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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
12 April 2012 (12.04.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/048332 A3

(51) International Patent Classification:
A61K 39/395 (2006.01) *A61K 39/38* (2006.01)
A61K 39/00 (2006.01) *C07K 16/00* (2006.01)

(21) International Application Number:
PCT/US2011/055656

(22) International Filing Date:
10 October 2011 (10.10.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/391,558 8 October 2010 (08.10.2010) US

(71) Applicant *(for all designated States except US)*: **CITY OF HOPE** [US/US]; 1500 East Duarte Road, Duarte, California 91010-3000 (US).

(72) Inventors; and
(71) Applicants : **WILLIAMS, John C.** [US/US]; 462 Stedman Place, Monrovia, California 91016 (US). **DONALDSON, Joshua, Michael** [US/US]; 8 Hopewell Avenue, Lumberton NJ 08048 (US). **HORNE, David, A.** [US/US]; 1710 Flower Ave., Duarte, CA 91010 (US). **MA, Yuelong** [US/US]; 1710 Flower Ave., Duarte, CA 91010 (US). **ZER, Cindy** [US/US]; 1700 Flower Ave., Room 137C, Duarte, California 91010 (US). **BZYMEK, Krzysztof** [PL/US]; 328 S. Marengo Ave., Pasadena CA 91101 (US). **AVERY, Kendra, Nicole** [US/US]; 74 S. Oak Ave., Pasadena, CA 91107 (US).

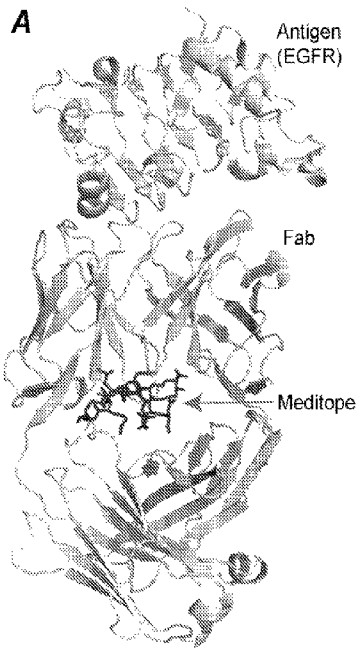
(74) Agent: **SLIGER, Lauren**; Perkins Coie LLP, P.O. Box 1208, Patent - LA, Seattle, Washington 98111-1208 (US).

(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, 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.

[Continued on next page]

(54) Title: A MONOCLONAL ANTIBODY FRAMEWORK BINDING INTERFACE FOR MEDITOPES, MEDITOPE DELIVERY SYSTEMS AND METHODS FOR THEIR USE

Figure 4 A-B



(57) Abstract: An antibody framework binding interface for the cyclic meditopes C-QFDLSTRRLK-C (cQFD; SEQ ID NO:1) and C-QYNLSSRALK-C (cQYN; SEQ ID NO:2) and methods for their use are provided herein. In one embodiment, a binding interface is formed by a framework region, and not a complementarity determining region (CDR), of an antibody or functional fragment thereof. In another embodiment, a therapeutic human or humanized antibody has one or more human framework residues replaced with one or more corresponding murine residues such that a meditope having the sequence cQFD or cQYN stably binds the one or more human framework residues.

WO 2012/048332 A3

(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, MD, 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).

Published:

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

(88) **Date of publication of the international search report**:
4 July 2013