



(51) International Patent Classification:

C08F 230/02 (2006.01) *C08L 43/02* (2006.01)
C08F 220/10 (2006.01) *A61K 48/00* (2006.01)
C08F 212/08 (2006.01)

(21) International Application Number:

PCT/US2012/042974

(22) International Filing Date:

18 June 2012 (18.06.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/497,648 16 June 2011 (16.06.2011) US

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(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, CL, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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(54) Title: PHOSPHONIUM-CONTAINING POLYELECTROLYTES FOR NONVIRAL GENE DELIVERY

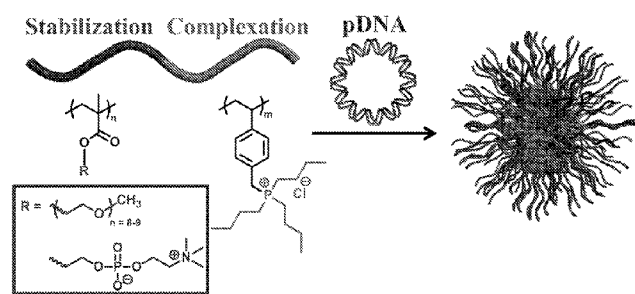
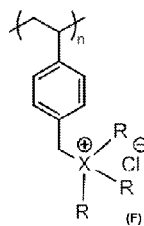


FIG. 1C



(57) Abstract: The present invention provides compositions comprising polymers and biologically active compounds, especially polymeric drug delivery systems. More specifically, the present invention provides ammonium and/or phosphonium-containing polymers and/or block copolymers as a viable and improved option for gene delivery. In an embodiment, the present invention provides a method of using a composition comprising a block copolymer that comprises: a stabilization block and a complexation block, and optionally an endosomolytic block for nonviral gene delivery. Preferred compositions include such co-polymers, wherein the complexation block is chosen from polymers of styrenic-based phosphonium-containing monomers chosen from: (F) wherein X is phosphorus; R is C1-24 alkyl; and n is a number ranging from 2 to 1,000.



Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

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

10 May 2013

Published:

— *with international search report (Art. 21(3))*

A. CLASSIFICATION OF SUBJECT MATTER*C08F 230/02(2006.01)i, C08F 220/10(2006.01)i, C08F 212/08(2006.01)i, C08L 43/02(2006.01)i, A61K 48/00(2006.01)i*

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)

C08F 230/02; G03G 9/097; G06F 3/12; B41J 29/38

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: non-viral, block copolymer, phosphonium

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 02-162415 A (CANON INC) 22 June 1990 See abstract, claim 1	1-13
A	US 06027847 A (WILSON; JOHN C. et al.) 22 February 2000 See claim 1	1-13
A	US 03068214 A (Rassweiler; JOHN H. et al.) 11 December 1962 See column 1, lines 40-65, column 3, lines 3-23, claim 4	1-13
A	Macromolecular Chemistry and Physics, 5 September 2007, Vol.208, pp.2339-2347 See figure 1, pages 2341	1-13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search

23 JANUARY 2013 (23.01.2013)

Date of mailing of the international search report

24 JANUARY 2013 (24.01.2013)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/042974Patent document
cited in search reportPublication
datePatent family
member(s)Publication
date

JP 02-162415 A

22.06.1990

None

US 06027847 A

22.02.2000

None

US 03068214 A

11.12.1962

None