGCAGTTTGTCCAGCATCAGATACTC	
+	+++++	2170
3'	CGTGCCCAGCGAACAGGAGGAGCCTGTGCTATGTGACCCGTAGGTCGTCAAACAGGTCGTAGTCTATGAG	
o	vermilion	
o		
5'	TCCATAGATTTTGGCCACTTCCGTGGTTAATGGCACCCCGAATCATCGTGATCGTTTCTGTATGGGTTT	
+	+++++	2240
3'	AGGTATCTAAACGGGTGAAGGCACCAATTACCGTGGCGGCTTAGTAGCACTAGCAAAGACATACCCAAA	
o	vermilion	
o		

5'	GAATTGAATCGCAGAACTGAAGATCGATTGGCATTCTCTGGACAGCACGTGCTGGTGCTCACCCGTTTCT	
o	+++++	2310
3'	CTTAACTTAGCGTCTTGACTTCTAGCTAACCGTAAGGACCTGTCGTGCACGACCACGAGTGGGCAAAGGA	
o	vermilion	
o		
5'	GCATAGGGACAGCTCATGGTGCACAGCTCAGATCAGATCGTGA CTCTCGACCGGCGGATGCTGGCGAAC	
o	+++++	2380
3'	CGTATCCCTGTTCGAGTACCACGTGTTCGAGTCTAGTCTAGCACTGAGGAGCTGGCCGCCTACGACCGCTTG	
o	vermilion	
o		
5'	TGATCTCCGCCAGCGGACCGGAGATGAGACCCAGCGAACCGATAACAGAGCGAGAGAGCTCCAGTTCGG	
o	+++++	2450
3'	ACTAGAGGCGGTTCGCCTGGCCTCTACTCTGGGGTTCGCTTGGCTATTGTCTCGCTCTCTCGAGGTCAAGGC	
o	vermilion	
o		
5'	ACTGATTGCACAGTCGGTGTCTGGGCGATGGGCACTGCCAGATAGGCTGGGAATTATCAATCACTTGAG	
o	+++++	2520
3'	TGACTAACGTGTTCAGCCACTAGACCCGCTACCCGTGACGGTCTATCCGACCCTTAATAGTTAGTGAATC	
o	vermilion	
o		
5'	GTGAAAGTGGCGGCACACAAATCCAAGCTTGATATCATCGATCTCGACGCTGCATCCAACGCGTTGGGA	
o	+++++	2590
3'	CACTTTCACGCCGCGTGTGTTAGGTTTCAACTATAGTAGCTAGAGCTGCGACGTAGGTTGCGCAACCCT	
o	vermilion	attB
o		
5'	GCTCTCCGGATCAATTTCGGCTTCACGTACCGTTCGACGATGTAGGTCACGGTCTCGAAGCCGCGGTGCGGG	
o	+++++	2660
3'	CGAGAGGCCTAGTTAAGCCGAAGTGCATGGCAGCTGCTACATCCAGTGCCAGAGCTTCGGCGCCACGCCC	
o	attB	
o		
5'	TGCCAGGGCGTGCCCTTGGGCTCCCCGGGCGCGTACTCCACCTCACCCATCTGGTCCATCATGATGAACG	
o	+++++	2730
3'	ACGGTCCCGCACGGGAACCCGAGGGGCCGCGCATGAGGTGGAGTGGGTAGACCAGGTAGTACTACTTGC	
o	attB	
o		
5'	GGTCGAGGTGGCGGTAGTTGATCCCGGCGAACGCGCGGCGCACCCGGAAGCCCTCGCCCTCGAAACCGCT	
o	+++++	2800
3'	CCAGCTCCACCGCCATCAACTAGGGCCGCTTGC GCGCCGCGTGGCCCTTCGGGAGCGGGAGCTTTGGCGA	
o	attB	
o		
5'	GGGCGCGGTGGTACGGTGCAGGACGGGACGTGCGACGGCGTTCGGCTGGTGC GGATACGCGGGGCAGCGTC	
o	+++++	2870
3'	CCC GCGCCACCAGTGCCACTCGTGCCTGCACGCTGCCGACGCCGACCACGCCTATGCGCCCCGTTCGAG	
o	attB	
o		
5'	AGCGGGTTCTCGACGGTACGGCGGGCATGTCGACAAGCCGAATTGATCCACTAGAAGGCCTAATTCCGT	
o	+++++	2940
3'	TCGCCAAGAGCTGCCAGTGCCGCCCGTACAGCTGTTCCGGCTTAACTAGGTGATCTTCCGGATTAAGCCA	
o	attB	
o		

5'	ACACTATGCTAGTATAACTTCGTATAATGTATGCTATACGAAGTTATGCTAGTTGGCCACGTAATAAGTG	
o	+++++	3010
3'	TGTGATACGATCATATTGAAGCATATTACATACGATATGCTTCAATACGATCAACCGGTGCATTATTCAC	
o		
		gypsy
5'	TGCGTTGAATTTATTCGCAAAAACATTGCATATTTTCGGCAAAGTAAAATTTTGTGCATACCTTATCAA	
o	+++++	3080
3'	ACGCAACTTAAATAAGCGTTTTTGTAAACGTATAAAAGCCGTTTCATTTTAAACAACGTATGGAATAGTT	
o		
		gypsy
5'	AAAATAAGTGCTGCATACTTTTTAGAGAAACCAAATAATTTTTTATGCATACCCGTTTTTAATAAAATA	
o	+++++	3150
3'	TTTTATTCACGACGTATGAAAAATCTCTTTGGTTTATTAAAAAATAACGTATGGGCAAAAATTATTTTAT	
o		
		gypsy
5'	CATTGCATACCCTCTTTTAATAAAAAATATTGCATACTTTGACGAAACAAATTTTCGTTGCATACCCAAT	
o	+++++	3220
3'	GTAACGTATGGGAGAAAATTATTTTTTATAACGTATGAAACTGCTTTGTTTAAAGCAACGTATGGGTTA	
o		
		gypsy
5'	AAAAGATTATTATATTGCATACCCGTTTTTAATAAAATACATTGCATACCCTCTTTTAATAAAGAATATT	
o	+++++	3290
3'	TTTTCTAATAATATAACGTATGGGCAAAAATTATTTTTATGTAACGTATGGGAGAAAATTATTTCTTATAA	
o		
		gypsy
5'	GCATACGTTGACGAAACAAATTTTCGTTGCATACCCAATAAAAGATTATTATATTGCATACCTTTTCTTG	
o	+++++	3360
3'	CGTATGCAACTGCTTTGTTTAAAGCAACGTATGGGTTATTTTCTAATAATATAACGTATGGAAAAGAAC	
o		
		gypsy
5'	CCATACCATTTAGCCGATCAATTCTGCTCGGCAACAGTATATTTGTGGTGTGCCAACCAACAACActagc	
o	+++++	3430
3'	GGTATGGTAAATCGGCTAGTTAAGACGAGCCGTTGTCATATAAACACCACACGGTTGGTTGTTGTgatcg	
o		
		gypsy
5'	ATAACTTCGTATAATGTATGCTATACGAAGTTATGagctCGCTCGGGTAATCGCTTATCCTCGGGTAATC	
o	+++++	3500
3'	TATTGAAGCATATTACATACGATATGCTTCAATACtCGaGCGAGCCCATTAGCGAATAGGAGCCCATTAG	
o		
5'	GCTTATCCTTAAGCTGCAGGTCGGAGTACTGTCCTCCGAGCGGAGTACTGTCTCCGAGCGGAGTACTGT	
o	+++++	3570
3'	CGAATAGGAATTCGACGTCCAGCCTCATGACAGGAGGCTCGCCTCATGACAGGAGGCTCGCCTCATGACA	
o		
		10XUAS
5'	CCTCCGAGCGGAGTACTGTCTCCGAGCGGAGTACTGTCCTCCGAGCGGAGACTCCCGCGGTGGAGTAC	
o	+++++	3640
3'	GGAGGCTCGCCTCATGACAGGAGGCTCGCCTCATGACAGGAGGCTCGCCTCTGAGGGCGCCAGCCTCATG	
o		
		10XUAS

5'	TGTCCTCCGAGCGGAGTACTGTCCTCCGAGCGGAGTACTGTCCTCCGAGCGGAGTACTGTCCTCCGAGCGG	
o	+++++	3710
3'	ACAGGAGGCTCGCCTCATGACAGGAGGCTCGCCTCATGACAGGAGGCTCGCCTCATGACAGGAGGCTCGC	
o	10XUAS	
o		
5'	GAGTACTGTCCTCCGAGCGGAGACTCGTTCGACGAGCTCGCCCCGGGATCGAGCGCAGCGGTATAAAAGGG	
o	+++++	3780
3'	CTCATGACAGGAGGCTCGCCTCTGAGCAGCTGCTCGAGCGGGCCCTAGCTCGCGTCGCCATATTTTCCC	
o	10XUAS	
o	DSCP	
o		
5'	CGCGGGGTGGCTGAGAGCATCAGTTGTGAATGAATGTTTCGAGCCGAGCAGACGTGCCGCTGCCTTCGTTA	
o	+++++	3850
3'	GCGCCCCACCGACTCTCGTAGTCAACACTTACTTACAAGCTCGGCTCGTCTGCACGGCGACGGAAGCAAT	
o	DSCP	
o		
5'	ATATCCTTTGAATAAGCCAACCTTTGAATCACAAGACGCATACCAAAGTCTAGAggtacCGCCACCATGGC	
o	+++++	3920
3'	TATAGGAACTTATTCGGTTGAAACTTAGTGTCTGCGTATGGTTTCAGATCTccatgCGGGTGGTACCG	
o	DSCP	
o		d...9
o		
5'	CCCAAAGAAGAAGCGGAAGGTCGGTATCCACGGTGTCCCAGCAGCCATGGACAAGAAGTACTCCATTGGG	
o	+++++	3990
3'	GGGTTTCTTCTTCGCCCTCCAGCCATAGGTGCCACAGGGTCGTCCGTACCTGTTCTTCATGAGGTAACCC	
o	dcas9	
o		
5'	CTCGcTATCGGCACAAACAGCGTTCGGCTGGGCCGTCATTACGGACGAGTACAAGGTGCCGAGCAAAAAAT	
o	+++++	4060
3'	GAGCgATAGCCGTGTTTGTTCGACCCGACCCGGCAGTAATGCCTGCTCATGTTCCACGGCTCGTTTTTTA	
o	dcas9	
o		
5'	TCAAAGTTCTGGGCAATACCGATCGCCACAGCATAAAGAAGAACCTCATTGGCGCCCTCCTGTTCGACTC	
o	+++++	4130
3'	AGTTTCAAGACCCGTTATGGCTAGCGGTGTCGTATTTCTTCTTGGAGTAACCGCGGGAGGACAAGCTGAG	
o	dcas9	
o		
5'	CGGGGAGACGGCCGAAGCCACGCGGCTCAAAAAGAACAGCACGGCGCAGATATAACCGCAGAAAGAATCGG	
o	+++++	4200
3'	GCCCCCTGCCGGCTTCGGTGCGCCGAGTTTTCTTGTGCTGCCGCGTCTATATGGGCGTCTTTCTTAGCC	
o	dcas9	
o		
5'	ATCTGCTACCTGCAGGAGATCTTTAGTAATGAGATGGCTAAGGTGGATGACTCTTTCTTCCATAGGCTGG	
o	+++++	4270
3'	TAGACGATGGACGTCTCTAGAAATCATTACTCTACCGATTCCACCTACTGAGAAAGAAGGTATCCGACC	
o	dcas9	
o		
5'	AGGAGTCCTTTTTGGTGGAGGAGGATAAAAAGCACGAGCGCCACCCAATCTTTGGCAATATCGTGGACGA	
o	+++++	4340
3'	TCCTCAGGAAAACCACTCCTCCTATTTTTTCGTGCTCGCGGTGGGTAGAAACCGTTATAGCACCTGCT	
o	dcas9	
o		

5' TACGCCGGATACATTGACGGCGGAGCAAGCCAGGAGGAATTTTACAAATTTATTAAGCCCATCTTGGAAA 5110
 ++++++
 3' ATGCGGCCTATGTAAGTCCCGCCTCGTTCGGTCTCTCTTAAAATGTTTAAATAATTCGGGTAGAACCTTT

dcas9

5' AAATGGACGGCACCCGAGGAGCTGCTGGTAAAGCTTAACAGAGAAGATCTGTTGCGCAAACAGCGCACTTT 5180
 ++++++
 3' TTTACCTGCCGTGGCTCCTCGACGACCATTTTGAATTGTCTCTTCTAGACAACGCGTTTGTGCGGTGAAA

dcas9

5' CGACAATGGAAGCATCCCCACCAGATTCACCTGGGCGAACTGCACGCTATACTCAGGCGGCAAGAGGAT 5250
 ++++++
 3' GCTGTTACCTTCGTAGGGGGTGGTCTAAGTGGACCCGCTTGACGTGCGATATGAGTCCGCCGTTCTCCTA

dcas9

5' TTCTACCCCTTTTTGAAAGATAACAGGGAAAAGATTGAGAAAATCCTCACATTTCCGGATACCCTACTATG 5320
 ++++++
 3' AAGATGGGGAAAAACTTTCTATTGTCCCTTTTCTAACTCTTTTAGGAGTGTAAGCCTATGGGATGATAC

dcas9

5' TAGGCCCCCTCGCCCGGGGAAATTCAGATTCGCGTGGATGACTCGCAAATCAGAAGAGACCATCACTCC 5390
 ++++++
 3' ATCCGGGGGAGCGGGCCCTTTAAGGTCTAAGCGCACCTACTGAGCGTTTAGTCTTCTCTGGTAGTGAGG

dcas9

5' CTGGAACCTTCAGGAAGTTCGTGGATAAGGGGGCCTCTGCCAGTCTTCATCGAAAGGATGACTAACTTT 5460
 ++++++
 3' GACCTTGAAGCTCCTTCAGCACCTATTCCCCGGAGACGGGTCAGGAAGTAGCTTTCCTACTGATTGAAA

dcas9

5' GATAAAAATCTGCCTAACGAAAAGGTGCTTCCTAAACACTCTCTGCTGTACGAGTACTTCACAGTTTATA 5530
 ++++++
 3' CTATTTTtagacggattgcttttccacgaaggatttGTGAGAGACGACATGCTCATGAAGTGTCAAATAT

dcas9

5' ACGAGCTCACCAAGGTCAAATACGTACAGAAGGGATGAGAAAGCCAGCATTCCCTGTCTGGAGAGCAGAA 5600
 ++++++
 3' TGCTCGAGTGGTTCCAGTTTATGCAGTGTCTTCCCTACTCTTTCGGTCGTAAGGACAGACCTCTCGTCTT

dcas9

5' GAAAGCTATCGTGGACCTCCTCTTCAAGACGAACCGGAAAGTTACCGTGAAACAGCTCAAAGAgGACTAT 5670
 ++++++
 3' CTTTCGATAGCACCTGGAGGAGAAGTTCTGCTTGGCCTTCAATGGCACTTTGTGCGAGTTTCTcCTGATA

dcas9

5' TTCAAAAAGATTGAATGTTTCGACTCTGTTGAAATCAGCGGAGTGGAGGATCGCTTCAACGCATCCCTGG 5740
 ++++++
 3' AAGTTTTTCTAACTTACAAAGCTGAGACAACCTTTAGTCGCCTCACCTCCTAGCGAAGTTGCGTAGGGACC

dcas9

5'	TCAGGAACTGGACATCAATCGGCTCTCCGACTACGACGTGGATgcTATCGTGCCCCAGTCTTTTCTCAA	
o	+++++	6510
3'	AGTCCTTGACCTGTAGTTAGCCGAGAGGCTGATGCTGCACCTAcgATAGCACGGGGTCAGAAAAGAGTTT	
o		
	dcas9	
o		
5'	GATGATTCTATTGATAATAAAGTGTTGACAAGATCCGATAAAAAATAGAGGGAAGAGTGATAACGTCCCT	
o	+++++	6580
3'	CTACTAAGATAACTATTATTTTACAACCTGTTCTAGGCTATTTTTATCTCCCTTCTCACTATTGCAGGGGA	
o		
	dcas9	
o		
5'	CAGAAGAAGTTGTCAAGAAAATGAAAATTTATTGGCGGCAGCTGCTGAACGCCAAACTGATCACACAACG	
o	+++++	6650
3'	GTCTTCTTCAACAGTTCTTTTACTTTTTAATAACCGCCGTCGACGACTTGCGGTTTGACTAGTGTTGC	
o		
	dcas9	
o		
5'	GAAGTTCGATAATCTGACTAAGGCTGAACGAGGTGGCCTGTCTGAGTTGGATAAAGCAGGCTTCATCAA	
o	+++++	6720
3'	CTTCAAGCTATTAGACTGATTCCGACTTGCTCCACCGGACAGACTCAACCTATTTTCGTCCGAAGTAGTTT	
o		
	dcas9	
o		
5'	AGGCAGCTTGTTGAGACACGCCAGATCACCAAGCACGTGGCCCAAATTCTCGATTCACGCATGAACACCA	
o	+++++	6790
3'	TCCGTGCAACAACTCTGTGCGGTCTAGTGGTTCGTGCACCGGGTTTAAAGAGCTAAGTGCGTACTTGTGGT	
o		
	dcas9	
o		
5'	AGTACGATGAAAATGACAACTGATTCGAGAGGTGAAAGTTATTACTCTGAAGTCTAAGCTGGTCTCAGA	
o	+++++	6860
3'	TCATGCTACTTTTACTGTTTGACTAAGCTCTCCACTTTCAATAATGAGACTTCAGATTCGACCAGAGTCT	
o		
	dcas9	
o		
5'	TTTCAGAAAGGACTTTCAGTTTTATAAGGTGAGAGAGATCAACAATTACCACCATGCGCATGATGCCTAC	
o	+++++	6930
3'	AAAGTCTTTCCTGAAAGTCAAAATATTCCACTCTCTCTAGTTGTTAATGGTGGTACGCGTACTACGGATG	
o		
	dcas9	
o		
5'	CTGAATGCAGTGGTAGGCACTGCACTTATCAAAAAATATCCCAAGCTTGAATCTGAATTTGTTTACGGAG	
o	+++++	7000
3'	GACTTACGTCACCATCCGTGACGTGAATAGTTTTTTATAGGGTTCGAACTTAGACTTAAACAAATGCCTC	
o		
	dcas9	
o		
5'	ACTATAAAGTGTACGATGTTAGGAAAATGATCGCAAAGTCTGAGCAGGAAATAGGCAAGGCCACCGCTAA	
o	+++++	7070
3'	TGATATTTACATGCTACAATCCTTTTACTAGCGTTTTTCAACTCGTCTTTTATCCGTTCCGGTGGCGATT	
o		
	dcas9	
o		
5'	GTACTIONTTTTACAGCAATATTATGAATTTTTTCAAGACCGAGATTACACTGGCCAATGGAGAGATTCGG	
o	+++++	7140
3'	CATGAAGAAAATGTCGTTATAATACTTAAAAAAGTTCTGGCTCTAATGTGACCGGTTACCTCTCTAAGCC	
o		
	dcas9	
o		

5'	AAGCGACCACTTATCGAAACAAACGGAGAAACAGGAGAAATCGTGTGGGACAAGGGTAGGGATTTCGCGA	
o	+++++	7210
3'	TTCGCTGGTGAATAGCTTTGTTTGCCTCTTTGTCCTCTTTAGCACACCCTGTTCCCATCCCTAAAGCGCT	
o	dcas9	
o		
5'	CAGTCCGGAAGGTCTGTCCATGCCGCAGGTGAACATCGTTAAAAAGACCGAAGTACAGACCGGAGGCTT	
o	+++++	7280
3'	GTCAGGCCTTCCAGGACAGGTACGGCGTCCACTTGTAGCAATTTTTCTGGCTTCATGTCTGGCCTCCGAA	
o	dcas9	
o		
5'	CTCCAAGGAAAGTATCCTCCCGAAAAGGAACAGCGACAAGCTGATCGCACGCAAAAAAGATTGGGACCCC	
o	+++++	7350
3'	GAGGTTCCCTTTCATAGGAGGGCTTTTCCTTGTGCGCTGTTGACTAGCGTGCCTTTTTTCTAACCCCTGGGG	
o	dcas9	
o		
5'	AAGAAATACGGCGGATTCGATTCTCCTACAGTCGCTTACAGTGTACTGGTTGTGGCCAAAGTGGAGAAAG	
o	+++++	7420
3'	TTCTTTATGCCGCCTAAGCTAAGAGGATGTCAGCGAATGTCACATGACCAACACCGGTTTTACCTCTTTC	
o	dcas9	
o		
5'	GGAAGTCTAAAAAAGTCAAAAGCGTCAAGGAACTGCTGGGCATCACAATCATGGAGCGATCAAGCTTCGA	
o	+++++	7490
3'	CCTTCAGATTTTTTGAGTTTTTCGCAGTTCTTGACGACCCGTAGTGTAGTACCTCGCTAGTTCGAAGCT	
o	dcas9	
o		
5'	AAAAAACCCCATCGACTTTCTCGAGGCGAAAGGATATAAAGAGGTCAAAAAAGACCTCATCATTAAGCTT	
o	+++++	7560
3'	TTTTTTGGGGTAGCTGAAAGAGCTCCGCTTTCCTATATTTCTCCAGTTTTTTCTGGAGTAGTAATTCGAA	
o	dcas9	
o		
5'	CCCAAGTACTCTCTCTTTGAGCTTGAAAACGGCCGAAACGAATGCTCGCTAGTGCGGGCGAGCTGCAGA	
o	+++++	7630
3'	GGGTTTCATGAGAGAGAAACTCGAACTTTTGCCGGCCTTTGCTTACGAGCGATCACGCCCGCTCGACGTCT	
o	dcas9	
o		
5'	AAGGTAACGAGCTGGCACTGCCCTCTAAATACGTTAATTTCTTGTATCTGGCCAGCCACTATGAAAAGCT	
o	+++++	7700
3'	TTCCATTGCTCGACCGTGACGGGAGATTTATGCAATTAAGAACATAGACCGGTCGGTGATACTTTTCGA	
o	dcas9	
o		
5'	CAAAGGGTCTCCCGAAGATAATGAGCAGAAGCAGCTGTTCTGTGGAACAACACAAACACTACCTTGATGAG	
o	+++++	7770
3'	GTTTCCCAGAGGGCTTCTATTACTCGTCTTCGTGCGACAAGCACCTTGTGTGTTTGTGATGGAACACTC	
o	dcas9	
o		
5'	ATCATCGAGCAAATAAGCGAATTTCTCCAAAAGAGTGATCCTCGCCGACGCTAACCTCGATAAAGTGCTTT	
o	+++++	7840
3'	TAGTAGCTCGTTTTATTCGCTTAAGAGTTTTTCTCACTAGGAGCGGCTGCGATTGGAGCTATTCCACGAAA	
o	dcas9	
o		

5'	GATCAGCTCCAACCTCACGGAGCCAGGCCTACAAGGTGACATGCAGCGTCAGGCAGTCTAGTGCCAGAAg	
o	+++++	8610
3'	CTAGTCGAGGTTGAGTGCCTCGGTCCGGATGTTCCACTGTACGTCGCAGTCCGTGATCACGGGTCTTc	
o	MS2	
o		
5'	AGAAAGTATAACCATCAAGGTGGAGGTCCCCAAAGTGGCTACCCAGACAGTGGGCGGAGTCGAACTGCCTG	
o	+++++	8680
3'	TCTTTCATATGGTAGTTCACCTCCAGGGGTTTCACCGATGGGTCTGTCACCCGCCTCAGCTTGACGGAC	
o	MS2	
o		
5'	TCGCCGCTTGGAGGTCCTACCTGAACATGGAGCTCACTATCCCAATTTTCGCTACCAATTCTGACTGTGA	
o	+++++	8750
3'	AGCGGCGAACCTCCAGGATGGACTTGTACCTCGAGTGATAGGGTTAAAAGCGATGGTTAAGACTGACACT	
o	MS2	
o		
5'	ACTCATCGTGAAGGCAATGCAGGGGCTCCTCAAAGACGGTAATCCTATCCCTTCCGCCATCGCCGCTAAC	
o	+++++	8820
3'	TGAGTAGCACTTCCGTTACGTCCCCGAGGAGTTTCTGCCATTAGGATAGGGAAGGCGGTAGCGGCGATTG	
o	MS2	
o		
5'	TCAGGTATCTACagcgctGGAGGAGGTGGAAGCGGAGGAGGAGGAAGCGGAGGAGGAGGTAGCggaccta	
o	+++++	8890
3'	AGTCCATAGATGtcgcaCCTCCTCCACCTTCGCCTCCTCCTCCTTCGCCTCCTCCTCCATCGcctgcat	
o	MS2	
o		
5'	agaaaaagaggaaggtggcgccgctcaattgCCTTCAGGGCAGATCAGCAACCAGGCCCTGGCTCTGGC	
o	+++++	8960
3'	tctttttctccttccaccgcccggcgagttaacGGAAGTCCCGTCTAGTCGTTGGTCCGGGACCGAGACCG	
o	P65	
o		
5'	CCCTAGCTCCGCTCCAGTGCTGGCCCAGACTATGGTGCCCTCTAGTGCTATGGTGCCTCTGGCCCAGCCA	
o	+++++	9030
3'	GGGATCGAGGCGAGGTCACGACCGGGTCTGATACCACGGGAGATCACGATAACCACGGAGACCGGGTCCGT	
o	P65	
o		
5'	CCTGCTCCAGCCCCTGTGCTGACCCCAGGACCACCCCAGTCACTGAGCGCTCCAGTGCCCAAGTCTACAC	
o	+++++	9100
3'	GGACGAGGTCGGGGACACGACTGGGGTCTGGTGGGGTCAGTGACTIONCGAGGTCACGGGTTTCAGATGTG	
o	P65	
o		
5'	AGGCCGGCGAGGGGACTCTGAGTGAAGCTCTGCTGCACCTGCAGTTCGACGCTGATGAGGACCTGGGAGC	
o	+++++	9170
3'	TCCGGCCGCTCCCTGAGACTCACTTCGAGACGACGTGGACGTCAAGCTGCGACTACTCCTGGACCCTCG	
o	P65	
o		
5'	TCTGCTGGGGAACAGCACCGATCCCGGAGTGTTACAGATCTGGCCTCCGTGGACAACCTCTGAGTTTCAG	
o	+++++	9240
3'	AGACGACCCTTGTGCTGGCTAGGGCCTACAAGTGTCTAGACCGGAGGCACCTGTTGAGACTCAAAGTC	
o	P65	
o		

5'	CAGCTGCTGAATCAGGGCGTGCCATGTCTCATAGTACAGCCGAACCAATGCTGATGGAGTACCCCGAAG	
o	+++++	9310
3'	GTCGACGACTTAGTCCCGCACAGGTACAGAGTATCATGTCGGCTTGGTTACGACTACCTCATGGGGCTTC	
o	P65	
o		
5'	CCATTACCCGGCTGGTGACCGGCAGCCAGCGGCCCGACCCCGCTCCAACCTCCCTGGGAACCAGCGG	
o	+++++	9380
3'	GGTAATGGGCCGACCACTGGCCGTCGGTCGCCGGGGGGCTGGGGCGAGGTTGAGGGGACCCTTGGTCGCC	
o	P65	
o		
5'	CCTGCCTAATGGGCTGTCCGGAGATGAAGATTTCTCAAGCATCGCTGATATGGACTTTAGTGCCCTGCTG	
o	+++++	9450
3'	GGACGGATTACCCGACAGGCCTCTACTTCTAAAGAGTTCGTAGCGACTATAACCTGAAATCACGGGACGAC	
o	P65	
o		
5'	TCACAGATTTCTCTAGTGGGCAGGGAGGAGGTGGAAGCGGCTTCAGCGTGGACACCAGTGCCCTGCTGG	
o	+++++	9520
3'	AGTGTCTAAAGGAGATCACCCGTCCTCCTCCACCTTCGCCGAAGTCGCACCTGTGGTCCACGGGACGACC	
o	P65	HSF1
o		
5'	ACCTG TTCAGCCCTCGGTGACCGTGCCCGACATGAGCCTGCCTGACCTTGACAGCAGCCTGGCCAGTAT	
o	+++++	9590
3'	TGGACAAGTCGGGGAGCCACTGGCACGGGCTGTACTCGGACGGACTGGAAGTGTGTCGGACCGGTCATA	
o	HSF1	
o		
5'	CCAAGAGCTCCTGTCTCCCCAGGAGCCCCCAGGCCTCCCGAGGCAGAGAACAGCAGCCCGGATTCAGGG	
o	+++++	9660
3'	GGTTCTCGAGGACAGAGGGTCTCGGGGGTCCGGAGGGCTCCGTCTCTTGTCGTCGGGCCTAAGTCCC	
o	HSF1	
o		
5'	AAGCAGCTGGTGCACTACACAGCGCAGCCGCTGTTCTGCTGGACCCCGCTCCGTGGACACCGGGAGCA	
o	+++++	9730
3'	TTCGTCGACCACGTGATGTGTCGCGTCGGCGACAAGGACGACCTGGGGCCGAGGCACCTGTGGCCCTCGT	
o	HSF1	
o		
5'	ACGACCTGCCGGTGCTGTTTGGAGCTGGGAGAGGGCTCCTACTTCTCCGAAGGGGACGGCTTCGCCGAGGA	
o	+++++	9800
3'	TGCTGGACGGCCACGACAACTCGACCCTCTCCCGAGGATGAAGAGGCTTCCCCTGCCGAAGCGGCTCCT	
o	HSF1	
o		
5'	CCCCACCATCTCCCTGCTGACAGGCTCGGAGCCTCCCAAAGCCAAGACCCCACTGTCTCCTAGcCTAGG	
o	+++++	9870
3'	GGGGTGGTAGAGGGACGACTGTCCGAGCCTCGGAGGGTTTCGGTTCTGGGGTGACAGAGGATCgGATCC	
o	HSF1	
o		
5'	ACTAGAGCAAActagAATTGTTGGCATCAGGTAGGCATCACACACGATTAACAACCCTAAAAATACACT	
o	+++++	9940
3'	TGATCTCGTTTgatcTTAACAACCGTAGTCCATCCGTAGTGTGTGCTAATTGTTGGGGATTTTATGTGA	
o	ftz	
o		

5'	TTGAAAATATTGAAAATATGTTTTGTATACATTTTTGATATTTTCAAATAATACGCAGTTATAAAACTC	
o	+++++	10010
3'	AACTTTTATAACTTTTATACAAAAACATATGTA AAAACTATAAAAGTTTATTATGCGTCAATATTTTGAG	
o	ftz	
o		
5'	ATTAGCTAACCCATTTTTCTTTGCTTATGCTTACAGATTGCAAAGAACTAGAGCCGCGGGATCTTTGTG	
o	+++++	10080
3'	TAATCGATTGGGTAAAAAAGAAACGAATACGAATGTCTAACGTTTCTTGATCTCGGCGCCCTAGAAACAC	
o	ftz	
o		
5'	AAGGAACCTTACTTCTGTGGTGTGACATAATTGGACAAACTACCTACAGAGATTTAAAGCTCTAAGGTAA	
o	+++++	10150
3'	TTCTTGGAATGAAGACACCACACTGTATTAACCTGTTTGATGGATGTCTCTAAATTTGAGATTCATT	
o	SV40	
o		
5'	ATATAAAATTTTTAAGTGTATAATGTGTTAAACTACTGATTCTAATTGTTTGTGTATTTTAGATTCCAAC	
o	+++++	10220
3'	TATATTTTAAAAATTCACATATTACACAATTTGATGACTAAGATTAACAAACACATAAAATCTAAGGTTG	
o	SV40	
o		
5'	CTATGGAECTGATGAATGGGAGCAGTGGTGAATGCCTTTAATGAGGAAAACCTGTTTTGCTCAGAAGAA	
o	+++++	10290
3'	GATACCTTGACTACTTACCCTCGTCACCACCTTACGGAAATTACTCCTTTTGGACAAAACGAGTCTTCTT	
o	SV40	
o		
5'	ATGCCATCTAGTGATGATGAGGCTACTGCTGACTCTCAACATTCTACTCCTCCAAAAAAGAAGAGAAAGG	
o	+++++	10360
3'	TACGGTAGATCACTACTACTCCGATGACGACTGAGAGTTGTAAGATGAGGAGGTTTTTCTTCTTTCC	
o	SV40	
o		
5'	TAGAAGAGCCCAAGGACTTTCCTTCAGAATTGCTAAGTTTTTTGAGTCATGCTGTGTTTAGTAATAGAAC	
o	+++++	10430
3'	ATCTTCTCGGGTTCCCTGAAAGGAAGTCTTAACGATTCAAAAAACTCAGTACGACACAAATCATTATCTTG	
o	SV40	
o		
5'	TCTTGCTTGCTTTGCTATTTACACCACAAAGGAAAAAGCTGCACTGCTATAACAAGAAAATTATGGAAAAA	
o	+++++	10500
3'	AGAACGAACGAAACGATAAATGTGGTGTTCCTTTTTTCGACGTGACGATATGTTCTTTTAATACCTTTTT	
o	SV40	
o		
5'	TATTTGATGTATAGTGCCTTGACTAGAGATCATAATCAGCCATACCACATTTGTAGAGGTTTTACTTGCT	
o	+++++	10570
3'	ATAAACTACATATCACGGAECTGATCTCTAGTATTAGTCGGTATGGTGTAACATCTCCAAAATGAACGA	
o	SV40	
o		
5'	TTAAAAACCTCCACACCTCCCactGAACCTGAAACATAAAATGAATGGAATTGTTGTTGTTAACTTGT	
o	+++++	10640
3'	AATTTTTTGGAGGGTGTGGAGGGtGACTTGGACTTTGTATTTTACTTACCTTAACAACAACAATTGAACA	
o	SV40	
o		

5' TAAATGTCGTTTCGCGGGCGCAACTGCAACTCCGATAAATAACGCGCCCAACACCGGCATAAAGAATTGAA 11410
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' ATTTACAGCAAGCGCCCGCGTTGACGTTGAGGCTATTTATTGCGCGGGTTGTGGCCGATTTTCTTAACTT

5' GAGAGTTTTCACTGCATACGACGATTCTGTGATTTGTATTCAGCCCATATCGTTTCATAGCTTCTGCCAA 11480
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' CTCTCAAAAGTGACGTATGCTGCTAAGACACTAAACATAAGTCGGGTATAGCAAAGTATCGAAGACGGTT

5' CCGAACGGACATTTCGAAGTACTCAGCGTAAGTGATGTCCACCTCGATATGTGCATCTGTAAAAGCAATT 11550
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' GGCTTGCCTGTAAAGCTTCATGAGTCGCATTCACTACAGGTGGAGCTATACACGTAGACATTTTCGTTAA

5' AATTGTTCCAGGAACCAGGGCGTATCTCTTCATAGCCTTATGCAGTTGCTCTCCTCTAGTGGTGAAGGGG 11620
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' TTAACAAGGTCCTTGGTCCCGCATAGAGAAGTATCGGAATACGTCAACGAGAGGAGATCACCACTTCCCC

5' GCGGCCGCGGAGCCTGCTTTTTTGTACAAAGTTGGCATTATAAAAAAGCATTGCTCATCAATTTGTTGCA 11690
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' CGCCGGCGCCTCGGACGAAAAACATGTTTCAACCGTAAATTTTTTCGTAACGAGTAGTTAAACAACGT

5' ACGAACAGGTCACTATCAGTCAAAATAAAATCATTATTTGGGGCCCGAGCTTAAGACTGGCCGTCGTTTT 11760
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' TGCTTGTCCAGTGATAGTCAGTTTTATTTTAGTAATAAACCCCGGGCTCGAATTCTGACCGGCAGCAAAA

5' ACAACGTCGTGACTGGGAAAACATCCATGCAAGCGGCTGAATATGGGATGTTTTATGGGATGTTTTCTAG 11830
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' TGTTGCAGCACTGACCCTTTTGTAGGTACGTTTCGCCGACTTATACCCTACAAAATACCCTACAAAAGATC

5' ACTCTACGAAGACcCCGaaagtattgaggaaaacatacctatataaatgatcaacatcaggaaagagcagt 11900
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' TGAGATGCTTCTGgGGcttcataactccttttgtatggatataatttactagttgtagtccttttctcgtea

tgagaattataagaattggcaaatggtccttaagaaccctctgcttaagatthttcaaaatthtcttttagaa 11970
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 3' actccttaatatcttaaccgthttaccagaattcttgggagacgaattctaaaagthtttaaggaatctt

Bbs I

U6B promoter

U6B promoter

5'	tcaaagtgtcctattggttCGTTTGTGAAAACACAGTTCGATTTATTGACTATAATAAATTGATAGTTTT	
o	+++++	12040
3'	agtttcacaggataacaaGCAAAACAACCTTTTGTGTCAAGCTAAATAACTGATATTATTTAACTATCAAAA	
o	U6B promotor	
5'	AAATATAGAGGCACGACTAAGAGAGTTTGGTTTTGTTTTGGTTAGGGACCAAAAAAGTATACATAACGA	
o	+++++	12110
3'	TTTATATCTCCGTGCTGATTCTCTCAAACCAAAACAAACCAATCCCTGGTTTTTTTCATATGTATTGCT	
o	U6B promotor	
5'	ATAAAAAAGGATTTAAGTGCAAAATGGTAAAAAAGTGTCGAGTTTTTCTTGAGTTGATTGTGCTGTAATGA	
o	+++++	12180
3'	TATTTTTTCCCTAAATTCACGTTTACCATTTTTTTCACAGCTCAAAAAGAACTCAACTAACACGACATTACT	
o	U6B promotor	
5'	GACTCTGCATTCCGGCATTGACTCGGCTTTTCCTACTCGTGCCGTATTTCCAGGCTGCAAGTCGAACAAGC	
o	+++++	12250
3'	CTGAGACGTAAGCCGTAACCTGAGCCGAAAAGGATGAGCACGGCATAAAGTCCGACGTTTCAGCTTGTTCCG	
o	U6B promotor	
5'	TaGcAGAGCTCTGGCCACGTAATAAGTGTGCGTTGAATTTATTCGCAAAAACATTGCATATTTTCGGCAA	
o	+++++	12320
3'	AtCgTCTCGAGACCGGTGCATTATTCACACGCAACTTAAATAAGCGTTTTTGTAACGTATAAAAGCCGTT	
o	gypsy	
5'	AGTAAAAATTTGTTGCATACCTTATCAAAAAATAAGTGTGCATACTTTTTAGAGAAACCAAAATAATTTT	
o	+++++	12390
3'	TCATTTTAAAACAACGTATGGAATAGTTTTTTTATTTCACGACGTATGAAAAATCTCTTTGGTTTATTA AAA	
o	gypsy	
5'	TTATTGCATACCCGTTTTTAATAAAATACATTGCATACCTCTTTTAATAAAAAATATTGCATACTTTGA	
o	+++++	12460
3'	AATAACGTATGGGCAAAAATTATTTTATGTAACGTATGGGAGAAAATTATTTTTTATAACGTATGAAACT	
o	gypsy	
5'	CGAAACAAATTTTCGTTGCATACCCAATAAAAAGATTATTATATTGCATACCCGTTTTTAATAAAATACAT	
o	+++++	12530
3'	GCTTTGTTTAAAAGCAACGTATGGGTTATTTTCTAATAATATAACGTATGGGCAAAAATTATTTTATGTA	
o	gypsy	
5'	TGCATACCTCTTTTAATAAAGAATATTGCATACGTTGACGAAACAAATTTTCGTTGCATACCCAATAAA	
o	+++++	12600
3'	ACGTATGGGAGAAAATTATTTCTTATAACGTATGCAACTGCTTTGTTTAAAAGCAACGTATGGGTTATTT	
o	gypsy	
5'	AGATTATTATATTGCATACCTTTTCTTGCCATACCATTTAGCCGATCAATTCTGCTCGGCAACAGTATAT	
o	+++++	12670
3'	TCTAATAATATAACGTATGAAAAGAACGGTATGGTAAATCGGCTAGTTAAGACGAGCCGTTGTCATATA	
o	gypsy	

5' CTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGT
 ++++++ 13650
 3' GATGTGATCTTCCTGTCATAAACCATAGACGCGAGACGACTTCGGTCAATGGAAGCCTTTTTCTCAACCA
 o
 5' AGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAGCAGCAGATTACGC
 ++++++ 13720
 3' TCGAGAACTAGGCCGTTTGGTTGGTGGCGACCATCGCCACCAAAAAACAAACGTTCGTTCGTCTAATGCG
 o
 5' GCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAA
 ++++++ 13790
 3' CGTCTTTTTTTCCTAGAGTTCTTCTAGGAACTAGAAAAGATGCCCCAGACTGCGAGTCACCTTGCTTTT
 o
 5' CTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAAAAA
 ++++++ 13860
 3' GAGTGCAATTCCTAAAACCAGTACTCTAATAGTTTTTTCCTAGAAGTGGATCTAGGAAAATTTAATTTTT
 o
 5' TGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTG
 ++++++ 13930
 3' ACTTCAAAATTTAGTTAGATTTTCATATATACTCATTTGAACCAGACTGTCAATGGTTACGAATTAGTCAC
 o
 o
 5' AGGCACCTATCTCAGCGATCTGTCTATTTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAAC
 ++++++ 14000
 3' TCCGTGGATAGAGTCGCTAGACAGATAAAGCAAGTAGGTATCAACGGACTGAGGGGCAGCACATCTATTG
 o
 +-----+
 AmpR
 o
 5' TACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCT
 ++++++ 14070
 3' ATGCTATGCCCTCCCGAATGGTAGACCGGGGTCACGACGTTACTATGGCGCTCTGGGTGCGAGTGGCCGA
 o
 +-----+
 AmpR
 o
 5' CCAGATTTATCAGCAATAAACCCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCG
 ++++++ 14140
 3' GGTCTAAATAGTCGTTATTTGGTCGGTTCGGCCTTCCCGGCTCGCGTCTTACCAGGACGTTGAAATAGGC
 o
 +-----+
 AmpR
 o
 5' CCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAA
 ++++++ 14210
 3' GGAGGTAGGTCAGATAATTAACAACGGCCCTTCGATCTCATTCATCAAGCGGTCAATTATCAAACGCGTT
 o
 +-----+
 AmpR
 o
 5' CGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGT
 ++++++ 14280
 3' GCAACAACGGTAACGATGTCCGTAGCACCACAGTGCAGCAGCAAACCATAACGAAGTAAGTCGAGGCCA
 o
 +-----+
 AmpR
 o
 5' TCCCAACGATCAAGGCGAGTTACATGATCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTC
 ++++++ 14350
 3' AGGGTTGCTAGTTCCGCTCAATGTACTAGGGGGTACAACACGTTTTTTCGCCAATCGAGGAAGCCAGGAG
 o
 +-----+
 AmpR



5' CGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCT
 ++++++
 3' GCTAGCAACAGTCTTCATTCAACCGGCGTCACAATAGTGAGTACCAATACCGTCGTGACGTATTAAGAGA
 AmpR
 14420

5' TACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAG
 ++++++
 3' ATGACAGTACGGTAGGCATTCTACGAAAAGACACTGACCACTCATGAGTTGGTTCAGTAAGACTCTTATC
 AmpR
 14490

5' TGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTT
 ++++++
 3' ACATACGCCGCTGGCTCAACGAGAACGGGCCGAGTTATGCCCTATTATGGCGCGGTGTATCGTCTTGAA
 AmpR
 14560

5' TAAAAGTGCTCATCATTTGGAAAACGTTCTTCGGGGCGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATC
 ++++++
 3' ATTTTCACGAGTAGTAACCTTTTGCAAGAAGCCCCGCTTTTGAGAGTTCCTAGAAATGGCGACAACCTCTAG
 AmpR
 14630

5' CAGTTCGATGTAACCCACTCGTGCACCCAACCTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGG
 ++++++
 3' GTCAAGCTACATTGGGTGAGCACGTGGGTGACTAGAAGTCGTAGAAAATGAAAGTGGTCGCAAAGACCC
 14700

5' TGAGCAAAAACAGGAAGGCAAAAATGCCGCAAAAAGGGGAATAAGGGCGACACGGAAATGTTGAATACTCA
 ++++++
 3' ACTCGTTTTTGTCCCTCCGTTTTACGGCGTTTTTTCCCTTATTCCCCTGTGCCTTTACAACCTATGAGT
 14770

5' TACTCTTCCTTTTTCAATATTATTGAAGCATTATCAGGGTATTGTCTCATGAGCGGATACATATTTGA
 ++++++
 3' ATGAGAAGGAAAAAGTTATAATAACTTCGTAAATAGTCCAATAACAGAGTACTCGCCTATGTATAAACT
 14840

5' ATGTATTTAGAAAAATAAACAAATAGGGGTCCGCGCACATTTCCCCGAAAAGTGC
 ++++++
 3' TACATAAATCTTTTTATTTGTTTATCCCCAAGGCGCGTGTAAAGGGGCTTTTCACG
 14896