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15/12

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SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
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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.*

(54) Title: OSTERTAGIA VACCINE

(57) Abstract: The present invention relates to nucleic acid sequences encoding *Ostertagia ostertagi* proteins and to parts of such nucleic acid sequences that encode an immunogenic fragment of such proteins, and to DNA fragments, recombinant DNA molecules, live recombinant carriers and host cells comprising such nucleic acid sequences or such parts thereof. The invention also relates to *Ostertagia ostertagi* proteins and immunogenic parts thereof encoded by such sequences. Furthermore, the present invention relates to vaccines comprising such nucleic acid sequences and parts thereof, DNA fragments, recombinant DNA molecules, live recombinant carriers and host cells comprising such nucleic acid sequences or such parts thereof, proteins or immunogenic parts thereof and antibodies against such proteins or immunogenic parts thereof. Also, the invention relates to the use of said proteins in vaccines and for the manufacture of vaccines. Moreover, the invention relates to the use of said nucleic acid sequences, proteins or antibodies for diagnostic or vaccination purposes. Finally the invention relates to diagnostic kits comprising such nucleic acids, proteins or antibodies against such proteins.



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INTERNATIONAL SEARCH REPORT

Internati... Application No

PCT/EP 03/10189

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K16/18 C07K14/435 A61K38/00 A61K38/02 A61K39/00
 A61K39/395 C12N5/10 C12N15/12

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 A61K 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)

EPO-Internal, BIOSIS, MEDLINE, EMBL, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL 'Online! Ostertagia ostertagi EST, clone ad(hex)ESF20 31 March 2001 (2001-03-31), XP002264415 accession no. EMBL Database accession no. AJ310819 -----	1,8-12, 19-29
X	DATABASE EMBL 'Online! EST sequence similar to vitellogenin isotyp 2 14 May 2001 (2001-05-14), XP002264416 accession no. EMBL Database accession no. BG733986 -----	1,8-12, 19-29
X	WO 95/09182 A (MEEUSEN ELZA N TH ;WALKER JOHN (AU); ASHMAN KEITH (AU); UNIV MELBO) 6 April 1995 (1995-04-06) abstract; claims 1,29-33 ----- -/--	1,8-12, 19-29



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.
- *G* document member of the same patent family

Date of the actual completion of the international search

9 December 2003

Date of mailing of the international search report

19.04.04

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CHEN JENG-SHONG ET AL: "Extensive sequence conservation among insect, nematode, and vertebrate vitellogenins reveals ancient common ancestry" JOURNAL OF MOLECULAR EVOLUTION, vol. 44, no. 4, 1997, pages 440-451, XP002264414 ISSN: 0022-2844 abstract	1,8-12, 19-29
P,X	----- VERCAUTEREN ISABEL ET AL: "Identification of excretory-secretory products of larval and adult <i>Ostertagia ostertagi</i> by immunoscreening of cDNA libraries." MOLECULAR AND BIOCHEMICAL PARASITOLOGY. NETHERLANDS FEB 2003, vol. 126, no. 2, February 2003 (2003-02), pages 201-208, XP001156729 ISSN: 0166-6851 abstract page 207, left-hand column, paragraph 3 -----	1,8-12, 19-29

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/10189

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.:
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:

see additional sheet

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.:

1 and 12 (completely) and 8-11, 19-29 (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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1 and 12 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 7, the corresponding amino acid sequence according to Seq. ID No. 8, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

2. claims: 2 and 13 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 3, the corresponding amino acid sequence according to Seq. ID No. 4, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

3. claims: 3 and 14 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 5, the corresponding amino acid sequence according to Seq. ID No. 6, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

4. claims: 4 and 15 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 1, the corresponding amino acid sequence according to Seq. ID No. 2, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

5. claims: 5 and 16 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 9, the corresponding amino acid sequence according to Seq. ID No. 10, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

6. claims: 6 and 17 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 11, the corresponding amino acid sequence according to Seq. ID No. 12, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

7. claims: 7 and 18 (completely) and 8-11,19-29 (partially)

The nucleic acid sequence according to Seq. ID No. 13, the corresponding amino acid sequence according to Seq. ID No. 14, the corresponding protein or polynucleotide fragments, recombinant DNA molecules, "carriers", host cells, first and further medical uses, vaccines, and diagnostic kits.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/10189

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