

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 October 2024 (03.10.2024)



(10) International Publication Number
WO 2024/200852 A1

(51) International Patent Classification:
C07K 14/415 (2006.01) C07K 14/805 (2006.01)

SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(21) International Application Number:
PCT/EP2024/058819

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

(22) International Filing Date:
30 March 2024 (30.03.2024)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2350390-7 31 March 2023 (31.03.2023) SE
2350391-5 31 March 2023 (31.03.2023) SE

(71) Applicant: **IRONIC AB** [SE/SE]; Kungsgatan 3, 244 63 Furulund (SE).

(72) Inventors: **ERIKSSON, Nélida Rocío Leiva**; c/o Ironic AB, Kungsgatan 3, 244 63 Furulund (SE). **BÜLOW, Leif**; c/o Ironic AB, Kungsgatan 3, 244 63 Furulund (SE).

(74) Agent: **IPTECTOR CONSULTING APS**; Diplomvej 377, 2800 Kgs.Lyngby (DK).

(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, 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,

(54) Title: RECOMBINANT PHYTOGLOBINS

(57) Abstract: The present invention relates to a recombinant haem- or phyto globin protein comprising a C-helix and a D-helix covalently joint into a CD-loop domain and comprising a hexa- or penta-coordinated prosthetic haem group, wherein the haem- or phyto globin has an amino acid sequence which is at least 50% identical the haem- or phyto globin comprised in anyone of SEQ ID NO: 1 to 55, wherein the CD-loop domain comprises one or more modifications compared to a parent CD-loop domain, whereby the modified CD-loop domain binds the prosthetic group stronger than the parent unmodified CD-loop domain and wherein the parent CD-loop domain, wherein the parent CD-loop domain is positioned in the recombinant haem- or phyto globin protein corresponding to the position 52 to 78 of SEQ ID NO: 1, optionally position 52 to 72 of SEQ ID NO: 1 and wherein the CD-loop domain has an amino acid sequence which is at least 50% identical to the CD-loop domain comprised in anyone of SEQ ID NO: 56 to 147.

WO 2024/200852 A1