BioLineRx Presents Positive Phase 2a AML Study and Mechanism-of-Action Data for BL-8040 Oncology Platform at ASH 2016

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BioLineRx Ltd. (NASDAQ/TASE: BLRX), a clinical-stage biopharmaceutical company dedicated to identifying, in-licensing and developing promising therapeutic candidates, presents positive Phase 2a correlative data, as well as detailed mechanism-of-action data, for BL-8040, the Company's leading oncology platform at the ongoing 58th American Society of Hematology (ASH) Annual Meeting and Exhibition in San Diego, California.

As previously announced, in an oral presentation at 10:30am PST today, entitled, "The High Affinity CXCR4 Inhibitor, BL-8040, Induces Apoptosis of AML Blasts and their Terminal Differentiation by Blocking AKT/ERK Survival Signals and Downregulating BCL-2, MCL-1 and Cyclin-D1 through Regulation of miR-15a/16-1 Expression," BioLineRx reports detailed data on the mechanism-of-action by which BL-8040 directly induces apoptosis of AML cells. The data, presented by Prof. Amnon Peled, are from *in vitro* studies using human AML cell lines and human primary AML samples, as well as *in vivo* studies using human primary AML cells engrafted in NOD scid gamma (NSG) mice.

In addition, yesterday, in a poster titled, "The Selective Anti Leukemic Effect of BL-8040, a Peptidic CXCR4 Antagonist, is Mediated by Induction of Leukemic Blast Mobilization, Differentiation and Apoptosis: Results of Correlative Studies from a Ph2a Trial in Acute Myeloid Leukemia," BioLineRx reported the final correlative results from its Phase 2a trial in acute myeloid leukemia (AML). The trial consisted of 45 AML patients receiving BL-8040 monotherapy on days 1-2, followed by the same dose of BL-8040 plus chemotherapy (Cytarabine) on days 3-7. All patients had poor-risk disease and had been heavily pretreated, with 19% having relapsed after a short first remission (≤12 months), 17% having 2 or more relapses, while 45% were refractory to 1-2 induction treatments. The composite complete remission rate, including both complete remission (CR) and complete remission with incomplete blood count recovery (CRi), was 38% in subjects receiving BL-8040 dose ≥1.0 mg/kg (n=39). These response rates are superior to the historical response rate of approximately 20% reported for high-risk AML patients treated with Cytarabine alone.

Philip Serlin, CEO of BioLineRx, commented, "We are excited to take part in the world's premier event in malignant and non-malignant hematology, with over 20,000 hematology professionals from every subspecialty in attendance. At this event, we are pleased to present additional positive results about BL-8040. This includes clinical data that supports the rational for incorporation of BL-8040 in front-line AML treatment settings, such as AML consolidation and maintenance. In this regard, we are currently running a large Phase 2b study in consolidation AML, and we expect to initiate a Phase 1b study in maintenance AML under our collaboration with Genentech in mid-2017. We are also pleased to see pre-clinical data that support the mechanism of action of BL-8040 and show synergistic effects of BL-8040 with drugs that are also being investigated as AML treatments. We continue to anticipate that BL-8040, in combination with a growing repertoire of drugs, will be able to offer hope in this difficult to treat condition."

About BL-8040

BL-8040 is a short peptide for the treatment of acute myeloid leukemia, solid tumors, and certain hematological indications. It functions as a high-affinity antagonist for CXCR4, a chemokine receptor that is directly involved in 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. In a number of clinical and pre-clinical studies, BL-8040 has shown robust mobilization of cancer cells from the bone marrow, thereby sensitizing these cells to chemo- and bio-based anti-cancer therapy, as well as a direct anti-cancer effect by inducing apoptosis. In addition, BL-8040 has also demonstrated robust stem-cell mobilization, including the mobilization of colony-forming cells, and T, B and NK cells. Furthermore, scientific findings in the field of immuno-oncology suggest that CXCR4 antagonists may be effective in inducing the infiltration of anti-tumor T cells into the tumor. Therefore, when combined with immune checkpoint inhibitors, BL-8040 has the potential to enable activated T cells to better reach tumor cells. 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 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 leading therapeutic candidates are: BL-8040, a cancer therapy platform, which has successfully completed a Phase 2a study for relapsed/refractory AML and is in the midst of a Phase 2b study as an AML consolidation treatment and a Phase 2 study in stem cell mobilization for allogeneic transplantation; and BL-7010 for celiac disease and gluten sensitivity, which has successfully completed a Phase 1/2 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 (known as Merck in the US and Canada), on the basis of which the Company has initiated a Phase 2a study in pancreatic cancer using the combination of BL-8040 and Merck's KEYTRUDA®; 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 studies for multiple solid tumor indications and AML.

For additional information on BioLineRx, please visit the Company's website at http://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 10, 2016. 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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