SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16 OF
THE SECURITIES EXCHANGE ACT OF 1934

For the month of April 2026

Commission file number: 001-35223

BioLineRx Ltd.

(Translation of registrant's name into English)

2 HaMa'ayan Street
Modi'in 7177871, Israel
(Address of Principal Executive Offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

Form 20-F ☒ Form 40-F ☐

On April 28, 2026, the registrant issued the press release which is filed as Exhibit 1 to this Report on Form 6-K.

The first paragraph of the press release attached to this Form 6-K as Exhibit 1 is hereby incorporated by reference into all effective registration statements filed by the registrant under the Securities Act of 1933.

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

BioLineRx Ltd.

By: /s/ Philip A. Serlin
Philip A. Serlin
Chief Executive Officer

Dated: April 28, 2026

Exhibit 99.1

For Immediate Release

BioLineRx and Hemispherian Announce First Patient Dosed in Phase 1/2a Study of GLIX1 for the Treatment of Glioblastoma (GBM)

Patient was dosed at NYU Langone Health under the supervision of Dr. Alexandra Miller, Chief of Neuro-Oncology & Co-Director of Brain and Spine Tumor Center, Perlmutter Cancer Center

Data from the Phase 1 part of the study anticipated in H1 2027

TEL AVIV, Israel, and OSLO, Norway, April 28, 2026 – BioLineRx Ltd. (NASDAQ/TASE: BLRX), a clinical development stage biopharmaceutical company pursuing life-changing therapies in oncology and rare diseases, and Hemispherian AS, a clinical-stage oncology company developing novel small molecule therapeutics, today announced that the first patient has been dosed in the first-in-human, Phase 1/2a study of GLIX1 for the treatment of recurrent and progressive glioblastoma (GBM) and other high-grade gliomas. The GLIX1 program is being conducted under a collaboration between BioLineRx and Hemispherian announced in September 2025.

The patient was dosed at NYU Langone Health under the supervision of Dr. Alexandra Miller, Chief of Neuro-Oncology & Co-Director of Brain and Spine Tumor Center, Perlmutter Cancer Center. Northwestern University, led by lead investigators Dr. Roger Stupp and Dr. Ditte Primdahl, and Moffit Cancer Center, led by Dr. Patrick Grogan, will also be participating in the study.

GLIX1 is an oral, first-in-class, small molecule with a novel mechanism of action, designed to activate TET2 and drive tumor DNA damage. By restoring TET2 activity, GLIX1 induces DNA damage selectively in cancer cells, representing a differentiated approach to targeting the DNA damage response with potential applicability across a broad range of tumors. Glioblastoma was selected as the initial indication due to its highly suppressed TET2 activity and significant unmet medical need. GBM remains one of the most aggressive and treatment-resistant cancers, and there is an urgent need for breakthrough innovation and more effective treatment options.

In multiple pre-clinical models, including *in-vivo* GBM models, GLIX1 demonstrated potent anti-tumor activity, excellent blood-brain-barrier penetration, and a favorable safety profile.

“The dosing of the first patient in our Phase 1/2a study of GLIX1 is an important milestone for BioLineRx and, more importantly, for patients battling glioblastoma, a very challenging tumor where there has been very little innovation over the past 20 years,” said Philip Serlin, Chief Executive Officer of BioLineRx. “We believe GLIX1 has the potential to offer a novel therapeutic approach in this cancer indication, as well as in multiple other cancer indications, where DNA damage repair is critical for cancer survival. We are excited to advance GLIX1 development into this first-in-human clinical trial and look forward to initial data in the first half of 2027.”

Zeno Albisser, Chief Executive Officer of Hemispherian, added, “The initiation of patient dosing in this important study represents a watershed event for Hemispherian and GLIX1. This is the culmination of years of focused scientific and operational work, and an important step toward bringing a new therapeutic approach to patients with glioblastoma. We are encouraged by our preclinical data and look forward to generating initial clinical insights as the trial progresses.”

Phase 1/2a clinical trial design (NCT07464925)
The Phase 1 part of the trial is a dose escalation part where patients receive GLIX1 daily as monotherapy. This part is expected to recruit up to 30 patients with recurrent and progressive GBM and other high-grade gliomas. The objective is to establish a maximum tolerated dose (MTD) and/or a recommended dose based on safety, PK/PD and preliminary efficacy. Data from the Phase 1 part of the trial are anticipated in H1 2027.

The Phase 2a expansion part of the trial is planned to include additional indications, including newly diagnosed GBM, as well as select cancers with/without standard of care (e.g., in combination with PARP inhibitors). These cohorts are expected to identify preliminary efficacy, PD assessments and dose optimization data, serving as the basis for a rapid and effective advanced clinical development plan.

About Hemispherian
Hemispherian AS is a clinical-stage pharmaceutical company developing first-in-class small-molecule cancer therapies. Its lead program, GLIX1, is being advanced in partnership with BioLineRx for the treatment of glioblastoma and a broad range of solid tumors.

The company is headquartered in Oslo, Norway, and collaborates with leading academic and clinical institutions worldwide.

Learn more at www.hemispherian.com or on LinkedIn.

About BioLineRx
BioLineRx Ltd. (NASDAQ/TASE: BLRX) is a biopharmaceutical company pursuing life-changing therapies in oncology and rare diseases. The Company’s lead development asset is GLIX1, a first-in-class, oral, small molecule targeting DNA damage response in glioblastoma and other solid tumors, for which a Phase 1/2a clinical trial has been initiated in the first quarter of 2026. GLIX1 is being developed under a collaboration with Hemispherian AS.

The Company's first approved product, APHEXDA® (motixafortide), is indicated in the U.S. for stem cell mobilization for autologous transplantation in multiple myeloma, and is being commercialized by Ayrmid Ltd. (globally, except Asia) and Gloria Biosciences (in Asia). BioLineRx has retained the rights to develop motixafortide in solid tumors, including metastatic pancreatic cancer (PDAC), and has a Phase 2b PDAC trial currently ongoing under a collaboration with Columbia University.

Learn more about who we are, what we do, and how we do it at www.biolinerx.com, or on LinkedIn.

Forward Looking Statement

Various statements in this release concerning BioLineRx's future expectations constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements include words such as "anticipates," "believes," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "projects," "should," "will," and "would," and describe opinions about future events. These include statements regarding management's expectations, beliefs and intentions regarding, among other things, the expectations with regard to the planned Phase 1/2a GLIX1 clinical trial, expected timing of a clinical readout, and BioLineRx's business strategy. These forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of BioLineRx to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Factors that could cause BioLineRx's actual results to differ materially from those expressed or implied in such forward-looking statements include, but are not limited to: the clinical development, commercialization and market acceptance of GLIX1 and motixafortide including the degree and pace of market uptake of APHEXDA for the mobilization of hematopoietic stem cells for autologous transplantation in multiple myeloma patients; the initiation, timing, progress and results of BioLineRx's preclinical studies, clinical trials and other therapeutic candidate development efforts; BioLineRx's ability to advance GLIX1 and motixafortide into clinical trials or to successfully complete its preclinical studies or clinical trials; whether the clinical trial results for GLIX1 and motixafortide will be predictive of real-world results; BioLineRx's receipt of regulatory approvals for GLIX1 and motixafortide and the timing of other regulatory filings and approvals; whether access to GLIX1 and motixafortide is achieved in a commercially viable manner and whether GLIX1 and motixafortide receives adequate reimbursement from third.-party payors; BioLineRx's ability to establish, manage, and maintain corporate collaborations, as well as the ability of BioLineRx's collaborators to execute on their development and commercialization plans; BioLineRx's ability to integrate new therapeutic candidates and new personnel, as well as new collaborations; the interpretation of the properties and characteristics of BioLineRx's therapeutic candidates and of the results obtained with its therapeutic candidates in preclinical studies or clinical trials; the implementation of BioLineRx's business model and strategic plans for its business and therapeutic candidates; the scope of protection that BioLineRx's is able to establish and maintain for intellectual property rights covering its therapeutic candidates and its ability to operate its business without infringing the intellectual property rights of others; estimates of BioLineRx's expenses, future revenues, capital requirements and its need for and ability to access sufficient additional financing; risks related to changes in healthcare laws, rules and regulations in the United States or elsewhere; competitive companies, technologies and BioLineRx's industry; BioLineRx's ability to maintain the listing of its ADSs on Nasdaq; statements as to the impact of the political and security situation in Israel on BioLineRx's business which may exacerbate the magnitude of the factors discussed above. These and other factors are more fully discussed in the "Risk Factors" section of BioLineRx's most recent annual report on Form 20-F filed with the Securities and Exchange Commission on March 23, 2026. In addition, any forward-looking statements represent BioLineRx's views only as of the date of this release and should not be relied upon as representing its views as of any subsequent date. BioLineRx does not assume any obligation to update any forward-looking statements unless required by law.

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