

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
04 November 2021 (04.11.2021)



(10) International Publication Number
WO 2021/222745 A3

(51) International Patent Classification:

C07K 14/195 (2006.01) C07K 17/08 (2006.01)

(21) International Application Number:

PCT/US2021/030161

(22) International Filing Date:

30 April 2021 (30.04.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/018,084 30 April 2020 (30.04.2020) US

(71) Applicant: **OHIO STATE INNOVATION FOUNDATION** [US/US]; 1524 North High Street, Columbus, Ohio 43201 (US).

(72) Inventors: **TARIS, Joseph**; c/o Ohio State Innovation Foundation, 1524 North High Street, Columbus, Ohio 43201 (US). **WOOD, David Webster**; c/o Ohio State Innovation Foundation, 1524 North High Street, Columbus, Ohio 43201 (US).

(74) Agent: **CLEVELAND, Janell T.** et al.; MEUNIER CARLIN & CURFMAN LLC, 999 Peachtree St. NE, Suite 1300, Atlanta, Georgia 30309 (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, 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, IT, 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:

- 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))

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:

09 December 2021 (09.12.2021)

(54) Title: METHODS AND COMPOSITIONS FOR ENHANCING STABILITY AND SOLUBILITY OF SPLIT-INTEINS

(57) Abstract: Disclosed herein is a protein purification system and methods of making such a system. Specifically, the invention relates to a method of immobilizing an N-terminal intein segment to a solid support, the method comprising: exposing an N-terminal intein segment to a cognate folding partner under conditions that promote association between the N-terminal intein and the cognate folding partner; immobilizing the N-terminal intein to a solid support; subjecting the N-terminal intein to conditions that disrupt association between the N-terminal intein and the cognate folding partner; and washing the solid support to remove non-bound material, thereby immobilizing an N-terminal intein segment to a solid support.



WO 2021/222745 A3