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[Continued on next page]

(54) Title: ENDOCRINE RELATED NUCLEIC ACIDS, PROTEINS AND ANTIBODIES

(57) Abstract: The present invention relates to novel endocrine related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "endocrine antigens", and the use of such endocrine antigens for detecting disorders of the endocrine system, particularly the presence of cancers of the endocrine system and endocrine cancer metastases. More specifically, isolated endocrine associated nucleic acid molecules are provided encoding novel endocrine associated polypeptides. Novel endocrine polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human endocrine associated polynucleotides and/or polypeptides. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the endocrine system, including cancers of the endocrine system, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and function of the polypeptides of the present invention.



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**Previous Correction:**

see PCT Gazette No. 36/2001 of 7 September 2001, Section II

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/US01/01335

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C07H 21/04; C12P 21/06; G01N 33/53; C07K 1/00, 16/00  
 US CL : 536/23.5; 435/69.1, 7.1; 530/350, 387.1

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. : 536/23.5; 435/69.1, 7.1; 530/350, 387.1

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)  
 Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Database Genbank (EST); Accession Number:AA318542; ADAMS et al. Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequence. Nature 377,1995, (6547 Suppl); p3-174; having best local similarity of 96.8% with SEQ ID NO:11.	1-10, 15 and 21

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

23 July 2001 (23.07.2001)

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06 SEP 2001

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
 Box PCT  
 Washington, D.C. 20251

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/01335

## 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.: 1-10,15 and 21, limited to SEQ ID NOs: 11 and 205.

**Remark on Protest**  The additional search fees were accompanied by the applicant's protest.  
 No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US01/01335

### 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. This application also contains several nucleotides and polypeptide sequences which are structurally and functionally unrelated. However, for examination purposes search will be limited to SEQ ID NOs:11 and 205. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-10, 15 and 21, drawn to the special technical feature of a nucleic acid, an expression vector containing the nucleic acid, a host cell expressing the polypeptide, a cell line transformed with the vector and a method of making the polypeptide..

Group II, claim(s) 11, 12, 14 and 16, drawn to the special technical feature of a polypeptide.

Group III, claim(s) 13, drawn to the special technical feature of an antibody.

Group IV, claim(s) 17, drawn to the special technical feature of a method of treating using polynucleotide.

Group V, claim(s) 18, drawn to the special technical feature of a method of diagnosing using polynucleotide.

Group VI, claim(s) 19, drawn to the special technical feature of a method of diagnosing using polypeptide.

Group VII, claim(s) 20 and 23, drawn to the special technical feature of a method of identifying binding partners.

Group VIII, claim(s) 22, drawn to the special technical feature of a method for identifying an activity in a biological assay.

Group IX, claim(s) 24, drawn to the special technical feature of a method of treating using polypeptide.

The inventions listed as Groups I-IX 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: Claims 1-10, 15 and 21 at least are anticipated by Adam et al. (Accession Number: AA318542). Consequently, the special technical feature which links Groups I-IX, does not provide a contribution over the prior art, so the unity of invention is lacking.

Inventions I, II and III are compositions and are different the methods IV-IX.

The compositions of Inventions I,II and III are different from each other as they are directed to nonequivalent types of compounds with different chemical characters. Invention I is nucleic acid and a cell containing it. Invention II is a polypeptide. Invention III is an antibody. Inventions IV-IX are different from each other as they are directed to nonequivalent methods. Invention IV uses polynucleotide and Invention IX uses polypeptide for treatment. Similarly, Invention V uses polynucleotide and Invention VI uses polypeptide for diagnosis. Invention VII is a method to identify binding partners. Invention VIII is a method to identifying an activity in a biological assay.

The claims of these groups are directed to different inventions which are not linked to form a single general inventive concept under PCT Rule 13.1. The claims in the different groups lack the same or corresponding special technical features. In particular, each group is directed to different compounds and /or methods. Accordingly, the claims are not so linked by a special technical feature within the meaning of PCT Rule 13.2 so as to form a single inventive concept and lack of unity is deemed proper.

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US01/01335

## **Continuation of B. FIELDS SEARCHED Item 3:**

STN search on MEDLINE and CAPLUS

WEST search on USPAT, USPG, JPO and EPO

Search terms: Endocrine related, endocrine disorders, Rosen C, Barash S and Ruben S