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[Continued on next page]

(54) Title: THERAPEUTIC POLYPEPTIDES, NUCLEIC ACIDS ENCODING SAME, AND METHODS OF USE

(57) Abstract: Disclosed herein are nucleic acid sequences that encode novel polypeptides. Also disclosed are polypeptides encoded by these nucleic acid sequences, and antibodies that immunospecifically bind to the polypeptide, as well as derivatives, variants, mutants, or fragments of the novel polypeptide, polynucleotide, or antibody specific to the polypeptide. The invention further discloses therapeutic, diagnostic and research methods for diagnosis, treatment, and prevention of disorders involving any one of these novel human nucleic acids and proteins.

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31 March 2005

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/US02/35535

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 9/00, 1/20, 5/00, 15/00; C12P 21/04; C12Q 1/68, 1/00; C07H 21/04
 US CL : 435/183, 252.3, 320.1, 410, 440, 69.1, 71.1, 6, 4; 536/23.2

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)
 U.S. : 435/183, 252.3

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 practicable, search terms used)
 uniprot, emb1, pir, geneseq, us patent database

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	BOEL. E. X00491. NCBI database. 1995. (93% sequence identity)	1-19

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"Z" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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Telephone No. 571-272-1600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/35535

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

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

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim 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. ☐ Claim 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:
Please See Continuation 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.: 1-19 (drawn to SEQ ID NO:2)

Remark on Protest

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☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Groups I-LXXXVII, claim(s) 1-19, drawn to a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2-174 (even) and methods of using said polypeptide. The groups correspond to the SEQ ID numbers.

Groups LXXXVIII-CLXXIV, claim(s) 20-28 and 32-45, drawn to DNA encoding the polypeptide of Groups I-LXXXVII and methods of using said DNA.

Groups CLXXV-CCLXI, claim(s) 29-31, drawn to antibodies against the polypeptide of Groups I-LXXXVII.

The inventions listed as Groups I-CCLXI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The technical feature linking Groups I-CCLXI appears to be that they all relate to a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2-174 (even).

However, a special technical feature between the polypeptide, DNA and antibody groups is lacking because they are independent compounds having different structure and function.

Further, the polypeptides of Groups I-LXXXVII do not share a special technical feature because the polypeptides having different structure and function. Similarly, the DNA of Groups LXXXVIII-CLXXIV do not share a special technical feature because they have different structures and encode polypeptides having different structure and function. Similarly, the antibodies of Groups CLXXV-CCLXI do not share a special technical feature because they have different structure and function.

Therefore, the technical feature linking the inventions of Groups I-CCLXI does not constitute a special technical feature as defined by PCT Rule 13.2.

The special technical feature of Group I - LXXXVII is a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2-174 (even) and methods of using said polypeptide. The groups correspond to the SEQ ID numbers.

The special technical feature of Groups LXXXVIII-CLXXIV is a DNA encoding the polypeptide of Groups I-LXXXVII and methods of using said DNA.

The special technical feature of Groups CLXXV-CCLXI is an antibody against the polypeptide of Groups I-LXXXVII.