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(54) Title: PLANT SEED SPECIFIC PROMOTERS

(57) Abstract: The present application discloses plant seed specific promoter regions. Furthermore, the present application provides methods of producing proteins or other products of interest, methods of controlling the expression of nucleic acid sequences of interest using the seed specific promoter regions, and methods for identifying a seed-specific promoter.

INTERNATIONAL SEARCH REPORT

International: ication No
PCT/US 01/44899

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/11 C12N15/82 C12N5/10 A01H5/00 A01H5/10
C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 620 281 A (MITSUBISHI CORP ;MITSUBISHI CHEM IND (JP)) 19 October 1994 (1994-10-19) page 3, line 16 - line 56 ---	1-10,13, 14,17-26
X	SJODAHL STAFFAN ET AL: "Deletion analysis of the Brassica napus cruciferin gene cru 1 promoter in transformed tobacco: Promoter activity during early and late stages of embryogenesis is influenced by cis-acting elements in partially separate regions." PLANTA (HEIDELBERG), vol. 197, no. 2, 1995, pages 264-271, XP009004104 ISSN: 0032-0935 the whole document ----- -/--	1-10,13, 14,17-26

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

17 January 2003

Date of mailing of the international search report

15.05.03

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/44899

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SJODAHL S ET AL: "CHARACTERIZATION OF THE 12S GLOBULIN COMPLEX OF BRASSICA-NAPUS EVOLUTIONARY RELATIONSHIP TO OTHER 11-12S STORAGE GLOBULINS" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 196, no. 3, 1991, pages 617-622, XP001097203 ISSN: 0014-2956 the whole document</p> <p style="text-align: center;">---</p>	1-10,13, 14,17-26
X	<p>DATABASE EMBL 'Online! 25 October 1929 (1929-10-25) MCCOURT P, ET AL: "Arabidopsis thaliana 12S cruciferin seed storage protein (ATCRU3) gene" Database accession no. ATU66916 XP002227648 abstract</p> <p style="text-align: center;">---</p>	1-10,13, 14,17-26
T	<p>DATABASE EMBL 'Online! 27 September 2002 (2002-09-27) HARPER JF, ET AL: "Sequence 4937 from Patent W0216655" Database accession no. AX510242 XP002227649 abstract</p> <p style="text-align: center;">---</p>	1-10,13, 14,17-26
E	<p>& WO 02 16655 A (THE SCRIPPS RESEARCH INSTITUTE) 28 February 2002 (2002-02-28) SEQ ID NO:4937</p> <p style="text-align: center;">-----</p>	1-10,13, 14,17-26

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/44899

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 15, 16
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
Claims 15 and 16 relate to a method for identifying a seed-specific promoter which is characterized by an analysis for homology with a region of Arabidopsis. Said claims are so unclear that no meaningful search could be performed (Article 17(2)(a)(ii) PCT)
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
claims 1-10, 13, 17-26 (all partially)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 15,16

Claims 15 and 16 relate to a method for identifying a seed-specific promoter which is characterized by an analysis for homology with a region of Arabidopsis. Said claims are so unclear that no meaningful search could be performed (Article 17(2)(a)(ii) PCT)

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: Invention 1: Claims 1-10, 13, 17-26 (all partially)

An isolated DNA Molecule comprising a plant promoter region, wherein the promoter region has the sequence as shown in SEQ ID NO: 1, and uses of the promoter having the sequence as shown in SEQ ID NO: 1

2. Claims: Inventions 2-6: Claims 1-10, 13, 17-26 (all partially)

An isolated DNA Molecule comprising a plant promoter region, wherein the promoter region has one of the sequences as shown in SEQ ID NO: 2,3,4,10, or 12, and uses of these promoters

3. Claims: Inventions 7-12: Claims 1-10, 13, 17-19 (all partially)

An isolated DNA Molecule comprising a plant promoter region, wherein the promoter region has one of the sequences as shown in SEQ ID NO: 5,6,7,8,9, or 11, and uses of these promoters

4. Claims: Invention 13: Claims 11-12

A method for identifying a seed-specific promoter

INTERNATIONAL SEARCH REPORT

Information on patent family members

International	Application No
PCT/US	01/44899

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0620281 A	19-10-1994	CA 2120065 A CN 1105704 A JP 6335334 A US 5530192 A	01-10-1994 26-07-1995 06-12-1994 25-06-1996
WO 0216655 A	28-02-2002	AU 8681101 A US 2002160378 A	04-03-2002 31-10-2002