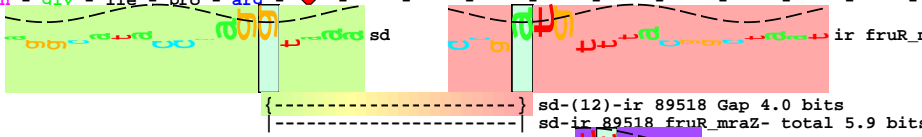piece 1, NC_000913, fruR_mraZ-, config: linear, direction: -, begin: 89663, end: 89013

```
         *89660    *      *89650    *      *89640    *      *89630    *      *89620    *      *89610    *      *89600    *      *89590    *
5' g a g a t t g a c t a a c g t t g c t c c c c g g a a c a t g c c a g c c t c a c c c c t t a t t c c c a c t t t g c c c c a c a a t t t c c c a c t g a a a g g 3'
    - glu - ile - asp -
      - arg - leu - thr - asn - val - ala - pro - arg - asn - met - pro - ala - ser - pro - leu - ile - pro - thr - leu - pro - his - asn - phe - pro - leu - lys - gly -
        - asp -           - - -         - -fMet - leu - pro - gly - thr - cys - gln - pro - his - pro - leu - phe - pro - leu - cys - pro - thr - ile - ser - his -
                                                                        ----------------------------] NC_000913.mraZ
```

```
         *89580    *      *89570    *      *89560    *      *89550    *      *89540    *      *89530    *      *89520    *      *89510    *
5' a g t t t a c g g a g c t g a g g a a a a g c t t g t c a a g g c a c a a g g c a t a c c g a g g t a a a a a a c c g a t g t t t a c g g c t a a t a t 3'
    - val - tyr - gly - ala - glu - glu - lys - leu - val - lys - pro - val - thr - arg - his - thr - glu - val - lys - asn - pro - met - phe - thr - ala - asn - ile -
      - -fMet - ser - ser - gln - ser - gln - gly - ile - pro - arg -
```

sd

ir fruR_mraZ-

{-------------------------} sd-(12)-ir 89518 Gap 4.0 bits
|-------------------------| sd-ir 89518 fruR_mraZ- total 5.9 bits

p35 4.6 bits

{---------------------------------} ... p35-(22)-p10 89492 Gap
|---------------------------------| ... p35-p10 89492 total 4.9
{---------------------------------} ... p35-(24)-p10 89490 Gap
|---------------------------------| ... p35-p10 89490 total 7.4

```
     *89500    *      *89490    *      *89480    *      *89470    *      *89460    *      *89450    *      *89440    *      *89430    *
5' c a g c g t t g t t t a t t t t a c g t c c a a c g t g c g a a g c a a a t t a a c g t t a t g a a t a g c t g t a a g a a a a a a t c c c t c a t c g t c a t c 3'
                                                                                  - -fMet - asn - ser - cys - lys - lys - lys - ser - leu - ile - val - ile -
    - ser - val - val - tyr - phe - thr - ser - asn - val - arg - ser - lys - leu - thr - leu -
      - -fMet - phe - ile - leu - arg - pro - thr - cys - glu - ala - asn -
```

p10 2.6 bits

p10 5.2 bits
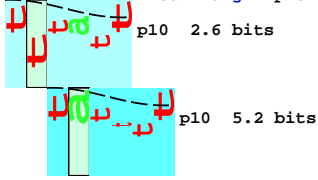
[###> orf 22 codons

... {-----------------} p35-(22)-p10 89492 Gap 2.3 bits
... |-----------------| p35-p10 89492 total 4.9 bits
... {-----------------} p35-(24)-p10 89490 Gap 2.4 bits
... |-----------------| p35-p10 89490 total 7.4 bits

```
     *89420    *      *89410    *      *89400    *      *89390    *      *89380    *      *89370    *      *89360    *      *89350    *      *89340
5' a c c g t t t a a a a t g a c t c a c t a t t t c c a c a g c a a a t a t a a a g t g t c a g t t t g c g a c g c g a g c g g c a t t t a g g a c a t a t c 3'
    - thr - val - leu - lys -                                          - -fMet - ser - val - cys - asp - ala - ser - gly - ile - leu - gly - his - ile -
                     - -fMet - thr - his - tyr - phe - pro - gln - gln - ile -              - -fMet - arg - arg - glu - arg - his - phe - arg - thr - tyr - leu -
```

p35 5.2 bits

p10 0.5 bits

{---------------------------------------} p35-(23)-p10 89373 Gap 1.4 bits
|---------------------------------------| p35-p10 89373 total 4.2 bits

```
         *       *89330    *      *89320    *      *89310    *      *89300    *      *89290    *      *89280    *      *89270    *      *89260
5' t t c c c c g g t t a a c a g t c c t t g t t a c g t c t g t g t g g c g c t t g a t g c c a g c g g g t t t g c g c a a a a g c a a a g a a a a g t g t t t g t 3'
    - phe - pro - gly -              - -fMet - leu - arg - leu - cys - gly - ala -
                                                                  - -fMet - ala - leu - asp - ala - ser - gly - phe - ala - gln - lys - gln - arg - lys - val - phe - val -
      - pro - arg - leu - thr - val - leu - val - thr - ser - val - trp - arg - leu - met - pro - ala - gly - leu - arg - lys - ser - lys - glu - lys - cys - leu - leu -
```

```
         *       *89250    *      *89240    *      *89230    *      *89220    *      *89210    *      *89200    *      *89190    *      *89180
5' t a a a t c g g c a a t t c a t c g c c g c a t g t a a c a a a a t a a t g c a a a a a c g c g c t g t c g a t a t c a c t t a a t t a t t g t g a a t t t c a g 3'
    - lys - ser - ala - ile - his - arg - arg - met -
      - asn - arg - gln - phe - ile - ala - ala - cys - asn - lys - ile - met - gln - lys - arg - ala - val - asp - ile - thr -                - -fMet - asn - phe - ser -
                                                                                                                         - -fMet -
```

```
         *       *89170    *      *89160    *      *89150    *      *89140    *      *89130    *      *89120    *      *89110    *      *89100
5' c t g g t g t t a a t t c a c g g g c g g g t t t a a a a g c a t t t a t c a a t a a t a g t c a g g a a t a g t c t t a t t t a c t t t a a g c a t a t t g 3'
    - -fMet - ser -
      - trp -
```

- 2 -

p35   3.3 bits

p10   4.1 bits

p35   4.7 bits

p35-(21)-p10 89121 Gap 3.3 bits
p35-p10 89121 total 4.1 bits
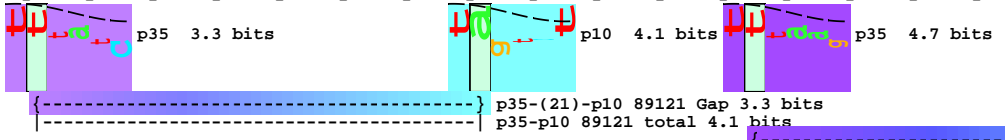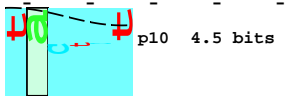
... p35-(26)-p10 89082 Gap
... p35-p10 89082 total 5.5

```
          *        *89090       *      *89080       *       *89070      *        *89060      *        *89050      *        *89040       *        *89030       *        *89020
5'  a t g t c c a g t c c c g t a c t c t a c g c g c c a g a g g g a a a t t c a c c t g g c g c g t a t t t t t g t t c g c g g c t t a g c t a c g g c t g a g c a  3'
   - met - ser - ser - pro - val - leu - tyr - ala - pro - glu - gly - asn - ser - pro - gly - ala - tyr - phe - cys - ser - arg - leu - ser - tyr - gly -  ●  -  -  -
    -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -   ●   -     -     -
                                                                                                 -fMet - phe - ala - ala -  ●  -   -     -     -     -     -     -     -
```

<------------------------------------ ... NC_000913.fruR

p10   4.5 bits

... p35-(26)-p10 89082 Gap 3.7 bits
... p35-p10 89082 total 5.5 bits

```
      *
5'  c g c  3'
    -
      -
        -
```

... ------ ... NC_000913.fruR