

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
21 February 2002 (21.02.2002)

PCT

(10) International Publication Number  
WO 02/014483 A3

(51) International Patent Classification<sup>7</sup>: C12N 15/55,  
9/78, 5/10, C12Q 1/68, G01N 33/53, A61K 38/17

(21) International Application Number: PCT/US01/25457

(22) International Filing Date: 14 August 2001 (14.08.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/225,493 15 August 2000 (15.08.2000) US

(71) Applicant: ZYMOGENETICS INC [US/US]; 1201  
Eastlake Avenue East, Seattle, WA 98102 (US).

(72) Inventors: CONKLIN, Darrell, C.; Apt.#7, 2332 Minor  
Avenue E, Seattle, WA 98102 (US). GAO, Zeren; 9502  
179th Place NE, #3, Redmond, WA 98052 (US).

(74) Agent: JONES, Phillip B, C; ZymoGenetics, Inc., 1201  
Eastlake Avenue East, Seattle, WA 98102 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, 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, 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, TR), OAPI patent (BF, BJ, CF,  
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,  
TG).

**Published:**

- with international search report
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau

(88) Date of publication of the international search report:  
24 April 2003

*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.*



WO 02/014483 A3

(54) Title: HUMAN ADENOSINE DEAMINASE

(57) Abstract: Adenosine deaminase is a purine catabolic enzyme, which catalyzes the deamination of adenosine and 2-deoxyadenosine to inosine and 2-deoxyinosine, respectively. A deficiency of adenosine deaminase causes severe immunodeficiency disease. Current therapies for adenosine deficiency include bone marrow transplantation and enzyme replacement therapy. Zmim19 is a new human adenosine deaminase, which has uses in therapy, diagnostics, and industry.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/25457

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 C12N15/55 C12N9/78 C12N5/10 C12Q1/68 G01N33/53  
 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 G01N C12Q 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)

EPO-Internal, WPI Data, PAJ, SEQUENCE SEARCH, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL SEQUENCE LIBRARY [Online] 6 September 1996 (1996-09-06) HILLIER L., LENNON G., BECKER M., ET AL. : "zk74d09.r1 Soares pregnant uterus NbHPU Homo sapiens cDNA clone IMAGE:488561_5' similar to WP:C44B7.10 CE02538 ;, mRNA sequence" retrieved from HTTP://SRS6.EBI.AC.UK/SRS6BIN/CGI-BIN/WGET Z?-E+[EMBL-ID:HSA44789] Database accession no. AA044789 XP002224431 abstract  ---  -/--	3-6

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

10 December 2002

Date of mailing of the international search report

27. 12. 2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Holtorf, S

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/25457

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE EMBL SEQUENCE LIBRARY [Online]  1 October 1998 (1998-10-01)  "NATIONAL CANCER INSTITUTE, CANCER GENOME ANATOMY PROJECT (CGAP), TUMOR GENE INDEX  HTTP://WWW.NCBI.NLM.NIH.GOV/NCICGAP":  "qf44c04.x1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1752870 3' similar to  SW:ADD_ECOLI P22333 ADENOSINE DEAMINASE ;,  mRNA sequence"  retrieved from  HTTP://SRS6.EBI.AC.UK/SRS6BIN/CGI-BIN/WGET  Z?-E+[EMBL-ID:AI150008]  Database accession no. AI150008  XP002224432  abstract</p>	3-6
X	<p>---  DATABASE EMBL SEQUENCE LIBRARY [Online]  26 December 1999 (1999-12-26)  ROWEN, L., ET AL. : "Homo sapiens chromosome 15 clone RP11-355D13 map 15q15, complete sequence"  retrieved from  HTTP://SRS6.EBI.AC.UK/SRS6BIN/CGI-BIN/WGET  Z?-E+[EMBL-ID:AC018924]  Database accession no. AC018924  XP002224433  abstract</p>	3-6
P,X	<p>---  WO 01 57190 A (CAO YICHENG ;CHEN RUI HONG (US); GOODRICH RYLE (US); HYSEQ INC (US)  9 August 2001 (2001-08-09)  see SEQID984, and SEQ ID NO 1968  the whole document</p>	1,3
E	<p>---  WO 02 26998 A (INCYTE GENOMICS INC ;TRIBOULEY CATHERINE M (US); KHAN FARRAH A (US) 4 April 2002 (2002-04-04)  see SEQID5  the whole document</p>	1-6
E	<p>---  WO 02 38743 A (GLAXO GROUP LTD ;BURKHART WILLIAM ALFRED (US); MILLER WAYNE HOWARD) 16 May 2002 (2002-05-16)  see SEQID1  the whole document</p>	1,3
E	<p>---  WO 02 40715 A (CHALUP MICHAEL S;ALTUS CHRISTINA M ; INCYTE GENOMICS INC (US); LIN) 23 May 2002 (2002-05-23)  see SEQID62  the whole document</p> <p>-----</p>	1,3

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/25457

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0157190	A	09-08-2001	US 2002128187 A1	12-09-2002
			AU 2591801 A	31-07-2001
			AU 3128801 A	14-08-2001
			AU 3297101 A	07-08-2001
			AU 3300301 A	07-08-2001
			AU 3329301 A	14-08-2001
			AU 3484701 A	14-08-2001
			AU 3484801 A	14-08-2001
			AU 3486501 A	14-08-2001
			AU 3494401 A	14-08-2001
			AU 3665801 A	14-08-2001
			AU 3666001 A	14-08-2001
			AU 3666301 A	14-08-2001
			AU 3672101 A	14-08-2001
			AU 4314201 A	14-08-2001
			EP 1261735 A2	04-12-2002
			EP 1254265 A1	06-11-2002
			EP 1254266 A1	06-11-2002
			EP 1254268 A1	06-11-2002
			EP 1254269 A1	06-11-2002
			EP 1254270 A1	06-11-2002
			WO 0153326 A1	26-07-2001
			WO 0155334 A2	02-08-2001
			WO 0155335 A2	02-08-2001
			WO 0157255 A1	09-08-2001
			WO 0157260 A1	09-08-2001
			WO 0157175 A2	09-08-2001
			WO 0157261 A1	09-08-2001
			WO 0157262 A1	09-08-2001
			WO 0157187 A2	09-08-2001
			WO 0157265 A1	09-08-2001
			WO 0157188 A2	09-08-2001
WO 0157266 A1	09-08-2001			
WO 0157267 A1	09-08-2001			
WO 0157190 A2	09-08-2001			
US 2002137044 A1	26-09-2002			
US 2002127199 A1	12-09-2002			
-----				
WO 0226998	A	04-04-2002	AU 9482301 A	08-04-2002
			WO 0226998 A2	04-04-2002
-----				
WO 0238743	A	16-05-2002	AU 2901102 A	21-05-2002
			WO 0238743 A2	16-05-2002
-----				
WO 0240715	A	23-05-2002	AU 8696401 A	22-03-2002
			AU 8702201 A	22-03-2002
			AU 8710801 A	27-05-2002
			WO 0240715 A2	23-05-2002
			AU 8696101 A	22-03-2002
			AU 8701901 A	22-03-2002
AU 8707801 A	27-05-2002			
-----				