



(51) International Patent Classification:
C12Q 1/68 (2006.01)

(21) International Application Number:
PCT/US2010/062485

(22) International Filing Date:
30 December 2010 (30.12.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/291,750 31 December 2009 (31.12.2009) US
61/314,654 17 March 2010 (17.03.2010) 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, RO, RS, RU, 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, 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))

[Continued on next page]

(54) Title: METHODS FOR PRODUCING UNIQUELY SPECIFIC NUCLEIC ACID PROBES

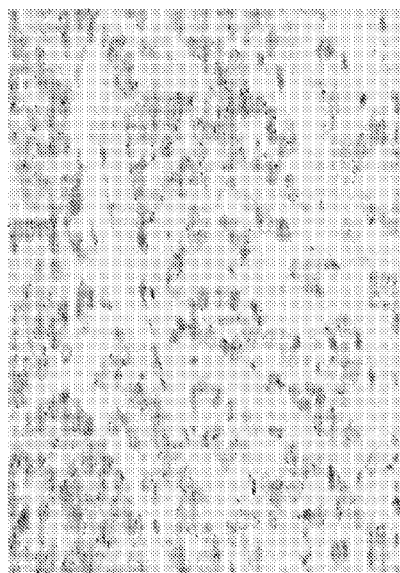


FIG. 7B

(57) Abstract: Disclosed herein are uniquely specific nucleic acid probes and methods for their use and production. The disclosed probes have reduced or eliminated background signal while reducing or eliminating the use of blocking DNA during hybridization. In one example, probes are produced by a method that includes joining at least a first binding region and a second binding region in a predetermined order and orientation, wherein the first binding region and second binding region are complementary to uniquely specific nucleic acid sequences, wherein the uniquely specific nucleic acid sequences are represented only once in a genome of an organism and wherein the first binding region and the second binding region include about 20% or less of a genomic target nucleic acid molecule. In particular examples, the binding regions ("uniquely specific binding regions") are complementary to non-contiguous portions of the genomic target nucleic acid. Methods of using the disclosed probes and kits including the probes and/or reagents for producing or using the probes are also disclosed.



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- *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))*