piece 1, NC_000913, cyoA_ampG-, config: linear, direction: -, begin: 451323, end: 450815

```
        *451320    *      *451310    *      *451300    *      *451290    *      *451280    *      *451270    *      *451260    *      *451250    *
5' ctggcgctacgaaaaacgcatctgacgtaatctgtaaatattatttgacgtgtagtaatcactcgccgtaattattacggct 3'
   - leu - ala - leu - arg - lys - thr - his - leu - thr -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -
   - trp - arg - tyr - glu - lys - arg - ile -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -
   - gly - ala - thr - lys - asn - ala - ser - asp - val - ile - cys - lys - tyr - tyr - leu - ala - val - val - ile - thr - arg - arg - asn - tyr - tyr - gly -
```

```
        *451240    *      *451230    *      *451220    *      *451210    *      *451200    *      *451190    *      *451180    *      *451170    *
5' aaataaacatcagtatcgcttattaatatttgttcttttggaaatatttggcgccattataaat 3'
                                         -fMet - arg - leu - ser - val - trp - lys - leu - leu - ala - pro - phe - ile - asn
                                         -fMet - cys - gly - leu - ala - phe - gly - asn - tyr - trp - arg - his - leu -
                                         -fMet - phe - phe - cys - ala - ala -   -   -fMet - glu - ile - ile - gly - ala - ile - tyr - lys - phe -
```

p35 2.9 bits
p10 3.3 bits
... p10

{---} p35-(23)-p10 451183 Gap 1.4 bits   ... p10

|---------------------------------------| p35-p10 451183 total 4.8 bits

p35 4.3 bits   p35 4.7 bits

{-------------------------------------} p35-(22)-p10 451165 Gap 2.3 bits
p35-p10 451165 total 7.7 bits
{--------------------------------------} p35-(24)-p10 451163 Gap 2.4 bits
|---------------------------------------| p35-p10 451163 total 4.1 bits

p35 1.7 bits   {-------------------- ... p35-(22)-p10 451147 Gap

{------------------------------- ... p35-(24)-p10 451158 Gap
--------------------------------- ... p35-p10 451158 total 4.5
|-------------------------- ... p35-p10 451147 total 4.5

```
        *451160    *      *451150    *      *451140    *      *451130    *      *451120    *      *451110    *      *451100    *      *451090    *
5' tctattttcttacacgattcagctaatgagtctttattttctcatcaccagttgtcactctaatgataattatttgtta 3'
   - ser - ile - phe - leu - thr - arg - phe - ser -   -   -   -   -   -   -   -   -   -   -   -   -   -   -fMet - ile - ile -   -   -fMet - leu -
   - tyr - phe - ser - tyr - thr - ile - gln - leu - met - ser - leu - tyr - phe - leu - ile - thr - gln - leu - ser - leu -   -   -   - cys -
```

... p10 5.7 bits   ir cyoA_ampG-   [###> orf 13 codons   ... p10

... p10 2.2 bits   {----------} sd-(10)-ir 451135 Gap 2.7 bits   p10 1.6 bits   p35 4.7 bits

sd   p35 4.8 bits   p35 5.5 bits   {---------- ... p35-(22)-p10 451063 Gap

p10 5.2 bits |--------------------| sd-ir 451135 cyoA_ampG- total 7.0 bits   {-------------------------------} p35-(25)-p10 451082 Gap 4.0 bits

p10 2.1 bits   {------------------------------} p35-(24)-p10 451103 Gap 2.4 bits |--------- ... p35-p10 451063 total 4.5

|---| p35-p10 451103 total 4.0 bits

|---| p35-p10 451082 total 5.2 bits

... {-------------------------} p35-(22)-p10 451147 Gap 2.3 bits
... {------} p35-(24)-p10 451158 Gap 2.4 bits
... ------| p35-p10 451158 total 4.5 bits
... ------------------------| p35-p10 451147 total 4.5 bits

```
        *451080    *      *451070    *      *451060    *      *451050    *      *451040    *      *451030    *      *451020    *      *451010    *      *451000
5' aataattgtttttatttcacattggttataccaattgcccgcccagactccttcagcactcccctttgttataacgccct 3'
```

- asn - asn - cys - phe - ile - ser - his - trp - leu - tyr - gln - leu - pro - ala - gln - thr - pro - ser - ala - leu - pro - phe - cys - tyr - asn - ala - leu -

-fMet - phe - tyr - phe - thr - leu - val - ile - pro - ile - ala - arg - pro - asp - ser - phe - ser - thr - pro - leu - leu - leu - ● - - - -

... p10   3.7 bits   p10   2.2 bits

... ───────────────────────────} p35-(22)-p10 451063 Gap 2.3 bits

... ─────────────────────────────| p35-p10 451063 total 4.5 bits

```
        *      *450990  *     *450980  *     *450970  *     *450960  *     *450950  *     *450940  *     *450930  *     *450920
5' ttgcaacagcttcttaaaatcaacctgatatgttttgcaacatatgtgacctggcagccaaatccaagtaacaggaattta 3'
```

- leu - gln - gln - leu - leu - lys - ile - asn - leu - ile - cys - phe - ala - thr - tyr - val - thr - trp - gln - pro - asn - pro - ser - asn - arg - asn - leu -

-fMet - gln - his - met - thr - trp - gln - pro - asn - pro - ser - asn - arg - asn - leu -

-fMet - phe - cys - asn - ile - cys - asp - leu - ala - ala - lys - ser - lys -

... sd
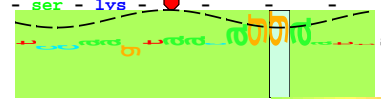
... sd-(10)-ir 450915 Gap
... sd-ir 450915 cyoA_ampG- t

... p35

... p35-(22)-p10 450899 Gap
... p35-p10 450899 total 7.8

```
        *      *450910  *     *450900  *     *450890  *     *450880  *     *450870  *     *450860  *     *450850  *     *450840
5' atcatgtttacagtaatgtaaccttcccgtaaaatgcccacacactttaaacgccaccagatccgtggaattgaggtcgt 3'
```

- ile - met - phe - thr - val - met - - - - -fMet - pro - thr - his - phe - lys - arg - his - gln - ile - pro - trp - asn - - - -

-fMet - glu - leu - arg - ser - leu - sd

ir cyoA_ampG-   p10   7.6 bits
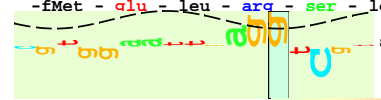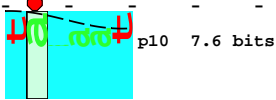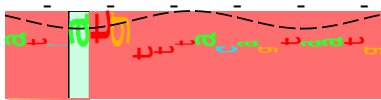
... ───┐ sd-(10)-ir 450915 Gap 2.7 bits
... ───| sd-ir 450915 cyoA_ampG- total 13.5 bits   {────── ... sd-(8)-ir 450834 Gap
                                                        ────── ... sd-ir 450834 cyoA_ampG- t

... p35   5.7 bits   [###> orf 6 codons

... ────────────────────────} p35-(22)-p10 450899 Gap 2.3 bits
... ────────────────────────| p35-p10 450899 total 7.8 bits   p10   4.5 bits

p35   5.5 bits

{──────────────────────────} p35-(23)-p10 450888 Gap 1.4 bits
|───────────────────────────| p35-p10 450888 total 11.7 bits

```
        *      *450830  *     *450820  *
5' taaatgagactcaggaaatacaa 3'
```

- ● -fMet - arg - leu - arg - lys - tyr -

- asn - glu - thr - gln - glu - ile - gln -

[────────────────────────── ... NC_000913.cyoA

... ───┐ sd-(8)-ir 450834 Gap 2.4 bits
... ───| sd-ir 450834 cyoA ampG- total 5.3 bits

ir cyoA_ampG-