

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
13 February 2025 (13.02.2025)



(10) International Publication Number
WO 2025/031918 A1

(51) International Patent Classification:

A61P 25/28 (2006.01) *C07D 491/048* (2006.01)
A61P 35/00 (2006.01) *C07D 498/04* (2006.01)
C07D 401/14 (2006.01) *A61K 31/4545* (2006.01)
C07D 413/14 (2006.01) *A61K 31/5025* (2006.01)
C07D 471/04 (2006.01) *A61K 31/519* (2006.01)
C07D 487/04 (2006.01)

(21) International Application Number:

PCT/EP2024/071754

(22) International Filing Date:

31 July 2024 (31.07.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

23189887.5 04 August 2023 (04.08.2023) EP

(71) Applicant: **BOEHRINGER INGELHEIM INTERNATIONAL GMBH** [DE/DE]; Binger Strasse 173, 55216 INGELHEIM AM RHEIN (DE).

(72) Inventors: **WILLWACHER, Jens**; Boehringer Ingelheim International GmbH, Global Patents, Binger Strasse 173, 55216 Ingelheim am Rhein (DE). **BINDER, Florian Paul Christian**; Boehringer Ingelheim International GmbH, Global Patents, Binger Strasse 173, 55216 Ingelheim am

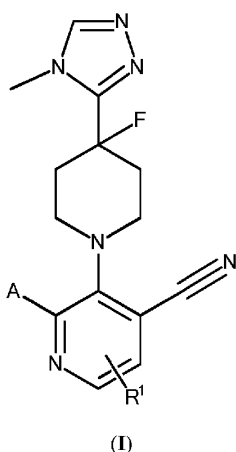
Rhein (DE). **DAHMAN, Georg**; Boehringer Ingelheim International GmbH, Global Patents, Binger Strasse 173, 55216 Ingelheim am Rhein (DE). **HANDSCHUH, Sandra Ruth**; Boehringer Ingelheim International GmbH, Global Patents, Binger Strasse 173, 55216 Ingelheim am Rhein (DE). **REINDL, Sophia Astrid**; Boehringer Ingelheim International GmbH, Global Patents, Binger Strasse 173, 55216 Ingelheim am Rhein (DE). **YANG HAMILTON, James Young Soo**; Boehringer Ingelheim International GmbH, Global Patents, Binger Strasse 173, 55216 Ingelheim am Rhein (DE).

(74) Agent: **LUTZE ET AL., Oliver** et al.; Binger Strasse 173, 55216 INGELHEIM AM RHEIN (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, 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.

(54) Title: PIPERIDINYLPIRIDINYLCARBONITRILE DERIVATIVES AS INHIBITORS OF GLUTAMINYL-PEPTIDE CYCLOTRANSFERASE AND GLUTAMINYL-PEPTIDE CYCLOTRANSFERASE LIKE PROTEIN

(57) Abstract: The present disclosure provides certain piperidinylpyridinylcarbonitrile derivatives, and pharmaceutically acceptable salts thereof, that are inhibitors of Glutaminyl-peptide cyclotransferase (QPCT) and glutaminyl-peptide cyclotransferase-like protein (QPCTL), and are therefore useful for the treatment of diseases treatable by inhibition of QPCT/L. Also provided are pharmaceutical compositions containing the same, and processes for preparing said compounds.



WO 2025/031918 A1

[Continued on next page]

(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, 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))*

Published:

- *with international search report (Art. 21(3))*
- *with sequence listing part of description (Rule 5.2(a))*