



(51) International Patent Classification:

G01N 33/53 (2006.01) C12Q 1/68 (2006.01)
C12N 15/66 (2006.01) G03C 1/015 (2006.01)

(21) International Application Number:

PCT/SG2010/000258

(22) International Filing Date:

7 July 2010 (07.07.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/223,524 7 July 2009 (07.07.2009) 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, 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))

— with sequence listing part of description (Rule 5.2(a))

(54) Title: METHODS OF IDENTIFYING A PAIR OF BINDING PARTNERS

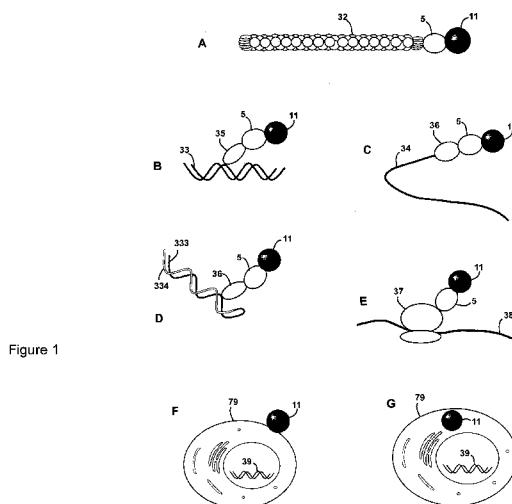


Figure 1

(57) Abstract: The present invention relates to methods of identifying a binding partner of a target molecule within a plurality of analyte molecules, including a plurality of peptides and/or proteins. The target molecule is physically combined with a target labeling nucleic acid molecule, which includes a specific nucleotide sequence. Where the target molecule is a peptide/protein this specific nucleotide sequence may include a sequence encoding the target molecule. Each member of the plurality of analyte molecules is physically linked to an analyte labeling nucleic acid molecule, each analyte labeling nucleic acid molecule comprising a selected nucleotide sequence. This specific nucleotide sequence may include a sequence encoding a peptide/protein combined therewith. The target molecule is contacted with the analyte molecules and a complex between the target molecule and an analyte molecule forms. The mixture is subdivided into compartments, with each compartment comprising at most one target molecule or one complex between the target and an analyte molecule. The target labeling nucleic acid molecule and the analyte labeling nucleic acid molecule are linked and the plurality of compartments allowed to disintegrate. The linked nucleic acid molecule is retrieved and the sequence determined.