pHcRed-Tandem-YB vector restriction map

The data has not been verified by restriction digestion with each enzyme listed and does not take into account possible methylation sites. Enzymes that recognize unambiguous sequences less than 6 basepairs long are not included – for the more complete enzyme list please refer to the Table of restriction sites.

Unique sites shown in bold blue. The location given specifies the 3' end of the cut DNA (the base to the left of the cut site). Amino acids coded by vector's backbone sequence and amino acids coded by linker between two identical HcRed1 sequences are shown in black.

```
            Xho1                                BsrB1         Psi1      Mfe1    BsrB1
               |                                    |            |         |        |
               CTCGAGAAATCATAAAAAATTTATTTGCTTTGTGAGCGGATAACAATTATAATAGATTCAATTGTGAGCGGATAACAATTTCACACAGAATTGATTAAAG
            1  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 100
               GAGCTCTTTAGTATTTTTTAAATAAACGAAACACTCGCCTATTGTTAATATTATCTAAGTTAACACTCGCCTATTGTTAAAGTGTGTCTTAACTAATTTC

                                                                      Sma1
                                                                 Kpn1  |
                                        BamH1                 Acc65   |  |
                        BseR1      BsaB1|      Sph1  Sac1 |    |  |
                            |          ||         |     | |    |  |
               AGGAGAAATTAACTATGAGAGGATCGGGATCCGCATGCGAGCTCGGTACCCCGGGTCGAGCTGCGATGGTTTCTGGTTTGTTGAAAGAATCTATGAGAAT
          101  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 200
               TCCTCTTTAATTGATACTCTCCTAGCCCTAGGCGTACGCTCGAGCCATGGGGCCCAGCTCGACGCTACCAAAGACCAAACAACTTTCTTAGATACTCTTA
t-HcRed     >               M  R  G  S  G  S  A  C  E  L  G  T  P  G  R  A  A  M  V  S  G  L  L  K  E  S  M  R  I

                                                  Dra1                  BsaB1      PflM1              EcoR1
                                                     |                     |          |                  |
               TAAAATGTATATGGAAGGTACTGTTAATGGTCATTATTTTAAATGTGAAGGTGAAGGTGATGGTAATCCATTTGCTGGTACTCAATCTATGAGAATTCAT
          201  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 300
               ATTTTACATATACCTTCCATGACAATTACCAGTAATAAAATTTACACTTCCACTTCCACTACCATTAGGTAAACGACCATGAGTTAGATACTCTTAAGTA
t-HcRed     >  K  M  Y  M  E  G  T  V  N  G  H  Y  F  K  C  E  G  E  G  D  G  N  P  F  A  G  T  Q  S  M  R  I  H
```

```
                        BsrD1     Eco57                                 Xba1
                           |         |                                    |
            GTTACTGAAGGTGCTCCATTGCCATTTGCTTTTGATATTTTGGCTCCATGTTGTGAATATGGGTCTAGAACTTTTGTTCATCATACTGCTGAAATTCCAG
        301 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 400
            CAATGACTTCCACGAGGTAACGGTAAACGAAAACTATAAAACCGAGGTACAACACTTATACCCAGATCTTGAAAACAAGTAGTATGACGACTTTAAGGTC
t-HcRed       >  V  T  E  G  A  P  L  P  F  A  F  D  I  L  A  P  C  C  E  Y  G  S  R  T  F  V  H  H  T  A  E  I  P

                    Dra1
                       |
            ATTTTTTTAAACAATCTTTTCCAGAAGGTTTTACTTGGGAAAGAACTACTACTTATGAAGATGGTGGTATTTTGACTGCTCATCAAGATACTTCTTTGGA
        401 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 500
            TAAAAAAATTTGTTAGAAAAGGTCTTCCAAAATGAACCCTTTCTTGATGATGAATACTTCTACCACCATAAAACTGACGAGTAGTTCTATGAAGAAACCT
t-HcRed       > D  F  F  K  Q  S  F  P  E  G  F  T  W  E  R  T  T  T  Y  E  D  G  G  I  L  T  A  H  Q  D  T  S  L  E

                                                Kpn1
                          Psi1            Acc65   |
                             |                |    |
            AGGTAATTGTTTGATTTATAAAGTTAAAGTTCATGGTACCAATTTTCCTGCTGATGGTCCAGTTATGAAAAATAAATCTGGTGGTTGGGAACCATCTACT
        501 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 600
            TCCATTAACAAACTAAATATTTCAATTTCAAGTACCATGGTTAAAAGGACGACTACCAGGTCAATACTTTTTATTTAGACCACCAACCCTTGGTAGATGA
t-HcRed       >   G  N  C  L  I  Y  K  V  K  V  H  G  T  N  F  P  A  D  G  P  V  M  K  N  K  S  G  G  W  E  P  S  T

                           Eco57
                          PflM1|
                               ||
            GAAGTTGTTTATCCAGAAAATGGTGTTTTGTGTGGTAGAAATGTTATGGCTTTGAAAGTTGGTGATAGACATTTGATTTGTCATCATTATACTTCTTATA
        601 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 700
            CTTCAACAAATAGGTCTTTTACCACAAAACACACCATCTTTACAATACCGAAACTTTCAACCACTATCTGTAAACTAAACAGTAGTAATATGAAGAATAT
t-HcRed       >  E  V  V  Y  P  E  N  G  V  L  C  G  R  N  V  M  A  L  K  V  G  D  R  H  L  I  C  H  H  Y  T  S  Y

                                                                                                   Ssp1
                                                                                                     |
            GATCCAAAAAAGCTGTTAGAGCTTTGACTATGCCAGGTTTTCATTTTACTGATATTAGATTGCAAATGTTGAGAAAAAAAAAAGATGAATATTTTGAATT
        701 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 800
            CTAGGTTTTTTCGACAATCTCGAAACTGATACGGTCCAAAAGTAAAATGACTATAATCTAACGTTTACAACTCTTTTTTTTTTCTACTTATAAAACTTAA
t-HcRed       > R  S  K  K  A  V  R  A  L  T  M  P  G  F  H  F  T  D  I  R  L  Q  M  L  R  K  K  K  D  E  Y  F  E  L
```

```
                    BstAP                     Bpm1       Bgl2
                      |                         |          |
            GTATGAAGCATCTGTTGCTAGATATTCTGATTTGCCAGAAAAAGCTAATAGATCTCCAGGTATGGTTTCTGGTTTGTTGAAAGAATCTATGAGAATTAAA
      801   |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 900
            CATACTTCGTAGACAACGATCTATAAGACTAAACGGTCTTTTTCGATTATCTAGAGGTCCATACCAAAGACCAAACAACTTTCTTAGATACTCTTAATTT
t-HcRed     >  Y  E  A  S  V  A  R  Y  S  D  L  P  E  K  A  N  R  S  P  G  M  V  S  G  L  L  K  E  S  M  R  I  K

                                          Dra1                  BsaB1      PflM1              EcoR1
                                            |                     |          |                  |
            ATGTATATGGAAGGTACTGTTAATGGTCATTATTTTAAATGTGAAGGTGAAGGTGATGGTAATCCATTTGCTGGTACTCAATCTATGAGAATTCATGTTA
      901   |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1000
            TACATATACCTTCCATGACAATTACCAGTAATAAAATTTACACTTCCACTTCCACTACCATTAGGTAAACGACCATGAGTTAGATACTCTTAAGTACAAT
t-HcRed     >  M  Y  M  E  G  T  V  N  G  H  Y  F  K  C  E  G  E  G  D  G  N  P  F  A  G  T  Q  S  M  R  I  H  V

                   BsrD1     Eco57                                Xba1
                     |         |                                    |
            CTGAAGGTGCTCCATTGCCATTTGCTTTTGATATTTTGGCTCCATGTTGTGAATATGGGTCTAGAACTTTTGTTCATCATACTGCTGAAATTCCAGATTT
     1001   |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1100
            GACTTCCACGAGGTAACGGTAAACGAAAACTATAAAACCGAGGTACAACACTTATACCCAGATCTTGAAAACAAGTAGTATGACGACTTTAAGGTCTAAA
t-HcRed     > T  E  G  A  P  L  P  F  A  F  D  I  L  A  P  C  C  E  Y  G  S  R  T  F  V  H  H  T  A  E  I  P  D  F

            Dra1
              |
            TTTTAAACAATCTTTTCCAGAAGGTTTTACTTGGGAAAGAACTACTACTTATGAAGATGGTGGTATTTTGACTGCTCATCAAGATACTTCTTTGGAAGGT
     1101   |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1200
            AAAATTTGTTAGAAAAGGTCTTCCAAAATGAACCCTTTCTTGATGATGAATACTTCTACCACCATAAAACTGACGAGTAGTTCTATGAAGAAACCTTCCA
t-HcRed     >  F  K  Q  S  F  P  E  G  F  T  W  E  R  T  T  T  Y  E  D  G  G  I  L  T  A  H  Q  D  T  S  L  E  G

                                        Kpn1
                   Psi1            Acc65   |
                     |                |    |
            AATTGTTTGATTTATAAAGTTAAAGTTCATGGTACCAATTTTCCTGCTGATGGTCCAGTTATGAAAAATAAATCTGGTGGTTGGGAACCATCTACTGAAG
     1201   |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1300
            TTAACAAACTAAATATTTCAATTTCAAGTACCATGGTTAAAAGGACGACTACCAGGTCAATACTTTTTATTTAGACCACCAACCCTTGGTAGATGACTTC
t-HcRed     >  N  C  L  I  Y  K  V  K  V  H  G  T  N  F  P  A  D  G  P  V  M  K  N  K  S  G  G  W  E  P  S  T  E
```

```
                        Eco57
                       PflM1|
                           ||
            TTGTTTATCCAGAAAATGGTGTTTTGTGTGGTAGAAATGTTATGGCTTTGAAAGTTGGTGATAGACATTTGATTTGTCATCATTATACTTCTTATAGATC
      1301  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1400
            AACAAATAGGTCTTTTACCACAAAACACACCATCTTTACAATACCGAAACTTTCAACCACTATCTGTAAACTAAACAGTAGTAATATGAAGAATATCTAG
t-HcRed     > V  V  Y  P  E  N  G  V  L  C  G  R  N  V  M  A  L  K  V  G  D  R  H  L  I  C  H  H  Y  T  S  Y  R  S

                                                                                                   Ssp1
                                                                                                     |
            CAAAAAAGCTGTTAGAGCTTTGACTATGCCAGGTTTTCATTTTACTGATATTAGATTGCAAATGTTGAGAAAAAAAAAAGATGAATATTTTGAATTGTAT
      1401  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1500
            GTTTTTTCGACAATCTCGAAACTGATACGGTCCAAAAGTAAAATGACTATAATCTAACGTTTACAACTCTTTTTTTTTCTACTTATAAAACTTAACATA
t-HcRed     >  K  K  A  V  R  A  L  T  M  P  G  F  H  F  T  D  I  R  L  Q  M  L  R  K  K  K  D  E  Y  F  E  L  Y

                                                      Hind3
                 BstAP                              Sac2  |        Blp1
                     |                                 |  |           |
            GAAGCATCTGTTGCTAGATATTCTGATTTGCCAGAAAAAGCTAATTAACCGCGGAAGCTTAATTAGCTGAGCTTGGACTCCTGTTGATAGATCCAGTAAT
      1501  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1600
            CTTCGTAGACAACGATCTATAAGACTAAACGGTCTTTTTCGATTAATTGGCGCCTTCGAATTAATCGACTCGAACCTGAGGACAACTATCTAGGTCATTA
t-HcRed     >  E  A  S  V  A  R  Y  S  D  L  P  E  K  A  N  *

                                                                                      Nhe1
                                                                                        |
            GACCTCAGAACTCCATCTGGATTTGTTCAGAACGCTCGGTTGCCGCCGGGCGTTTTTTATTGGTGAGAATCCAAGCTAGCTTGGCGAGATTTTCAGGAGC
      1601  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1700
            CTGGAGTCTTGAGGTAGACCTAAACAAGTCTTGCGAGCCAACGGCGGCCCGCAAAAAATAACCACTCTTAGGTTCGATCGAACCGCTCTAAAAGTCCTCG

         Bpu10
            |
            TAAGGAAGCTAAAATGGAGAAAAAAATCACTGGATATACCACCGTTGATATATCCCAATGGCATCGTAAAGAACATTTTGAGGCATTTCAGTCAGTTGCT
      1701  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1800
            ATTCCTTCGATTTTACCTCTTTTTTTAGTGACCTATATGGTGGCAACTATATAGGGTTACCGTAGCATTTCTTGTAAAACTCCGTAAAGTCAGTCAACGA

                                   Pvu2                Dra1
                                     |                   |
            CAATGTACCTATAACCAGACCGTTCAGCTGGATATTACGGCCTTTTTAAAGACCGTAAAGAAAAATAAGCACAAGTTTTATCCGGCCTTTATTCACATTC
      1801  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 1900
            GTTACATGGATATTGGTCTGGCAAGTCGACCTATAATGCCGGAAAAATTTCTGGCATTTCTTTTTATTCGTGTTCAAAATAGGCCGGAAATAAGTGTAAG
```

```
                        BspE1
                     Bsm1  |                  BsrD1
                        |  |                     |
     TTGCCCGCCTGATGAATGCTCATCCGGAATTTCGTATGGCAATGAAAGACGGTGAGCTGGTGATATGGGATAGTGTTCACCCTTGTTACACCGTTTTCCA
1901 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2000
     AACGGGCGGACTACTTACGAGTAGGCCTTAAAGCATACCGTTACTTTCTGCCACTCGACCACTATACCCTATCACAAGTGGGAACAATGTGGCAAAAGGT

               Acl1                                Bpm1
                  |                                   |
     TGAGCAAACTGAAACGTTTTCATCGCTCTGGAGTGAATACCACGACGATTTCCGGCAGTTTCTACACATATATTCGCAAGATGTGGCGTGTTACGGTGAA
2001 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2100
     ACTCGTTTGACTTTGCAAAAGTAGCGAGACCTCACTTATGGTGCTGCTAAAGGCCGTCAAAGATGTGTATATAAGCGTTCTACACCGCACAATGCCACTT

                                                 BsmB1   PflM1                       Dra1    Msc1
                                                    |       |                           |       |
     AACCTGGCCTATTTCCCTAAAGGGTTTATTGAGAATATGTTTTTCGTCTCAGCCAATCCCTGGGTGAGTTTCACCAGTTTTGATTTAAACGTGGCCAATA
2101 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2200
     TTGGACCGGATAAAGGGATTTCCCAAATAACTCTTATACAAAAAGCAGAGTCGGTTAGGGACCCACTCAAAGTGGTCAAAACTAAATTTGCACCGGTTAT

                              Nco1       Ssp1
                                 |          |
     TGGACAACTTCTTCGCCCCCGTTTTCACCATGGGCAAATATTATACGCAAGGCGACAAGGTGCTGATGCCGCTGGCGATTCAGGTTCATCATGCCGTCTG
2201 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2300
     ACCTGTTGAAGAAGCGGGGGCAAAAGTGGTACCCGTTTATAATATGCGTTCCGCTGTTCCACGACTACGGCGACCGCTAAGTCCAAGTAGTACGGCAGAC

                           Bsm1             Sca1
                              |                |
     TGATGGCTTCCATGTCGGCAGAATGCTTAATGAATTACAACAGTACTGCGATGAGTGGCAGGGCGGGGCGTAATTTTTTTAAGGCAGTTATTGGTGCCCT
2301 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2400
     ACTACCGAAGGTACAGCCGTCTTACGAATTACTTAATGTTGTCATGACGCTACTCACCGTCCCGCCCCGCATTAAAAAAATTCCGTCAATAACCACGGGA

                                                BpuE1                       Bmr1
                                                   |                          |
     TAAACGCCTGGGGTAATGACTCTCTAGCTTGAGGCATCAAATAAAACGAAAGGCTCAGTCGAAAGACTGGGCCTTTCGTTTTATCTGTTGTTTGTCGGTG
2401 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2500
     ATTTGCGGACCCCATTACTGAGAGATCGAACTCCGTAGTTTATTTTGCTTTCCGAGTCAGCTTTCTGACCCGGAAAGCAAAATAGACAACAAACAGCCAC
```

```
                                Xba1
            Eci1            BsrB1 |                                                  BsmB1
              |                 | |                                                    |
     AACGCTCTCCTGAGTAGGACAAATCCGCCGCTCTAGAGCTGCCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGG
2501 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2600
     TTGCGAGAGGACTCATCCTGTTTAGGCGGCGAGATCTCGACGGAGCGCGCAAAGCCACTACTGCCACTTTTGGAGACTGTGTACGTCGAGGGCCTCTGCC

                                       Drd1                                        Bmr1 PflF1
                                          |                                           |     |
     TCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTTGGCGGGTGTCGGGGCGCAGCCATGACCCAGTCACG
2601 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2700
     AGTGTCGAACAGACATTCGCCTACGGCCCTCGTCTGTTCGGGCAGTCCCGCGCAGTCGCCCACAACCGCCCACAGCCCCGCGTCGGTACTGGGTCAGTGC

                                                                 BstAP
                BstZ1                                     ApaL1  Nde1|
                   |                                         |     ||
     TAGCGATAGCGGAGTGTATACTGGCTTAACTATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAA
2701 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2800
     ATCGCTATCGCCTCACATATGACCGAATTGATACGCCGTAGTCTCGTCTAACATGACTCTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGCATT

                              Sap1
                              Ear1                                        BsrB1
                                 |                                          |
     GGAGAAAATACCGCATCAGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCTGTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGC
2801 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 2900
     CCTCTTTTATGGCGTAGTCCGCGAGAAGGCGAAGGAGCGAGTGACTGAGCGACGCGAGCCAGACAGCCGACGCCGCTCGCCATAGTCGAGTGAGTTTCCG

                                          BspLU
                                             |
     GGTAATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTG
2901 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3000
     CCATTATGCCAATAGGTGTCTTAGTCCCCTATTGCGTCCTTTCTTGTACACTCGTTTTCCGGTCGTTTTCCGGTCCTTGGCATTTTTCCGGCGCAACGAC

        Eci1                          BpuE1             Drd1
           |                             |                 |
     GCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGT
3001 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3100
     CGCAAAAAGGTATCCGAGGCGGGGGGACTGCTCGTAGTGTTTTTAGCTGCGAGTTCAGTCTCCACCGCTTTGGGCTGTCCTGATATTTCTATGGTCCGCA
```

```
                 BssS1                          BciV1 Eci1
                    |                              |    |
      TTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCA
3101  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3200
      AAGGGGGACCTTCGAGGGAGCACGCGAGAGGACAAGGCTGGGACGGCGAATGGCCTATGGACAGGCGGAAAGAGGGAAGCCCTTCGCACCGCGAAAGAGT

                                                BseY1     ApaL1
                                                   |         |
      ATGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCC
3201  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3300
      TACGAGTGCGACATCCATAGAGTCAAGCCACATCCAGCAAGCGAGGTTCGACCCGACACACGTGCTTGGGGGGCAAGTCGGGCTGGCGACGCGGAATAGG

                                  BpuE1                       AlwN1
                                     |                           |
      GGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTG
3301  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3400
      CCATTGATAGCAGAACTCAGGTTGGGCCATTCTGTGCTGAATAGCGGTGACCGTCGTCGGTGACCATTGTCCTAATCGTCTCGCTCCATACATCCGCCAC

                                                                                                Eco57
                                                                                                  |
      CTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGT
3401  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3500
      GATGTCTCAAGAACTTCACCACCGGATTGATGCCGATGTGATCTTCCTGTCATAAACCATAGACGCGAGACGACTTCGGTCAATGGAAGCCTTTTTCTCA

                                                                                BpuE1
                                                                                  |
      TGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGAT
3501  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3600
      ACCATCGAGAACTAGGCCGTTTGTTTGGTGGCGACCATCGCCACCAAAAAAACAAACGTTCGTCGTCTAATGCGCGTCTTTTTTTCCTAGAGTTCTTCTA

                                                                          BspH1
                                                                            |
      CCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCC
3601  |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3700
      GGAAACTAGAAAAGATGCCCCAGACTGCGAGTCACCTTGCTTTTGAGTGCAATTCCCTAAAACCAGTACTCTAATAGTTTTTCCTAGAAGTGGATCTAGG
```

```
        Dra1                Dra1
           |                   |
        TTTTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGC
3701    |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3800
        AAAATTTAATTTTTACTTCAAAATTTAGTTAGATTTCATATATACTCATTTGAACCAGACTGTCAATGGTTACGAATTAGTCACTCCGTGGATAGAGTCG

                                                                                                      BsrD1
                                      Ahd1                                      Bmr1                 Bsa1
                                         |                                         |                    |
        GATCTGTCTATTTCGTTCATCCATAGCTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATA
3801    |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 3900
        CTAGACAGATAAAGCAAGTAGGTATCGACGGACTGAGGGGCAGCACATCTATTGATGCTATGCCCTCCCGAATGGTAGACCGGGGTCACGACGTTACTAT

            Bpm1                                          Bgl1                    Eci1
               |                                             |                       |
        CCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCA
3901    |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4000
        GGCGCTCTGGGTGCGAGTGGCCGAGGTCTAAATAGTCGTTATTTGGTCGGTCGGCCTTCCCGGCTCGCGTCTTCACCAGGACGTTGAAATAGGCGGAGGT

                                                                  Acl1
              Ase1                                          Fsp1   |    BsrD1
                 |                                             |    |        |
        TCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACG
4001    |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4100
        AGGTCAGATAATTAACAACGGCCCTTCGATCTCATTCATCAAGCGGTCAATTATCAAACGCGTTGCAACAACGGTAACGATGTCCGTAGCACCACAGTGC

        CTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGT
4101    |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4200
        GAGCAGCAAACCATACCGAAGTAAGTCGAGGCCAAGGGTTGCTAGTTCCGCTCAATGTACTAGGGGGTACAACACGTTTTTTCGCCAATCGAGGAAGCCA

            Pvu1                              Bts1                  Bts1
               |                                 |                     |
        CCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCT
4201    |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4300
        GGAGGCTAGCAACAGTCTTCATTCAACCGGCGTCACAATAGTGAGTACCAATACCGTCGTGACGTATTAAGAGAATGACAGTACGGTAGGCATTCTACGA
```

```
                 Sca1                    Bcg1a                           Bcg1b
                   |                       |                               |
     TTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCC
4301 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4400
     AAAGACACTGACCACTCATGAGTTGGTTCAGTAAGACTCTTATCACATACGCCGCTGGCTCAACGAGAACGGGCCGCAGTTATGCCCTATTATGGCGCGG

                                   Xmn1
             Dra1                  Acl1 BpuE1
                |                    |     |
     ACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCC
4401 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4500
     TGTATCGTCTTGAAATTTTCACGAGTAGTAACCTTTTGCAAGAAGCCCCGCTTTTGAGAGTTCCTAGAATGGCGACAACTCTAGGTCAAGCTACATTGGG

         EcoK
     Eco57  |
     ApaL1  |
   BssS1  |  |
      |  |  |
     ACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAATAAGGG
4501 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4600
     TGAGCACGTGGGTTGACTAGAAGTCGTAGAAAATGAAAGTGGTCGCAAAGACCCACTCGTTTTTGTCCTTCCGTTTTACGGCGTTTTTTCCCTTATTCCC

                                                                                   BsrB1
                                                                              BciV1   |
                                 Ear1     Ssp1                            BspH1 |   |
                                   |        |                                | |   |
     CGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTAT
4601 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4700
     GCTGTGCCTTTACAACTTATGAGTATGAGAAGGAAAAAGTTATAATAACTTCGTAAATAGTCCCAATAACAGAGTACTCGCCTATGTATAAACTTACATA

                                                                  Aat2             BspH1
                                                                    |                |
     TTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAAT
4701 |||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||*|||||||||* 4800
     AATCTTTTTATTTGTTTATCCCCAAGGCGCGTGTAAAGGGGCTTTTCACGGTGGACTGCAGATTCTTTGGTAATAATAGTACTGTAATTGGATATTTTTA
```

```
                BssS1   Bbs1
                    |      |
          AGGCGTATCACGAGGCCCTTTCGTCTTCAC
   4801   |||||||||*|||||||||*|||||||||* 4830
          TCCGCATAGTGCTCCGGGAAAGCAGAAGTG
```

Found:

Aat2	Acc65	Acl1	**Ahd1**	**AlwN1**	ApaL1	**Ase1**	**BamH1**	**Bbs1**	**Bcg1a**	**Bcg1b**	BciV1	**Bgl1**	**Bgl2**
Blp1	Bmr1	Bpm1	**Bpu10**	BpuE1	**Bsa1**	BsaB1	**BseR1**	**BseY1**	Bsm1	BsmB1	**BspE1**	BspH1	**BspLU**
BsrB1	BsrD1	BssS1	BstAP	**BstZ1**	Bts1	Dra1	Drd1	Ear1	Eci1	Eco57	**EcoK**	EcoR1	**Fsp1**
Hind3	Kpn1	**Mfe1**	**Msc1**	**Nco1**	**Nde1**	**Nhe1**	**PflF1**	PflM1	Psi1	**Pvu1**	**Pvu2**	**Sac1**	**Sac2**
Sap1	Sca1	**Sma1**	**Sph1**	Ssp1	Xba1	**Xho1**	**Xmn1**						

Unique:

Aat2	**Ahd1**	**AlwN1**	**Ase1**	**BamH1**	**Bbs1**	**Bcg1a**	**Bcg1b**	**Bgl1**	**Bgl2**	**Blp1**	**Bpu10**	**Bsa1**	**BseR1**
BseY1	**BspE1**	**BspLU**	**BstZ1**	**EcoK**	**Fsp1**	**Hind3**	**Mfe1**	**Msc1**	**Nco1**	**Nde1**	**Nhe1**	**PflF1**	**Pvu1**
Pvu2	**Sac1**	**Sac2**	**Sap1**	**Sma1**	**Sph1**	**Xho1**	**Xmn1**						

Not found:

Aar1	Afe1	Afl2	Age1	Ale1	Apa1	Asc1	AsiS1	Avr2	Bae1a	Bae1b	BbvC1	Bcl1	BfrB1
BfuA1	BmgB1	BsaXa	BsaXb	Bsg1	BsiW1	BspM1	BsrG1	BssH2	BstB1	BstE2	BstX1	Bsu36	_Chi
Cla1	Dra3	Eag1	EcoN1	EcoRV	ScFRT	Fse1	FspA1	Hpa1	I_Ceu	Kas1	loxP	Mlu1	Nae1
Nar1	NgoM4	Not1	Nru1	Nsi1	Pac1	Pme1	Pml1	PshA1	PspOM	Pst1	Rsr2	Sal1	SanD1
Sbf1	SexA1	Sfi1	Sgf1	SgrA1	SnaB1	Spe1	Srf1	Stu1	Swa1	PISce	Xcm1		

Excluded by site complexity:

Acc1	Aci1	Afl3	Alu1	Alw1	Apo1	Ava1	Ava2	Ban1	Ban2	Bbv1	BceA1	Bfa1	Bme15
BsaA1	BsaH1	BsaJ1	BsaW1	BseM2	BsiE1	BsiH1	Bsl1	BsmA1	BsmF1	Bsp12	BspCa	BspCb	Bsr1
BsrF1	BssK1	BstF5	BstN1	BstU1	BstY1	Btg1	Cac8	CviJ1	Dde1	Eae1	EcoO1	Fau1	Fnu4H
Fok1	Hae2	Hae3	Hga1	Hha1	Hinc2	Hinf1	HinP1	Hpa2	Hph1	Hpy99	Hpy1	Hpy3	HpyC3
HpyC4	HpyC5	Mae3	Mbo2	Mnl1	Mse1	Msl1	MspA1	Mwo1	Nci1	Nla3	Nla4	Nsp1	Ple1
PpuM1	Rsa1	Sau3A	Sau96	SfaN1	Sfc1	Sml1	Sty1	Taq1	Tat1	Tfi1	Tse1	Tsp45	Tsp50
TspR1													