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[Continued on next page]

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

(57) Abstract: The present invention relates to novel colon related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "colon antigens", and the use of such colon antigens for detecting disorders of the colon, particularly the presence of colon cancer and colon cancer metastases. More specifically, isolated colon associated nucleic acid molecules are provided encoding novel colon associated polypeptides. Novel colon polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human colon 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 colon, including colon cancer, 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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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/US01/01240

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : C07H 21/04; C07K 14/435
 US CL : 536/23.5; 530/350
 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; 530/350

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)
 EST, USpatents, Geneseq, GenEMBL, SPRTEML, SwissProt, PIR_68; terms: SEQ ID NO's 18 and 252

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MAHAIRAS et al. Homo sapiens genetic clone. April 1999. GenBank accession number AQ453387, especially residues 9-158.	1-10, 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
"B" 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)	"Z" 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	

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Name and mailing address of the ISA/US: Commissioner of Patents and Trademarks, Box PCT, Washington, D.C. 20231, Facsimile No. (703)305-3230
 Authorized officer: Marjorie A. Moran (signature), Telephone No. (703) 305-3388

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/01240

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.: 1-12, 14, 21; SEQ ID NO's 18 and 252
- 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/US01/01240

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.

Group I, claim(s) 1-12, 14, and 21 drawn to isolated nucleic acids, a gene and vectors comprising the nucleic acids, polymucleotides encoded by the nucleic acids, host cells comprising either the nucleic acid or the encoded polypeptide, and a method of using the nucleic acid to make a host cell.

Group II, claim(s) 13, drawn to an antibody which binds a polypeptide.

Group III, claim(s) 15-16, drawn to a method of making a polypeptide and the polypeptide made.

Group IV, claim(s) 17, drawn to a method of preventing, treating or ameliorating a condition by administering a polymucleotide.

Group V, claim(s) 18, drawn to a method of diagnosing pathological condition using a polymucleotide.

Group VI, claim(s) 19, drawn to a method of diagnosing pathological condition using a polypeptide.

Group VII, claim(s) 20 and 23, drawn to a method of identifying a binding partner to a polypeptide.

Group VIII, claim(s) 22, drawn to a method of identifying biological activity.

Group IX, claim(s) 24, drawn to preventing, treating or ameliorating a condition by administering a polypeptide.

All Groups listed above also lack unity with regard to polymucleotide and polypeptide sequences. Every individual polymucleotide sequence is considered a separate product, and as such, lacks unity with regard to every other polymucleotide sequence. Each polypeptide sequence similarly lacks unity with regard to every other polypeptide sequence. Polymucleotides and the polypeptide(s) encoded thereby do not lack unity as a polypeptide is necessarily linked in "inventive concept" to the polymucleotide which encodes it. Polymucleotides and polypeptides which are not linked by one encoding the other lack unity as there is no linking inventive concept between them.

The inventions listed as Groups I-IX do relate to a single general inventive concept under PCT Rule 13.1 because the elected sequences (SEQ ID NO's 18 and 252) are not known in the prior art and all of the claims recite SEQ ID NO's 18 and/or 252. However, under PCT Rule 13.2, applicant is entitled to only specific combinations of inventions even when Unity of Invention exists. Group I, above, includes claims directed to a product and a method of use of that product, and thus includes independent claims directed to one of the combinations recited in PCT Rule 13.2.