Volume 14 Number 23 1986 Nucleic Acids Research

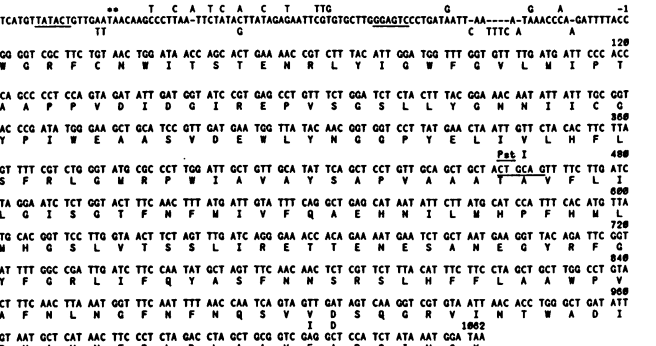
Sequence of the chloroplast-encoded *psb*A gene for the Q_B polypeptide of alfalfa

Jane Aldrich[1], Barry Cherney[2] and Ellis Merlin[3]

Standard Oil, 4440 Warrensville Center Road, Cleveland, OH 44128, USA

Submitted 21 October 1986

The sequence of the chloroplast-encoded psbA gene from Medicago sativa cv. Regen S is shown compared to soybean (1) and pea (2). Greater than 99.9% nucleotide sequence homology exists between alfalfa and soybean (55/1059 base pair changes) and alfalfa and pea (25/1059) in the open reading frame (ORF). There are only 5 amino acid changes (4 conservative) between alfalfa and soybean and only 2 amino acid changes (one conservative) between alfalfa and pea in the ORF. The alfalfa 5' flanking region also shares 99.9% nucleotide sequence homology with soybean and pea with none of the base pair substitutions between alfalfa and these two species identical.



Legend: The alfalfa psbA gene spans two adjacent Pst I restriction endonuclease fragments of 7.0 kb and 7.1 kb (3). The Pst I site at the junction of the 2 fragments is shown at position 464. Nucleotide and amino acid substitutions in soybean are indicated above the alfalfa sequence and pea below with only amino acid substitutions shown in the coding region. Underlined: prokaryotic - like -10 and -35 promoter sequences and a putative ribosome binding site (4) located an unusual 36 bases upstream of the first ATG in the ORF. Probable transcription initiation by homology to pea (5) is shown as ** at -79 and -80.

[1]To whom correspondence should be addressed
Present addresses: [2]Department of Biochemistry, Georgetown University, Washington, DC 20057 and [3]Ciba-Geigy Corporation, Research Triangle Park, NC 27709, USA

References:

1. Spielmann, A., and Stutz, E. (1983) Nuc. Acids Res. 11, 7157-7167.
2. Oishi, K. K., Shapiro, D.R., and Tewari, K.K. (1984) Mol. Cell Biol. 4, 2556-2563.
3. Palmer, J.D., Osorio, B., Aldrich, J., and Thompson, W.F. Curr. Genet. (In press).
4. Gold, L., Pribnow, D., Schneider, T., Shinedling, S., Singer, B.S., and Stormo, G. (1981) Annu. Rev. Microbiol. 35, 365-403.
5. Boyer, S.K. and Mullet, J.E. (1986) Plant Molec. Biol. 6,229-243.

© IRL Press Limited, Oxford, England.