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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 August 2009 (20.08.2009)

PCT

(10) International Publication Number
WO 2009/102496 A3

(51) **International Patent Classification**:
A61K 31/7105 (2006.01) *A61P 37/02* (2006.01)
A61P 35/00 (2006.01) *C12N 15/11* (2006.01)

(21) **International Application Number**:
PCT/US2009/000959

(22) **International Filing Date**:
17 February 2009 (17.02.2009)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:
61/029,307 15 February 2008 (15.02.2008) US
61/051,606 8 May 2008 (08.05.2008) US

(71) **Applicant** *(for all designated States except US)*: **HEMISPHERX BIOPHARMA, INC.** [US/US]; One Penn Center, 1617 Jfk Boulevard, Philadelphia, PA 19103 (US).

(72) **Inventors; and**
(75) **Inventors/Applicants** *(for US only)*: **CARTER, William, A.** [US/US]; 8 Cooks Glen Road, Spring City, PA 19475 (US). **STRAYER, David** [US/US]; 918 Rock Creek Road, Bryn Mawr, PA 19010 (US).

(74) **Agent**: **TANIGAWA, Gary, R.**; Nixon & Vanderhye P.C., 901 North Glebe Road, 11th Floor, Arlington, VA 22203-1808 (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).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

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))*

(88) **Date of publication of the international search report**:
5 November 2009

(54) **Title**: SELECTIVE AGONIST OF TOLL-LIKE RECEPTOR 3

(57) **Abstract**: A mismatched double-stranded ribonucleic acid, which is an agonist for Toll-like receptor 3 (TLR3), is used in vitro or in vivo as an antimicrobial agent, antiproliferative agent, and/or immunostimulant. Poly(I:C_{11-14}U) is a more selective agonist of TLR3 as compared to poly(I:C) even though the both double-stranded RNA are structurally analogous.

WO 2009/102496 A3