

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 November 2009 (26.11.2009)

(10) International Publication Number
WO 2009/143371 A3

(51) International Patent Classification:

C12N 15/11 (2006.01) A61P 35/00 (2006.01)
A61K 31/713 (2006.01)

(21) International Application Number:

PCT/US2009/044891

(22) International Filing Date:

21 May 2009 (21.05.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/054,959 21 May 2008 (21.05.2008) US

(71) Applicant (for all designated States except US): **INTRADIGM CORPORATION** [US/US]; 3350 West Bayshore Road, Suite 100, Palo Alto, CA 94303 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **XIE, Frank, Y.** [US/US]; 13291 Rockingham Road, Germantown, MD 20874 (US). **YANG, Xiaodong** [US/US]; 250 El Dorado Avenue, Palo Alto, CA 94306 (US).

(74) Agents: **URVATER, Julie, A.** et al.; Seed Intellectual Property Law Group PLLC, Suite 5400, 701 Fifth Avenue, Seattle, WA 98104-7064 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- with sequence listing part of description (Rule 5.2(a))

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

14 January 2010



WO 2009/143371 A3

(54) Title: COMPOSITIONS COMPRISING mTOR SIRNA AND METHODS OF USE THEREOF

(57) Abstract: The present invention provides nucleic acid molecules that inhibit mTOR expression. Methods of using the nucleic acid molecules are also provided.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/044891

A. CLASSIFICATION OF SUBJECT MATTER
 INV. C12N15/11 A61K31/713
 ADD. A61P35/00

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)
 C12N A61K A61P

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, BIOSIS, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KE N ET AL: "A new inducible RNAi xenograft model for assessing the staged tumor response to mTOR silencing" EXPERIMENTAL CELL RESEARCH, ACADEMIC PRESS, US, vol. 312, no. 15, 10 September 2006 (2006-09-10), pages 2726-2734, XP024945163 ISSN: 0014-4827 [retrieved on 2006-09-10] abstract figures 2,3b,6b,7 page 2728, right-hand column, paragraph 1 <p style="text-align: center;">----- -/--</p>	17,20, 23,26

Further documents are listed in the continuation of Box C.

See patent family 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

9 November 2009

Date of mailing of the international search report

16/11/2009

Name and mailing address of the ISA
 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040,
 Fax: (+31-70) 340-3016

Authorized officer

Vreugde, Sarah

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/044891

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOU ET AL: "An activated mTOR/p70S6K signaling pathway in esophageal squamous cell carcinoma cell lines and inhibition of the pathway by rapamycin and siRNA against mTOR" CANCER LETTERS, NEW YORK, NY, US, vol. 253, no. 2, 10 July 2007 (2007-07-10), pages 236-248, XP022144286 ISSN: 0304-3835 abstract figures 5a,5c,6a,6b,7b,7d,8b -----	17,20, 23,26
X	IWAMARU A ET AL: "Silencing mammalian target of rapamycin signaling by small interfering RNA enhances rapamycin-induced autophagy in malignant glioma cells" ONCOGENE, NATURE PUBLISHING GROUP, GB, vol. 26, no. 13, 25 September 2006 (2006-09-25), pages 1840-1851, XP002497598 ISSN: 0950-9232 [retrieved on 2006-09-25] page 1849, right-hand column, last line -----	17,20, 23,26
Y	figures 5a,5b page 1749, left-hand column, paragraph 2 -----	1-16,18, 19,21, 22,24, 25,27-30
X	WO 2005/023202 A (BETH ISRAEL HOSPITAL [US]; DANA FARBER CANCER INST INC [US]; CANTLEY L) 17 March 2005 (2005-03-17) page 5, paragraph 3 page 11, line 21 page 23, lines 14,15 -----	17,20, 23,26
X	US 2006/234249 A1 (KE NING [US] ET AL) 19 October 2006 (2006-10-19) -----	17,20
Y	page 8, paragraph 110 -----	1-16,18, 19,21, 22,24, 25,27-30
P,X	page 9, paragraphs 116,117 ----- WO 2008/109364 A (MDRNA INC [US]; QUAY STEVEN C [US]; MCSWIGGEN JAMES [US]; VAISH NAREND) 12 September 2008 (2008-09-12) ----- page 1, lines 8-13 claims 21,22 page 9, lines 31-33 page 39, line 4 page 41, lines 9,10 -----	1-4, 10-14, 17-20, 23-26

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/044891

Box No. 1 Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
- a. type of material
- a sequence listing
- table(s) related to the sequence listing
- b. format of material
- on paper
- in electronic form
- c. time of filing/furnishing
- contained in the international application as filed
- filed together with the international application in electronic form
- furnished subsequently to this Authority for the purpose of search
2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/044891

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2005023202 A	17-03-2005	US 2008194019 A1	14-08-2008
US 2006234249 A1	19-10-2006	NONE	
WO 2008109364 A	12-09-2008	NONE	