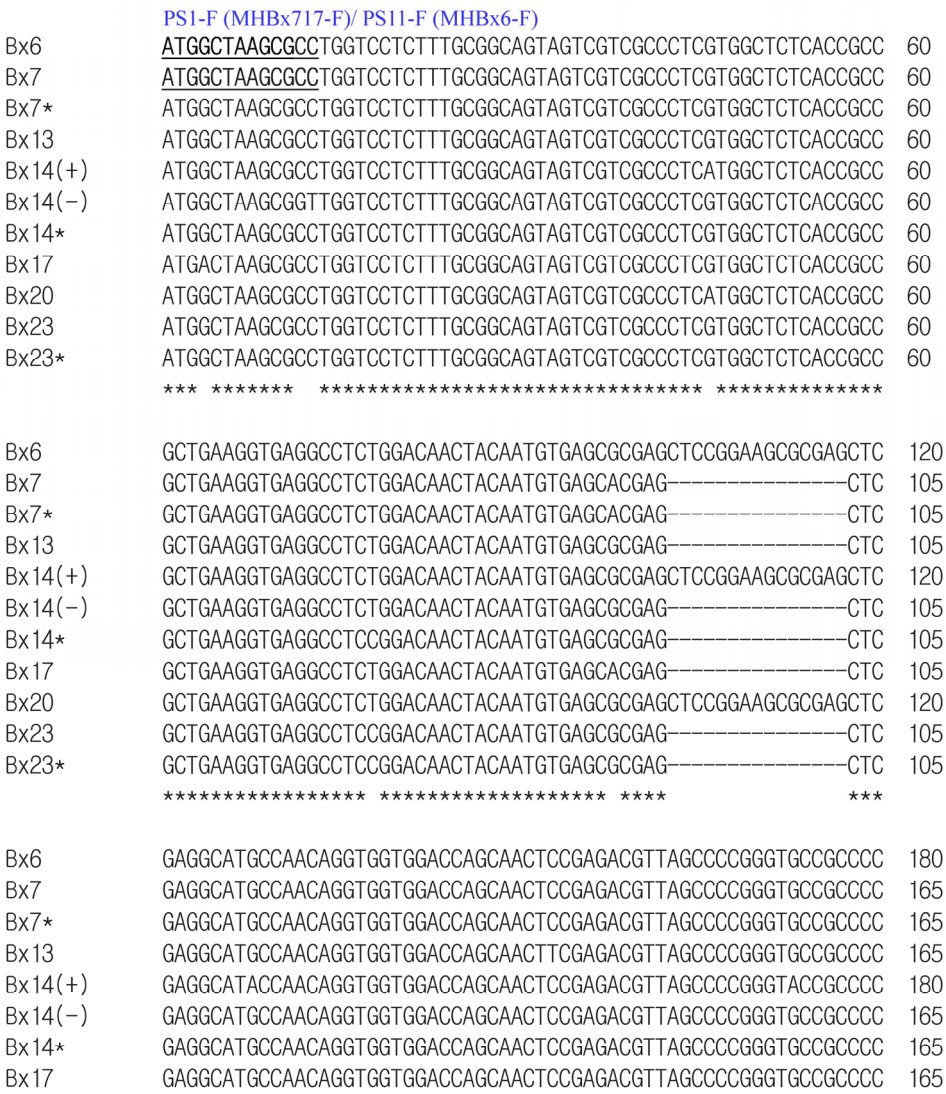
Supplementary Table 1. Accession numbers of *Glu-1Bx* and *Glu-1By* alleles used for sequence alignment.

Glu-1Bx	Accession no.	*Glu-1By*	Accession no.
1Bx6	KX454509.1	*1By8*	JN255519.1
1Bx7	BK006773.1	*1By9*	X61026.1
*1Bx7**	X13927.3	*1By15**	KJ579440.1
1Bx13	EF540764.1	*1By15*	EU137874.1
1Bx14(-)	KF733216.1	*1By16*	EF540765.1
1Bx14+	AY367771.1	*1By18*	KF430649.1
*1Bx14**	KJ579439.1	*1By20*	KU886033.1
1Bx17	KC254854.1		
1Bx20	AJ437000.2		
1Bx23	AY553933.1		
*1Bx23**	KF995273.1		



Supplementary Fig. 1. Alignment of the sequences of *Glu-1Bx* alleles and primer positions.

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Bx20        GAGGCATACCAACAGGTGGTGGACCAGCAACTCCGAGACGTTAGCCCCGGGTACCGCCCC  180
Bx23        GAGGCATGCCAACAGGTGGTGGACCAGCAACTCCGAGACGTTAGCCCCGGGTGCCGCCCC  165
Bx23*       GAGGCATGCCAACAGGTGGTGGACCAGCAACTCCGAGACGTTAGCCCCGGGTGCCGCCCC  165
            ******* ************************ ******************** *******
                                  PS6-F (MHBx13-F)
Bx6         ATCACCGTCAGCCCGGGCACGAGGCAATACGAGCAGCAACCTGTGGTGCCGTCCAAGGCC  240
Bx7         ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGGTGCCGTCCAAGGCC  225
Bx7*        ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGGTGCCGTCCAAGGCC  225
Bx13        ATCACCGTCAGCCCGGGCACGAGGCAATACGAGCGGCAACCTGTGGTGCCGTCCAAGGCC  225
Bx14(+)     ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGGTGCCGCCCAAGGCC  240
Bx14(-)     ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGGTGCCGTCCAAGGCC  225
Bx14*       ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGATGCCGTCCAAGGCC  225
Bx17        ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGGTTGCGTCCAAGGCC  225
Bx20        ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGGTGCCGTCCAAGGCC  240
Bx23        ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGATGCCGTCCAAGGCC  225
Bx23*       ATCACCGTCAGCCCGGGCACGAGACAATACGAGCAGCAACCTGTGATGCCGTCCAAGGCC  225
            ********************** ********** ********** *  ** ********

Bx6         GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  300
Bx7         GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx7*        GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx13        GGATCCTTCTACCCCAGCAAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx14(+)     GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  300
Bx14(-)     GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx14*       GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx17        GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx20        GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTCTGG  300
Bx23        GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
Bx23*       GGATCCTTCTACCCCAGCGAGACTACGCCTTCGCAGCAACTCCAACAAATGATATTTTGG  285
            ****************** ************************************ ***

Bx6         GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  360
Bx7         GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx7*        GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx13        GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx14(+)     GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  360
Bx14(-)     GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx14*       GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx17        GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx20        GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  360
Bx23        GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
Bx23*       GGAATACCTGCACTACTAAGAAGGTATTACCCAAGTGTAACTTCTTCGCAGCAGGGGTCA  345
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Bx6         TACTATCCAGGCCAAGCTTCTCAGCAACAATCAGGACAAGGACAGCAGCCAGGACAAGGA  420
Bx7         TACTATCCAGGCCAAGCTTCTCCCCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGAA  405
Bx7*        TACTATCCAGGCCAAGCTTCTCCCCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGAA  405
Bx13        TACTATCCAGGCCAAGCTTCTCCGCAACAGTTAGGACAAGGACAGCAGCCAGGACAAGGA  405
Bx14(+)     TACTATCCAGGCCAAGCTTTTCCGCAACAATCAGGACAAGGACAGCAGCCAGGACAAGGA  420
Bx14(-)     TACTATCCAGGCCAAGCTTCTCCGCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGGA  405
Bx14*       TACTATCCAGGCCAAGCTTCTCCGCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGGA  405
Bx17        TACTATCCAGGCCAAGCTTCTCCCCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGAA  405
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Supplementary Fig. 1. Continued.

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Bx20        TACTATCCAGGCCAAGCTTTTCCGCAACAATCAGGACAAGGACAGCAGCCAGGACAAGGA  420
Bx23        TACTATCCAGGCCAAGCTTCTCCGCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGGA  405
Bx23*       TACTATCCAGGCCAAGCTTCTCCGCAACAGTCAGGACAAGGACAGCAGCCAGGACAAGGA  405
            ******************* **  ***** * ************************** *

                                  PS1-R(MHBx717-R)/ PS6-R(MHBx13-R)/PS11-R (MHBx6-R)
Bx6         CAGCAACCAGAACAAGGGCAACAAGATCAGCAGCCAGGACAAGGACAACAAGGGTACTAC  480
Bx7         CAGCAACCAGGACAAGGGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
Bx7*        CAGCAACCAGGACAAGGGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
Bx13        CAGCAACCAAGACAAGAGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
Bx14(+)     CAGCAACCAGGACAAAGGCAACAAGATCAGCAGCCAGGACAAGGACAACAAGGGTACTAC  480
Bx14(-)     CAGCAACCAGGACAAGGGCAACAAGATCAGCAACCAGGACAAAGACAACAAGGATACTAT  465
Bx14*       CAGCAACCAGAACAAAGGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
Bx17        CAGCAACCAGGACAAGGGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
Bx20        CAGCAACCAGGACAAAGGCAACAAGATCAGCAGCCAGGACAAGGACAACAAGGGTACTAC  480
Bx23        CAGCAACCAGAACAAAGGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
Bx23*       CAGCAACCAGAACAAAGGCAACAAGATCAGCAGCCAGGACAAAGACAACAAGGATACTAC  465
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Bx6         CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTAC  540
Bx7         CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTAC  525
Bx7*        CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTAC  525
Bx13        CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGGCAAGGGCAACCAGGGTAC  525
Bx14(+)     CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTAC  540
Bx14(-)     CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAATTGGGACAAGGGCAACCAGGGTAC  525
Bx14*       CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAAGGTAC  525
Bx17        CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTAC  525
Bx20        CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTAC  540
Bx23        CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAAGGTAC  525
Bx23*       CCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAAGGTAC  525
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Bx6         TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  600
Bx7         TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
Bx7*        TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
Bx13        TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
Bx14(+)     TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  600
Bx14(-)     TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGCCAGGACAAGGGCAACAATCAGGA  585
Bx14*       TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
Bx17        TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
Bx20        TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  600
Bx23        TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
Bx23*       TACCCAACTTCACAGCAGCCAGGACAAAAGCAGCAGGCAGGACAAGGGCAACAATCAGGA  585
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Bx6         CAAGGACAACAAGGGTACTACCCAACTTCCCTGCAACAGTCAGGACAAGGGCAACAACCG  660
Bx7         CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
Bx7*        CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
Bx13        CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
Bx14(+)     CAAGGACAACAAAGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  660
Bx14(-)     CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
Bx14*       CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
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Supplementary Fig. 1. Continued.

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Bx17        CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
Bx20        CAAGGACAACAAAGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  660
Bx23        CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
Bx23*       CAAGGACAACAAGGGTACTACCCAACTTCCCCGCAACAGTCAGGACAAGGGCAACAACCG  645
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Bx6         GGACAAGGGCAACCAGGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCATCAA  720
Bx7         GGACAAGGGCAACCAGGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx7*        GGACAAGGGCAACCAGGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx13        GGACAAGGGCAAGCAGGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx14(+)     GGACAAGGGCAACCAGGGTACTACCCAATTTCTCCGCAGCAGTCAGAACAATGGCAGCAA  720
Bx14(-)     GGACAAGGGCAACCAGGGTACTACCCAAGTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx14*       GGACAAGGGCAATCAAGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx17        GGACAAGGGCAACCAGGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx20        GGACAAGGGCAACCAGGGTACTACCCAATTTCCCCGCAGCAGTCAGAACAATGGCAGCAA  720
Bx23        GGACAAGGGCAATCAAGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
Bx23*       GGACAAGGGCAATCAAGGTACTACCCAACTTCTCCGCAGCAGTCAGGACAATGGCAGCAA  705
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Bx6         CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGGGCAG  780
Bx7         CCAGGACAAGGGCAACAACCAGGACAAGGGCAGCAATCAGGACAA---------------  750
Bx7*        CCAGGACAAGGGCAACAACCAGGACAAGGGCAGCAATCAGGACAA---------------  750
Bx13        CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATCAGGACAA---------------  750
Bx14(+)     CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATCGGGACAA---------------  765
Bx14(-)     CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATCAGGACAA---------------  750
Bx14*       CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATTAGGACAA---------------  750
Bx17        CCAGGACAAGGGCAACAACCAGGACAAGGGCAGCAATCAGGACAA---------------  750
Bx20        CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATCAGGACAA---------------  765
Bx23        CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATTAGGACAA---------------  750
Bx23*       CCAGGACAAGGGCAACAGCCAGGACAAGGGCAGCAATTAGGACAA---------------  750
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Bx6         CAATCAGGACAAGGGCAACAAGGTCAGCAGCCAGAACAAGGGCAACGACCAGGACAAGGA  840
Bx7         ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  798
Bx7*        ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  798
Bx13        ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  798
Bx14(+)     ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  813
Bx14(-)     ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCGGGACAAGGA  798
Bx14*       ----------GGGCAACAAGGTCAGCAACCAGGACAAGGGCAACGACCAGGACAAGGA  798
Bx17        ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  798
Bx20        ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  813
Bx23        ----------GGGCAACAAGGTCAGCAGCCAGGACAAGGGCAACGACCAGGACAAGGA  798
Bx23*       ----------GGGCAACAAGGTCAGCAACCAGGACAAGGGCAACGACCAGGACAAGGA  798
                      ***************** **** *************** *********

Bx6         CAACAAGGGTACTACCCAACTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  900
Bx7         CAACAAGGGTACTACCCAATTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
Bx7*        CAACAAGGGTACTACCCAATTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
Bx13        CAACAAGGGTACTACCCAACTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
Bx14(+)     CAACAAGGGTACTACCCAACTTCTCTGCAACAGCCGAGACAAGGGCAACAATCAGGACAA  873
Bx14(-)     CAACAAGGGTACTACCCAACTTCTTCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
Bx14*       CAACAAGGGTACTACCCAACTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
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Supplementary Fig. 1. Continued.

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Bx17          CAACAAGGGTACTACCCAATTTCTCCACAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
Bx20          CAACAAGGGTACTACCCAACTTCTCTGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  873
Bx23          CAACAAGGGTACTACCCAACTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
Bx23*         CAACAAGGGTACTACCCAACTTCTCCGCAACAGCCGGGACAAGGGCAACAATCAGGACAA  858
              ******************** ****   ********* ************************

Bx6           GGGCAACCAGGGTACTACCCAACTTCTTCGCGGCAGCCAGGACAA--TGGCAGCAACCAG  958
Bx7           GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
Bx7*          GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
Bx13          GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
Bx14(+)       GGGCAACCAGGGTACTACCCAACTTCTTCGCGGCAACCAGGACAA--TGGCAGCAACCAG  931
Bx14(-)       GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
Bx14*         GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
Bx17          GGGCAACCAGGTTACTACCCAACTTCTTTTGCGCAGCCCAGGACAATGGCAGCAACCCAG  918
Bx20          GGGCAACCAGGGTACTACCCAACTTCTTCGCGGCAACCAGGACAA--TGGCAGCAACCAG  931
Bx23          GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
Bx23*         GGGCAACCAGGGTACTACCCAACTTCTTTGCGGCAGCCAGGACAA--TGGCAGCAACCAG  916
              *********** ****************    *** **  *   *   *     * ****

Bx6           GACAAGGACAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC
1018
Bx7           GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAT  976
Bx7*          GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAT  976
Bx13          GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  976
Bx14(+)       GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  991
Bx14(-)       GACAAGGGCAGCAATCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  976
Bx14*         GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  976
Bx17          GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAT  978
Bx20          GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  991
Bx23          GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  976
Bx23*         GACAAGGGCAGCAACCAGGACAAGGGCAACAAGGTCAGCAGCCAGGACAAGGACAACAAC  976
              ******* ****** ******************************************

Bx6           CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCTAGGACAAGGGCAA  1077
Bx7           CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
Bx7*          CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
Bx13          CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
Bx14(+)       CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1050
Bx14(-)       CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
Bx14*         CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
Bx17          CAGGACAAGGACAACAAGGATACTACCCAACTTCTCTTGCAACAGCCAGGACAAGGGCAA  1038
Bx20          CAGGACAAGGACAACAAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1050
Bx23          CAGGACAAGGACAAGGAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
Bx23*         CAGGACAAGGACAAGGAGGATACTACCCAACTTCTCT-GCAACAGCCAGGACAAGGGCAA  1035
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Bx6           CAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAA  1137
Bx7           CAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
Bx7*          CAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
Bx13          CAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
Bx14(+)       CAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCTCCACAG---------------  1095
Bx14(-)       CAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
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Supplementary Fig. 1. Continued.

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Bx14*       CAACCGGGACAAGGGCAATCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
Bx17        CAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1098
Bx20        CAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCTCCACAG---------------  1095
Bx23        CAACCGGGACAAGGGCAATCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
Bx23*       CAACCGGGACAAGGGCAATCAGGGTACTACCCAACTTCGCAGCAGTCGGAACAAGGGCAG  1095
            **** ************* ******************* *  ***

Bx6         CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTTCG  1197
Bx7         CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTCCG  1155
Bx7*        CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTCCG  1155
Bx13        CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTTCA  1155
Bx14(+)     CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAAGGTACTACCCAACTTCTTCA  1155
Bx14(-)     CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTATTCA  1155
Bx14*       CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTTCA  1155
Bx17        CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTCCG  1158
Bx20        CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAAGGTACTACCCAACTTCTTCA  1155
Bx23        CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTTCA  1155
Bx23*       CAGCCAGGACAAGGAAAACAACCAGGACAAGGACAACAAGGGTACTACCCAACTTCTTCA  1155
            ************************************ *************** * *

Bx6         CAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1257
Bx7         CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx7*        CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx13        CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx14(+)     CAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx14(-)     CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx14*       CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx17        CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGTTACTACCCAACTTCT  1218
Bx20        CAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx23        CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
Bx23*       CAACAGTCAGGACAAGGGCAACAACTGGGACAAGGGCAACCAGGGTACTACCCAACTTCT  1215
            ************************* ****************** ***************

Bx6         CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1317
Bx7         CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1275
Bx7*        CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1275
Bx13        CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1275
Bx14(+)     CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGCACAACAAGGGTACTACCCAACT  1275
Bx14(-)     CCACAGCAGTCAGGACAAGGACAACAATCAAGACAAGGACAACAAGGGTATTACCCAACT  1275
Bx14*       CCACAGCAGTCAAGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1275
Bx17        CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1278
Bx20        CCACAGCAGTCAGGACAAGGACAACAATCAGGACAAGCACAACAAGGGTACTACCCAACT  1275
Bx23        CCACAGCAGTCAAGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1275
Bx23*       CCACAGCAGTCAAGACAAGGACAACAATCAGGACAAGGACAACAAGGGTACTACCCAACT  1275
            ************ ***************** ****** ************ *********
                                                  PS3-F (cauBx642-F)
Bx6         TCTCCGCAACAGTCAGGACAATGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1377
Bx7         TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
Bx7*        TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
Bx13        TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
Bx14(+)     TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAAGGCAATCGGGGTACTTCCCA  1335
Bx14(-)     TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
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Supplementary Fig. 1. Continued.

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Bx14*          TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
Bx17           TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1338
Bx20           TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAAGGCAATCGGGGTACTTCCCA  1335
Bx23           TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
Bx23*          TCTCCGCAACAGTCAGGACAAGGGCAACAACCGGGACAAGGGCAATCGGGGTACTTCCCA  1335
               ********************* ***************** *********************

Bx6            ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCTAGGACAAGGACAACAGTCGGGACAA  1395
Bx7            ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
Bx7*           ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
Bx13           ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
Bx14(+)        ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCAGGACAA  1395
Bx14(-)        ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
Bx14*          ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
Bx17           ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1398
Bx20           ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCAGGACAA  1395
Bx23           ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
Bx23*          ACTTCTCGGCAGCAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGTCGGGACAA  1395
               ********************************** ****************** ******

Bx6            GGGCAAGAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAGCTTCTTCGCAA  1455
Bx7            GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx7*           GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx13           GGGCAACAAGGTCAGCAACCAGGACAGGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx14(+)        GGGCAACAAGATCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx14(-)        GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx14*          GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx17           GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1458
Bx20           GGGCAACAAGATCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx23           GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
Bx23*          GGGCAACAAGGTCAGCAACCAGGACAAGGACAACAAGCGTACTACCCAACTTCTTCGCAA  1455
               ****** *** *************** ********************** ***********
Bx6            CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAAG  1556
Bx7            CAGTCAAGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1514
Bx7*           CAGTCAAGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1514
Bx13           CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAATCAGG  1514
Bx14(+)        CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1514
Bx14(-)        CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1514
Bx14*          CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGGC-AACCAGG  1514
Bx17           CAGTCAAGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1517
Bx20           CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1514
Bx23           CAGTCAGGACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGG-CAACCAGG  1514
Bx23*          CAGTCA-GACAAAGGCAACAGGCAGGACAATGGCAACGACCGGGACAAGGGCAAACCAGG  1514
               ****** ******************************************  ** ** *
                 PS4-F (MHBx14-Ha-F)
Bx6            GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAGTCAGGACAAACGCAACA  1616
Bx7            GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAATCAGGACAAGCGCAACA  1574
Bx7*           GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAATCAGGACAAGCGCAACA  1574
Bx13           GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAGTCAGGACAAGCGCAACA  1574
Bx14(+)        GTACTACCCAACCTCTCCACAGCAGCCGGGACAAGAGCAACAGCCAGGACAAGCGCAACA  1574
Bx14(-)        GTACTACCCAACCTCTCCACAGCAGCC----------AGGACAAGCGCAACA  1556
Bx14*          GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAGTCAGGACAAGCGCAACA  1574
Bx17           GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAATCAGGACAAGCGCAACA  1577
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Supplementary Fig. 1. Continued.

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Bx20        GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAGTCAGGACAAGCGCAACA  1574
Bx23        GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAGTCAGGACAAGCGCAACA  1574
Bx23*       GTACTACCCAACCTCTCCACAGCAGCCAGGACAAGAGCAACAGTCAGGACAAGCGCAACA  1574
            ***************************                 ******* *******
                                    PS10-F (MHBx20-F)
Bx6         ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1676
Bx7         ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1634
Bx7*        ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1634
Bx13        ATCAGGACAATGGCAACTAGTGTACTACCCAACCTCTCCGCAACAGCCAGGCCAATTGCA  1634
Bx14(+)     ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCTGCAACAGCCAGGCCAATTGCA  1634
Bx14(-)     ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1616
Bx14*       ATCAGGACAATGGCAACTAGTGTACTATCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1634
Bx17        ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1637
Bx20        ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCTGCAACAGCCAGGCCAATTGCA  1634
Bx23        ATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1634
Bx23*       ATCAGGACAATGGCAACTAGTGTACTATCCAACTTCTCCGCAACAGCCAGGCCAATTGCA  1634
            *************************** ***** **** ********************
                                                 PS4-R (MHBx14-Ha-R)
Bx6         ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1736
Bx7         ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1694
Bx7*        ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1694
Bx13        ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1694
Bx14(+)     ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAACC  1694
Bx14(-)     ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1676
Bx14*       ACAACCAGCACAAGGGC------------------AACAATCAGCACAAGAGCAACAGCC  1676
Bx17        ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1697

Bx20        ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAACC  1694
Bx23        ACAACCAGCACAAGGGCAACAACCAGCACAAGGGCAACAATCAGCACAAGAGCAACAGCC  1694
Bx23*       ACAACCAGCACAAGGGC------------------AACAATCAGCACAAGAGCAACAGCC  1676
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Bx6         AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1796
Bx7         AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1754
Bx7*        AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1754
Bx13        AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1754
Bx14(+)     AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1754
Bx14(-)     AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1736
Bx14*       AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCACAACG  1736
Bx17        AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTC--------  1750
Bx20        AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1754
Bx23        AGGACAAGCGCAACAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCGCAACA  1754
Bx23*       AGGACAAGCGCAGCAATCAGGACAATGGCAACTAGTGTACTACCCAACTTCTCCACAACG  1736
            ************ ****************************************

Bx6         GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1856
Bx7         GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1814
Bx7*        GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1814
Bx13        GCCAGGACAATTGCAACAACCAACACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1814
Bx14(+)     GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1814
Bx14(-)     GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1796
Bx14*       GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1796
Bx17        ------------------------------------------------------------  1750
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Supplementary Fig. 1. Continued.

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Bx20        GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1814
Bx23        GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1814
Bx23*       GCCAGGACAATTGCAACAACCAGCACAAGGGCAACAAGGGTACTACCCAACTTCTCCACA  1796

Bx6         ACAGTCAGGACAAGGGCAACAAGGGTACTACACAACTTCTCTGCAACAGTCAGGACAAGG  1916
Bx7         ACAGTCAGGACAAGGGCAACAAGGGTACTACCCAACTTCTC--------------------  1855
Bx7*        ACAGTCAGGACAAGGGCAACAAGGGTACTACCCAACTTCTC--------------------  1855
Bx13        ACAGTCAGGACAAGGGCAACAAGGGTACTACCCAACTTCTC--------------------  1855
Bx14(+)     ACAGTCAGGACAAGGGCAACAAGGGTACTACCCAACTTCTC--------------------  1855
Bx14(-)     ACAGTCGGGACAAGGGCAACAAGGGTACTACCCAACTTCTC--------------------  1837
Bx14*       ACAGTCAGGACAAGGGCAACAAGGATACTACCCAACTTCTC--------------------  1837
Bx17        ------------------------------------------------------------  1750
Bx20        ACAGTCAGGACAAGGGCAACAAGGGTACTACCCAACTTCTC--------------------  1855
Bx23        ACAGTCAGGACAAGGGCAACAAGGATACTACCCAACTTCTC--------------------  1855
Bx23*       ACAGTCAGGACAAGGGCAACAAGGATACTACCCAACTTCTC--------------------  1837

Bx6         GCAACAAGGGTACTACCTAACTTCTCCGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1976
Bx7         ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1889
Bx7*        ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1889
Bx13        ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1889
Bx14(+)     ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1889
Bx14(-)     ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1871
Bx14*       ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1871
Bx17        ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1784
Bx20        ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1889
Bx23        ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1889
Bx23*       ----------------------------CGCAACAGTCAGGACAAGGGCAACAAGGGTACTA  1871
                                         **********************************
                                                                PS3-R (cauBx642-R)
Bx6         CCCAACTTCTCCACAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  2036
Bx7         CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1949
Bx7*        CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1949
Bx13        CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACGACAGCCAAG  1949
Bx14(+)     CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1949
Bx14(-)     CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1931
Bx14*       CCCAACTTCTCCGCAACAGTCAGGACAAAGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1931
Bx17        CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1844
Bx20        CCCAACTTCTCCGCAACAGTCAGGACAAGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1949
Bx23        CCCAACTTCTCCGCAACAGTCAGGACAGGGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1949
Bx23*       CCCAACTTCTCCGCAACAGTCAGGACAAAGGCAGCAGCCAGGACAAGGACAACAGCCAAG  1931
            ************ **************  ********************** *********

Bx6         ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  2096
Bx7         ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  2009
Bx7*        ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  2009
Bx13        ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  2009
Bx14(+)     ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAAAC  2009
Bx14(-)     ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCTGCAACC  1991
Bx14*       ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  1991
Bx17        ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  1904
Bx20        ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAAAC  2009
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Supplementary Fig. 1. Continued.

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Bx23        ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  2009
Bx23*       ACAAGGGCAACAAGGGTACTACCCAATTTCTCCGCAGCAGTCAGGACAAGGGCAACAACC  1991
            ************************************************** *** *

Bx6         AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2156
Bx7         AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2069
Bx7*        AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2069
Bx13        AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCACAGCAGTCAGGACAAGGGCAACA  2069
Bx14(+)     AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2069
Bx14(-)     AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2051
Bx14*       AGGACAATGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2051
Bx17        AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  1964
Bx20        AGGACAAGGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2069
Bx23        AGGACAATGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2069
Bx23*       AGGACAATGGCAACAAGGATACTACCCAACTTCTCCGCAGCAGTCAGGACAAGGGCAACA  2051
            ******* *************************** ***********************
                          PS10-R (MHBx20-R)
Bx6         ACCAGGACATGAGCAACAGCCAGGACAATGGTTGCAACCAGGACAAGGGCAACAAGGGTA  2216
Bx7         ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2129
Bx7*        ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2129
Bx13        ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACTAGGACAAGGGCAACAAGGGTA  2129
Bx14(+)     ACCAAGGCATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2129
Bx14(-)     ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2111
Bx14*       ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2111
Bx17        ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2024
Bx20        ACCAAGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2129
Bx23        ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2129
Bx23*       ACCAGGACATGAGCAACAGCCAGGACAATGGCTGCAACCAGGACAAGGGCAACAAGGGTA  2111
            **** * ************************ ****** **********************
                          PS2-F (Bx7F)
Bx6         CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2276
Bx7         CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCATCAATCAGGACAAGGGCAACAAGG  2189
Bx7*        CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCATCAATCAGGACAAGGGCAACAAGG  2189
Bx13        CTATCCAACTTCTCCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2189
Bx14(+)     CTATCCAACCTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2189
Bx14(-)     CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2171
Bx14*       CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2171
Bx17        CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCATCAATCAGGACAAGGGCAACAAGG  2084
Bx20        CTATCCAACCTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2189
Bx23        CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2189
Bx23*       CTATCCAACTTCTTCACAGCAGTCAGGACAAGGGCAGCAATCAGGACAAGGGCAACAAGG  2171
            ********* *** ********************** ***********************

Bx6         GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2336
Bx7         GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2249
Bx7*        GTACTACCCAACTTCTCTGTGGCAACCAGGACAAG----------GGCAACA  2231
Bx13        GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2249
Bx14(+)     GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAAGGCAACA  2249
Bx14(-)     GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2231
Bx14*       GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2231
Bx17        GTACTACCCAACTTCTCTGTGGCAACCAGGACAAG----------GGCAACA  2126
Bx20        GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAAGGCAACA  2249
Bx23        GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2249
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Supplementary Fig. 1. Continued.

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Bx23*       GTACTACCCAACTTCTCTGTGGCAACCAGGACAAGGGCAACAACCAGGACAAGGGCAACA  2231
            ***********************************                 *******
                                                                PS2-R (Bx7R)
Bx6         AGGCTACGACAGTCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2396
Bx7         AGGCTACGCCAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2309
Bx7*        AGGCTACGCCAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2291
Bx13        AGGCTACGACAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2309
Bx14(+)     AGGCTACGACAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2309
Bx14(-)     AGGTTACGACAGTCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2291
Bx14*       AGGCTACGACAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2291

Bx17        AGGCTACGCCAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2186
Bx20        AGGCTACGACAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2309
Bx23        AGGCTACGACAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2309
Bx23*       AGGCTACGACAGCCCATACCATGTTAGCGCGGAGTACCAGGCGGCCCGCCTAAAGGTGGC  2291
            *** **** *** ********************************************

Bx6         AAAGGCGCAACAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACAC  2456
Bx7         AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2369
Bx7*        AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2351
Bx13        AAAGGCGCAGCAGCTCGCGGCATCGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2369
Bx14(+)     AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2369
Bx14(-)     AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGTGGGCAGCGACGC  2351
Bx14*       AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2351
Bx17        AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2246
Bx20        AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2369
Bx23        AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2369
Bx23*       AAAGGCGCAGCAGCTCGCGGCACAGCTGCCGGCAATGTGCCGGCTGGAGGGCAGCGACGC  2351
            ********* ************  ********************** ********** *

Bx6         ATTGTCGGCCAGGCAGTGA  2475
Bx7         ATTGTCGACCAGGCAGTGA  2388
Bx7*        ATTGTCGACCAGGCAGTGA  2370
Bx13        ATTGTCGACCAGGCAGTGA  2388
Bx14(+)     ATTGTCGGCCAGGCAGTGA  2388
Bx14(-)     ATTGTCGGCCAGCCAGTGA  2370
Bx14*       ATTGTCGGCCAGGCAGTGA  2370
Bx17        ATTGTCGACCAGGCAGTGA  2265
Bx20        ATTGTCGGCCAGGCAATGA  2388
Bx23        ATTGTCGACCAGGCAATGA  2388
Bx23*       ATTGTCGGCCAGGCAGTGA  2370
            ******* **** ** ***
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Supplementary Fig. 2. The sequences and position of primers in the promoter region of *Glu-1Bx*.

Supplementary Fig. 3. Alignment of the sequences of *Glu-1By* alleles and primer positions.

```
                                              PS12-F (ZSBy8F5)/ PS13-F (By18-SNP-F)
By8      CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGTCTCGTCGCC   240
By9      CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGTCCCGTCGCC   240
By15     CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGCCCCGTCGCC   240
By15*    CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGCCCCGTCGCC   240
By16     CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGTCCCGTCGCC   240
By18     CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGTCCCGTCGCC   240
By20     CTCCAGATGCGATGCTGCCAGCAGCTCCGAGATGTTAGCGCTAAGTGCCGCCCCGTCGCC   240
         ************************************************** * *******

By8      GTCAGCCAAGTCGTAAGACAATATGAGCAAACCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
By9      GTCAGCCAAGTCGTAAGACAATATGAGCAAACCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
By15     GTCAGCCAAGTCGTAAGACAATATGAGCAAACCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
By15*    GTCAGCCAAGTCGTAAGACAATATGAGCAAACCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
By16     GTCAGCCAAGTCGTAAGACAATATGAGCAAATCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
By18     GTCAGCCAAGTCGTAAGACAATATGAGCAAACCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
By20     GTCAGCCAAGTCGTAAGACAATATGAGCAAACCGTGGTGCCGCCCAAGGGCGGATCCTTC   300
         ******************************* ****************************

By8      TACCCTGGCGAGACCACACCACTGCAGCAACTCCAACAAGTAATATTTTGGGGAACATCT   360

By9      TACCCTGGCGAGACCACACCACTGCAGCAACTCCAACAAGTAATATTTTGGGGAACATCT   360
By15     TACCCTGGCGAGACCACACCACTGCAGCAACTCCAACAAGTAATATTTTGGGGAACATCT   360
By15*    TACCAAGGCGAGACCACACCACTACAACAACTCCAACAAGTAATATTTTGGGGAACATCT   360
By16     TACCCTGGCGAGACCACACCACTGCAGCAGCTCCAACAAGTAATATTTTGGGGAACATCT   360
By18     TACCCTGGCGAGACCACACCACTGCAGCAACTCCAACAAGTAATATTTTGGGGAACATCT   360
By20     TACCCTGGCGAGACCACACCACTGCAGCAACTCCAACAAGTAATATTTTGGGGAACATCT   360
         ****  ***************** ** ** ******************************
                                                      PS14-F (By01-F)
By8      TCACAAACAGTACAAGGGTATTACCCAAGCGTAAGTTCTCCTCAGCAGGGGCCATATTAT   420
By9      TCACAAACAGTACAAGGGTATTACCCAAGCGTAAGTTCTCCTCAGCAGGGGCCATATTAT   420
By15     TCACAAACAGTACAAGGGTATTACCCAAGCGTAAGTTCTCCTCAGCAGGGGCCATATTAT   420
By15*    TCACAAACAGGACAAGGGTATTACCCAAGCATAAGTTCTCCTCAGCAGGGGCCATATTAT   420
By16     TCACAAACAGTACAAGGGTATTACCCAAGCGTAAGTTCTCCTCAGCAGGGGCCATATTAT   420
By18     TCACAAACAGTACAAGGGTATTACCCAAGCGTAAGTTCTCCTCAGCAGGGGCCATATTAT   420
By20     TCACAAACAGTACAAGGGTATTACCCAAGCGTAAGTTCTCCTCAGCAGGGGCCATATTAT   420
         ********** ******************* *****************************

By8      CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAGGGCAACAGCCAGGCAAATGGCAAGAA   480
By9      CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAGGGCAACAGCCAGGCAAATGGCAAGAA   480
By15     CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAAGGCAACAGCCAGGCAAATGGCAAGAA   480
By15*    CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAGGGCAACAGCCAGGCAAATGGCAAGAA   480
By16     CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAGGGCAACAGCCAGGCAAATGGCAAGAA   480
By18     CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAGGGCAACAGCCAGGCAAATGGCAAGAA   480
By20     CCAGGCCAAGCTTCTCCACAACAGCCAGGACAAAGGCAACAGCCAGGCAAATGGCAAGAA   480
         ********************************* **************************
                                     PS15-F(ZSBy9aF1)
By8      CTGGGACAAGGGCAACAAGGGTACTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
By9      CTGGGACAAGGGCAACAAGGGTACTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
By15     CTGGGACAAGGGCAACAAGGGTATTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
By15*    CTGGGACAAGGGCAACAAGAGTACTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
By16     CTGGGACAAGGGCAACAAGGGTACTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
By18     CTGGGACAAGGGCAACAAGGGTACTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
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Supplementary Fig. 3. Continued.

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By20        CTGGGACAAGGGCAACAAGGGTATTACCCAACTTCTCTGCATCAGTCAGGACAAGGACAA   540
            ******************* *** ***********************************

By8         CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGATAGGACAAGGG   600
By9         CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGATAGGACAAGGG   600
By15        CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGACAGGACAAGGG   600
By15*       CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGACAGGACAAGTG   600
By16        CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGACAGGACAAGGG   600
By18        CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGATAGGACAAGGG   600
By20        CAAGGGTACTACCCATCTTCTCTGCAGCAACCAGGACAAGGGCAACAGACAGGACAAGGG   600
            ************************************************ ******** *

By8         CAACAAGGATACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGGCAACAGATAGGACAA   660
By9         CAACAAGGATACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGGCAACAGATAGGACAA   660
By15        CAACAAGGATACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGGCAACAGATAGGACAA   660
By15*       CAACAAGAATACTACCCAACTTCTCTACAGCAATCAGGACAAGGGCAACAAATAGGACAA   660

By16        CAACAAGGATACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGGCAACAGATAGGACAA   660
By18        CAACAAGGATACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGGCAACAGATAGGACAA   660
By20        CAACAAGGATACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGGCAACAGATAGGACAA   660
            ******* ****************** *****  ***************** *********

By8         GGACAACAAGGGTACTACCCAACTTCTCCGCAACACCCAGGACAAAGGCAACAACCAGGA   720
By9         GGACAACAAGGGTACTACCCAACTTCTCCGCAACACCCAGGACAAAGGCAACAACCAGGA   720
By15        GGGCAACAAGGGTACTACCCAACTTCTCCGCAGCACCCAGGACAAAGGCAACAACCAGGA   720
By15*       GGGCAACAAGGGTACTACCCAACTTCTCCGCAGCACCCAGGACAAAGGCAACAACCAGGA   720
By16        GGACAACAAGGGTACTACCCAACTTCTCCGCAGCACCCAGGACAAAGGCAACAACCAGGA   720
By18        GGACAACAAGGGTACTACCCAACTTCTCCGCAACACCCAGGACAAAGGCAACAACCAGGA   720
By20        GGGCAACAAGGGTACTACCCAACTTCTCCGCAGCACCCAGGACAAAGGCAACAACCAGGA   720
            ** ***************************** ****************************
            PS12-R (ZSBy8R5)/ PS13-R (By18-SNP-R)/ PS16-F (MHBy16-F)
By8         CAAGGGCAGCAAATAGGACAAGGGCAACAACTAGGACAAGGGCGGCAAATAGGACAAGGG   780
By9         CAAGGGCAGCAAATAGGACAAGGGCAACAACTAGGACAAGGGCGGCAAATAGGACAAGGG   780
By15        CAAGGGCAGCAAATAGGACAAGGGCAACAACCAGGACAAGGGCGGCAAATAGGACAAGGG   780
By15*       CAAGGGCAGCAAATAGGACAAGGGCAACAACCAGGACAAGGGCGGCAAATAGGACAAGGG   780
By16        CAAGGGCAGCAAATAGGACAAGAGCAACAACTAGGACAAGGGCGGCAAATAGGACAAGGG   780
By18        CAAGGGCAGCAAATAGGACAAGGGCAACAACTAGGACAAGGGCGGCAAATAGGACAAGGG   780
By20        CAAGGGCAGCAAATAGGACAAGGGCAACAACCAGGACAAGGGCGGCAAATAGGACAAGGG   780
            ********************** ******** ****************************

By8         CAACAATCAGGACAAGGGCAACAAGGGTACTATCCAACTTCTCCACAGCAGCTAGGACAA   840
By9         CAACAATCAGGACAAGGGCAACAAGGGTACTATCCAACTTCTCCACAGCAGCTAGGACAA   840
By15        CAACAATCAGGACAAGAGCAACAAGGGTACTATGCAACTTCTCCACAGCAGCTAGGACAA   840
By15*       CAACAATCAGGACAAGGGCAACAAGGGTACTATCCAACTTCTCCACAGCAGCTAGGACAA   840
By16        CAACAATCAGGACAAGGGCAACAAGGGTACTATCCAACTTCTCCACAGCAGCTAGGACAA   840
By18        CAACAATCAGGACAAGGGCAACAAGGGTACTATCCAACTTCTCCACAGCAGCTAGGACAA   840
By20        CAACAATCAGGACAAGAGCAACAAGGGTACTATGCAACTTCTCCACAGCAGCTAGGACGA   840
            ***************** ***************** ********************** *

By8         GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAGGGTACTACCCAACT   900
By9         GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAGGGTACTACCCAACT   900
By15        GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAAGGTACTACCCAACT   900
By15*       GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAGGGTACTACCCAACT   900
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Supplementary Fig. 3. Continued.

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By16        GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAGGGTACTACCCAACT    900
By18        GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAGGGTACTACCCAACT    900
By20        GGGCAACAACCAGGACAATGGCAACAATCAGGACAAGGGCAACAAAGGTACTACCCAACT    900
            ****************************************** **************

By8         TCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
By9         TCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
By15        TCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
By15*       TCTCAGCAGCAGTCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
By16        TCCCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
By18        TCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
By20        TCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCA    960
            ** ********* ************************************************

By8         GGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAA    1020
By9         GGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAA    1020
By15        GCACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCAGCACAAGGGCAACAA    1020
By15*       GGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGGCAGCACAAGGGCAACAA    1020
By16        GGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAA    1020
By18        GGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAA    1020
By20        GCACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAGCAGCAGCCAGCACAAGGGCAACAA    1020
            * ************************************** *** **************

By8         GGGCAGTACCCAGCTTCTCAGCAGCAGCCAGCACAAGGGCAACAAGGGCAGTACCCAGCT    1080
By9         GGGCAGTACCCAGCTTCTCAA----------------------------------------    1041
By15        GGGCAGTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCT    1080
By15*       GGGCAGTACCCAGCTTCTCAG----------------------------------------    1041
By16        GGGCAGTACCCAGCTTCTCAGCAGCAGCCAGCACAAGGGCAACAAGGGCAGTACCCAGCT    1080
By18        GGGCAGTACCCAGCTTCTCAGCAGCAGCCAGCACAAGGGCAACAAGGGCAGTACCCAGCT    1080
By20        GGGCAGTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCT    1080
            ********************

By8         TCTCAACAACAGCCAGGACAAGGGCAACAAGGGCACTACCTAGCTTCTCAGCAGCAGCCA    1140
By9         ------CAACAGCCAGGACAAGGGCAACAAGGGCACTACCTAGCTTCTCAGCAGCAGCCA    1095
By15        TCTCAGCAGCAGCCAGCACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAACAGCAGCCA    1140
By15*       ------CAGCAGCCAGGACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAACAGCAGCCA    1095
By16        TCTCAACAACAGCCAGGACAAGGGCAACAAGGGCACTACCTAGCTTCTCAGCAGCAGCCA    1140
By18        TCTCAACAACAGCCAGGACAAGGGCAACAAGGGCACTACCTAGCTTCTCAGCAGCAGCCA    1140
By20        TCTCAGCAGCAGCCAGCACAAGGGCAACAAGGGCAGTACCCAGCTTCTCAACAGCAGCCA    1140
                  ** ******* ****************** **** ********* *********

By8         GGACAAGGGCAACAACGGCACTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAA    1200
By9         GGACAAGGGCAACAACGGCACTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAA    1155
By15        GGACAAGGGCAACAAGGGCACTACCCAGCTTCTGAGCAGCAGCCAGGACAAGGGCAACAA    1200
By15*       GGACAAGGGCAACAAGGGCACTACCCAGCTTCTCAGCAGCAGCCAGGACAAGGGCAACAA    1155
By16        GGACAAGGGCAACAACGGCACTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAA    1200
By18        GGACAAGGGCAACAACGGCACTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAA    1200
By20        GGACAAGGGCAACAAGGGCACTACCCAGCTTCTGAGCAGCAGCCAGGACAAGGGCAACAA    1200
            *************** *****************  ****** ******************
                PS15-R (ZSBy9aR3)
By8         GGGCATTACACAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCT    1260
By9         GGGCATTACACAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCT    1215
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Supplementary Fig. 3. Continued.

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By15        CGGCACTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAAGGCATTACGCAGCT   1260
By15*       CGGCATTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACACAGCT   1215
By16        GGGCATTACACAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCT   1260
By18        GGGCATTACACAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCT   1260
By20        CGGCACTACCCAGCTTCTCTGCAGCAACCAGGACAAGGGCAACAAAGGCATTACGCAGCT   1260
                **** *** ********************************** ******** *****
                  PS16-R (MHBy16-R)          PS14-R (By02-R)
By8         TCTCTGCAGCAGGTAGGACAAGGACAACAAATAGGACAGCTAGGACAAAGGCAACAACCA   1320

By9         TCTCTGCAGCAGGTAGGACAAGGACAACAAATAGGACAGCTAGGACAAAGGCAACAACCA   1275
By15        TCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCTTCTCTGCAGCAGGTA   1320
By15*       TCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCTTCTCTGCAACAGGTA   1275
By16        TCCCTGCAGCAGGTAGGACAAGGACAACAAATAGGACAGCTAGGACAAAGGCAACAACCA   1320
By18        TCTCTGCAGCAGGTAGGACAAGGACAACAAATAGGACAGCTAGGACAAAGGCAACAACCA   1320
By20        TCTCTGCAGCAACCAGGACAAGGGCAACAAGGGCATTACCCAGCTTCTCTGCAGCAGGTA   1320
            ** ********   ********* ******       * * **       *** **   *

By8         GGACAAGGGCAACAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAA   1380
By9         GGACAAGGGCAACAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAA   1335
By15        GGACAAGGACAACAAA----------------------------------------------   1336
By15*       GGACAAGGACAACAAA----------------------------------------------   1291
By16        GGACAAGGGCAACAAACAAGACAAGGGCAACAACTGGAACAAGGGCAACAACCAGGACAA   1380
By18        GGACAAGGGCAACAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAA   1380
By20        GGACAAGGACAACAAA----------------------------------------------   1336
            ******** *******

By8         ------------------------------------------------------GGGCAA   1386
By9         ------------------------------------------------------GGGCAA   1341
By15        ------------------TAGGACAGCCAGGACAAAGGCAACAACCAGGACAAGGGCAA   1377
By15*       ------------------TAGGACAGCCAGGACAAAGGCAACAACCAGGACAAGGGCAA   1332
By16        GGGCAACAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAA   1440
By18        ------------------------------------------------------GGGCAA   1386
By20        ------------------TAGGACAGCCAGGACAAAGGCAACAACCAGGACAAGGGCAA   1377
                                                                  ******

By8         CAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1446
By9         CAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1401
By15        CAAACAGAACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1437
By15*       CAAACAGGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1392
By16        CAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1500
By18        CAAACAAGACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1446
By20        CAAACAGAACAAGGGCAACAACTAGAACAAGGGCAACAACCAGGACAAGGGCAACAAGGG   1437
            ******  **************************************************
                      PS17-F (MHBy18-F)
By8         TACTATCCAACTTCTCCACAACAGTCGGGACAAGGGCAACAACCAGGACAATCACAACAA   1506
By9         TACTATCCAACTTCTCCACAACAGTCGGGACAAGGGCAACAACCAGGACAATCACAACAA   1461
By15        TACTATCCAACTTCTCCACAACAGTCAGGACAAGGGCAACAACCAGGACAATCGCAACAA   1497
By15*       TACTATCCAACTTCTCCACAACAGTCAGGACAAGGGCAACAACCAGGACAATCGCAACAA   1452
By16        TACTATCCAACTTCTCCACAACAGTCAGGACAAGGGCAACAACCAGGACAATCACAACAA   1560
By18        TACTATCCAACTTCTCCACAACAGTCGGGACAAGGGCAACAACCAGGACAATCACAACAA   1506
By20        TACTATCCAACTTCTCCACAACAGTCAGGACAAGGGCAACAACCAGGACAATCGCAACAA   1497
            ************************* ************************* ******
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Supplementary Fig. 3. Continued.

```
By8     CCAGGACAAGGGCAACAAGGGTACTACTCAAGTTCTCTACAACAGCCAGGACAAGGGCTA  1566
By9     CCAGGACAAGGGCAACAAGGGTACTACTCAAGTTCTCTACAACAGCCAGGACAAGGGCTA  1521
By15    CCAGGACAAGGGCAACAAGGGTACTACTCAACTTCTCTACAACAGCCAGGACAAGGGCAA  1557
By15*   CCAGGACAAGGGCAACAAGGGTACTACTCAACTTCTCTACAACAGCCAGGACAAGGGCAA  1512

By16    CCAGGACAAGGGCAACAAGGGTACTACTCAACTTCTCTACAACAGCCAGGACAAGGGCAA  1620
By18    CCAGGACAAGGGCAACAAGGGTACTACTCAAGTTCTCTACAACAGCCAGGACAAGGGCTA  1566
By20    CCAGGACAAGGGCAACAAGGGTACTACTCAACTTCTCTACAACAGCCAGGACAAGGGCAA  1557
        ****************************** ************************* *

By8     CAAGGGCACTACCCAGCTTCTCTGCAGCAGCCAGGACAAGGACATCCAGGACAAAGGCAA  1626
By9     CAAGGGCACTACCCAGCTTCTCTGCAGCAGCCAGGACAAGGACATCCAGGACAAAGGCAA  1581
By15    CAAGGGCACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGACATCCAGGACAAAGGCAA  1617
By15*   CAAGGGCACTACCCAGCTTCTCTGCAGCAGTCAGGACAAGGACATCCAGGACAAAGGCAA  1572
By16    CAAGGGCACTACCCAGCTTCTCTGCAGCAGCCAGGACAAGGACATCCAGGACAAAGGCAA  1680
By18    CAAGGGCACTACCCAGCTTCTCTGCAGCAGCCAGGACAAGGACATCCAGGACAAAGGCAA  1626
By20    CAAGGGCACTACCCAACTTCTCTGCAGCAGCCAGGACAAGGACATCCAGGACAAAGGCAA  1617
        *************** ************** ****************************

By8     CAACCAGGACAAGGGCAACAACCAGAACAAGGGCAACAACCAGGACAGGGGCAACAAGGG  1686
By9     CAACCAGGACAAGGGCAACAACCAGAACAAGGGCAACAACCAGGACAGGGGCAACAAGGG  1641
By15    CAACCAGGACAAGGGCAACAACCAGAACAAGGGCAACAACCAGGACAGGGGCAACAAGGG  1677
By15*   CAACCAGGACAAGGGCAACAACCAGAACAAGGGCAACAACCAGGACAGAGGCAACAAGGG  1632
By16    CAACCAGGACAAGGGCAACAACCAAAACAAGGGCAACAACCAGGACAGGGGCAACAAGGG  1740
By18    CAACCAGGACAAGGGCAACAACCAGAACAAGGGCAACAACCAGGACAGGGGCAACAAGGG  1686
By20    CAACCAGGACAAGGGCAACAACCAGAACAAGGGCAACAACCAGGGCAGGGGCAACAAGGG  1677
        ************************ ******************* *** ************

By8     TATTATCCAACTTCTCCGCAGCAGCCAGGACAAGGGAAACAACTAGGACAAGGGCAACAA  1746
By9     TATTATCCAACTTCTCCGCAGCAGCCAGGACAAGGGAAACAACTAGGACAAGGGCAACAA  1701
By15    TATTATCCAACTTCTCCGCAGCAGCCAGGACAAGGGAAACAACTAAGACAAGGGCAACAA  1737
By15*   TATTATCCAACTTCTCCGCAGCAGCCAGGACAAGGGAAACAACTAGGACAAGGGCAACAA  1692
By16    TATTATCCAACTTCTTCGCAGCAGCCAGGACAAGGGAAACAACTAGGACAAGGGCAACAA  1800
By18    TATTATCCAACTTCTCCGCAGCAGCCAGGACAAGGGAAACAACTAGGACAAGGGCAACAA  1746
By20    TATTATCCAACTTCTCCGCAGCAGCCAGGACAAGGGAAACAACTAAGACAAGGGCAACAA  1737
        *************** **************************** **************

By8     GGGTACTACCCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACCAGGACAAGGGCAA  1806
By9     GGGTACTACCCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACCAGGACAAGGGCAA  1761
By15    GGGTACTACCCAACTTCTCTGCAACAGCCAGGACAAGGGCAACAACCAGGACAAGGGCAA  1797
By15*   GGGTACTACCCAACTTCTACGCAACAGCCAGGACAAGGACAACAACCAGGACAAGGGCAA  1752
By16    GGGTACTACCCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACCAGGACAAGGGCAA  1860
By18    GGGTACTACCCAACTTCTCCGCAACAGCCAGGACAAGGGCAACAACCAGGACAAGGGCAA  1806
By20    GGGTACTACCCAACTTCTCTGCAACAGCCAGGACAAGGGCAACAACCAGGACAAGGGCAA  1797
        ******************  ****************** **********************

By8     CAAGGGCACTGCCCAACTTCTCCGCAGCAGACAGGACAAGCGCAACAACCAGGACAAGGC  1866
By9     CAAGGGCACTGCCCAACTTCTCCGCAGCAGACAGGACAAGCGCAACAACCAGGACAAGGC  1821
By15    CAAGGGCACTGCCCAACTTCTCCGCAACAGACAGGACAAGCGCAACAACCAGGACAAGGC  1857
By15*   CAAGGGCACTGCCCAACTTCTCCGCAGCAGACAGGACAAGCGCAACAACCAGGACAAGGC  1812
By16    CAAGGGCACTGCCCAACTTCTCCGCAGCAGACAGGACAAGCGCAACAACCAGGACAAGGC  1920
By18    CAAGGGCACTGCCCAACTTCTCCGCAGCAGACAGGACAAGCGCAACAACCAGGACAAGGC  1866
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Supplementary Fig. 3. Continued.

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By20        CAAGGGCACTGCCCAACTTCTCCGCAACAGACAGGACAAGCGCAACAACCAGGACAAGGC   1857
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By8         CAACAAATAGGACAAGTGCAACAACCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1926
By9         CAACAAATAGGACAAGTGCAACAACCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1881
By15        CAACAAATAGGACAAGTGCAACAACCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1917
By15*       CAACAAATAGGACAAGTGCAACAATCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1872
By16        CAACAAATAGGACAAGTGCAAGAACCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1980
By18        CAACAAATAGGACAAGTGCAACAACCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1926
By20        CAACAAATAGGACAAGTGCAACAACCAGGACAAGGGCAACAAGGGTACTACCCAATTTCT   1917
            ********************* ** ********************************
                                                        PS17-R (MHBy18-R)
By8         CTGCAACAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGGACAAGGACAC   1986
By9         CTGCAACAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGGACAAGGACAC   1941
By15        CTGCAGCAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGGACAAGGACAC   1977
By15*       CTGCAGCAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGGACAAGGACAC   1932
By16        CTGCAACAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGGACAAGGACAC   2040
By18        CTGCAACAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGAACAAGGACAC   1986
By20        CTGCAGCAGTCAGGACAAGGGCAACAGTCAGGACAAGGGCAACAATCAGGACAAGGACAC   1977
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By8         CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGACAACCCATACCAT   2046
By9         CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGACAACCCATACCAT   2001
By15        CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGACAACCCATACCAT   2037
By15*       CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGATAACCCATACCAT   1992
By16        CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGACAACCCATACCAT   2100
By18        CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGACAACCCATACCAT   2046
By20        CAACTAGGACAAGGGCAGCAATCAGGACAAGAGCAACAAGGCTACGACAACCCATACCAT   2037
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By8         GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2106
By9         GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2061
By15        GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2097
By15*       GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2052
By16        GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2160
By18        GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2106
By20        GTTAACACAGAGCAGCAAACGGCCAGCCCAAAGGTGGCAAAGGTGCAGCAACCCGCGACA   2097
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By8         CAGCTGCCGATAATGTGTCGGATGGAGGGGGGCGACGCATTGTCGGCTAGCCAGTGA      2163
By9         CAGCTGCCGATAATGTGTCGGATGGAGGGGGGCGACGCATTGTCGGCTAGCCAGTGA      2118
By15        CAGCTGCCGATAATGTGTCGGATGGAGGGGGGCGACGCATTATCGGCTAGCCAGTGA      2154
By15*       CAGCTGCCGATAGTGTGTCGGATGGAGGGGGGCGACGCATTGTCGGCTAGCCAGTGA      2109
By16        CAGCTGCCGATAATGTGTCGGATGGAGGGGGGCGACGCATTGTCGACCAGGCAGTGA      2217
By18        CAGCTGCCGATAATGTGTCGGATGGAGGGGGGCGACGCATTGTCGGCTAGCCAGTGA      2163
By20        CAGCTGCCGATAATGTGTCGGATGGAGGGGGGCGACGCATTGTCGGCCAGCCAGTGA      2154
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Supplementary Fig. 3. Continued.