

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2023/086433 A1

(43) International Publication Date
19 May 2023 (19.05.2023)

(51) International Patent Classification:

A61K 31/138 (2006.01) *A61K 45/06* (2006.01)
A61K 31/433 (2006.01) *A61P 11/00* (2006.01)
A61K 31/5375 (2006.01)

Published:

— with international search report (Art. 21(3))

(21) International Application Number:

PCT/US2022/049483

(22) International Filing Date:

10 November 2022 (10.11.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

63/278,324 11 November 2021 (11.11.2021) US
63/305,305 01 February 2022 (01.02.2022) US

(71) Applicant: **APNIMED, INC. (DELAWARE)** [US/US];
20 Holyoke Street, Cambridge, MA 02138 (US).

(72) Inventors: **TARANTO-MONTEMURRO, Luigi**; 639
Chestnut Hill Ave., Apt. 1, Brookline, MA 02445 (US).
WHITE, David, P.; 4340 E. Cedar Ave., Denver, CO
80246 (US). **FARKAS, Ronald**; 12040 Misty Rise Ct.,
Clarksville, MD 21029 (US). **MILLER, Lawrence, G.**;
125 Brattle St., Cambridge, MA 02138 (US).

(74) Agent: **CHIPOURAS, Andrew, S.**; Honigman LLP, 650
Trade Centre Way, Suite 200, Kalamazoo, MI 49002-0402
(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).

(54) Title: METHODS AND COMPOSITIONS FOR TREATING CONDITIONS ASSOCIATED WITH CENTRAL HYPOVENTILATION

(57) Abstract: Pharmaceutical compositions comprising (i) a norepinephrine reuptake inhibitor (NRI) and (ii) a carbonic anhydrase inhibitor (CAI) and methods of treating conditions associated with central hypoventilation are described herein.

WO 2023/086433 A1