

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
15 September 2022 (15.09.2022)



(10) International Publication Number
WO 2022/192487 A2

- (51) **International Patent Classification:**
Not classified
- (21) **International Application Number:**
PCT/US2022/019673
- (22) **International Filing Date:**
10 March 2022 (10.03.2022)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
- | | | |
|------------|------------------------------|----|
| 63/159,718 | 11 March 2021 (11.03.2021) | US |
| 63/159,720 | 11 March 2021 (11.03.2021) | US |
| 63/185,164 | 06 May 2021 (06.05.2021) | US |
| 63/185,692 | 07 May 2021 (07.05.2021) | US |
| 63/196,713 | 04 June 2021 (04.06.2021) | US |
| 63/196,715 | 04 June 2021 (04.06.2021) | US |
| 63/237,368 | 26 August 2021 (26.08.2021) | US |
| 63/252,459 | 05 October 2021 (05.10.2021) | US |
| 63/252,469 | 05 October 2021 (05.10.2021) | US |

- (71) **Applicants:** **LATIGO BIOTHERAPEUTICS, INC.** [US/US]; 1300 Rancho Conejo Blvd., Suite 305, Thousand Oaks, CA 91320 (US). **LIEBER INSTITUTE, INC.** [US/US]; 855 North Wolfe Street, Suite 300, Baltimore, MD 21205 (US).
- (72) **Inventors:** **JONES, Robert, M.**; 5957 N. Triple Crown Trail, Oakley, UT 84055-0568 (US). **BAJJI, Ashok**; 2027 E. Sylvan Avenue, Salt Lake City, UT 84108 (US). **MONCK, Nathaniel, Julius, Thomas**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **O'CONNOR, Suzanne, J.**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **RATHMELL, Richard, Edmund**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **GARDINER, William, H.**; Evotec (UK) Ltd, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **TOWNSEND, Robert, James**; Evotec (UK) Ltd, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **PITA, Andreina, Pacheco**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **BRUNAVS, Michael**; Evotec (UK) Ltd, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **SHAIKH, Abdul, Kadar**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon,

Oxfordshire OX14 4RZ (GB). **SHINE, Jonathan, Paul**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **WIGGINTON, Ian, James**; Evotec (UK) Ltd, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **RICHARDS, Jonathan, Philip**; Evotec (UK) Ltd, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **MASTAN-DREA, Marco, Michele**; Evotec (UK) Ltd, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **DAVENPORT, Adam, James**; Evotec UK, Dorothy Crowfoot Hodgkin Campus, 114 Innovation Drive, Milton Park, Abingdon, Oxfordshire OX14 4RZ (GB). **MOYER, Bryan**; 1300 Rancho Conejo Blvd., Suite 305, Thousand Oaks, CA 91320 (US). **POSLUSNEY, Michael**; Lieber Institute, Inc., 855 North Wolfe Street, Suite 300, Baltimore, MD 21205 (US). **BARROW, James**; Lieber Institute, Inc., 855 North Wolfe Street, Suite 300, Baltimore, MD 21205 (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:

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

(54) **Title:** METHYL-SUBSTITUTED PYRIDINE AND PYRIDAZINE COMPOUNDS, DERIVATIVES THEREOF, AND METHODS OF THEIR USE

(57) **Abstract:** The invention provides methyl-substituted pyridine and pyridazine compounds, derivatives thereof, and methods of their use. The compounds are useful as pharmacological agents to treat a variety of conditions, including various pain states, itch, and cough.

WO 2022/192487 A2