BIOLINERX LTD.

NOTICE OF 2021 ANNUAL GENERAL MEETING OF SHAREHOLDERS ON December 2, 2021

Notice is hereby given that the Annual General Meeting of the shareholders (the "Meeting") of BioLineRx Ltd. (the "Company") will be held at the offices of the Company at Modi'in Technology Park, 2 HaMa'ayan Street, Modi'in 7177871, Israel, on December 2, 2021 at 3:00 p.m. (Israel), for the following purposes:

- To re-elect the following persons to the Board of Directors, each to serve until the next Annual General Meeting of shareholders: Aharon Schwartz, Michael Anghel, B.J. Bormann, Raphael Hofstein and Sandra Panem.
- To reappoint Kesselman & Kesselman, Certified Public Accountants (Isr.), a member firm of PricewaterhouseCoopers International Limited, as the Company's independent registered public accounting firm for the year ending December 31, 2021 and to authorize the Audit Committee of the Board of Directors to fix the compensation of said auditors in accordance with the scope and nature of their services.
- To review the Company's Annual Report and financial statements for the year ended December 31, 2020, and to transact such other business as may properly come before the

Shareholders of record at the close of business on October 29, 2021 (the "Record Date") are entitled to notice of and to vote at the Meeting. All shareholders are cordially invited to attend the Meeting in person.

Whether or not you plan to attend the Meeting, you are urged to promptly complete, date and sign the enclosed proxy and to mail it in the enclosed envelope, which requires no postage if mailed in the United States. A proxy from the holder of ordinary shares must be received by the Company no later than 7:00 p.m., Israel (12:00 p.m. EST), on November 30, 2021 to be validly included in the tally of ordinary shares voted at the Meeting; a proxy from the holder of the Company's American Depositary Shares must be received by The Bank of New York Mellon as Depositary no later than 7:00 p.m. Israel (12:00 p.m. EST), on November 26, 2021 to be validly included in the tally of votes for the Meeting. Return of your proxy does not deprive you of your right to attend the Meeting, to revoke the proxy or to vote your shares in person.

Beneficial owners who hold their shares through members of the Tel Aviv Stock Exchange ("TASE") may (i) vote their shares in person at the Meeting by presenting a certificate signed by a member of the TASE which complies with the Israel Companies Regulations (Proof of Ownership for Voting in General Meetings), 5760-2000 as proof of ownership of the shares, (ii) send such certificate along with a duly executed proxy to the Company at 2 HaMa'ayan Street, Modi'in 7177871, Israel, Attention: Chief Financial Officer, or (iii) complete the Internet voting process via the electronic voting system of the Israel Securities Authority the ("ISA") after receiving a personal identifying number, an access code and additional information regarding this Meeting from the member of the TASE and after carrying out a secured identification process, up to six hours before the time set for the Meeting.

By Order of the Board of Directors,

BioLineRx Ltd.

October 27, 2021

PROXY STATEMENT

BIOLINERX LTD. Modi'in Technology Park 2 HaMa'ayan Street Modi'in 7177871 Israel

2021 ANNUAL GENERAL MEETING OF SHAREHOLDERS ON DECEMBER 2, 2021

The enclosed proxy is being solicited by our Board of Directors for use at our Annual General Meeting of shareholders (the "Meeting") to be held on December 2, 2021 at 3:00 p.m., (Israel) or at any adjournment thereof, at the offices of the Company at Modi'in Technology Park, 2 HaMa'ayan Street, Modi'in 7177871, Israel. The record date for determining which of our shareholders is entitled to notice of, and to vote at, the Meeting is established as of the close of trade on October 29, 2021 (the "Record Date"). On the date hereof, we have outstanding and entitled to vote 709,478,373 of our ordinary shares, nominal value New Israeli Shekels ("NIS") 0.10 each (the "Ordinary Shares").

INFORMATION CONCERNING SOLICITATION AND VOTING

Record Date and Shares Outstanding

You are entitled to vote at the Meeting if you were a shareholder at the close of trade on the Record Date. Subject to the terms described herein, you are also entitled to vote at the Meeting if you held Ordinary Shares through a bank, broker or other nominee which was a shareholder of record of the Company at the close of trade on the Record Date or which appeared in the participant listing of a securities depository on that date.

Quorum, Voting, Solicitation and Revocation of Proxies.

At least two shareholders who attend the Meeting in person, by proxy or by means of voting via the electronic voting system of the Israel Securities Authority (the "ISA Electronic Voting System") who hold or represent together at least 25% of the voting rights of our issued share capital will constitute a quorum for the Meeting. If a quorum is not present within half an hour from the time scheduled for the Meeting, the Meeting will be adjourned to the following week, at the same time and place, without it being necessary to notify our shareholders. A quorum at such adjourned meeting shall be any number of participants. Each outstanding Ordinary Share held by a shareholder is entitled to one vote.

Shareholders entitled to vote at the Meeting may attend the Meeting in person and vote thereat, appoint a proxy, vote by written ballot or, if they hold Ordinary Shares through a TASE member, may vote electronically via the ISA Electronic Voting System after receiving a personal identifying number, an access code and additional information regarding the Meeting from the relevant member of the TASE and after carrying out a secured identification process, up to six hours before the time set for the Meeting. A proxy from the holder of Ordinary Shares must be received by the Company no later than 7:00 p.m. Israel (12:00 p.m. EST), on November 30, 2021 to be validly included in the tally of Ordinary Shares voted at the Meeting; a proxy from the holder of the Company's American Depositary Shares ("ADSs") must be received by The Bank of New York Mellon as Depositary no later than 7:00 p.m. Israel (12:00 p.m. EST), on November 26, 2021 to be validly included in the tally of votes for the Meeting.

Shareholders are permitted to express their position on the proposals to be voted on at the Meeting by submitting a written statement, through the Company, to the other shareholders (a "Position Statement"). Position Statements should be submitted to the Company at its registered offices at 2 HaMa'ayan Street, Modi'in 7177871, Israel, Attn: Chief Financial Officer. Any Position Statement received will be furnished to the SEC in a Report of Foreign Private Issuer on Form 6-K and will be made available to the public on the SEC's website at http://www.sec.gov, and in addition at http://www.magna.isa.gov.il or http://maya.tase.co.il. Position Statements must be submitted no later than 11.59 pm (Israel) on November 22, 2021.

Each member of the TASE (a "Member") is required to e-mail a link to the Proxy Statement and any Position Statements published on the websites of the TASE and the ISA (http://www.tase.co.il/tase/ and http://www.magna.isa.gov.il, respectively) to each shareholder who is not listed in the Company's shareholder register and whose shares are held through the Member; except in cases in which a shareholder has notified the Member that he/she/it is not interested in receiving such links and has submitted the notice (a) with respect to a specific securities account, and (b) prior to the Record Date.

A shareholder whose shares are held through a Member may obtain, upon request from the Member, a certification of ownership regarding his/her/its shares. Such certification may be obtained in the Member's offices or may be sent to the shareholder by mail (subject to payment of the cost of mailing), at the election of the shareholder, on condition that the shareholder's request be submitted with respect to a specific securities account.

Each of the Proposals 1, and 2, pursuant to the Israeli Companies Law, 1999-5759 (the "Companies Law"), requires the affirmative vote of a simple majority of shares present at the Meeting, in person or by proxy, and voting thereon, or voting via the ISA Electronic Voting System.

You may change your mind and cancel your proxy card by filing a written notice of revocation with the Company, by completing and returning a duly executed proxy card bearing a later date or by voting in person at the Meeting. Attendance at the Meeting will not in and of itself constitute revocation of proxy. Subject to the foregoing paragraph, shares represented by a valid proxy card will be voted in favor of the proposed resolution to be presented at the Meeting, unless you clearly vote against a specific resolution.

Under the terms of the Deposit Agreement among the Company, The Bank of New York Mellon, as Depositary, and the holders of the Company's ADSs, the Depositary shall endeavor (insofar as is practicable and in accordance with the applicable law and the articles of association of the Company) to vote or cause to be voted the number of Ordinary Shares represented by ADSs in accordance with the instructions provided by the holders of ADSs to the Depositary. If no instructions are received by the Depositary from any holder of ADSs with respect to any of the Ordinary Shares represented by the ADSs evidenced by such holder's receipts on or before the date established by the Depositary for such purpose (as set forth above), then the Depositary will deem the holder of the Ordinary Shares to have instructed the Depositary to give a discretionary proxy to a person designated by the Company with respect to the Ordinary Shares represented by such ADSs, and the Depositary will give such instruction.

PROPOSAL ONE RE-ELECTION OF NON-EXTERNAL DIRECTORS

Our Board of Directors has designated the persons named below for election to serve until the next Annual General Meeting of our shareholders. In the absence of instructions to the contrary, the persons named in the enclosed proxy will vote the Ordinary Shares represented thereby "For" the election of the directors listed below as a group. If any of such directors is unable to serve, the persons named in the proxy shall vote the Ordinary Shares for the election/re-election of such other nominee/director as the Board of Directors may propose. The following nominees have advised the Company that they will serve as directors upon election.

The following provides certain relevant information concerning the directors, including their principal occupations during at least the past five years.

<u>Director</u>	<u>Age</u>	Principal Occupation
Aharon Schwartz, Ph.D.	78	Dr. Schwartz has served as the Chairman of our Board of Directors since 2004. He served in a number of positions in Teva from 1975 through 2011, the most recent being Vice President, Head of Teva Innovative Ventures from 2008. Dr. Schwartz is currently a member of the board of directors of Protalix Ltd. (NYSE American:PLX), and Barcode Ltd. He also works as an independent consultant. Dr. Schwartz received his Ph.D. in organic chemistry from the Weizmann Institute, his M.Sc. in organic chemistry from the Technion and a B.Sc. in chemistry and physics from the Hebrew University of Jerusalem. In addition, Dr. Schwartz holds a Ph.D. from the Hebrew University of Jerusalem in the history and philosophy of science.
Michael Anghel, Ph.D.	82	Dr. Anghel has served on our Board of Directors since 2010 and on our Investment Monitoring Committee since 2010. From 1977 to 1999, he led the Discount Investment Corporation Ltd. (of the IDB Group) activities in the fields of technology and communications. Dr. Anghel was instrumental in founding Tevel, one of the first Israeli cable television operators and later in founding Cellcom Israel Ltd. (NYSE:CEL), the second Israeli cellular operator. In 1999, he founded CAP Ventures, an advanced technology investment company. From 2004 to 2005, Dr. Anghel served as CEO of DCM, the investment banking arm of the Israel Discount Bank (TASE:DSCT). Over the years, Dr. Anghel has been involved in founding and managing various technology enterprises and has served on the Boards of Directors of various major Israeli corporations and financial institutions, many of them publicly traded in the U.S. and Israel. During the past two years, he completed long term tenures as director on the boards of: Partner Communications Company, Ltd. (Nasdaq:PTNR, TASE:PTNR), Strauss Group Ltd. (TASE:STRS), and Orbotech Ltd. (Nasdaq:ORBK), He currently serves as director on the boards of InMode Ltd. (Nasdaq:INMD) and Ellomay Capital Ltd. (NYSE American: ELLO). Prior to launching his business career, Dr. Anghel served as a full-time member of the faculty of the Recanati Graduate School of Business Administration of the Tel Aviv University, where he taught finance and corporate strategy. He currently serves as Chairman of the Tel Aviv University's Executive Program. Dr. Anghel holds a B.A. (Economics) from the Hebrew University in Jerusalem and an MBA and Ph.D. (Finance) from Columbia University, New York.
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B I Bormann Ph D

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Dr. Bormann has served on our Board of Directors since August 2013. Dr. Bormann currently serves as the Vice President of Translational Science and Network Alliances at The Jackson Laboratory, a non-profit organization focused on the genetic basis of disease. Dr. Bormann was previously the Chief Executive Officer of Supportive Therapeutics, LLC, a Boston based company that is developing two molecules for use in the supportive care of oncology patients. In the past several years Dr. Bormann has held executive positions in several biotechnology companies including NanoMedical Systems (Austin, Texas), Harbour Antibodies (Rotterdam, The Netherlands) and Pivot Pharmaceuticals (PVTF: OTC listed). Prior to these engagements, Dr. Bormann was Senior Vice President responsible for world-wide alliances, licensing and business development at Boehringer Ingelheim Pharmaceuticals, Inc. from 2007 to 2013. From 1996 to 2007, she served in a number of positions at Pfizer, Inc., the last one being Vice President of Pfizer Global Research and Development and world-wide Head of Strategic Alliances. Dr. Bormann serves on the board of directors of various companies, including Xeris Pharmaceuticals, Inc (Nasdaq:XERS). Dr. Bormann received her Ph.D. in biomedical science from the University of Connecticut Health Center and her B.Sc. from Fairfield University in biology. Dr. Bormann completed postdoctoral training at Yale Medical School in the department of pathology.

Raphael Hofstein, Ph.D.

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Dr. Hofstein has served on our Board of Directors since 2003, our Audit Committee since 2007 and our Compensation Committee since 2012. Dr. Hofstein has served as the President and Chief Executive Officer of MaRS Innovation (a commercialization company for 15 of Toronto's universities, institutions and research institutes plus the MaRS Discovery District) from June 2009 to March 2020. From 2000 through June 2009, Dr. Hofstein was the President and Chief Executive Officer of Hadasit Medical Research Services and Development Ltd., or Hadasit, the technology transfer company of Hadassah University Hospitals. He has served as chairman of the board of directors of Hadasit since 2006. Prior to joining Hadasit, Dr. Hofstein was the President of Mindsense Biosystems Ltd. and the Business Unit Director of Ecogen Inc. and has held a variety of other positions, including manager of R&D and chief of immunochemistry at the International Genetic Science Partnership. Dr. Hofstein serves on the board of directors of numerous companies. Dr. Hofstein received his Ph.D. and M.Sc. from the Weizmann Institute of Science, and his B.Sc. in chemistry and physics from the Hebrew University in Jerusalem. Dr. Hofstein completed postdoctoral training at Harvard Medical School in both the departments of biological chemistry and neurobiology.

Sandra Panem, Ph.D.

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Dr. Panem has served on our Board of Directors since February 2014. She is currently a managing partner at Cross Atlantic Partners, which she joined in 2000. She is also co-founder and President of NeuroNetworks Fund, a not-for-profit venture capital fund focusing on epilepsy, schizophrenia and autism. From 1994 to 1999, Dr. Panem was President of Vector Fund Management, the then asset management affiliate of Vector Securities International. Prior thereto, Dr. Panem served as Vice President and Portfolio Manager for the Oppenheimer Global BioTech Fund, a mutual fund that invested in public and private biotechnology companies. Previously, she was Vice President at Salomon Brothers Venture Capital, a fund focused on early and later-stage life sciences and technology investments. Dr. Panem was also a Science and Public Policy Fellow in economic studies at the Brookings Institution, and an Assistant Professor of Pathology at the University of Chicago. Dr. Panem currently serves on the board of directors of Acorda Therapeutics, Inc. (Nasdaq:ACOR). Previously, Dr. Panem served on numerous boards of public and private companies, including Martek Biosciences (Nasdaq:MATK), IBAH Pharmaceuticals (Nasdaq:IBAH), Confluent Surgical, Molecular Informatics and Labcyte, Inc. She received a B.S. in biochemistry and a Ph.D. in microbiology from the University of Chicago.

Our Articles of Association specify that the number of directors will be at least five but not more than ten. The current Board of Directors consists of seven members.

Each director has attested to the Board of Directors and the Company that he or she meets all the requirements in connection with the election of directors of publicly-traded companies under the Companies Law.

If re-elected pursuant to this proposal, each director will continue to be party to an indemnification agreement with the Company in the form of indemnification letter previously approved by the shareholders on November 17, 2011 to be entered into by the Company with directors serving from time to time in such capacity, and shall continue to be insured under the Company's directors and officers insurance coverage policy which provides coverage for all directors of the Company. In addition, each director will receive cash participation compensation and annual compensation in accordance with the Companies Law Regulations (Rules concerning Compensation and Expenses of an External Director), 5760-2000 (the "External Directors Compensation Regulations") and with our Compensation Policy. The amounts to be paid are between the fixed and maximum rates specified in the annexes of the External Directors Compensation Regulations and are the same for all directors in the Company, both external and non-external. Those amounts have been approved by the Compensation Committee of the Board of Directors and by the Board as required by the Companies Law and applicable regulations.

Our Board of Directors will present the following resolution for adoption at the Meeting:

"RESOLVED, to re-elect Aharon Schwartz, Michael Anghel, B.J. Bormann, Raphael Hofstein and Sandra Panem as directors of the Company until the next Annual General Meeting of Shareholders or until their respective successors are duly elected."

The affirmative vote of the holders of a majority of the voting power represented at the Meeting is necessary for the approval of the foregoing resolution.

Our Board of Directors recommends a vote "FOR" the re-election of the Company's non-external directors.

PROPOSAL TWO APPOINTMENT OF INDEPENDENT PUBLIC AUDITOR

Kesselman & Kesselman, a member firm of PricewaterhouseCoopers International Limited, have audited the Company's financial statements beginning with the financial statements for the year ended December 31, 2003. Except as the Company's auditors, there is no other affiliation between such firm and the Company.

The Companies Law requires shareholder approval of the appointment of the Company's independent public accountants for the fiscal year ending December 31, 2021. Our Board of Directors recommended and upon such recommendation, at the last Annual General Meeting, the Company's shareholders appointed the accounting firm of Kesselman & Kesselman as our independent registered public accounting firm to perform the audit of our consolidated financial statements for the fiscal year ending December 31, 2021. The Board of Directors believes that the appointment of Kesselman & Kesselman as the Company's independent registered public accounting firm to perform the audit of the Company's consolidated financial statements for the fiscal year ending December 31, 2021 is appropriate and in the interests of the Company and its shareholders. Subject to the approval of this proposal, the Audit Committee of the Board of Directors will fix the compensation of Kesselman & Kesselman in accordance with the scope and nature of their services to the Company.

In compliance with the Companies Law, our Board of Directors will present the following resolution for adoption at the Meeting:

"RESOLVED, to reappoint Kesselman & Kesselman, Certified Public Accountants (Isr.), a member firm of PricewaterhouseCoopers International Limited, as the independent registered public accounting firm of the Company for the year ending December 31, 2021 and to authorize the Audit Committee of the Board of Directors to fix the compensation of said auditors in accordance with the scope and nature of their services."

The affirmative vote of the holders of a majority of the voting power represented at the Meeting is necessary for the approval of the foregoing resolution.

Our Board of Directors recommends a vote "FOR" approval of the proposed appointment of Kesselman & Kesselman as the independent public auditors of the Company for the year ending December 31, 2021 and the authorization of the Audit Committee of the Board of Directors to fix their compensation.

ITEM THREE

REVIEW OF THE COMPANY'S ANNUAL REPORT AND FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2020, AND TRANSACTION OF SUCH OTHER BUSINESS AS MAY PROPERLY COME BEFORE THE MEETING

The audited financial statements of the Company for the fiscal year ended December 31, 2020 were filed together with the Company's Annual Report on Form 20-F, which was filed on February 23, 2021 with the SEC and is available at the SEC's website, www.sec.gov, and at the Magna website of the Israel Securities Authority ("ISA") at www.magna.isa.gov.il. We will hold a discussion with respect to the Annual Report and financial statements at the Meeting. This item will not involve a vote by the shareholders.

The Company's management is not aware of any other business to be transacted at the Meeting. However, if any other matters are properly presented to the Meeting, the persons named as proxies in the enclosed form of proxy will vote upon such matters in accordance with their best judgment.

Where to Find More Information

We are subject to the information reporting requirements of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), applicable to foreign private issuers and we fulfill the obligations with respect to those requirements by filing reports with the SEC. Our SEC filings are available to the public on the SEC's website at www.sec.gov, the ISA's website at www.magna.isa.gov.il and the Company's website at www.biolinerx.com. Shareholders may obtain information directly from the Company, whose registered office is at 2 HaMa'ayan Street, Modi'in 7177871, Israel and whose telephone number is +972-8-642-9100.

As a foreign private issuer, we are exempt from the rules under the Exchange Act related to the furnishing and content of proxy statements. The circulation of this proxy statement and related notice should not be taken as an admission that we are subject to those proxy rules. Furthermore, our officers, directors and principal shareholders are exempt from the reporting and "short-swing" profit recovery provisions contained in Section 16 of the Exchange Act and the rules thereunder, with respect to their purchases and sales of securities. Lastly, we are not required under the Exchange Act to file periodic reports and financial statements with the SEC as frequently or as promptly as United States companies whose securities are registered under the Exchange Act.

YOU SHOULD RELY ONLY ON THE INFORMATION CONTAINED IN THIS PROXY STATEMENT OR THE INFORMATION FURNISHED TO YOU IN CONNECTION WITH THIS PROXY STATEMENT WHEN VOTING ON THE MATTERS SUBMITTED TO SHAREHOLDER APPROVAL HEREUNDER. WE HAVE NOT AUTHORIZED ANYONE TO PROVIDE YOU WITH INFORMATION THAT IS DIFFERENT FROM WHAT IS CONTAINED IN THIS DOCUMENT. THIS PROXY STATEMENT IS DATED OCTOBER 27, 2021. YOU SHOULD NOT ASSUME THAT THE INFORMATION CONTAINED IN THIS DOCUMENT IS ACCURATE AS OF ANY DATE OTHER THAN OCTOBER 27, 2021, AND THE MAILING OF THIS DOCUMENT TO SHAREHOLDERS SHOULD NOT CREATE ANY IMPLICATION TO THE CONTRARY.

Shareholders are urged to complete and return their proxies promptly in order to, among other things, ensure the presence of a quorum at the Meeting and to avoid the expense of additional solicitation. If the accompanying proxy is properly executed (including the indication of a vote on the proposed matters) and returned in time for voting, the shares represented thereby will be voted as indicated thereon. IF No SPECIFICATION IS MADE, AND EXCEPT AS OTHERWISE MENTIONED IN THIS PROXY STATEMENT, THE ORDINARY SHARES REPRESENTED BY THE PROXY WILL BE VOTED IN FAVOR OF THE PROPOSALS DESCRIBED IN THIS PROXY STATEMENT.

By Order of the Board of Directors

BioLineRx Ltd.

October 27, 2021