**Table S3:** Shown are the readable sequences (n=156) for recombination on the 4th chromosome (ntotal=172); molecular analysis of the target site. Deleted bp shown as: –

Inserted/exchanged bp shown as: N

Bold, grey sequence numbers show unrearranged (un-CRISPRed) CIGAR reporters.

To facilitate the detection of recombination, the first four nucleotides of the shifter of CIGAReGFP (CGGC) and CIGARmCherry (CCCC) are highlighted. The **PAM** site is shown in bold letters. In addition, we highlight the PCR setup used to amplify the shifter sequences of CIGAReGFP (green) or CIGARmCherry(red). The fwd primer anneals within the ubiquitin promoter (identical between both CIGAR variants), and the reverse primers primer are either specific for eGFP or mCherry, respectively.

The used primers for CIGAReGFP: CIGAR-fwd: CAACAAAGTTGGCGTCGATA and CIGAReGFP-rev: GAACTTCAGGGTCAGCTTGC.

The used primers for CIGARmCherry: CIGAR-fwd: CAACAAAGTTGGCGTCGATA and CIGARmCherry -rev: AAGCGCATGAACTCCTTGATG.

Orig CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG

|||| ||| | || || | |**|||**||||||||||||||

Orig CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG

1 Recombination GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

2 CIGAReGFP GTGCGGCGACAGCAGAACATGGTGC**GGG**ACGATAGGCTGC PCR

3 CIGARmCherry GTGCCCCGAGACAA----------------TAGGCTGCAG PCR

4 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**5** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGGTAGGCTGCAG PCR

6 Recombination GTGCGGCGACAGCAGA----------ACGATAGGCTGCAG PCR

7 Recombination GTGCGGCGACAGCAGAACGACAGC**GGG**ACGATAGGCTGCA PCR

8 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

9 CIGAReGFP GTGCGGCGACAGC-------AGC**GGG**ACGATAGGCTGCAG PCR

**10** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

11 Recombination GTGCGGCGACAGCAGAACGACAGC**GGG**ACGATAGGCTGCA PCR

**12** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

13 CIGAReGFP GTGCGGCGACAGCAGA----------ACGATAGGCTGCAG PCR

**14** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

15 Recombination GTGCGGCGACAGCAGAACGACAGC**GGG**ACGATAGGCTGCA PCR

16 CIGARmCherry GTGCCCCGAGA-----------C**GGG**ACGATAGGCTGCAG PCR

**17** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

18 CIGARmCherry GTGCCCCGAGACAAGCACCGAGACAAGAC**GGG**ACGATAGG PCR

19 CIGAReGFP GTGCGGCGAC----------AGC**GGG**ACGATAGGCTGCAG PCR

20 ? G-------------------------ACGGGACGATAGGC PCR

21 CIGAReGFP GTGCGGCGACAGCAG-----AGC**GGG**ACGATAGGCTGCAG PCR

**22** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

23 Recombination GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

24 CIGARmCherry GTGCCCCGA-----------GAC**GGG**ACGATAGGCTGCAG PCR

25 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

26 CIGARmCherry GTGCCCCGAGACAAGC---TGAC**GGG**ACGATAGGCTGCAG PCR

27 CIGAReGFP GTGCGGCGACAGC-------AGC**GGG**ACGATAGGCTGCAG PCR

**28** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

29 Recombination GTGCGGCGACAGCAGAA-----C**GGG**ACGATAGGCTGCAG PCR

30 CIGAReGFP GTGCGGCGACAGCAGAA-----C**GGG**ACGATAGGCTGCAG PCR

**31** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

32 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**33** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

34 CIGARmCherry GTGCCCCGAGACAAG---------44bp del-------- PCR

**35** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

36 ? N------34bp indel-----C**GGG**ACGATAGGCTGCAG PCR

37 CIGAReGFP GTGCGGCGACAGCAG-------C**GGG**ACGATAGGCTGCAG PCR

**38** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

39 CIGARmCherry GTGCCCCGAGACAAGCAC----C**GGG**ACGATAGGCTGCAG PCR

**40** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

41 CIGAReGFP GTGCGGCGACAGC-------AGC**GGG**ACGATAGGCTGCAG PCR

42 CIGAReGFP GTGCGGCGAC----------AGC**GGG**ACGATAGGCTGCAG PCR

**43** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**44** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**45** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**46** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

47 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**48** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**49** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

50 Recombination GTGCCCCGAGACAAGCATGTCGGGTGCCCCCGAGAC**GGG**A PCR

**51** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**52** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

53 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

54 CIGARmCherry GTGCCCCGAGACAAGCACCGGGACAGAC**GGG**ACGATAGGC PCR

55 CIGARmCherry GTGCCCCGAGACAAGCACCATGTCCCGAGAC**GGG**ACGATA PCR

56 CIGAReGFP GTGCGGCGACAGCAGACGACAGC**GGG**ACGATAGGCTGCAG PCR

**57** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

**58** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

59 CIGAReGFP GTGCGGCGACAGCAGAAC--AGC**GGG**ACGATAGGCTGCAG PCR

60 CIGARmCherry GTGCGGCGAC----------AGC**GGG**ACGATAGGCTGCAG PCR

**61** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

62 Recombination GTGCCCCGAGACAAG----GGAC**GGG**ACGATAGGCTGCAG PCR

**63** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**64** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**65** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

66 Recombination GTGCGGCGACAGCAGAAC--AGC**GGG**ACGATAGGCTGCAG PCR

**67** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**68** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

69 CIGARmCherry GTGCCCCGAGACAAGCA-------------------GCAG PCR

70 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

71 CIGARmCherry GTGCGGCGACAGCAG----------**G**ACGATAGGCTGCAG PCR

**72** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**73** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**74** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

75 Recombination GTGCCCCGAGACAAG-----GAC**GGG**ACGATAGGCTGCAG PCR

76 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**77** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**78** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**79** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

80 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

81 CIGAReGFP GTGCGGCGACAGCAGAACG-AGC**GGG**ACGATAGGCTGCAG PCR

82 ? GT-------------------GC**GGG**ACGATAGGCTGCAG PCR

83 Recombination GTGCCCCGAGACAAGCACGAGAC**GGG**ACGATAGGCTGCAG PCR

**84** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

85 CIGAReGFP GTGCGGCGACAGCAGA----------ACGATAGGCTGCAG PCR

**86** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

87 CIGARmCherry GTGCCCCGAGACAAGCAC-TGAC**GGG**ACGATAGGCTGCAG PCR

88 Recombination GTGCCCCGA-----------GAC**GGG**ACGATAGGCTGCAG PCR

89 Recombination GTGCCCCGAGACAA------GAC**GGG**ACGATAGGCTGCAG PCR

90 Recombination GTGCGGCGACAGC-------AGC**GGG**ACGATAGGCTGCAG PCR

91 CIGARmCherry GTGCCCCGA----------------**G**ACGATAGGCTGCAG PCR

**92** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

93 Recombination GTGCGGCGACAGC----------**GGG**ACGATAGGCTGCAG PCR

94 CIGAReGFP GTGCGGCGACAGCAGAACGGGACGATA**GGG**ACGATAGGCT PCR

95 CIGAReGFP GTGCGGCGACAGCAGA----------ACGATAGGCTGCAG PCR

96 CIGARmCherry GTGCCCCGAGACAAGCAC-TGAC**GGG**ACGATAGGCTGCAG PCR

**97** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

98 CIGARmCherry GTGCCCCGAGACAAGGACGTCCCGAGAC**GGG**ACGATAGGC PCR

**99** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

100 CIGARmCherry GTGCCCCGAGACAAG-ACAAGAC**GGG**ACGATAGGCTGCAG PCR

101 CIGAReGFP GTGCGGCGACAGCAGA----------ACGATAGGCTGCAG PCR

**102** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**103** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

104 ? GTG-------------------C**GGG**ACGATAGGCTGCAG PCR

**105** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

106 Recombination GTGCGGCGACAGC-------AGC**GGG**ACGATAGGCTGCAG PCR

107 CIGAReGFP GTGCGGCGACAGCAG-----AGC**GGG**ACGATAGGCTGCAG PCR

108 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

109 CIGAReGFP GTGCGGCGACAGCAGAACG-AGC**GGG**ACGATAGGCTGCAG PCR

110 CIGAReGFP GTGCGGCGACAGCAGAACG-AGCGGGACGATAGGCTGCAG PCR

111 Recombination GTGCGGCGACAGCAGAACGTCGGGAACAGAACAGC**GGG**AC PCR

112 CIGAReGFP GTGCGGCGACAGCAGAACG-AGC**GGG**ACGATAGGCTGCAG PCR

113 CIGARmCherry GTGCCCCGAGACAAGCACGGGAC**GGG**ACGATAGGCTGCAG PCR

**114** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

115 CIGAReGFP GTGCGGCGACAGCA-----------**G**ACGATAGGCTGCAG PCR

116 ? N------------------------**G**ACGATAGGCTGCAG PCR

117 CIGAReGFP GTGCGGCGACAGCAGAACGACAGC**GGG**ACGATAGGCTGCA PCR

118 CIGAReGFP GTGCGGCGACAGCAGACAGCAGACAGCAGACAGC**GGG**ACG PCR

**119** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

120 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

121 ? N------------------------**G**ACGATAGGCTGCAG PCR

122 Recombination GTGCCCCGAGACAAGCAC--G--**GGG**-CGATAGGCTGCAG PCR

123 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

124 CIGAReGFP GTGCGGCGACAGCAGAACG-AGC**GGG**ACGATAGGCTGCAG PCR

125 CIGARmCherry GTGCCCCGAGACAAGCAC--GAC**GGG**ACGATAGGCTGCAG PCR

126 Recombination GTGCCCCGAGACAAGCACCA-AT**G**A**G**ACGATAGGCTGCAG PCR

127 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

128 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**129** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

130 CIGAReGFP GTGCGGCGACAGCA------AGC**GGG**ACGATAGGCTGCAG PCR

**131** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

132 CIGARmCherry GTGCCCCGAGCCAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

133 Recombination GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

134 CIGARmCherry GTGCCCCGAGACAAGCAC--GAC**GGG**ACGATAGGCTGCAG PCR

135 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

136 CIGAReGFP GTGCGGCGACAGCAGAAC-----**GGG**ACGATAGGCTGCAG PCR

137 CIGAReGFP GTGCGGCGACAGCAGAAC-TAGC**GGG**ACGATAGGCTGCAG PCR

138 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

139 CIGARmCherry GTGCCCCGAGACAAGCACC-----**GG**ACGATAGGCTGCAG PCR

**140** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

141 CIGAReGFP GTGCGGCGAC----------AGC**GGG**ACGATAGGCTGCAG PCR

142 CIGARmCherry GTGCCCCGA-----------GAC**GGG**ACGATAGGCTGCAG PCR

143 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

144 CIGAReGFP GTGCGGCGACAGCAGA----------ACGATAGGCTGCAG PCR

145 ? GTG-TCC----C--G-A---GAC**GGG**ACGATAGGCTGCAG PCR

146 Recombination GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

147 Recombination GTGCGGCGACAGCAGAACG-AGC**GGG**ACGATAGGCTGCAG PCR

**148** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

**149** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

150 CIGARmCherry GTGCCCCGAGACAAGCAC-TGAC**GGG**ACGATAGGCTGCAG PCR

**151** CIGARmCherry GTGCCCCGAGACAAGCACCTGAC**GGG**ACGATAGGCTGCAG PCR

152 CIGARmCherry GTGCCCCGA-----------GAC**GGG**ACGATAGGCTGCAG PCR

**153** CIGAReGFP GTGCGGCGACAGCAGAACGTAGC**GGG**ACGATAGGCTGCAG PCR

154 Recombination GTGCGGCGACAGCAGACGACAGACAGC**GGG**ACGATAGGCT PCR

155 CIGAReGFP GTGCGGCGACAGC-------AGC**GGG**ACGATAGGCTGCAG PCR

156 ? N-174bp del-from promoter into happy-linker PCR (shorter band in PCR)

**Total readable sequences: 156**

**Recombination events: 41 (21 without indels; 20 with indels)**

**Total indels: 84 (this number includes recombinations with indels and larger indels)**

**Indels without recombination: 64**

**Large indels: 8 (cannot be inferred if recombined or not)**

**Un-CRISPRed CIGARs: 51**

**Unreadable or mixed sequences: 16**