

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 February 2001 (15.02.2001)

PCT

(10) International Publication Number
WO 01/11047 A3

(51) International Patent Classification⁷: **C12N 15/12**,
C07K 14/47, A01K 67/00, C12N 15/11, C07H 21/00,
C07K 16/18, C12Q 1/68, G01N 33/50, A61K 38/17

(21) International Application Number: PCT/US00/21606

(22) International Filing Date: 8 August 2000 (08.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/147,933 9 August 1999 (09.08.1999) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
4 October 2001

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: DNA SEQUENCES ISOLATED FROM HUMAN COLONIC EPITHELIAL CELLS

(57) Abstract: The present invention discloses novel nucleic acid sequences which are implicated in the growth regulation of the epithelial cells of the colon, and which sequences are differentially expressed in cancerous colon tissues compared to normal colon tissues. These sequences are useful in diagnosing abnormal cell growth, treatment of abnormal cell growth and screening assays for treatments of abnormal cell growth.



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INTERNATIONAL SEARCH REPORT

International Application No

PC1/US 00/21606

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/47 A01K67/00 C12N15/11 C07H21/00
C07K16/18 C12Q1/68 G01N33/50 A61K38/17

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 C07K A01K C07H C12Q G01N A61K

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)

BIOSIS, EMBL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HO SAMUEL B ET AL: "Heterogeneity of mucin gene expression in normal and neoplastic tissues." CANCER RESEARCH, vol. 53, no. 3, 1993, pages 641-651, XP002159512 ISSN: 0008-5472	
T	--- DATABASE EMBL [Online] ID AF083117, AC AF083117, 10 August 2000 (2000-08-10) KAIRO A ET AL: "Isolation of novel genes from human colonic epithelial cells; Homo sapiens CATX-1 mRNA" XP002159513 sequence -----	

☐ 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

6 February 2001

Date of mailing of the international search report

10.03.01

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

ational application No.
PCT/US 00/21606

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.: 35
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:
see FURTHER INFORMATION sheet PCT/ISA/210
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.:
in part 1-34, 36-45

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: in part: 1-34,36-45; all as far as applicable

Nucleotide acid sequence relating to clone CATX-1 (SEQ ID NO 27), and peptide predicted from said sequence (SEQ ID NO 28), expression vector comprising said nucleotide acid sequence, host cell transfected with this expression vector, transgenic animal comprising said nucleic acid sequence, probe/primer comprising an oligonucleotide hybridizing to said sequence, array comprising different oligonucleotides, antibody being reactive with said peptide, antisense hybridizing to SEQ ID NO 27, test kit relating to SEQ ID NO 27, method for determining the phenotype of a cell by using a nucleic acid sequence comprising SEQ ID NO 27, method for determining the presence or absence of a nucleic acid sequence/polypeptide by using SEQ ID NO 27, method for detecting a mutation in a test nucleic acid by using SEQ ID NO 27, method for identifying an agent which alters the level of expression by using SEQ ID NO 27, pharmaceutical composition comprising a nucleotide sequence/polypeptide relating to SEQ ID NO 27, method for detecting tumor by using SEQ ID NO 27, probe for detecting the presence of colon cancer by using SEQ ID NO 27.

2-14. Claims: in part: 1-34,36-45; all as far as applicable

as invention 1 but limited to subject-matter relating to clones CATX-2 to CATX-11, and CATX-13 to CATX-15; wherein

invention 2 is limited to SEQ ID NOs 29,30,52 (CATX-2)
invention 3 is limited to SEQ ID Nos 31,32,60 (CATX-3)
invention 4 is limited to SEQ ID Nos 33,34 (CATX-4)
invention 5 is limited to SEQ ID Nos 35,36 (CATX-5)
invention 6 is limited to SEQ ID Nos 37,61 (CATX-6)
invention 7 is limited to SEQ ID No 38 (CATX-7)
invention 8 is limited to SEQ ID Nos 48,49 (CATX-8)
invention 9 is limited to SEQ ID No 50 (CATX-9)
invention 10 is limited to SEQ ID No 51 (CATX-10)
invention 11 is limited to SEQ ID Nos 40,41 (CATX-11)
invention 12 is limited to SEQ ID Nos 42,43 (CATX-13)
invention 13 is limited to SEQ ID Nos 44,45 (CATX-14)
invention 14 is limited to SEQ ID Nos 46,47 (CATX-15)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 35

Claim 35 relates to a pharmaceutical composition comprising an agent which alters the level of expression in a cell of a nucleic acid which hybridizes under stringent conditions to SEQ ID NO 27 without giving a true technical characterization of said agent. Moreover, no such specific compounds are defined in the application. In consequence, the scope of said claim is ambiguous and vague, and its subject-matter is not sufficiently disclosed and supported (Art. 5 and 6 PCT). In consequence, no meaningful search can be carried out for such pure speculative claims.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.