

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 February 2025 (27.02.2025)



(10) International Publication Number
WO 2025/042899 A2

- (51) **International Patent Classification:**
C12Q 1/686 (2018.01) *G01N 33/53* (2006.01)
- (21) **International Application Number:**
PCT/US2024/043052
- (22) **International Filing Date:**
20 August 2024 (20.08.2024)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/578,495 24 August 2023 (24.08.2023) US
- (71) **Applicant: X-CHEM, INC.** [US/US]; 100 Beaver Street,
Suite 101, Waltham, MA 02453 (US).
- (72) **Inventor: CHEN, Zhen;** 3 Emerald Street, Newton, MA
02458 (US).
- (74) **Agent: ELBING, Karen, L.** et al.; Clark & Elbing LLP,
101 Federal Street, 15th Floor, Boston, MA 02110 (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, 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.

(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))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*
- *with sequence listing part of description (Rule 5.2(a))*

(54) **Title:** METHODS FOR IDENTIFYING COMPOUNDS BINDING TO A TARGET MOLECULE USING MIRROR-IMAGING OF THE TARGET MOLECULE

(57) **Abstract:** The present disclosure provides methods of screening DNA-encoded chemical libraries utilizing mirror-images of target molecules. These methods allow highly efficient selection of compounds that bind to a target molecule, even when the target molecule can bind the DNA tag of the encoded compounds.



WO 2025/042899 A2