

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 August 2023 (03.08.2023)



(10) International Publication Number
WO 2023/147507 A1

(51) International Patent Classification:

C12N 9/22 (2006.01) C12N 15/90 (2006.01)
C12N 15/10 (2006.01)

(21) International Application Number:

PCT/US2023/061500

(22) International Filing Date:

27 January 2023 (27.01.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/304,565 28 January 2022 (28.01.2022) US

(71) Applicant: SANGAMO THERAPEUTICS, INC.
[US/US]; 7000 Marina Boulevard, Brisbane, California
94005 (US).

(72) Inventors: ARANGUNDY, Sebastian; c/o Sangamo
Therapeutics, Inc., 7000 Marina Boulevard, Brisbane, Cal-
ifornia 94005 (US). FAUSER, Friedrich A.; c/o Sangamo
Therapeutics, Inc., 7000 Marina Boulevard, Brisbane, Cal-
ifornia 94005 (US). MILLER, Jeffrey C.; c/o Sangamo
Therapeutics, Inc., 7000 Marina Boulevard, Brisbane, Cal-
ifornia 94005 (US). SCARLOTT, Nicholas; c/o Sangamo
Therapeutics, Inc., 7000 Marina Boulevard, Brisbane, Cal-
ifornia 94005 (US).

(74) Agent: LI, Z. Ying et al.; Steptoe & Johnson LLP, 1330
Connecticut Avenue, N.W., Washington, District of Colum-
bia 20036 (US).

(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, 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, CV,
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, 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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

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))

WO 2023/147507 A1

(54) Title: SERINE RECOMBINASE SYSTEMS FOR SITE-SPECIFIC GENE EDITING

(57) Abstract: The present disclosure provides engineered large serine recombinases and systems containing the recombinases for gene editing.