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 May 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 May 19, 2026, the registrant issued the press release which is filed as Exhibit 1 to this Report on Form 6-K.

The first and third paragraphs of the press release attached to this Form 6-K as Exhibit 1 are 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: May 19, 2026

Exhibit 1

For Immediate Release

BioLineRx and Hemispherian Announce New GLIX1 Data Demonstrating Potent Anti-Tumor Effect in Glioblastoma (GBM) Across Multiple *In-Vivo* Studies, Including a Temozolomide (TMZ)-Resistant Model with Patient-Derived Xenografts

New preclinical data further demonstrate GLIX1's robust efficacy in a dose-dependent manner, with strong anti-tumor activity observed even at the lowest doses tested

Results highlight GLIX1's potential to address the high unmet need for patients with GBM

TEL AVIV, Israel and OSLO, Norway – May 19, 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 highly encouraging new preclinical data that further support the recently initiated Phase 1/2a clinical trial evaluating GLIX1 for the treatment of recurrent and progressive GBM and other high-grade gliomas.

GBM remains one of the most aggressive and treatment-resistant cancers, urgently in need of breakthrough innovations and more effective treatment.

In a comprehensive pre-clinical program, orally administered GLIX1 demonstrated robust anti-tumor activity in orthotopic cell-derived xenograft (CDX) GBM models, as well as in a newly completed subcutaneous TMZ-resistant patient-derived xenograft (PDX) GBM model. In the three orthotopic CDX studies, significant tumor growth inhibition and survival benefit were observed following treatment with GLIX1 across all doses tested, with greater benefit at higher dose levels. In these models, mice treated with TMZ also showed significantly decreased tumor volume and survival benefit. Most notably, in the subcutaneous PDX model, GLIX1 demonstrated a robust anti-tumor effect while TMZ showed no effect.

"The compelling results from these studies, including the recently completed TMZ-resistant PDX model, are very exciting as they suggest that GLIX1 may bring hope to a broad range of patients with GBM," said Philip Serlin, Chief Executive Officer of BioLineRx. "In addition, the pre-clinical dose-response characterization adds important information for dose optimization in the Phase 2 part of the ongoing clinical study. 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."

BioLineRx and Hemispherian plan to present the data from these studies at one or more future medical conferences.

About Glioblastoma

Glioblastoma is the most common primary brain tumor and remains one of the most aggressive and treatment-resistant cancers, urgently in need of breakthrough innovations and more effective treatment. The standard of care for newly diagnosed GBM established since 2005 consists of surgery, followed by radiotherapy and treatment with temozolomide (TMZ), with no established standard of care for recurrent GBM. However, patients with unmethylated MGMT1 promoter status (who represent more than half of all GBM patients) have demonstrated a limited response to TMZ.

About GLIX1

GLIX1 is a first-in-class, orally administered, brain penetrating, small molecule activator of the Ten-Eleven Translocation 2 (TET2) pathway that is commonly inhibited in cancer. Activating the novel TET2 pathway by GLIX1 overwhelms the DNA repair capacity of cancer cells, resulting in apoptotic cancer cell death.

About the Phase 1/2a Trial with GLIX1

The Phase 1/2a trial is an open-label, multicenter trial. Part 1 of the trial is a dose escalation study 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 primary objective is to establish a maximum tolerated dose (MTD) and/or a recommended dose based on safety, PK/PD and preliminary efficacy. Updates to the Phase 1/2a trial are anticipated during H2 2026, with full results on the dose escalation part expected in 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 GLIX1 as monotherapy or in combination with standard of care (including 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.

For more information on the Phase 1/2a trial, please visit NCT07464925.

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.

[1] MGMT stands for O6-methylguanine-DNA methyltransferase, a DNA repair enzyme.

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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