Plant Physiol. (1998) 118: 329–331

The Electronic Plant Gene Register

Plant Gene Register listings for PGR 98–133 through PGR 98–138 were erroneously omitted in the print version of the August issue (Vol. 117, No. 4). These are listed below and are followed by the continuation of PGRs beginning with PGR 98–154 and ending with PGR 98–164. The sequences have been deposited in GenBank and the articles listed online through the World Wide Web.

To cite an electronic Plant Gene Register article as a bibliographic reference, follow the style given below:

Brickner DG, Brickner JH, Olsen LJ (1998) Sequence analysis of a cDNA encoding Pex5p, a peroxisomal targeting signal type 1 receptor from Arabidopsis (accession no. AF074843) (PGR 98–154). Plant Physiol **118:** 330.

To access the Plant Gene Register through the World Wide Web, use the URL:

http://www.tarweed.com/pgr/

Plant Gene Register PGR 98–133

The Nucleotide Sequence of a cDNA Encoding the E1 β-Subunit of the Branched-Chain α-Keto Acid Dehydrogenase from Arabidopsis (Accession No. A061638).

Michael H. Luethy, Jan A. Miernyk, and Douglas D. Randall*.
Biochemistry Department, University of Missouri, Columbia, Missouri 65211 (M.H.L., J.A.M., D.D.R.); and Mycotoxin Research Unit, United States Department of Agriculture, Agricultural Research Service, National Center for Agicultural Utilization Research, Peoria, Illinois 61604 (J.A.M.).
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Plant Gene Register PGR 98–134

Nucleotide Sequence of a Putative Protein Farnesyltransferase Subunit A (Accession No. AF064542) from Arabidopsis.

Lassaad Belbahri, Raimundo Villarroel, Dirk Inze, Daniel Thomas, and Brigitte Thomasset*.
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Plant Gene Register PGR 98–135

Cloning and Characterization of Expression of Cytosolic Ascorbate Peroxidase cDNA from Barley (Accession No. AJ006358).

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Plant Gene Register PGR 98–136

Isolation of a Full-Length cDNA Encoding the Second Glutathione S-Transferase from Rice (Accession No. AF062403).

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Plant Gene Register PGR 98–137

Cloning and Characterization of a Genomic Clone (Accession No. AF067082) Encoding Mannitol Dehydrogenase from Celery.

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Plant Gene Register PGR 98–138

Sequence Analysis of a cDNA Encoding a Ribosome-Associated p40 Protein from Chickpea (Accession No. AJ006759).

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Plant Gene Register PGR 98–154

Sequence Analysis of a cDNA Encoding Pex5p, a Peroxisomal Targeting Signal Type 1 Receptor from Arabidopsis (Accession No. AF074843).

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Plant Gene Register PGR 98–155

The cDNA Sequence of *nms-32/34* (Accession No. AF077405), a Gene Whose Message Is Specific to the Infected Cells of Alfalfa Root Nodules.

Geoffrey Ganter, Ted Allen, and Kathleen Dunn*.
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Plant Gene Register PGR 98–156

Cloning and Characterization of Potato cDNAs Involved in Tetrapyrrole Biosynthesis: Ferrochelatase (Accession No. AJ005802), Chloroplastic Protoporphyrinogen IX Oxidase (Accession No. AJ225107), and Mitochondrial Protoporphyrinogen IX Oxidase (Accession No. AJ225108).

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Plant Gene Register PGR 98–157

Nucleotide Sequence of an Arabidopsis cDNA Encoding a Protein with Similarity to Mammalian Polypyrimidine Tract-Binding Protein (Accession No. AF076924).

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Plant Gene Register PGR 98–158

Isolation of 5′ Ends of cDNAs Coding for Yellow Lupin Mitotic Cyclins (Accession Nos. U24193 and U24194).

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Plant Gene Register PGR 98–159

cDNA Cloning of Three MADS Box Genes in Wheat (Accession Nos. AB007504, AB007505, and AB007506).

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Plant Gene Register PGR 98–160

Molecular Cloning of an Arginine Decarboxylase cDNA (Accession No. AF077547) from Mustard.

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Plant Gene Register PGR98-138

Silvia Romo, Berta Dopico and Emilia Labrador (1998) Sequence Analysis of a cDNA encoding a Ribosome-Associated p40 Protein from Chickpea (Accession No. AJ006759). (PGR98-138) Plant Physiol. **118**: 330

Sequence Analysis of a cDNA encoding a Ribosome-Associated p40 Protein from Chickpea (Accession No. AJ006759)

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The p40 proteins are a class of acidic proteins associated to ribosomes. These proteins are highly conserved among eukaryotes, including both animal and plant kingdoms (García-Hernández *et al.*, 1994 and 1996). Although in most species the size of the protein predicted from nucleotide data is about 33kD, the proteins tend to migrate on SDS-PAGE as if their size was about 40kD, hence the name p40.

Although it have been suggested that p40 is involved in protein synthesis, the exact function of p40 remains unresolved. It has been hypothesized that p40 acts during translation initiation (Auth and Brawerman, 1992), perhaps in association with translation initiation factor eIF-4A (Yang *et al.*, 1992). Alternatively, it could be involved in tRNA binding (Davis *et al.*, 1992) or in regulating the activity of translation elongation factors (García-Hernández *et al.*, 1994). García-Hernández *et al.*, (1994) indicates that Arabidopsis p40 have a relatively strong association with ribosome, but is not an intrinsic ribosomal protein since it is not assembled with ribosomes in the nucleus. Arabidopsis p40 exists in two pools, free and ribosome associated, and the interaction with ribosomes increases as polysomes are formed during periods of increased protein translation (García Hernández *et al.*, 1996).

In plants there are only three p40 sequences previosly described, two genes from Arabidopsis encoding a p40 protein (Accession No. U01955) (García-Hernández *et al.*, 1994) and a smaller protein called p38 (Accession No. U66223) (Staswick and García-Hernández, 1996), and a cDNA from Soybean (Accession No. AF020553) (Staswick, 1997). Little is known about the role of p40 in plants. Soybean p40 abundance correlated with periods of active tissue growth and high polysome content, suggesting that p40 might play a role in plant growth and development (García-Hernández *et al.*, 1996)

We report here the nucleotide sequence of a chickpea cDNA (CanRAp40) encoding a ribosome associated p40 protein that present high identity with the other plant p40 described: soybean p40 (85%), Arabidopsis p38 (71.1%) and Arabidopsis p40 (67.4%). CanRAp40 was isolated from a cDNA library constructed using mRNA from actively growing 5-day-old chickpea epicotyls (*Cicer arietinum* L. cv castellana). CanRAp40 encodes a 300 amino acids protein. The calculated molecular mass is 33.11kD, similar to other p40 ribosome-associated proteins. Also, as for other p40s the chickpea protein has a predicted acidic pI of 4.99. The chickpea protein is highly similar to the soybean and Arabidopsis proteins at the amino terminal end. Except for the first 10-13 amino acids the four proteins are almost identical through amino acid 219. The Cicer p40 COOH terminal domain diverge considerably from Arabidopsis sequences, but not from soybean protein. All known plant p40s end by Gly-Trp-Glu or Asp, suggesting according to Staswick (1997), that these amino acids may have an important function in this heterogenous domain.

Table I. Characteristics of CanRAp40 from Cicer arietinum

Organism:

Cicer arietinum L cv. castellana

Clone Type, Designation:

cDNA, full length, CanRAp40

Source:

cDNA library in lambda-ZAP constructed from poly A+ RNA from *Cicer arietinum* 5-day-old epicotyls.

Gene identification:

Nucleotide and amino acid sequence comparisons to published sequences in GenBank and EMBL data bases and Swiss-Prot and Swall data bases respectively.

Feature of the cDNA

The clone is 1169 bp in length, including a complete ORF of 900 bp. Untranslated 5' and 3' regions of 65 and 194 nucleotides, respectively.

Features of deduced protein:

The ORF encodes a 300 amino acid polypeptide. The encoded protein has a predicted molecular mass of 33.11 kD, and an isoelectric point of 4.99.

Gene product:

A ribosome-associated p40 protein.

Acknowledgements

This research was supported by a grant from the Dirección General de Investigación Científica y Técnica (DGICYT), Spain (PB94-1395).

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