

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
26 August 2021 (26.08.2021)



(10) International Publication Number
WO 2021/167526 A1

- (51) **International Patent Classification:**
C12Q 1/6876 (2018.01) *C12Q 1/6841* (2018.01)
- (21) **International Application Number:**
PCT/SG2020/050353
- (22) **International Filing Date:**
24 June 2020 (24.06.2020)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10202001453Y 18 February 2020 (18.02.2020) SG
- (71) **Applicant: AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10, Connexis North Tower, Singapore 138632 (SG).
- (72) **Inventors: CHEN, Kok Hao;** c/o Genome Institute of Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG). **GOH, Jie Lin Jolene;** c/o Genome Institute of Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG). **CHOU, Shijie Nigel;** c/o Genome Institute of Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG). **SEOW, Wan Yi;** c/o Genome Institute of Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG). **HA, Norbert;** c/o Genome Institute of Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG). **ZHAO, Ziqing;** c/o Genome Institute of Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG). **GOH, Christabelle;** c/o Genome Institute of

Singapore, 60 Biopolis Street, Genome, #02-01, Singapore 138672 (SG).

(74) **Agent: DAVIES COLLISON CAVE ASIA PTE. LTD.;** 10 Collyer Quay #07-01, Ocean Financial Centre, Singapore 049315 (SG).

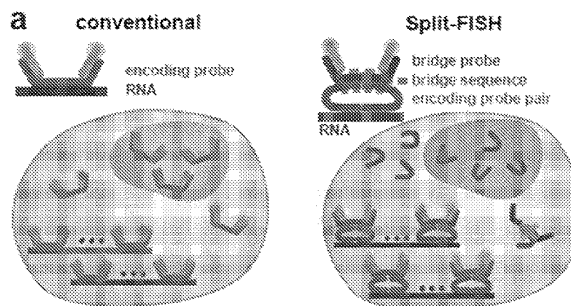
(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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, ST, 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:

— of inventorship (Rule 4.17(iv))

(54) **Title: NUCLEIC ACID PROBES**



(57) **Abstract:** The present invention relates to a pair of non-naturally occurring nucleic acid probes for detecting a polynucleotide analyte for fluorescence in situ hybridization (FISH) wherein the probes comprise a first nucleic acid probe comprising a first probe binding arm that is complementary to a first probe target region of a bridge probe and a first polynucleotide analyte binding arm that is complementary to a first analyte target region of a polynucleotide analyte and a second nucleic acid probe comprising a second probe binding arm that is complementary to a second probe target region of the bridge probe. The binding of the pair of probes to target polynucleotides permits the binding of the bridge probe to allow detection of the polynucleotide analyte. It also provides a probe system comprising said pair of nucleic acid probes and methods of detecting polynucleotide analytes in a sample.

[Continued on next page]

Published:

- *with international search report (Art. 21(3))*
- *with sequence listing part of description (Rule 5.2(a))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*