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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: CELLULASES AND HEMICELLULASES AND USES THEREOF

(57) Abstract: The invention relates to a newly identified polynucleotide sequence comprising a gene that encodes a novel (hemi)cellulase from *Aspergillus niger*. The invention features the full length nucleotide sequence of the novel gene, the cDNA sequence comprising the full length coding sequence of the novel (hemi)cellulase as well as the amino acid sequence of the full-length functional protein and functional equivalents thereof. The invention also relates to methods of using these enzymes in industrial processes and methods of diagnosing fungal infections. Also included in the invention are cells transformed with a polynucleotide according to the invention and cells wherein a (hemi)cellulase according to the invention is genetically modified to enhance its activity and/or level of expression.



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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/09147

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N9/42 C12N9/24 A21D8/04

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 A21D

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, MEDLINE, BIOSIS, EMBASE, EMBL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	INOUE T ET AL: "MOLECULAR CLONING AND NUCLEOTIDE SEQUENCE OF THE 1,2-ALPHA-D-MANNOSIDASE GENE, MSDS, FROM ASPERGILLUS SAITOI AND EXPRESSION OF THE GENE IN YEAST CELLS" BIOCHIMICA ET BIOPHYSICA ACTA. PROTEIN STRUCTURE AND MOLECULAR ENZYMOLOGY, ELSEVIER, AMSTERDAM,, NL, vol. 1253, 1995, pages 141-145, XP002946046 ISSN: 0167-4838 Discloses EMBL D49827/Q12563 having 93.3/97.7 percent identity to Seq Id. Nos. 1,2/3 respectively. the whole document ----- -/-	1-24

☒ 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

1 December 2003

Date of mailing of the international search report

24.02.04

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/09147

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/025406 A (HINTZ WILLIAM E ;EADES CALEB JOSHUA (CA); UNIV VICTORIA INNOVATION) 12 April 2001 (2001-04-12) figure 2 Discloses Genseq. AAD03987/AAE00648 having 72%/73% identity with Seq. Id. Nos. 1,2/3 the whole document	1-24
A	EP 0 913 092 A (AMANO PHARMA CO LTD) 6 May 1999 (1999-05-06)	
A	WO 99/06574 A (VISSER JACOB ;GIELKENS MARCUS MATHEUS CATHAR (NL); GIST BROCADES B) 11 February 1999 (1999-02-11)	
A	SANDER I ET AL: "ALLERGY TO ASPERGILLUS-DERIVED ENZYMES IN THE BAKING INDUSTRY: IDENTIFICATION OF BETA-XYLOSIDASE FROM ASPERGILLUS NIGER AS A NEW ALLERGEN (ASP N 14)" JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY, MOSBY - YEARLY BOOK, INC, US, vol. 102, no. 2, August 1998 (1998-08), pages 256-264, XP009021145 ISSN: 0091-6749	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/09147

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.:

1-24 (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

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

Invention 1: Claims 1-24 (all partially)

Isolated polynucleotides/polypeptides as depicted by
Seq.Id.Nos.: 1,2/3, respectively

Inventions 2-7: Claims 1-24 (all partially)

as Invention 1 however relating to Seq. Id. Nos. 4,5/6;
7,8/9; ... 19,20/21; respectively.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/09147

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WO 0125406	A	12-04-2001	AU 7849200 A WO 0125406 A1	10-05-2001 12-04-2001
EP 0913092	A	06-05-1999	EP 0913092 A2 JP 11192052 A US 6355282 B1	06-05-1999 21-07-1999 12-03-2002
WO 9906574	A	11-02-1999	AU 739445 B2 AU 9259698 A BR 9812113 A WO 9906574 A1 EP 1002102 A1 JP 2001512024 T NZ 502444 A US 2004001904 A1 US 6558937 B1	11-10-2001 22-02-1999 18-07-2000 11-02-1999 24-05-2000 21-08-2001 30-11-2001 01-01-2004 06-05-2003