

The nucleotide sequence of the 5S ribosomal RNA gene of *Pyrenophora graminea*

Augusto Amici and Franco Rollo*

Dipartimento di Biologia Molecolare Cellulare e Animale, via Camerini 2, I-62032 Camerino, Italy

Submitted August 12, 1991

EMBL accession no. X58912

The distribution of the 5S ribosomal RNA genes in fungi is known to follow two patterns: either most or all of the 5S genes are part of the cluster (rDNA) which also encodes the large 17S and 25S ribosomal RNAs, or they are dispersed within the genome, away from the major rDNA transcript (1, 2). The first pattern is followed by *Hansenula wingei*, *Kluyveromyces lactis*, *Saccharomyces cerevisiae*, *S. carlsbergensis*, *S. rosei*, *Torulopsis utilis* (ascomycetous yeasts), *Armillaria mellea*, *Coprinus cinereus*, *Schizophyllum commune*, *Thanatephorus praticola* (Basidiomycotina), *Mucor racemosus* (Zygomycetina) and *Achlya ambisexualis* (Oomycetina) whereas the second is followed by all the filamentous Ascomycotina studied to date (*Aspergillus nidulans*, *Cochliobolus heterostrophus*, *Neurospora crassa*, as well as by two ascomycetous yeasts *Schizosaccharomyces pombe* and *Yarrowia lipolytica*). The filamentous ascomycete *Pyrenophora graminea* (anamorph: *Drechslera graminea*) is a plant pathogen responsible for the leaf stripe disease of barley. During sequence analysis of a 2.4 kb EcoRI-SmaI fragment, part of a larger EcoRI genomic clone of the fungus, encompassing a 0.5 Kb portion of the 25S gene and the intergenic spacer of the rDNA gene cluster, we have detected a 118 bp long 5S gene (Figure 1a) which is located at 0.6 kb from the 3' end of the 25S gene (Figure 1b). This finding demonstrates that, in contrast to what was known till now, both distribution patterns are present also in the filamentous Ascomycotina.

ACKNOWLEDGEMENTS

This research was supported by the Italian Ministry of Agriculture and Forestry, national project 'Tecnologie avanzate applicate alle piante', research project No. 14.

REFERENCES

- Garber, R.C., Turgeon, B., Selker, E.U. and Yoder, O.C. (1988) *Curr. Genet.* **14**, 573–582.
- Vilgalys, R. and Gonzalez, D. (1990) *Curr. Genet.* **18**, 277–280.

```

1  GCGTCCATC ACCTAGAAAT AAACAAAACA AAGAAAAGAC AACAACTCTG TGTTACTTTA
61  TAGCTATCTA TTTAAAGAGT CTCCCAGAAA AAAACTTACT AAAAAAAAAA AATGCACAAT
121  GTGACAAATA GAAAACAATT TTCTATGAGC TACGGCCATA CAATGTTGAA AACACCGGAT
181  CCGCTCCGAT CTCCGCAGTT AAGCAACATC TGGACCAGTC AGTACTATGG TGGGGGACCA
241  CATGGGAATA CTGGTGTGCT TAGTITTTACT TTTTATTTT ATTTTAAATG TTTCTTAAAC
301  ATCTCTAAAA CATATTGTTA TAATAACCAT AAAACAATCT TAAAAAATTT TAGTATATCA
361  ATTCTTTTTT TTTTTTAAAT TCTATTATT

```

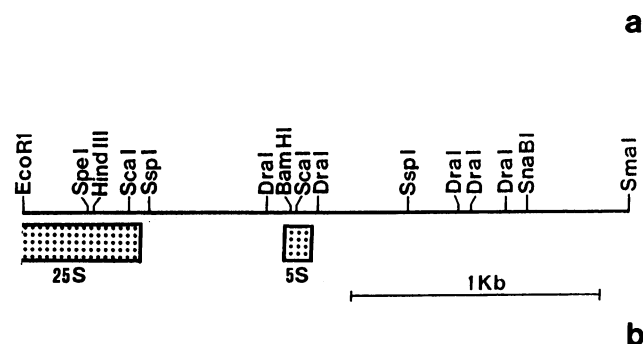


Figure 1a, b. Characterization of the 5S ribosomal RNA gene of *P. graminea*. a nucleotide sequence of the 5S gene and flanking sequences. b restriction map of the EcoRI-SmaI fragment showing the relative positions of the 25S and 5S genes.

* To whom correspondence should be addressed