

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 June 2008 (12.06.2008)

PCT

(10) International Publication Number
WO 2008/070141 A3

(51) International Patent Classification:
A01N 43/40 (2006.01) C07K 5/00 (2006.01)
A61K 38/00 (2006.01)

(74) Agents: STEFFEY, Charles E. et al; Schwegman, Lund-
berg & Woessner, PA, P.O. Box 2938, Minneapolis, MN
55402 (US).

(21) International Application Number:
PCT/US2007/024966

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
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, SV, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW

(22) International Filing Date:
6 December 2007 (06.12.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/873,169 6 December 2006 (06.12.2006) US

(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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): WIS-
CONSIN ALUMNI RESEARCH FOUNDATION
[US/US]; P.O. Box 7365, Madison, WI 53707-7365 (US).

(71) Applicants and

(72) Inventors: XIONG, May P. [US/US]; 3406 Valley
Ridge road #101, Middleton, WI (US). KWON, Glen S.
[US/US]; P.O. Box 7365, Madison, WI (US). BAE, Yoon-
soo [KR/US]; 4706 Regent Street, Apt. 48B, Madison, WI
53705 (US). KATAOKA, Kazunori [US/US]; P.O. Box
7365, Madison, WI 53707 (US).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

[Continued on next page]

(54) Title: COMPOSITIONS FOR DELIVERY OF THERAPEUTIC AGENTS

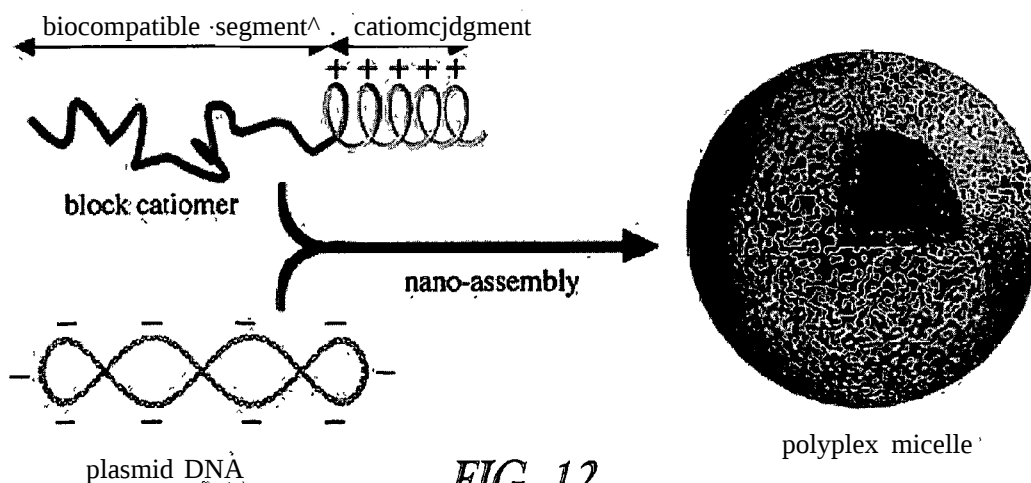


FIG. 12

(57) Abstract: The invention provides a polyamide compounds and compositions, in addition to methods for their preparation and methods for their use. The invention also provides micelle compositions that include encapsulated therapeutic agents, for example, nucleic acids or prodrugs, and methods for their preparation. The invention further provides methods of delivering therapeutic agents to cells and methods of activating therapeutic prodrugs.

WO 2008/070141 A3



(88) Date of publication of the international search report:
24 July 2008

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 07/24966

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A01N 43/40; A61K 38/00; C07K 5/00 (2008.01)

USPC - 514/357; 530/324

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)

USPC: 514/357; 530/324

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC: 514/357; 530/324 (text search, as below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPTO West (databases PGPB,USPT,USOC,EPAB,JPAB), Google Scholar - Search Terms: block copolymer, poly-lysine, poly-aspartic acid, polyethylene glycol, glutamic acid, aspartic acid, protection, protected, linked, linker, crosslinked, bound, attached, PEG, hydrazone, hydrazide, graft

G. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	KAKIZAWA et al. Block copolymer micelles for delivery of gene and related compounds Adv. Drug Deliv. Rev., 2002, Vol 54, pp 203-222, especially pg 204, col 2, para 1; pg 204, col 1, para 2; pg 204, col 2, para 1; pg 206, col 1; Fig. 1; pg 204, col 2, para 2; abstract; Fig. 2	1-32, 36
Y	US 2006/0135430 A1 (CHAN et al.) 22 June 2006 (22.06.2006) para [0204], [0215]	1-31, 36
Y	US 2006/0240092 A1 (BREITENKAMP et al.) 26 October 2006 (26.10.2006) formula I; para [0025], [0062], [0081]-[0087]	4, 7-9, 11, 14-16, 23, 26-32
Y	US 2006/0122290 A1 (HUBBELL et al.) 8 June 2006 (08.06.2006) para [0011]	6, 13, 25

☐ Further documents are listed in the continuation of Box C


• 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 application or patent 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

31 March 2008 (31.03.2008)

Date of mailing of the international search report

15 MAY 2008

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 571-273-3201

Authorized officer

Lee W. Young

PCT Helpdesk 571-272-4300

PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 07/24966

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 ☒ **I** Claims Nos
because they relate to subject matter not required to be searched by this Authority, namely
- 2 **D** Claims 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 ☒ **I2SJ** Claims Nos 33-35 and 37
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows

- 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 additional fees, this Authority did not invite payment of additional fees
- 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

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee
- ☒ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation
- ☒ No protest accompanied the payment of additional search fees