



(51) International Patent Classification:

A01K 67/027 (2006.01) *C07K 16/00* (2006.01)
C12N 15/85 (2006.01) *C07K 16/46* (2006.01)

(21) International Application Number:

PCT/US2014/026040

(22) International Filing Date:

13 March 2014 (13.03.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

13/798,455 13 March 2013 (13.03.2013)

US

(71) Applicant: **REGENERON PHARMACEUTICALS, INC.** [US/US]; 777 Old Saw Mill River Road, Tarrytown, New York 10591 (US).

(72) Inventors: **BABB, Robert**; 292 Voorhis Avenue, River Edge, New Jersey 07661 (US). **MCWHIRTER, John**; 2152 Crescent Drive, Tarrytown, New York 10591 (US). **MACDONALD, Lynn**; 16 Gedney Way, White Plains, New York 10605 (US). **STEVENS, Sean**; 3954 Camino Calma, San Diego, California 92122 (US). **DAVIS, Samuel**; 332 West 88th Street, Apt. B2, New York, New York 10024 (US). **BUCKLER, David R.**; 6 Erick Court, Chester, New Jersey 07930 (US). **MEAGHER, Karolina A.**; 14 Church Street, 2nd Floor, Tarrytown, New York 10591 (US). **MURPHY, Andrew J.**; 10 Newton Court, Croton-on-Hudson, New York 10520 (US).

(74) Agents: **POBURSKY, Kevin J.** et al.; Choate, Hall & Stewart LLP, Two International Place, Boston, Massachusetts 02110 (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, BN, 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, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

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))

(54) Title: MICE EXPRESSING A LIMITED IMMUNOGLOBULIN LIGHT CHAIN REPERTOIRE

(57) Abstract: A genetically modified mouse is provided, wherein the mouse expresses an immunoglobulin light chain repertoire characterized by a limited number of light chain variable domains. Mice are provided that present a choice of two human light chain variable gene segments such that the immunoglobulin light chains expresses by the mouse comprise one of the two human light chain variable gene segments. Methods for making bispecific antibodies having universal light chains using mice as described herein, including human light chain variable regions, are provided. Methods for making human variable regions suitable for use in multispecific binding proteins, e.g., bispecific antibodies, and host cells are provided.

