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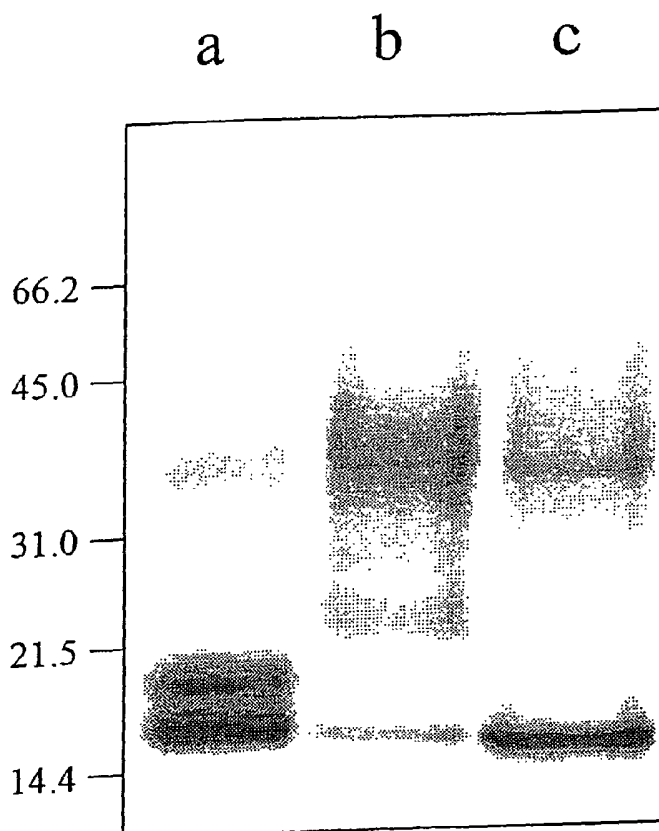
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[Continued on next page]

(54) Title: RECOMBINANT DNA ENCODING THE MAJOR ALLERGEN OF PLANTAGO LANCEOLATA POLLEN PLA 1, AND APPLICATIONS THEREOF



(57) Abstract: A nucleic acid molecule encoding a peptide or protein comprising at least one epitope of the major allergen of *Plantago lanceolata*, Pla 1 1, wherein the nucleic acid molecule a) has the sequence of SEQ ID NO.: 3, b) is a fragment of the sequence SEQ ID NO.: 3, c) has a sequence encoding the amino acid sequence of SEQ ID NO.: 4 or a fragment thereof, d) has a sequence hybridising to SEQ ID NO.: 3 under stringent conditions, e) has a sequence derivable by degeneration of SEQ ID NO.: 3, or f) a complementary strand of any of the sequences a)-e).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/DK 02/00362

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/29 C07K14/415 A61K39/36 G01N33/50

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 C07K C12N A61K G01N

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)

EPO-Internal, WPI Data, PAJ, BIOSIS, SEQUENCE SEARCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CALABOZO B ET AL: "Purification and characterization of the main allergen of Plantago lanceolata pollen, Pla 1 1." CLINICAL AND EXPERIMENTAL ALLERGY, vol. 31, no. 2, February 2001 (2001-02), pages 322-330, XP002190173 ISSN: 0954-7894 cited in the application the whole document --- -/--	1-20

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

25 February 2003

Date of mailing of the international search report

12/03/2003

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/DK 02/00362

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>CALABOZO B ET AL: "Structural and antigenic similarity between Pla 1 1 and Ole e 1, the major allergens of English plantain and olive pollen" JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY, vol. 107, no. 2 (S), February 2001 (2001-02), page S15 XP002232500 see abstract 51 abstract</p> <p style="text-align: center;">---</p>	1-20
X	<p>WO 98 59051 A (ASTURIAS ORTEGA JUAN ANDRES ;MARTINEZ GARATE ALBERTO (ES); PALACIO) 30 December 1998 (1998-12-30) the whole document</p> <p style="text-align: center;">---</p>	1-20
X	<p>DATABASE EM_EST 'Online! EBI Hinxton, UK; AC/ID AU057160, 31 March 1999 (1999-03-31) SASAKI T: "Rice cDNA from mature leaf" XP002190175 abstract</p> <p style="text-align: center;">---</p>	1-4
X	<p>CALABOZO B ET AL: "Monoclonal antibodies against the major allergen of Plantago lanceolata pollen, Pla 1 1: Affinity chromatography purification of the allergen and development of an ELISA method for Pla 1 1 measurement." ALLERGY (COPENHAGEN), vol. 56, no. 5, May 2001 (2001-05), pages 429-435, XP002190174 ISSN: 0105-4538 cited in the application the whole document</p> <p style="text-align: center;">---</p>	5-10,19
X	<p>DATABASE EM_EST 'Online! EBI Hinxton, UK; AC Y14038, ID BVOLEE1, 8 January 1998 (1998-01-08) FRIEDL-HAJEK R: "Betula verrucosa mRNA for putative Ole e 1 protein" XP002190176 abstract</p> <p style="text-align: center;">---</p> <p style="text-align: center;">-/--</p>	1-9, 11-14,19

INTERNATIONAL SEARCH REPORT

Int_l onal Application No
PCT/DK 02/00362

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>DATABASE EBI 'Online! EMBL Hinxton, UK; 12 June 2001 (2001-06-12) CALABOZO B: "cDNA cloning and expression in <i>Pichia pastoris</i> of Pla 1 1, the major allergen in pollen of narrow-leaved plantain (<i>Plantago lanceolata</i>)" Database accession no. AJ313167 XP002229550 abstract</p> <p>-----</p>	1-9, 11-14, 19

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK 02/00362

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:
see FURTHER INFORMATION sheet PCT/ISA/210
2. Claims Nos.:
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:
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.:

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.1

Although claim 16 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claims 17 and 18 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/DK 02/00362

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9859051	A	30-12-1998	ES	2125201 A1	16-02-1999
			WO	9859051 A1	30-12-1998
