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 March 2019

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** ☐

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 ☐ **No** ☑

On March 27, 2019, the registrant issued 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 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: March 27, 2019

Exhibit 1

For Immediate Release

BioLineRx Announces Successful Engraftment Data from Phase 3 GENESIS Trial for BL-8040 in Multiple Myeloma Patients

Results presented as oral presentation at 45th Annual Meeting of European Society for Blood and Marrow Transplantation

Tel Aviv, Israel, March 27, 2019 - BioLineRx Ltd. (NASDAQ/TASE:BLRX), a clinical-stage biopharmaceutical company focused on oncology, announced today that hematopoietic stem cells (HSCs) mobilized by BL-8040 in combination with granulocyte colony-stimulating factor (G-CSF) were successfully engrafted in all 11 patients participating in the Part 1, lead-in period of the GENESIS trial, a double-blind, placebo-controlled Phase 3 trial comparing BL-8040 and G-CSF to G-CSF alone, in mobilization of HSCs for autologous transplantation in multiple myeloma patients. These data follow previously announced successful mobilization data which led the Data Monitoring Committee (DMC) to recommend proceeding to the randomized placebo-controlled Part 2 of the study.

"Autologous HSC transplantation in multiple myeloma has been shown to improve overall survival compared to conventional chemotherapy. However, the effectiveness of the treatment relies, in part, upon the ability to collect an adequate amount of HSCs, typically obtained from peripheral blood," explained Dr. John F. DiPersio, Chief, Division of Oncology at the Washington University School of Medicine, and lead investigator of the study. "Current practice involves mobilizing HSCs from the bone marrow to the peripheral blood, after which the cells are collected by apheresis. Results so far show that mobilizing HSCs with a single BL-8040 dose combined with G-CSF is highly effective compared to using G-CSF alone, which typically requires up to 8 injections and multiple apheresis days. Furthermore, engraftment of the cells in all evaluable patients was successful. This is a very encouraging result which, if corroborated in the placebo-controlled part of the trial, will be of great value to patients as well as to the medical community."

The results, detailed in an abstract titled ***GENESIS - A Phase III Randomized Double-Blind, Placebo-Controlled Trial, Evaluating Safety and Efficacy of BL-8040 and G-CSF in Mobilization of HSCs for Autologous Transplantation in Multiple Myeloma*** were presented in an oral presentation at the 45th Annual Meeting of the European Society for Blood and Marrow Transplantation (EBMT 2019), today, March 27, 2019, in Frankfurt, Germany.

Results of the first 11 patients show that 9/11 patients (82%) reached the primary endpoint threshold of $\geq 6x10^6$ CD34 cells/kg with only one dose of BL-8040 and in up to 2 apheresis sessions. Furthermore, 7/11 patients (64%) reached the threshold of $\geq 6x10^6$ CD34 cells/kg in a single apheresis session only. In addition, all 11 patients reached the desired threshold in 4 or less apheresis days, and for all patients with available data (9/11), successful engraftment with BL-8040 mobilized HSCs was observed, with time to engraftment and graft durability comparable to standard of care mobilization regimens.

About the GENESIS Study

The GENESIS study is a Phase 3, randomized, double-blind, placebo-controlled, multicenter study, evaluating the safety, tolerability and efficacy of BL-8040 in combination with G-CSF, compared to placebo and G-CSF, for the mobilization of CD34 HSCs for autologous transplantation in multiple myeloma patients. The placebo-controlled part is designed to include 177 patients in more than 25 centers. Treatment will include 5 days of G-CSF, with a single dose of BL-8040 or placebo on day 4, and with the option to expand treatment to up to 8 days of G-CSF and up to 2 doses of BL-8040. Apheresis for collection of CD34 cells will be performed on day 5. An additional 3 apheresis sessions may be conducted if needed in order to reach the goal of $\geq 6x10^6$ mobilized CD34 cells/kg.

The primary objective of the study is to demonstrate the superiority of a single dose of BL-8040 in combination with G-CSF, over placebo and G-CSF, in the mobilization of $\geq 6x10^6$ CD34 cells/kg in up to 2 apheresis sessions, in preparation for autologous stem cell transplantation in multiple myeloma patients. Secondary objectives include time to engraftment of neutrophils and platelets, durability of the engraftment, as well as safety and other efficacy parameters.

About BL-8040

BL-8040 is a short synthetic peptide for stem cell mobilization and for treatment of hematological malignancies and solid tumors. It functions as a high-affinity best-in-class antagonist for CXCR4, a chemokine receptor that is directly involved in the retention of stems cells in the bone marrow, as well as tumor progression, angiogenesis, metastasis and cell survival. CXCR4 is over-expressed in more than 70% of human cancers and its expression often correlates with disease severity.

HSCs express CXCR4 and are retained in the protective bone marrow niche via binding to CXCL12 (also known as SDF-1). Blocking of the CXCR4-SDF1 interaction by BL-8040 leads to the mobilization of HSCs into the peripheral blood. In a number of clinical and pre-clinical studies, BL-8040 has shown robust mobilization of HSCs.

In a number of clinical and pre-clinical studies, BL-8040 has shown robust mobilization of cancer cells and immune-cells, sensitization of cancer cells to chemo- and bio-based anti-cancer therapies, and direct anti-cancer effect by inducing programmed cell death (apoptosis). BL-8040 was licensed by BioLineRx from Biokine Therapeutics and was previously developed under the name BKT-140.

About BioLineRx

BioLineRx is a clinical-stage biopharmaceutical company focused on oncology. The Company in-licenses novel compounds, develops them through pre-clinical and/or clinical stages, and then partners with pharmaceutical companies for advanced clinical development and/or commercialization.

BioLineRx's leading therapeutic candidates are: BL-8040, a cancer therapy platform, which has successfully completed a Phase 2a study for relapsed/refractory AML, is in the midst of a Phase 2b study as an AML consolidation treatment and has initiated a Phase 3 study in stem cell mobilization for autologous transplantation; and AGI-134, an immunotherapy treatment in development for multiple solid tumors, which has recently initiated a Phase 1/2a study. In addition, BioLineRx has a strategic collaboration with Novartis for the co-development of selected Israeli-sourced novel drug candidates; a collaboration agreement with MSD, on the basis of which the Company is conducting a Phase 2a study in pancreatic cancer using the combination of BL-8040 and KEYTRUDA® (pembrolizumab), and a collaboration agreement with Genentech, a member of the Roche Group, to investigate the combination of BL-8040 and Genentech's atezolizumab in several Phase 1b/2 studies for multiple solid tumor indications and AML.

For additional information on BioLineRx, please visit the Company's website at www.biolinerx.com, where you can review the Company's SEC filings, press releases, announcements and events. BioLineRx industry updates are also regularly updated on Facebook, Twitter, and LinkedIn.

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 "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 6, 2018. 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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