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 December 2014

BioLineRx Ltd.

(Translation of registrant's name into English)

P.O. Box 45158
19 Hartum Street
Jerusalem 91450, 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 o

Indicate by check mark whether the registrant by furnishing the information contained in this form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934:

Yes o No ☑

On December 8, 2014, the registrant will issue the press release which is filed as Exhibit 1 to this Report on Form 6-K.

This Form 6-K, including all exhibits hereto, is hereby incorporated by reference into all effective registration statements filed by the Company 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 Serlin
Philip Serlin
Chief Financial and Operating Officer

Dated: December 8, 2014

Exhibit 1

For immediate release

BioLineRx Reports Positive Data from Ongoing Phase 2a Study for AML Treatment at ASH conference

- Data show six-fold increase in mobilization of AML cells from bone marrow; Treatment with BL-8040 as single agent led to 70% decrease in AML cells in bone marrow and 3.5-fold increase in AML cell apoptosis -

Jerusalem, Israel, December 8, 2014 – BioLineRx Ltd. (NASDAQ: BLRX; TASE: BLRX), a clinical-stage biopharmaceutical company dedicated to identifying, in-licensing and developing promising therapeutic candidates, announced today that data from the on-going Phase 2a clinical trial of BL-8040 for the treatment of patients with relapsed or refractory acute myeloid leukemia (AML) were reported at the American Society of Hematology (ASH) meeting, held on December 6-9, 2014, in San Francisco.

Results reported to date in the dose-escalation stage of the Phase 2a study show that, even at the highest dose reached to date (1.25 mg/kg), there were no dose-limiting toxicity events or serious adverse events, nor early discontinuations attributable to BL-8040. Furthermore, BL-8040 triggered substantial mobilization of AML cancer cells from the bone marrow to the peripheral blood, with a median 6-fold increase of AML cells in the blood. This mobilization is crucial for exposing a higher ratio of AML cells to accompanying chemotherapy such as Ara-C. Additional results show that after only two days of BL-8040 monotherapy, there was a median decrease of approximately 70% in the amount of AML cells in the bone marrow, while the levels of normal progenitor cells remained stable. Furthermore, BL-8040 as a monotherapy showed a 3.5-fold increase in cell death (apoptosis) of AML cells, both in the bone marrow and in peripheral blood samples.

Dr. Kinneret Savitsky, Chief Executive Officer of BioLineRx, stated, “We are very encouraged by the data that we see at this stage of the Phase 2a study for BL-8040, which show substantial mobilization and robust apoptosis, and we hope that we will continue to see a dose response as we test higher doses. The dose escalation stage, which is currently ongoing, is expected to be completed early next year. In addition, we recently added the Mayo Clinic as our fourth world-class site in the U.S., and we plan to open up several additional sites in the U.S. in the next few months. We look forward to reporting results of the escalation stage, and initiating the expansion phase of the trial, in which the optimal dose of BL-8040 will be further assessed for safety as well as efficacy. The full study is expected to be completed in the second half of 2015.”

BioLine will host a breakfast for investors and analysts in New York on December 12th to present its 2015 clinical development plan for BL-8040, including the initiation of clinical studies in three new indications. Dr. Jorge Cortes, Distinguished Professor of Leukemia Research at the MD Anderson Cancer Center in Houston, Texas, will deliver the keynote presentation, “Current Developments in the AML Treatment Space.” The event will be webcast and presentation materials will be available on the BioLineRx website.

About BL-8040’s Phase 2 Trial

The Phase 2 trial is a multicenter, open-label study under an IND, conducted at nine clinical sites in the U.S. and Israel, and is designed to evaluate the safety and efficacy of repeated doses of BL-8040 in adult patients with relapsed or refractory AML. The primary endpoints of the study are the safety and tolerability of BL-8040. Secondary endpoints include the pharmacokinetic profile of the drug and an efficacy evaluation, indicated by the extent of mobilization of cancer cells from the bone marrow to the peripheral blood, the level of cancer cell death (apoptosis) and clinical responses.

The study is comprised of two parts – the current dose escalation stage and a subsequent expansion stage at the optimal dose determined during the escalation stage. During the dose escalation stage, trial participants are generally recruited in cohorts of three patients at a time, and the dose is increased for each subsequent cohort depending on the safety and tolerability results of the previous cohort, as confirmed by an independent Data Safety Monitoring Board. To date, there have been no serious adverse events related to BL-8040 up to and including the fourth dosing level in the study of 1.25 mg/kg, with the primary adverse event being a transient reaction at the injection site. The study is currently in the fifth and final dosing level originally planned in the study of 1.5 mg/kg. Due to the fact that BL-8040 was found safe at all doses tested to date, and based on the recommendation of the CAB, the Company intends to add additional cohorts to the current dose escalation stage of the study, in order to determine the optimal dose for the remainder of the study.

About BL-8040

BL-8040 is a clinical-stage drug candidate for the treatment of acute myeloid leukemia, as well as other hematological indications. It is a short peptide that functions as a high-affinity antagonist for CXCR4, a chemokine receptor that is directly involved in tumor progression, angiogenesis (growth of new blood vessels in the tumor), metastasis (spread of the disease to other organs or organ parts) and cell survival. CXCR4 is over expressed in more than 70% of human cancers and its expression often correlates with disease severity. In a Phase 1/2, open-label, dose escalation, safety and efficacy clinical trial in 18 multiple myeloma patients, BL-8040 demonstrated an excellent safety profile at all doses tested and was highly effective in the mobilization of hematopoietic stem cells and white blood cells from the bone marrow to the peripheral blood.

BL-8040 also mobilizes cancer cells from the bone marrow and may therefore sensitize these cells to chemo- and bio-based anti-cancer therapy. Importantly, BL-8040 has also demonstrated a direct anti-cancer effect by inducing apoptosis. Pre-clinical studies show that BL-8040 is efficient, both alone and in combination with the anti-cancer drug Rituximab, in reducing bone marrow metastasis of lymphoma cells and stimulating lymphoma cell death. In addition, the current Phase 2 clinical trial in AML patients has demonstrated robust mobilization and apoptosis of cancer cells. BL-8040 was licensed by BioLineRx from Biokine Therapeutics and was previously developed under the name BKT-140.

About Acute Myeloid Leukemia (AML)
Acute myeloid leukemia (AML) is a cancer of the blood and bone marrow and is the most common type of acute leukemia in adults. According to the American Cancer Society, approximately 14,500 new cases of AML were diagnosed in the United States in 2013, and the median age of AML patients was 66 years old. The frontline treatment for patients with AML includes systemic combination induction chemotherapy. The median survival for patients receiving induction chemotherapy, which is associated with high mortality, is 6-12 months, with shorter survival for patients over the age of 60 or for those with certain gene or chromosome aberrations. The five-year survival rate for AML is 10-30 percent, due to relapsed or refractory disease associated with standard treatments.

About BioLineRx
BioLineRx is a publicly-traded, clinical-stage biopharmaceutical company dedicated to identifying, in-licensing and developing promising therapeutic candidates. The Company in-licenses novel compounds primarily from academic institutions and biotech companies based in Israel, develops them through pre-clinical and/or clinical stages, and then partners with pharmaceutical companies for advanced clinical development and/or commercialization.

BioLineRx's current portfolio consists of a variety of clinical and pre-clinical projects, including: BL-1040 for prevention of pathological cardiac remodeling following a myocardial infarction, which has been out-licensed to Bellerophon BCM (f/k/a Ikaria) and is in the midst of a pivotal CE-Mark registration trial scheduled for completion in mid-2015; BL-8040, a cancer therapy platform, which is in the midst of a Phase 2 study for acute myeloid leukemia (AML) as well as a Phase 1 study for stem cell mobilization; and BL-7010 for celiac disease, which has successfully completed a Phase 1/2 study.

For more information on BioLineRx, please visit www.biolinerx.com or download the investor relations mobile device app, which allows users access to the Company's SEC documents, press releases, and events. BioLineRx's IR app is available on the iTunes App Store as well as the Google Play Store.

Various statements in this release concerning BioLineRx's future expectations, including specifically those related to the development and commercialization of BL-8040, constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements include words such as "may," "expects," "anticipates," "believes," and "intends," and describe opinions about future events. These forward-looking statements involve known and unknown risks and uncertainties 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. Some of these risks are: changes in relationships with collaborators; the impact of competitive products and technological changes; risks relating to the development of new products; and the ability to implement technological improvements. 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 17, 2014. 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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