

S11 Figure

H. *bzg015 (mms21-CH mre11)*

```

                Chr V 25817-:
AGAGATTTTGGAGCGTAAACTACCACCAGTGAAT:
|||||
AGAGATTTTGGAGCGTAAACTACCACCAGTGAAT:GCTAGCACGCCGCCAGTGTGCTGG:AATTCAGTGGTGGTAGTTTTACGCT
                |||||
                :AATTCAGTGGTGGTAGTTTTACGCT
                :ChrV 25816+
    
```

Starting sequence (engineered *CAN1/YEL068C* junction)

```

                ChrV 30951-:
CAN1: TTCTTGGTGCCGGAATAATACTCAGCCGTTTCGCGATCAAAAATGCTGGTA:
|||||
Junct: TTCTTGGTGCCGGAATAATACTCAGCCGTTTCGCGATCAAAAATGCTGGTA:AGGGCG

Junct: AATTCAGCACACTGGCGCCGTGCTAGC:ATTCAGTGGTGGTAGTTTTACGCTCCAA
                |||||
YEL068C: :ATTCAGTGGTGGTAGTTTTACGCTCCAA
                :ChrV 25817+

Junct: AATCTCTTATCATA
                |||||
YEL068C: AATCTCTTATCATA
    
```

```

      C C G G
      G      GTGCTGGA ATT-3'
10 base loop ||||| | |||
      C A G T CACGATCG:TAAGTGACCACCATCAAAAATGCGAGGTTTTAGAGAATAGTAT...-5'
    
```

I. *bzg016 (mms21-CH mre11)*

```

2,048,825          CP019035.1 2,048,785-:
TAAAGACCATGAGCTTCAATACCCTGATTGACTGGAACAGC:
|||||
TAAAGACCATGAGCTTCAATACCCTGATTGACTGGAACAGC:CGGATCTGCCCGGGGATCCGGCCAGATCCG:GCTGTTCCAGTCAAT
                |||||
                :GCTGTTCCAGTCAAT
                :2,048,785+
    
```

```

CAGGGTATTGAAGCTCATGGTCTTTACTCCATCACAGGTTCCGCCTTATCCGGC
|||||
CAGGGTATTGAAGCTCATGGTCTTTACTCCATCACAGGTTCCGCCTTATCCGGC
                2,048,854
    
```

Starting sequence (engineered *can1::hisG* junction)

```

                ChrV 30,928+:
5'-...ATAAGTCTTAACGTCCAATCAACTATAAATCCGAGGGCTACG:CTCGAGGTCGACGGTATCGATAAGCTTGATATCGAATTCCTGCA
|||||
3'-...TATTCAGAATTGCAGGTTAGTTGATATTTAGGCTCCCGATGC:GAGCTCCAGCTGCCATAGCTATTCGAACTATAGCTTAAGGACGT
    
```

```

GCCCGGGGATCCGGCCAGATCCG:GCTGTTCCAGTCAATCAGGGTATTGAAGCTCATGGTCTTTACTCCAGCACAGGTTCCGCCT...-3'
|||||
CGGGCCCTAGGCCGTCTAGGC:CGACAAGGTCAGTTAGTCCATAAATTGAGTACCAGAAATGAGGTCGTGTCCCAAGGCCGA...-5'
                :CP019035.1 2,048,785+
    
```

```

      C C CCGGC-3'
5 base loop C  |||||
                T A GGCCGGTCTAGGCCGACAAGGTCAGTTAGTCCATAAATTGAGTACCAGAAATGAGGTCGTGTCCCAAGGCCGA...-5'
    
```


S11 Figure

N. *bzg034 (mms21-CH mre11-H125N)*

```

ChrV 27,091-:
GGTGATTGTAATGGTCTGTAACCCAGTACTG:CAGGCGTACCGA:
|||||
GGTGATTGTAATGGTCTGTAACCCAGTACTG:CAGCCGTGCCGA: TGAGCTCGGTACGCCCTGCAGTGTACTGGGTTACAG
|||||
:CAGCCGTGCCGA: TGAGCTCGGTACGCCCTGCAGTGTACTGGGTTACAG
:ChrV 27,074+

```

```

5 base loop T C A TCGGCACGGCTG-3'
                ||| ||| |||
C G AGCCATGCGGACGTACATGACCCAATGTCTGGTAATGTTAGTGGCGCGTGTCAACGACATGTG...-5'

```

O. *bzg035 (mms21-CH mre11-H125N)*

Two halves of the inversion junction

```

chrV 33115 CC:
1st half sequence | Query: 67 ATGCCAAAGAACCATAAATAAATATGATATAAGAGCGCCCACTGGGCC:AACGCCGGCCC 8
                  | Sbjct: 33067 ATGCCAAAGAACCATAAATAAATATGATATAAGAGCGCCCACTGGGCC:GGCGTTGGTC- 33125
                  | Query: 7 AGTGG 3
                  | Sbjct: 33126 AGAGG 33130

```

```

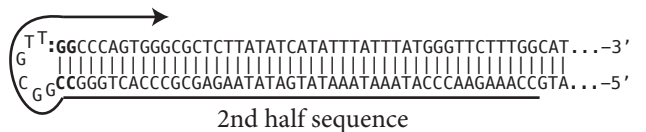
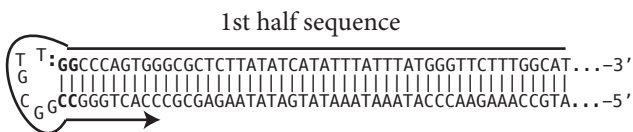
chrV 33123 GG:
2nd half sequence | Query: 64 CCAAAGAACCATAA-TAAATATGATATAAGAGCGCCCACTGGGCCGGCGTTGG:CCCAGT 6
                  | Sbjct: 33070 CCAAAGAACCATAAATAAATATGATATAAGAGCGCCCACTGGGCCGGCGTTGG:TC-AGA 33128
                  | Query: 5 GG 4
                  | Sbjct: 33129 GG 33130

```

```

6 base loop G T T GG-3'
              |||
C G CCGGGTCACCCGCGAGAATATAGTATAAATAAATACCCAAGAAACCGTA...-5'

```



S11 Figure

P. bzg040 (*mms21-CH mre11-H125N*)

ChrV 29,524-:

ATGTATGAAATTATTTGGGTGAGATAATATTAATCTTTCCTAT:CTTTAC:
 |||||
 ATGTATGAAATTATTTGGGTGAGATAATATTAATCTTTCCTAT:CTTTAC:AAGCAGTAAAGATAGGAAAGATTAATATTA
 ||||| |||||
 :CTTTAC:AAGCAGTAAAGATAGGAAAGATTAATATTA
 :ChrV 29,513+

5 base loop T T **GTAAAG**-3'
 C |||||
 G **CATTTCTATCCTTTCTAATTATAATAGAGTGGGTTTATTAAAGTATGTACGTGTATATCGATGATGTATCA...**-5'

Q. bzg042 (*mre11-H125N*)

Recovered junction

CCC:GGCGTATCACGAGGCCCTTTCGCTCTTCAAGAATTCAG:ATCTTCCA:GTGGTGAAGAT:CTGAATTCCTGAAGACGAAAGGGCCTCGTGATACGCC:GGGGGATCCCTGG
:ChrV 34,339+

hisG+polylinker:

4 base loop

G **GTG**-3'
 ||
 T **G**ACCTTCTAGACTTAAGAACTTCTGCTTCCCGGAGCACTATGCGGCCCTAGG:GACCCAATCGAACTTCGCTGAAAGAAAGAGATGATTTCCCTTA...-5'

R. bzg047 (*mre11-H125N*)

ChrV 26,457-:

ATGCAATGTACCGCCTGATCATCAGCTGATCGCTTCAGT:GCGATC:
 |||||
 ATGCAATGTACCGCCTGATCATCAGCTGATCGCTTCAGT:GCGATC:AGCTGATGATCAGGCGGTACATTGCATACTCTGCGTAAGGCC
 ||||| |||||
 :GCGATC:AGCTGATGATCAGGCGGTACATTGCATACTCTGCGTAAGGCC
 :ChrV 26,469+

6 base loop A G T **GCGATC**-3'
 C |||||
 T **CGCTAGT**CGACTACTAGTCCGCATGTAACGTATGAGACGCATTCGGAAAAAGTGGTTAACTGGCGTAGCATA...-5'