

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
13 October 2022 (13.10.2022)



(10) International Publication Number
WO 2022/216720 A1

(51) International Patent Classification:

A61K 31/352 (2006.01) C12N 9/10 (2006.01)
A61K 31/353 (2006.01)

(21) International Application Number:

PCT/US2022/023497

(22) International Filing Date:

05 April 2022 (05.04.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/172,297 08 April 2021 (08.04.2021) US

(71) Applicant: **DEBUT BIOTECHNOLOGY, INC.**
[US/US]; 11545 Sorrento Valley Rd., Suite 310, San Diego,
CA 92121 (US).

(72) Inventors: **BRITTON, Joshua**; 11545 Sorrento Valley
Rd., Suite 310, San Diego, CA 92121 (US). **BRIDEAU,**
Nicholas; 11545 Sorrento Valley Rd., Suite 310, San Diego,
CA 92121 (US). **KIM, Neill**; 11545 Sorrento Valley Rd.,
Suite 310, San Diego, CA 92121 (US).

(74) Agent: **SCHOEN, Adam M.** et al.; Brown Rudnick LLP,
One Financial Center, Boston, MA 02111 (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, JM, 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.

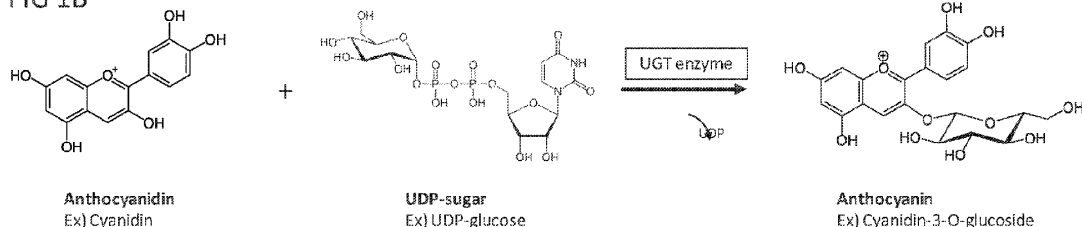
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, 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).

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))

(54) Title: ANTHOCYANIN BIOPRODUCTION IN A CELL-FREE MANUFACTURING SYSTEM

FIG 1B



(57) Abstract: A cell-free system is provided to produce anthocyanins from anthocyanidins. An anthocyanidin is added to a reaction mixture comprising a glycosyl transferase enzyme and UDP-sugar. The reaction mixture may be aqueous and may comprise a co-solvent, e.g., an organic co-solvent, such as DMF.

WO 2022/216720 A1