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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
01 December 2022 (01.12.2022)

WIPO | PCT

(10) International Publication Number
WO 2022/251188 A2

(51) International Patent Classification:
Not classified

(21) International Application Number:
PCT/US2022/030690

(22) International Filing Date:
24 May 2022 (24.05.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/192,822 25 May 2021 (25.05.2021) US

(71) Applicant: **BIOCRYST PHARMACEUTICALS, INC.** [US/US]; 4505 Emperor Blvd., Suite 200, Durham, NC 27703 (US).

(72) Inventors: **KOTIAN, Pravin, L.**; 1139 Magnolia Run, Hoover, AL 35226 (US). **BABU, Yarlagadda, S.**; 4836 Southlake Parkway, Birmingham, AL 35244 (US). **ZHANG, Weihe**; 2645 Manchester Court, Vestavia Hills, AL 35226 (US). **LV, Wei**; 5373 Park Side Circle, Hoover, AL 35244 (US). **LU, Peng-Cheng**; 1816 Altadena Ridge Place, Vestavia Hills, AL 35243 (US). **SPAULDING, Andrew, E.**; 3493 Hurricane Road, Hoover, AL 35226 (US). **RAMAN, Krishnan**; 3739 Spearman Drive, Birmingham, AL 35216 (US).

(74) Agent: **WZOREK, Laura A.** et al.; Foley Hoag LLP, 155 Seaport Boulevard, Boston, MA 02210-2600 (US).

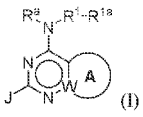
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, 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.

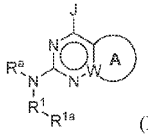
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,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

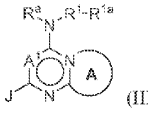
Declarations under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

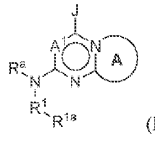
Published:
— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

(54) Title: IMIDAZOLE-CONTAINING INHIBITORS OF ALK2 KINASE


(I)


(II)


(III)


(IV)

(57) Abstract: Disclosed are compounds of formula I, II, III, and IV, and pharmaceutically acceptable salts thereof. The compounds are inhibitors of ALK2 kinase. Also provided are pharmaceutical compositions comprising a compound, of formula. I, II, III, or IV, or pharmaceutically acceptable salt thereof, and methods involving use of the compounds or pharmaceutically acceptable salts thereof and compositions in the treatment and prevention of various diseases and conditions, such as fibrodysplasia ossificans progressiva.

WO 2022/251188 A2