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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
1 December 2011 (01.12.2011)

PCT

(10) International Publication Number
WO 2011/147590 A3

(51) International Patent Classification:
C12N 15/867 (2006.01)

(21) International Application Number:
PCT/EP2011/002646

(22) International Filing Date:
27 May 2011 (27.05.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10005499.8 27 May 2010 (27.05.2010) EP

(71) Applicants *(for all designated States except US)*: **HEINRICH-PETTE-INSTITUT** [DE/DE]; Leibniz-Institut für Experimentelle Virologie, - Stiftung bürgerlichen Rechts -, Martinistrasse 52, 20251 Hamburg (DE). **MAX-PLANCK-GESELLSCHAFT ZUR FÖRDERUNG DER WISSENSCHAFTEN E.V.** [DE/DE]; Hofgartenstrasse 8, 80539 München (DE).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **HAUBER, Joachim** [DE/DE]; Högenstrasse 65, 20527 Hamburg (DE). **CHEMNITZ, Jan** [DE/DE]; Kanalreihe 20, 21734 Oederquart (DE). **BUCHHOLZ, Frank** [DE/DE]; Schubertstrasse 40, 01307 Dresden (DE). **CHUSAINOW, Janet** [DE/DE]; Goetheallee 7, 01309 Dresden (DE).

(74) Agents: **MORE, Solveig** et al.; Uexküll & Stolberg, Beselerstr. 4, 22607 Hamburg (DE).

(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))*

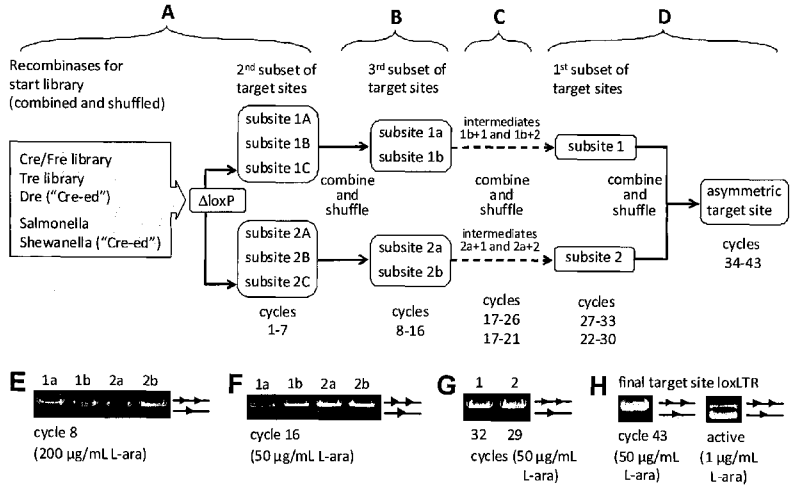
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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

(88) Date of publication of the international search report:
19 January 2012

(54) Title: TAILORED RECOMBINASE FOR RECOMBINING ASYMMETRIC TARGET SITES IN A PLURALITY OF RETROVIRUS STRAINS

Fig. 4



(57) Abstract: The present invention relates to a method for preparing an expression vector encoding a tailored recombinase, which tailored recombinase is capable of recombining asymmetric target sequences within the long terminal repeat (LTR) of proviral DNA of a plurality of retrovirus strains inserted into the genome of a host cell, as well as to the obtained expression vector, cells transfected with this, expressed recombinase and pharmaceutical compositions comprising the expression vector, cells and/or recombinase. Pharmaceutical compositions are useful, e.g., in treatment and/or prevention of retrovirus infection. In particular, asymmetric target sequences present in a plurality of HIV strains are disclosed, as well as tailored recombinases capable of combining these sequences (Tre 3.0 and 4.0) and expression vectors encoding them.

WO 2011/147590 A3