

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 April 2025 (03.04.2025)



(10) International Publication Number
WO 2025/071493 A1

(51) International Patent Classification:

C12Q 1/6897 (2018.01) C12N 15/63 (2006.01)
C12N 15/113 (2010.01)

(21) International Application Number:

PCT/SG2024/050628

(22) International Filing Date:

27 September 2024 (27.09.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202302793X 29 September 2023 (29.09.2023) SG

(71) Applicant: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis North Tower, Singapore 138632 (SG).

(72) Inventors: **GUCCIONE, Ernesto**; c/o 61 Biopolis Drive, Proteos, Singapore 138673 (SG). **WEE, Keng Boon**; c/o 61 Biopolis Drive, Proteos, Singapore 138673 (SG). **TABAGLIO, Tommaso**; c/o 61 Biopolis Drive, Proteos, Singapore 138673 (SG).

(74) Agent: **AMICA LAW LLC**; 77 Robinson Road, #22-01 Robinson 77, Singapore 068896 (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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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,

(54) Title: DNA CONSTRUCT AND NUCLEIC ACID COMPOUND TOOLS

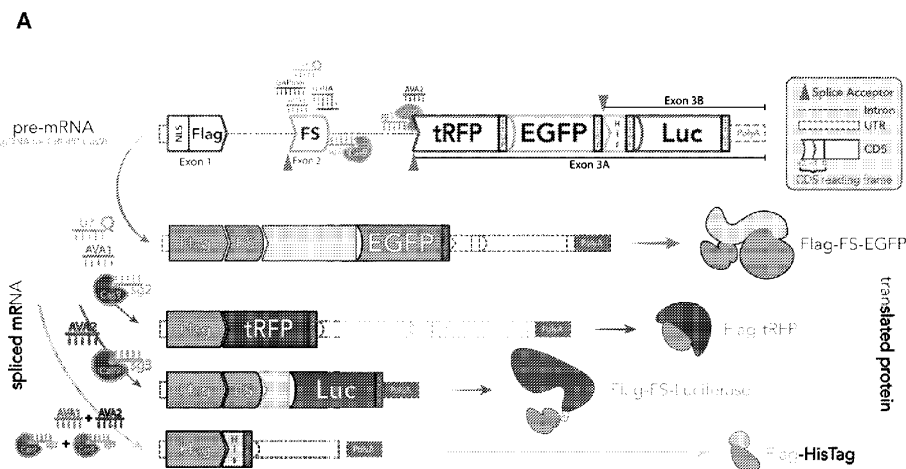


Figure 1

(57) Abstract: The present invention provides a DNA construct comprising: (a) a starter exon encoding a start codon; (b) a first frame-switch exon located downstream of the starter exon, the first frame-switch exon comprising a first acceptor splice site, wherein inclusion or exclusion of the first frame-switch exon during alternative splicing determines the downstream reading frame of the mature mRNA transcript; and (c) a first specific exon located downstream of the first frame-switch exon, the first specific exon comprising a second acceptor splice site, a first reporter gene and a second reporter gene, wherein the first reporter gene is upstream or downstream of the second reporter gene and wherein the first reporter gene is in a different reading frame from the second reporter gene, wherein the exclusion of the first frame-switch exon causes the first reporter gene to be in-frame with the start codon and wherein the inclusion of the first frame-switch exon causes the second reporter gene to be in-frame with the start codon.

[Continued on next page]

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, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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).

Published:

- with international search report (Art. 21(3))
- with sequence listing part of description (Rule 5.2(a))