Volume 16 Number 12 1988 Nucleic Acids Research

Nucleotide sequence of tDNA(Cys)GCA and its flanking regions from *Zea mays* chloroplasts

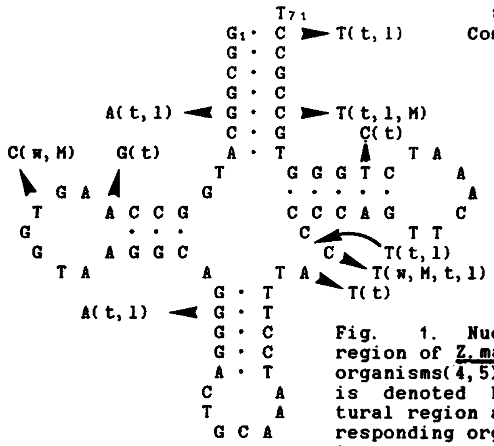
Andreas Meinke, Gabor L.Igloi and Hans Kössel

Institut für Biologie III der Universität Freiburg, Schänzlestr.1, D-7800 Freiburg, FRG

Submitted April 29, 1988 Accession no.X07412

An isolated tRNA(Cys) gene upstream and on the opposite strand to the rpoB gene in maize chloroplasts is localized analogously to the gene in tobacco (1) and liverwort (2). A "-35"-type promoter sequence (3) in maize is underlined. Inverted repeats 48bp downstream of the maize gene are indicated by arrows. Deletions (▲) have been added to optimise the comparison.

```
5' leader         -60         -50          -40          -30          -20          -10
m cpt  TTAGTAAA——▲——AAAATGTGAATGAATACTTGCTC▲TTTTCTCGATTTTAGA—▲—TCGGATTTTTT
M mt   GC·AGCT·CCT—▲—GTT····AGGC·CCA···CC·AG▲··C·T··TC··C·———▲———T·C····
w cpt  ··C····G——▲——····C···G·············G▲······A······T··—▲—···········
t cpt  CA·TA···——▲——··GCA··TC·GT···C··G·AAAGT···CA··T·····GT·TTTG·A·C·····▲
l cpt  A··T·G··TATGCCTTG··T·T·A··AT·····A·TG·A▲··A·ACAAT·AA·TA·—▲—AATA·A—▲—
```



tDNA(Cys) Interspecies Homology Compared to Maize(m) Chloroplasts

Organism		%
Wheat(w)	cpt	97.2
Maize(M)	mt	95.8
Liverwort(l)	cpt	93.1
Tobacco(t)	cpt	88.9
Spinach	cpt	88.9
<u>B. subtilis</u>		87.5
<u>E. gracilis</u>	cpt	84.7
Yeast	cyto	65.3
<u>E. coli</u>		62.5
Yeast	mt	45.8

Fig. 1. Nucleotide sequence of the tDNA(Cys)GCA region of *Z. mays* chloroplasts compared to other organisms(4,5). In the leader and trailer, identity is denoted by (·). Base exchanges in the structural region are indicated by arrows with the corresponding organisms shown in parentheses. Numbering refers to position G(1) of the tDNA.

```
3'  trailer        90        100          110          120          130          140          150
GATCAATAAAATACTTAGG—▲—A—▲—T————▲————TATAGTACTG———▲————ATCAAACTCGACAA
··C·C·C··········TTT—▲—·TTTC·————▲————···T······———▲————··TG·····T····
··················TTTTTT—▲—·————▲————······G···———▲————···G··T··
······C····A···CGAA—▲—·—▲—·CTCTTCTTTTCTTC·G·TC·GT··———▲————··AT···C··C·G·
T··T··········▲···A—▲—·A—————▲—————·TGT·G·T··TCTATTATGTC··TT··AAAA····

        160        170        180
ATTCGTACCC▲CCCTAAGTTGGGGCACGAG
····TTG···TG·A····CAAA··A·AAGA

··GAT·C···—▲—··CA·AA···G
···G····TG▲·T···T··——▲——·T
```

References:

1. Wakasugi, T. et al. (1986) Plant Mol. Biol. 7, 385-392.
2. Ohyama, K. et al. (1986) Nature 322, 572-574.
3. Hanley-Bowdoin, L. and Chua, N.-H. (1987) TIBS 12, 67-70
4. Sprinzl, M. et al. (1987) Nucl. Acids Res. 15, r53-r188.
5. Wintz, H. et al. (1988) Curr. Genet. 13, 247-254.