

PROSPECTUS SUPPLEMENT
(To Prospectus Dated January 5, 2024)



Up to \$4,800,000 of
American Depositary Shares Representing Ordinary Shares

This prospectus supplement amends and supplements certain information in the prospectus, dated January 5, 2024, or the ATM Prospectus, filed with the Securities and Exchange Commission as part of our registration statement on Form F-3 (333-276323) relating to the offer and sale of American Depositary Shares, or ADSs, representing our ordinary shares, par value NIS 0.10 per share, from time to time pursuant to the terms of the at-the-market offering agreement, or the Offering Agreement, dated September 3, 2021, with H.C. Wainwright & Co., LLC, or the Sales Agent. This prospectus supplement should be read in conjunction with the ATM Prospectus, and is qualified by reference thereto, except to the extent that the information herein amends or supersedes the information contained in the ATM Prospectus. This prospectus supplement is not complete without, and may only be delivered or utilized in connection with, the ATM Prospectus, and any future amendments or supplements thereto.

On March 31, 2025, upon filing our Annual Report on Form 20-F for the fiscal year ended December 31, 2024, we became subject to the offering limits in General Instruction I.B.5 of Form F-3. As of the date of this prospectus supplement, the aggregate market value of our outstanding voting and non-voting common equity held by non-affiliates pursuant to General Instruction I.B.5 of Form F-3 is \$14,562,368, which was calculated based on a price of \$4.11 per share, the closing price of our ADSs on February 18, 2025, which is the highest closing sale price of our ADSs on the Nasdaq Capital Market within the prior 60 days. During the prior 12 calendar month period that ends on, and includes, the date of this prospectus supplement, we have not sold any sold securities pursuant to General Instruction I.B.5 of Form F-3. Pursuant to General Instruction I.B.5 of Form F-3, in no event will we sell securities in public primary offerings on Form F-3 with a value exceeding one-third of our public float (as defined by General Instruction I.B.5) in any 12 calendar month period so long as our public float remains below \$75.0 million.

Our ADSs are listed on Nasdaq under the symbol "BLRX". On April 10, 2025, the closing price of our ADSs on Nasdaq was \$2.43 per ADS. Our ordinary shares also trade on the Tel Aviv Stock Exchange, or the TASE, under the symbol "BLRX". On April 10, 2025, the last reported sale price of our ordinary shares on the TASE was NIS 0.017 or \$0.005 per share (based on the exchange rate reported by the Bank of Israel on the same day).

Investing in our securities involves a high degree of risk. You should read this prospectus supplement and the accompanying prospectus as well as the information incorporated herein and therein by reference carefully before you make your investment decision. See "Risk Factors" beginning on page S-5 of the ATM Prospectus and on page S-1 of the accompanying prospectus, and the risk factors described in other documents incorporated by reference therein, to read about the factors you should consider before investing in our securities.

Neither the Securities and Exchange Commission, the Israel Securities Authority nor any state or other foreign securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

H.C. Wainwright & Co.

The date of this prospectus supplement is April 11, 2025.
