UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

(Rule 14a-101) INFORMATION REQUIRED IN PROXY STATEMENT SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934

Filed by the Registrant 🗵

Filed by a party other than the Registrant \Box

Check the appropriate box:

Preliminary Proxy Statement

□ Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))

Definitive Proxy Statement

Definitive Additional Materials

□ Soliciting Material under §240.14a-12

CELLECTAR BIOSCIENCES, INC.

(Name of Registrant as Specified in its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check all boxes that apply):

 \boxtimes No fee required.

□ Fee paid previously with preliminary materials.

 \Box Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11.

Cellectar Biosciences, Inc. 100 Campus Drive Florham Park, New Jersey 07932

Amended Notice of 2022 Annual Meeting of Stockholders To Be Held on June 24, 2022

This Amended Notice is hereby given that the 2022 Annual Meeting of Stockholders (the "Annual Meeting") of Cellectar Biosciences, Inc. (the "Company") will be held on Friday, June 24, 2022, at 10:00 a.m., local time, at the Company's headquarters at 100 Campus Drive, Florham Park, New Jersey 07932, for the following purposes:

- 1. To vote upon the election of two Class II directors named in the proxy statement;
- 2. To approve an increase in the number of shares of common stock available for issuance under our 2021 Stock Incentive Plan by 5,000,000 shares;
- 3. To approve an amendment to our Second Amended and Restated Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio between 1:5 and 1:10, if and when determined by our Board of Directors;
- 4. To ratify the appointment of Baker Tilly US, LLP (formerly known as Baker Tilly Virchow Krause, LLP) as our independent registered public accounting firm for the fiscal year ending December 31, 2022;
- 5. To approve, on a non-binding advisory basis, the compensation of our named executive officers; and
- 6. To transact such other business as may properly come before the Annual Meeting and at any adjournments or postponements of the Annual Meeting in accordance with our by-laws.

While we intend to hold the Annual Meeting in person, we are sensitive to the public health and travel concerns our stockholders may have and recommendations that public health officials currently have in place or may issue in light of the ongoing COVID-19 coronavirus pandemic. As a result, we may impose additional procedures or limitations on meeting attendees, or may decide to hold the meeting in a different location or solely by means of remote communication (i.e., a solely virtual meeting). Any such changes regarding the Annual Meeting will be appropriately communicated to our stockholders. The Company shall not be held liable for harm to any attendee, including a stockholder or guest, due to any of the foregoing. Consistent with the guidelines set forth by the United States Center for Disease Control and Prevention as then in effect, we may require all attendees, including all stockholders, to practice social distancing at the Annual Meeting.

Stockholders of record at the close of business on Tuesday, April 26, 2022, are entitled to notice of, and to vote at, the Annual Meeting and any adjournment or

postponement thereof.

Your vote is important. Whether or not you plan to attend the Annual Meeting, please authorize proxies to cast your votes today by following the easy instructions on the proxy card enclosed with the proxy materials.

YOUR VOTE IS IMPORTANT

You may cast your vote over the Internet, by telephone or by completing and mailing a proxy card. Returning the proxy does not deprive you of your right to attend the Annual Meeting and to vote your shares in person.

Proxies forwarded by or for banks, brokers or other nominees should be returned as requested by them. We encourage you to vote promptly to ensure your vote is represented at the Annual Meeting, regardless of whether you plan to attend in person.

You can find detailed information regarding voting in the proxy materials.

IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE ANNUAL MEETING OF STOCKHOLDERS TO BE HELD ON JUNE 24, 2022

2

The Amended Notice of the Annual Meeting, the Proxy Statement, as supplemented, and the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021, are available at www.cellectar.com.

By order of the Board of Directors

in

Chad J. Kolean, Secretary Florham Park, New Jersey June 7, 2022

3

Cellectar Biosciences, Inc. SUPPLEMENT TO THE PROXY STATEMENT FOR THE ANNUAL MEETING OF STOCKHOLDERS To Be Held on June 24, 2022

Explanatory Note

Cellectar Biosciences, Inc., (the "Company") has determined to postpone its 2022 Annual General Meeting of Stockholders (the "Annual Meeting") from Wednesday, June 15, 2022 to Friday, June 24, 2022, at 10:00 a.m., local time, to be held at the Company's headquarters at 100 Campus Drive, Florham Park, New Jersey 07932. The Annual Meeting is being postponed to allow additional time for the Company's stockholders to vote on an additional agenda item at the Annual Meeting, which is Proposal Five: the approval, on a non-binding advisory basis, of the compensation of the Company's named executive officers ("NEOs"). This proxy statement supplement (this "Supplement") is being furnished to stockholders of record at the close of business on Tuesday, April 26, 2022, the record date for the Annual Meeting. Proposal Five was inadvertently omitted from the Company's proxy statement (the "Proxy Statement") and proxy card originally filed with the Securities and Exchange Commission (the "SEC") on April 29, 2022. This Supplement, together with a revised notice of the Annual Meeting and revised proxy card, corrects that omission.

This Supplement does not provide all of the information that you should read and consider before voting on all of the proposals that are being presented to stockholders for their vote at the Annual Meeting. Additional information is contained in the Proxy Statement. To the extent that the information in this Supplement differs from, updates or conflicts with the information contained in the Proxy Statement, the information in this Supplement shall amend and supersede the information in the Proxy Statement. Except as so amended or superseded, all information set forth in the Proxy Statement remains unchanged and important for your consideration before voting. Accordingly, we encourage you to read this Supplement carefully and in its entirety together with the Proxy Statement.

All previously cast votes associated with the Annual Meeting will continue to be valid for the Annual Meeting, unless revokeds described in the Proxy Statement or this Supplement. Further details regarding voting is described in this Supplement.

On or about June 7, 2022, we will commence mailing of this Supplement together with the revised notice and proxy card. Mailing of the Proxy Statement commenced on April 29, 2022.

4

QUESTIONS AND ANSWERS

The below questions and answers have been amended and restated from the version originally presented in the Proxy Statement to incorporate the addition of Proposal Five (the approval, on a non-binding advisory basis, of the compensation of our NEOs), the postponement of the Annual Meeting and certain other items.

Why am I receiving these materials?

We are distributing our proxy materials because our Board of Directors is soliciting your proxy to vote at the Annual Meeting. The Proxy Statement, together with this Supplement, summarizes the information you need to vote at the Annual Meeting. You do not need to attend the Annual Meeting to vote your shares.

What proposals will be voted on at our Annual Meeting?

Stockholders will vote on five proposals at our Annual Meeting:

- 1. the election of two Class II director nominees;
- the approval of an increase in the number of shares of common stock available for issuance under our 2021 Stock Incentive Plan (the "2021 Plan") by 5,000,000 shares;
 the approval of an amendment to our Second Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") to effect a reverse stock split of our common stock at a ratio between 1:5 and 1:10, if and when determined by our Board of Directors (the "Amendment Proposal");
- the ratification of the appointment of Baker Tilly US, LLP (formerly known as Baker Tilly Virchow Krause, LLP) as our independent registered public accounting firm for the fiscal year ending December 31, 2022; and
- 5. the approval, on a non-binding advisory basis, of the compensation of our NEOs.

We will also consider other business, if any, that properly comes before our Annual Meeting.

What happens if other business not discussed in the notice comes before the meeting?

The Company does not know of any business to be presented at the Annual Meeting other than the proposals discussed in the Proxy Statement and Supplement. If other business comes before the meeting and is proper under our Certificate of Incorporation, our by-laws, and Delaware General Corporation Law ("DGCL"), the Company representatives, James V. Caruso, Chad J. Kolean and Asher Rubin, acting as proxies, will use their discretion in casting all of the votes that they are entitled to cast.

How does our Board recommend that stockholders vote on the proposals?

Our Board recommends that stockholders vote **'FOR**" the election of each director nominee; **'FOR**" the approval of an increase in the number of shares of common stock available for issuance under our 2021 Plan by 5,000,000 shares; **'FOR**" the approval of an amendment to our Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio between 1:5 and 1:10, if and when determined by our Board of Directors; **'FOR**" the approval, on a non-binding advisory basis, of the compensation of our NEOs.

Who is entitled to vote?

The Record Date for our Annual Meeting is the close of business on April 26, 2022. As of the Record Date, there were issued, outstanding, and entitled to vote 61,101,251 shares of our common stock, \$0.00001 par value per share. Only stockholders of record of our common stock as of the Record Date will be entitled to receive notice of, and to vote at, the Annual Meeting or any adjournment or postponement thereof. Each stockholder is entitled to one vote for each share of our common stock held by such stockholder on the Record Date.

What do I need for admission to our Annual Meeting?

Admittance is limited to stockholders of the Company. If you are the stockholder of record, your name will be verified against the list of stockholders prior to your admittance to our Annual Meeting. You should be prepared to present photo identification for admission at our Annual Meeting. If you hold your shares in street name, you should provide proof of beneficial ownership on the Record Date, such as a brokerage account statement showing that you owned shares of our common stock as of the Record Date, a copy of the voting instruction card provided by your broker, bank or other nominee or other similar evidence of ownership as of the Record Date, as well as your photo identification or comply with the other procedures outlined above upon request, you will not be admitted to our Annual Meeting. Please note that if your shares are held of record by a bank, broker or other nominee, and you decide to attend our annual meeting, you may not vote in person at our Annual Meeting unless you present a legal proxy, issued in your name from the record holder (your bank, broker or other nominee).

5

What constitutes a quorum?

In accordance with our by-laws, the presence at the Annual Meeting, either in person or by proxy, of holders of a majority of the aggregate number of shares of our issued and outstanding common stock entitled to vote thereat as of the record date shall constitute a quorum for the transaction of business at the Annual Meeting.

What is a broker non-vote?

Brokers, banks or other nominees holding shares on behalf of a beneficial owner may vote those shares in their discretion on certain "routine" matters even if they do not receive timely voting instructions from the beneficial owner. With respect to "non-routine" matters, the broker, bank or other nominee is not permitted to vote shares for a beneficial owner without timely received voting instructions. The only routine matters to be presented at the Annual Meeting are the approval of an amendment to our Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio between 1:5 and 1:10, if and when determined by our Board of Directors (Proposal Three) and the proposal to ratify the appointment of Baker Tilly US, LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2022 (Proposal Four). The election of the Class II directors (Proposal One), the approval of an increase in the number of shares of common stock available for issuance under our 2021 Plan by 5,000,000 shares (Proposal Two) and the approval, on a non-binding advisory basis, of the compensation of our NEOs (Proposal Five) are non-routine matters.

A broker non-vote occurs when a broker, bank or other nominee does not vote on a non-routine matter because the beneficial owner of such shares has not provided voting instructions with regard to such matter. If a broker, bank or other nominee exercises their discretionary voting authority, such shares will be considered present at the Annual Meeting for quorum purposes and broker non-votes will occur as to Proposals One, Two or Five, or any other non-routine matters that are properly presented at the Annual Meeting. Broker non-votes will have no impact on the voting results.

What vote is required to approve each matter to be considered at our Annual Meeting?

Election of Class II Directors (Proposal One). Our by-laws provide for a plurality voting standard for the election of directors in uncontested elections, which means that the two Class II director nominees receiving the highest number of "for" votes will be elected. Withheld votes and broker non-votes will have no effect on the outcome of Proposal One.

2021 Plan Proposal (Proposal Two). Proposal Two asks our stockholders to approve an increase in the number of shares of common stock available for issuance under our 2021 Plan by 5,000,000 shares. The affirmative vote of a majority of the votes cast is required for approval of Proposal Two. An abstention or a broker non-vote will not affect the outcome of Proposal Two.

Amendment Proposal (Proposal Three). Proposal Three will be approved if the holders of a majority in voting power of the outstanding shares of our common stock vote at the annual meeting "FOR" such proposal. An abstention on Proposal Three will have the same effect as a vote "AGAINST" Proposal Three. Brokers will have discretionary authority to vote on this proposal. Accordingly, there will not be any broker non-votes on Proposal Three.

Ratification of the Appointment of Baker Tilly US, LLP as Our Independent Registered Public Accounting Firm for the Fiscal Year Ending December 31, 2022 (Proposal Four). The affirmative vote of a majority of the votes cast is required for the approval of Proposal Four. An abstention on Proposal Four will not have any effect on Proposal Four. Brokers will have discretionary authority to vote on this proposal. Accordingly, there will not be any broker non-votes on Proposal Four.

Approval, on a non-binding advisory basis, of the compensation of our NEOs (Proposal Five). The affirmative vote of a majority of the votes cast is required for approval of Proposal Five. An abstention or a broker non-vote will not affect the outcome of Proposal Five.

How can I vote my shares without attending our Annual Meeting?

If you are a holder of record of shares of common stock of the Company, you may direct your vote without attending the Annual Meeting by following the instructions on your proxy card.

If you hold your shares in street name via a broker, bank or other nominee, you may direct your vote without attending the Annual Meeting by signing, dating and mailing your voting instruction card. Internet or telephonic voting may be available. Please see your voting instruction card provided by your broker, bank or other nominee for further details.

What if I already submitted my vote prior to receiving this Supplement and revised proxy card?

Even if you already voted on Proposals One through Four, you will need to submit a vote on Proposal Five to have your vote counted on this item.

All previously cast votes associated with the Annual Meeting will continue to be valid for the Annual Meeting unless your proxy is revoked. If you have previously voted on Proposals One through Four, and do not vote on Proposal Five, your previously submitted votes on Proposals One through Four will remain valid, and your shares will not be voted on Proposal Five. This will also be the treatment of any proxy card received by mail that is submitted on the form originally delivered to stockholders, which omitted Proposal Five.

If you already submitted a vote by telephone or Internet on Proposals One through Four and later vote by telephone or Internet only on Proposal Five, your previous selections as to Proposals One through Four will remain valid. If you vote again on Proposals One through Four, your later selection will revoke your earlier selection.

If you submit a new proxy card by mail, this later dated proxy card will revoke your previously submitted proxy card as to all proposals. If you leave voting options blank, your shares will be voted as described below under "How will my shares be voted if I return a blank proxy card or a blank voting instruction card?"

Can I change my vote or revoke my proxy?

You may change your vote or revoke your proxy at any time before it is voted at the Annual Meeting. If you are a stockholder of record, you may change your vote or revoke your proxy by:

- delivering a written notice of revocation of your proxy to the attention of the Secretary at the following address: 100 Campus Drive, Florham Park, New Jersey 07932;
- · delivering to us an authorized proxy bearing a later date (including a proxy over the Internet or by telephone); or
- attending the Annual Meeting and voting during the meeting. Attendance at the Annual Meeting will not, by itself, revoke a proxy.

If your shares are held in the name of a bank, broker or other nominee, you may change your vote by submitting new voting instructions to your bank, broker or other nominee, or as otherwise instructed by such bank, broker or nominee.

How will my shares be voted if I return a blank proxy card or a blank voting instruction card?

If you are a holder of record of our common stock and you sign and return a proxy card or otherwise submit a proxy without giving specific voting instructions, your shares will be voted:

- "FOR" the election of two Class II director nominees;
- "FOR" the approval of an increase in the number of shares of common stock available for issuance under our 2021 Plan by 5,000,000 shares;
- "FOR" the Amendment Proposal;
- "FOR" the ratification of the appointment of Baker Tilly US, LLP as our independent registered public accounting firm for the fiscal year ended December 31, 2022; and
- "FOR" the approval, on a non-binding advisory basis, of the compensation of our NEOs.

If you hold your shares in street name via a broker, bank or other nominee and do not provide voting instructions, and such broker, bank or other nominee exercises voting discretion on "routine" matters at the Annual Meeting (see above under "What is a Broker Non-Vote?"), your shares:

will be counted as present for purposes of establishing a quorum;

7

- will be voted in accordance with the broker's, bank's or other nominee's discretion on "routine" matters, which includes the Amendment Proposal (Proposal Three) and the proposal to ratify the appointment of Baker Tilly US, LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2022 (Proposal Four); and
- will not be counted in connection with the election of two Class II director nominees (Proposal One), the approval of an increase in the number of shares of common stock available for issuance under our 2021 Plan by 5,000,000 shares (Proposal Two), the approval, on a non-binding advisory basis, of the compensation of our NEOs (Proposal Five) or any other non-routine matters that are properly presented at the Annual Meeting. For each of these proposals, your shares will be treated as "broker non-votes." A broker non-vote will have no impact on voting results of Proposals One, Two or Five.

Our Board of Directors knows of no matter to be presented at the Annual Meeting other than Proposals One through Five. If any other matters properly come before the Annual Meeting upon which a vote properly may be taken, shares represented by all proxies received by us will be voted with respect thereto as permitted and in accordance with the judgment of the proxy holders.

What is the deadline for submitting a proxy?

To ensure that proxies are received in time to be counted prior to the Annual Meeting, proxies submitted by Internet or by telephone should be received by 11:59 p.m. Eastern Time on the day before the Annual Meeting, and proxies submitted by mail should be received by the close of business on the day prior to the date of the Annual Meeting.

What does it mean if I receive more than one proxy card?

You already received a proxy card in connection with the Company's original distribution of the Proxy Statement, which commenced on April 29, 2022. You are now receiving a revised proxy card that includes Proposal Five in connection with the distribution of this Supplement.

In addition, if you hold your shares in more than one account, you will receive a proxy card for each account. To ensure that all of your shares are voted, please complete, sign, date and return a proxy card for each account or follow the voting instructions on the proxy card for each account to vote your shares.

Who is making this solicitation, and who will pay the costs?

This proxy solicitation is being made on behalf of the Board. The Company has engaged Alliance Advisors, LLC, to assist in the solicitation of proxies and provide related advice and informational support, for a services fee and the reimbursement of customary disbursements, which are not expected to exceed \$160,000. We will pay all of the costs of this proxy solicitation. We will also reimburse brokers, banks, nominees and other fiduciaries for their expenses in sending these materials to you and getting your voting instructions.

Will a stockholder list be available for inspection?

In accordance with DGCL, a list of stockholders of record entitled to vote at the Annual Meeting will be open to examination by any stockholder, for any purpose germane to the Annual Meeting, during normal business hours for a period of ten days before the Annual Meeting at our corporate offices at 100 Campus Drive, Florham Park, New Jersey 07932.

What is "householding" and how does it affect me?

We have adopted a procedure approved by the SEC, called "householding." Under this procedure, we send only one proxy statement and one annual report to eligible stockholders who share a single address, unless we have received instructions to the contrary from any stockholder at that address. This practice is designed to eliminate duplicate mailings, conserve natural resources and reduce our printing and mailing costs. Stockholders who participate in householding will continue to receive separate proxy cards.

If you share an address with another stockholder and receive only one set of proxy materials but would like to request a separate copy of these materials, please contact our mailing agent, Broadridge Financial Solutions toll free at 1-866-540-7095 or via mail at the Householding Department, 51 Mercedes Way, Edgewood, New York 11717. Similarly, if you receive multiple copies of the proxy materials and would prefer to receive a single copy in the future, you may also contact Broadridge Financial Solutions, Inc. at the above telephone number or address. Stockholders can also contact Investor Relations, Cellectar Biosciences, Inc., 100 Campus Drive, Florham Park, New Jersey 07932, by telephone at (608) 441-8120 or by e-mail to investors@cellectar.com in this manner to indicate that they wish to receive separate sets of proxy materials, or to request that we send only a single set of materials, as applicable. If you own shares through a bank, broker or other nominee, you should contact the nominee concerning householding procedures.

How can I find out the results of the voting at the Annual Meeting?

We will announce preliminary voting results at the Annual Meeting. We will also disclose voting results on a Current Report on Form 8-K that we will file with the SEC within four business days after the Annual Meeting.

When are stockholder proposals or director nominations due for next year's Annual Meeting?

Our stockholders are entitled to present proposals for action at a forthcoming meeting if they comply with the requirements of our Certificate of Incorporation, our bylaws and the rules established by the SEC.

Under Rule 14a-8 under the Securities Exchange Act of 1934 (the "Exchange Act"), if you want us to include a proposal in the proxy materials for our 2023 annual meeting of stockholders, we must receive the proposal at our executive offices at 100 Campus Drive, Florham Park, New Jersey 07932, no later than December 30, 2022.

Pursuant to our by-laws, a stockholder proposal of business submitted outside of the process established in Rule 14a-8 and nominations of directors must be received no earlier than February 24, 2023 and not later than March 26, 2023 and must otherwise comply with the requirements set forth in our by-laws. Any proposal or nomination should be addressed to the attention of the Secretary, and we suggest that it be sent by certified mail, return receipt requested or through another mailing service that provides tracking information and proof of receipt.

In addition to satisfying the requirements of our by-laws, to comply with the universal proxy rules once effective, stockholders who intend to solicit proxies in support of director nominees other than the Company's nominees must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act no later than April 25, 2023.

Whom can I contact for further information?

If you have questions about the Annual Meeting, the proposals, or the procedures for voting your shares, you should contact our Corporate Secretary at 100 Campus Drive, Florham Park, New Jersey 07932 or by telephone at (608) 441-8120.

If you have any questions about how to vote your shares, you may contact our proxy solicitor at:

Alliance Advisors, LLC 200 Broadacres Drive, 3rd Floor Bloomfield, NJ 07003 ATTN: William M. Poudrier Telephone: (833) 757-0783

PROPOSAL FIVE

ADVISORY VOTE TO APPROVE THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS.

Pursuant to Section 14A of the Exchange Act, we are submitting a proposal to our stockholders for a non-binding advisory vote to approve the compensation of our NEOs as disclosed in the Proxy Statement in accordance with the compensation disclosure rules of the SEC. We refer to this non-binding advisory vote as the "say on pay" vote. Although this vote is not binding on us, we value the opinion of our stockholders and will carefully consider the outcome of the vote as we make future decisions on executive compensation. In accordance with the preference expressed by our stockholders at the 2021 annual meeting, we intend to hold an advisory vote on executive compensation every year.

We are asking you to indicate your support for the compensation of our NEOs as described in the Proxy Statement. The vote on this proposal is not intended to address any specific element of compensation, but rather relates to the overall compensation of our NEOs.

Accordingly, we ask our stockholders to vote in favor of the following resolution at the Annual Meeting:

"RESOLVED, that the stockholders of Cellectar Biosciences, Inc. approve, on a non-binding advisory basis, the compensation paid to its named executive officers, as disclosed in the Proxy Statement for the 2022 Annual Meeting of Stockholders."

Recommendation

Our Board of Directors recommends that you vote FOR the approval, on a non-biding advisory basis, of the compensation of our NEOs.

CELLECTAR BIOSCIENCES, INC. 100 CAMPUS DRIVE FLORHAM RARK, NJ 07982



VOTE BY INTERNET - <u>www.proxyvote.com</u> or scan the QR Barcode above Use the internet to transmit your voting instructions and for electronic delivery of information. Vote by 11:59 p.m. Eastern Time on June 23, 2022. Follow the instructions to obtain your records and to create an electronic voting instruction form.

form. ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS if you would like to reduce the costs incurred by our company in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and annual reports electronically via e-mail of the internet. To signup for electronic delivery, please follow the instructions above to vote using the internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years. VOTE BY PHONE - 1-800-800-8003 Use any touch-tone telephone to transmit your voting instructions. Vote by 11:59 pm. Eastern Time on June 23, 2022. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL Mark, sign and date your proxy card and return It in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

DB8053-P73803 _____

KEEP THIS PORTION FOR YOUR RECORDS DETACH AND RETURN THIS PORTION ONLY

	TAR BIOSCIENCES, INC.	For	Withhold	For All Except	To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the		36	
The Board of Directors recommends you vote FOR the following:				133	number(s) of the nominee(s) on the line below.		11	-
1.	Election of Class II Directors	0	D	0	8 <u></u>			
	Nominees:							- 15
	01) James V. Caruso 02) Frederick W. Driscoll							
The	The Board of Directors recommends you vote FOR proposals 2, 3, 4 and 5.						Against	Abstali
Ζ.	To approve an increase in the number of shares of common stock available for issuance under the 2021 Stock incentive Plan by 5,000,000 shares.					0	D	0
3.	To approve an amendment to our Second Amended and Restated Certificate of incorporation to effect a reverse stock split of our common stock at a ratio between 1:5 and 1:10, if and when determined by our Board of Directors.					0	0	0
4.	To ratify the appointment of Baker Tilly US, ILP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2022.					0	0	0
5.	To approve, on a non-binding advisory basis, the compensation of the Company's named executive officers.					0	D	O
Not	e: Such other business as may properly come before the mee	eting o	or any adjo	urnment th	hereof.			
NOT	TE: The undersigned acknowledges receipt from the Compary Statement for the Annual Meeting of Stockholders.	ny befo	ore the exe	cution of t	his proxy of the Notice of Annual Meeting of Stockholders and a			
Plea	se sign exactly as your name(s) appear(s) hereon. When sign inistrator, or other fiduciary, please give full title as such. Join onally. All holders must sign. If a corporation or partnership, p	ning a ntown	s attorney, ers should	executor, each sign				
or p	onally. All holders must sign. If a corporation or partnership, p artnership name by authorized officer.	Nease	sign in full (corporate				

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting: The Notice and Proxy Statement and Form 10-K are available at www.proxyvote.com.

D88054-P73803	8
CELLECTAR BIOSCIENCES, INC. Annual Meeting of Stockholders June 24, 2022 10:00 AM, EDT This proxy is solicited by the Board of Directors	
The undersigned hereby appoints James Caruso, Chad Kolean and Asher Rubin, and each of them, as proxies, each with the power to appoint his substitute, and hereby authorizes them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of Cellectar Biosciences, Inc. that the undersigned is entitled to vote at the Annual Meeting of Stockholders to be held at 10:00 AM, EDT on June 24, 2022, at Cellectar's headquarters at 100 Campus Drive, Florham Park, New Jersey 07932, and any adjournment or postponement thereof.	
This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.	23
Continued and to be signed on reverse side	