

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 February 2003 (06.02.2003)

PCT

(10) International Publication Number
WO 2003/010329 A3

- (51) International Patent Classification⁷: C07K 17/00
- (21) International Application Number:
PCT/US2002/023756
- (22) International Filing Date: 25 July 2002 (25.07.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
- | | | |
|------------|------------------------------|----|
| 60/308,189 | 26 July 2001 (26.07.2001) | US |
| 60/308,171 | 27 July 2001 (27.07.2001) | US |
| 60/310,139 | 2 August 2001 (02.08.2001) | US |
| 60/309,974 | 3 August 2001 (03.08.2001) | US |
| 60/311,072 | 8 August 2001 (08.08.2001) | US |
| 60/311,642 | 10 August 2001 (10.08.2001) | US |
| 60/311,717 | 10 August 2001 (10.08.2001) | US |
| 60/329,688 | 12 October 2001 (12.10.2001) | US |

- (71) Applicant (for all designated States except US): INCYTE GENOMICS, INC. [US/US]; 3160 Porter Drive, Palo Alto, CA 94304 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): TANG, Y., Tom [US/US]; 4230 Ranwick Court, San Jose, CA 95118 (US). NGUYEN, Danniell, B. [US/US]; 4922 Arnica Court, San Jose, CA 95111 (US). YAO, Monique, G. [US/US]; 1189 Woodgate Drive, Carmel, IN 46033 (US). WARREN, Bridget, A. [US/US]; 1810 S. El Camino Real #B103, Encinitas, CA 94024 (US). GRIFFIN, Jennifer, A. [US/US]; 33691 Mello Way, Fremont, CA 94555 (US). ISON, Craig, H. [US/US]; 1242 Weathersfield Way, San Jose, CA 95118 (US). FORSYTHE, Ian, J. [US/US]; 308 Roble Avenue, Redwood City, CA 94061 (US). BECHA, Shanya, D. [US/US]; 21062 Gary Drive # 117, Castro Valley, CA 94546 (US). YUE, Henry [US/US]; 826 Lois Avenue, Sunnyvale, CA 94087 (US). EMERLING, Brooke, M. [US/US]; 1735 Woodland Avenue # 71, Palo Alto, CA 94303 (US). CHAWLA, Narinder, K. [US/US]; 33 Union Square, #712, Union City, CA 94587 (US). RICHARDSON, Thomas, W. [US/US]; 616 Canyon Road #107, Redwood City, CA 94062 (US). LEE, Ernestine, A. [US/US]; 20523 Crow Creek Road, Castro Valley, CA 94552 (US). RAMKUMAR, Jayalaxmi [IN/US]; 34359 Maybird Circle, Fremont, CA 94555 (US). ELLIOTT, Vicki, S. [US/US]; 3770 Polton Place Way, San Jose, CA 95121 (US). HE, Ann [CN/US]; 4601 Catalina Drive, San Jose, CA 95129 (US). LI, Joana,

X. [US/US]; 1264 Geneva Avenue, San Francisco, CA 94112 (US). HAFALIA, April, J., A. [US/US]; 2227 Calle de Primavera, Santa Clara, CA 95054 (US). YANG, Junming [CN/US]; 7125 Bark Lane, San Jose, CA 95129 (US). SANJANWALA, Madhusudan, M. [US/US]; 210 Silvia Court, Los Altos, CA 94024 (US). XU, Yuming [US/US]; 1739 Walnut Drive, Mountain View, CA 94040 (US). ARVIZU, Chandra, S. [US/US]; 1706 Morocco Drive, San Jose, CA 95125 (US). GANDHI, Ameena, R. [US/US]; 705 5th Avenue, San Francisco, CA 94118 (US). BOROWSKY, Mark, L. [US/US]; 122 Orchard Avenue, Redwood City, CA 94061 (US). TRAN, Uyen, K. [US/US]; 2638 Mabury Square, San Jose, CA 95133 (US). BURFORD, Neil [GB/US]; 105 Wildwood Circle, Durham, CT 06422 (US). SPRAGUE, William, W. [US/US]; 611 13th Street # C, Sacramento, CA 95814 (US). BAUGHN, Mariah, R. [US/US]; 14244 Santiago Road, San Leandro, CA 94577 (US). SWARNAKAR, Anita [CA/US]; 8 Locksley Avenue #5D, San Francisco, CA 94122 (US). POLICKY, Jennifer, L. [US/US]; 1511 Jarvis Court, San Jose, CA 95118 (US). LEE, Soo Yeun [KR/US]; 40 Westdale Avenue, Daly City, CA 94015 (US). JIANG, Xin [US/US]; 14371 Elva Avenue, Saratoga, CA 95070 (US). JACKSON, Alan [US/US]; 1541 Elwood Drive, Los Gatos, CA 95032 (US). CHANG, Hsin-Ru [US/US]; 326 Treasure Island Drive, Belmont, CA 94002 (US).

- (74) Agents: HAMLET-COX, Diana et al.; Incyte Genomics, Inc., 3160 Porter Drive, Palo Alto, CA 94304 (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, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, 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

[Continued on next page]

(54) Title: NUCLEIC ACID-ASSOCIATED PROTEINS

(57) Abstract: Various embodiments of the invention provide human nucleic acid-associated proteins (NAAP) and polynucleotides which identify and encode NAAP. Embodiments of the invention also provide expression vectors, host cells, antibodies, agonists, and antagonists. Other embodiments provide methods for diagnosing, treating, or preventing disorders associated with aberrant expression of NAAP.

WO 2003/010329 A3



(88) Date of publication of the international search report:

10 June 2004

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/US02/23756

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : C07K 17/00
 US CL : 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. : 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)
 CAPLUS, MEDLINE, BIOSIS, COMPUGEN

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	KAWABATA et al., DATABASE SPTREMBL, 1 October 2000, accession number Q9NXVO, entire polypeptide (389 amino acids)	1 ----- 2, 17-19, 56
E --- A	THE FANTOM CONSORTIUM et al., DATABASE SPTREMBL, 1 March 2003, accession number Q8BMQ3.	1 ----- 2, 17-19, 56

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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	"&" document member of the same patent family
"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 December 2003 (23.12.2003)	Date of mailing of the international search report 24 MAR 2004
--	--

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Delia M. Ramirez Telephone No. (703) 308-0196
--	--

INTERNATIONAL SEARCH REPORT

PCT/US02/23756

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) 1-2,17-19, 56, drawn in part to the polypeptide of SEQ ID NO: 1.
- Group II, claim(s) 1-2,17-19, 57, drawn in part to the polypeptide of SEQ ID NO: 2.
- Group III, claim(s) 1-2,17-19, 58, drawn in part to the polypeptide of SEQ ID NO: 3.
- Group IV, claim(s) 1-2,17-19, 59, drawn in part to the polypeptide of SEQ ID NO: 4.
- Group V, claim(s) 1-2,17-19, 60, drawn in part to the polypeptide of SEQ ID NO: 5.
- Group VI, claim(s) 1-2,17-19, 61, drawn in part to the polypeptide of SEQ ID NO: 6.
- Group VII, claim(s) 1-2,17-19, 62, drawn in part to the polypeptide of SEQ ID NO: 7.
- Group VIII, claim(s) 1-2,17-19, 63, drawn in part to the polypeptide of SEQ ID NO: 8.
- Group IX, claim(s) 1-2,17-19, 64, drawn in part to the polypeptide of SEQ ID NO: 9.
- Group X, claim(s) 1-2,17-19, 65, drawn in part to the polypeptide of SEQ ID NO: 10.
- Group XI, claim(s) 1-2,17-19, 66, drawn in part to the polypeptide of SEQ ID NO: 11.
- Group XII, claim(s) 1-2,17-19, 67, drawn in part to the polypeptide of SEQ ID NO: 12.
- Group XIII, claim(s) 1-2,17-19, 68, drawn in part to the polypeptide of SEQ ID NO: 13.
- Group XIV, claim(s) 1-2,17-19, 69, drawn in part to the polypeptide of SEQ ID NO: 14.
- Group XV, claim(s) 1-2,17-19, 70, drawn in part to the polypeptide of SEQ ID NO: 15.
- Group XVI, claim(s) 1-2,17-19, 71, drawn in part to the polypeptide of SEQ ID NO: 16.
- Group XVII, claim(s) 1-2,17-19, 72, drawn in part to the polypeptide of SEQ ID NO: 17.
- Group XVIII, claim(s) 1-2,17-19, 73, drawn in part to the polypeptide of SEQ ID NO: 18.
- Group XIX, claim(s) 1-2,17-19, 74, drawn in part to the polypeptide of SEQ ID NO: 19.
- Group XX, claim(s) 1-2,17-19, 75, drawn in part to the polypeptide of SEQ ID NO: 20.
- Group XXI, claim(s) 1-2,17-19, 76, drawn in part to the polypeptide of SEQ ID NO: 21.
- Group XXII, claim(s) 1-2,17-19, 77, drawn in part to the polypeptide of SEQ ID NO: 22.
- Group XXIII, claim(s) 1-2,17-19, 78, drawn in part to the polypeptide of SEQ ID NO: 23.
- Group XXIV, claim(s) 1-2,17-19, 79, drawn in part to the polypeptide of SEQ ID NO: 24.
- Group XXV, claim(s) 1-2,17-19, 80, drawn in part to the polypeptide of SEQ ID NO: 25.

INTERNATIONAL SEARCH REPORT

PCT/US02/23756

- Group XXVI, claim(s) 1-2,17-19, 81, drawn in part to the polypeptide of SEQ ID NO:26.
- Group XXVII, claim(s) 1-2,17-19, 82, drawn in part to the polypeptide of SEQ ID NO:27.
- Group XXVIII, claim(s) 1-2,17-19, 83, drawn in part to the polypeptide of SEQ ID NO:28.
- Group XXIX, claim(s) 1-2,17-19, 84, drawn in part to the polypeptide of SEQ ID NO:29.
- Group XXX, claim(s) 1-2,17-19, 85, drawn in part to the polypeptide of SEQ ID NO: 30.
- Group XXXI, claim(s) 1-2,17-19, 86, drawn in part to the polypeptide of SEQ ID NO:31.
- Group XXXII, claim(s) 1-2,17-19, 87, drawn in part to the polypeptide of SEQ ID NO:32.
- Group XXXIII, claim(s) 3-10, 12-13, 46, 48-54 and 88, drawn in part to the polynucleotide of SEQ ID NO: 33.
- Group XXXIV, claim(s) 3-10, 12-13, 46, 48-54 and 89, drawn in part to the polynucleotide of SEQ ID NO: 34.
- Group XXXV, claim(s) 3-10, 12-13, 46, 48-54 and 90, drawn in part to the polynucleotide of SEQ ID NO: 35.
- Group XXXVI, claim(s) 3-10, 12-13, 46, 48-54 and 91, drawn in part to the polynucleotide of SEQ ID NO: 36.
- Group XXXVII, claim(s) 3-10, 12-13, 46, 48-54 and 92, drawn in part to the polynucleotide of SEQ ID NO: 37.
- Group XXXVIII, claim(s) 3-10, 12-13, 46, 48-54 and 93, drawn in part to the polynucleotide of SEQ ID NO: 38.
- Group XXXIX, claim(s) 3-10, 12-13, 46, 48-54 and 94, drawn in part to the polynucleotide of SEQ ID NO: 39.
- Group XL, claim(s) 3-10, 12-13, 46, 48-54 and 95, drawn in part to the polynucleotide of SEQ ID NO: 40.
- Group XLI, claim(s) 3-10, 12-13, 46, 48-54 and 96, drawn in part to the polynucleotide of SEQ ID NO: 41.
- Group XLII, claim(s) 3-10, 12-13, 46, 48-54 and 97, drawn in part to the polynucleotide of SEQ ID NO: 42.
- Group XLIII, claim(s) 3-10, 12-13, 46, 48-54 and 98, drawn in part to the polynucleotide of SEQ ID NO: 43.
- Group XLIV, claim(s) 3-10, 12-13, 46, 48-54 and 99, drawn in part to the polynucleotide of SEQ ID NO: 44.
- Group XLV, claim(s) 3-10, 12-13, 46, 48-54 and 100, drawn in part to the polynucleotide of SEQ ID NO: 45.
- Group XLVI, claim(s) 3-10, 12-13, 46, 48-54 and 101, drawn in part to the polynucleotide of SEQ ID NO: 46.
- Group XLVII, claim(s) 3-10, 12-13, 46, 48-54 and 102, drawn in part to the polynucleotide of SEQ ID NO: 47.
- Group XLVIII, claim(s) 3-10, 12-13, 46, 48-54 and 103, drawn in part to the polynucleotide of SEQ ID NO: 48.
- Group XLIX, claim(s) 3-10, 12-13, 46, 48-54 and 104, drawn in part to the polynucleotide of SEQ ID NO: 49.
- Group L, claim(s) 3-10, 12-13, 46, 48-54 and 105, drawn in part to the polynucleotide of SEQ ID NO: 50.
- Group LI, claim(s) 3-10, 12-13, 46, 48-54 and 106, drawn in part to the polynucleotide of SEQ ID NO: 51.
- Group LII, claim(s) 3-10, 12-13, 46, 48-54 and 107, drawn in part to the polynucleotide of SEQ ID NO: 52.
- Group LIII, claim(s) 3-10, 12-13, 46, 48-54 and 108, drawn in part to the polynucleotide of SEQ ID NO: 53.
- Group LIV, claim(s) 3-10, 12-13, 46, 48-54 and 109, drawn in part to the polynucleotide of SEQ ID NO: 54.
- Group LV, claim(s) 3-10, 12-13, 46, 48-54 and 110, drawn in part to the polynucleotide of SEQ ID NO: 55.
- Group LVI, claim(s) 3-10, 12-13, 46, 48-54 and 111, drawn in part to the polynucleotide of SEQ ID NO: 56.
- Group LVII, claim(s) 3-10, 12-13, 46, 48-54 and 112, drawn in part to the polynucleotide of SEQ ID NO: 57.

INTERNATIONAL SEARCH REPORT

PCT/US02/23756

Group LVIII, claim(s) 3-10, 12-13, 46, 48-54 and 113, drawn in part to the polynucleotide of SEQ ID NO: 58.

Group LIX, claim(s) 3-10, 12-13, 46, 48-54 and 114, drawn in part to the polynucleotide of SEQ ID NO: 59.

Group LX, claim(s) 3-10, 12-13, 46, 48-54 and 115, drawn in part to the polynucleotide of SEQ ID NO: 60.

Group LXI, claim(s) 3-10, 12-13, 46, 48-54 and 116, drawn in part to the polynucleotide of SEQ ID NO: 61.

Group LXII, claim(s) 3-10, 12-13, 46, 48-54 and 117, drawn in part to the polynucleotide of SEQ ID NO: 62.

Group LXIII, claim(s) 3-10, 12-13, 46, 48-54 and 118, drawn in part to the polynucleotide of SEQ ID NO: 63.

Group LXIV, claim(s) 3-10, 12-13, 46, 48-54 and 119, drawn in part to the polynucleotide of SEQ ID NO: 64.

Groups LXV-XCVI, claim(s) 8, drawn in part to a transgenic unicellular or multicellular organism comprising the polynucleotides of SEQ ID NO: 33-64, respectively.

Groups XCVII-CXXVIII, claim(s) 11, 31-34, 36-43, drawn in part to an antibody which specifically binds the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CXXIX-CLX, claim(s) 14-16, drawn in part to a method to detect a target polynucleotide with the polynucleotides of SEQ ID NO: 33-64, respectively.

Groups CLXI-CXCII, claim(s) 20, drawn in part to a method of screening for an agonist of the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CXCI-CCXXIV, claim(s) 21-22, drawn in part to agonists of the polypeptides of SEQ ID NO: 1-32 and a method for treating a disease using a composition containing an agonist of the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CCXXV-CCLVI, claim(s) 23, drawn in part to a method of screening for an antagonist of the polypeptides of SEQ ID NO: 1-32.

Groups CCLVII-CCLXXXVIII, claim(s) 24-25, drawn in part to a composition comprising antagonists the polypeptides of SEQ ID NO: 1-32 and a method of treatment with antagonists of the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CCLXXXIX-CCCXX, claim(s) 26, drawn in part to a method of screening for a compound which binds to the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CCCXX-CCCLII, claim(s) 27, drawn in part to a method of screening for a compound which modulates the activity of the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CCCLIII-CCCLXXXIV, claim(s) 28, drawn in part to a method of screening for a compound which alters the expression of the polynucleotides of SEQ ID NO: 33-64, respectively.

Groups CCCLXXXV-CDXVI, claim(s) 29, drawn in part to a method of assessing the toxicity of a compound using the polynucleotides of SEQ ID NO: 33-64, respectively.

Groups CDXVII-CDXLVIII, claim(s) 30, drawn in part to a test for a condition or disease using an antibody specific for the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CDXLIX-CDLXXX, claim(s) 35, drawn in part to a method for diagnosing a disease by using a composition comprising antibodies specific for the polypeptides of SEQ ID NO: 1-32, respectively.

Groups CDLXXXI-DXII, claim(s) 44, drawn in part to a method of detecting the polypeptides of SEQ ID NO: 1-32, respectively.

Groups DXIII-DXLIV, claim(s) 45, drawn in part to a method of purifying the polypeptides of SEQ ID NO: 1-32, respectively.

Groups DXLV-DLXXVI, claim(s) 47, drawn in part to a method of generating an expression profile of a sample with an array containing the polynucleotides of SEQ ID NO: 33-64, respectively.

INTERNATIONAL SEARCH REPORT

PCT/US02/23756

The inventions listed as Groups I-DLXXVI 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:

According to PCT Rule 13.2 and to the guidelines in Section (f)(i)(B)(1) of Annex B of the PCT Administrative Instructions, all alternatives of a Markush Group must have a common property or activity. Although the polypeptides of Groups I-XXXII, polynucleotides of Groups XXXIII-LXIV, the transgenic multicellular and unicellular organisms of Groups LXV-XCVI, the antibodies of Groups LCVII-CXXVIII, the agonists of Groups CXCI-CCXXIV, and the antagonists of Groups CCLVII-CCLXXXVIII share a common property within Groups I-XXXII, XXXIII-LXIV, LXV-XCVI, LCVII-CXXVIII, CXCI-CCXXIV, and CCLVII-CCLXXXVIII in that they are either nucleic acids, proteins, multicellular or unicellular organisms, agonists, or antagonists, the compounds are not regarded as being of similar nature because all the alternatives do not share a common structure or function. It is noted that each of the polynucleotides/polypeptides of Groups I-XXXII and XXXIII-LXIV appear to encode/be proteins of diverse function as indicated in Tables 2 and 3 of the specification.

According to PCT Rule 13.2, unity of invention exists only when there is a share same or corresponding technical feature among the claimed inventions. The polypeptides of Groups I-XXXII, polynucleotides of Groups XXXIII-LXIV, the transgenic multicellular and unicellular organisms of Groups LXV-XCVI, the antibodies of Groups LCVII-CXXVIII, the agonists of Groups CXCI-CCXXIV, and the antagonists of Groups CCLVII-CCLXXXVIII share no special technical feature as the nucleic acid of Groups XXXIII-LXIV, particularly the nucleic acid of claim 13, is not required for the polypeptides of Groups I-XXXII or the transgenic organisms of Groups LXV-XCVI, and therefore does not correspond to the polypeptides of Groups I-XXXII. As such, the polynucleotides of Groups XXXIII-LXIV encode proteins which may not elicit the antibodies of Groups LCVII-CXXVIII or have the same agonists of Groups CXCI-CCXXIV or the antagonists of Groups CCLVII-CCLXXXVIII.

The polypeptides of Groups I-XXXII, polynucleotides of Groups XXXIII-LXIV, the transgenic multicellular and unicellular organisms of Groups LXV-XCVI, the antibodies of Groups LCVII-CXXVIII, the agonists of Groups CXCI-CCXXIV, and the antagonists of Groups CCLVII-CCLXXXVIII do not have unity of invention with the methods of Groups CXXIX-CLX, CLXI-CXCII, CCXXV-CCLVI, CCLXXXIX-DLXXVI according to 37 CFR 1.475(b)(c) since Groups I-XXXII, XXXIII-LXIV, LXV-XCVI, LCVII-CXXVIII, CXCI-CCXXIV, and CCLVII-CCLXXXVIII already contain one method of use/manufacture and the methods of Groups CXXIX-CLX, CLXI-CXCII, CCXXV-CCLVI, CCLXXXIX-DLXXVI are additional methods of use.