CELLECTAR BIOSCIENCES, INC.

18,148,136 Shares of Common Stock

We are offering 18,148,136 shares of our common stock at a purchase price of $1.35 per share of common stock.

In a separate concurrent private placement transaction (the "PIPE"), we are selling 1,518.5180 shares of Series D convertible preferred stock ("Series D Preferred Stock") convertible into a number of shares of common stock equal to $13,500 divided by $1.35 (the "Conversion Price") (or 10,000 shares of common stock for each share of Series D Preferred Stock converted), at a price of $13,500 per share of Series D Preferred Stock. The Series D Preferred Stock will only be convertible into common stock upon receipt of stockholder approval of the issuance of the shares of common stock as required by Nasdaq Marketplace Rule 5635(d) at a special stockholder meeting to be called for that purpose. The shares of common stock, Series D Preferred Stock and the shares of our common stock issuable upon the exercise of the Series D Preferred Stock, are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder.

Our common stock is listed on the Nasdaq Capital Market under the symbol "CLRB." On December 22, 2020, the last reported sale price of our common stock on the Nasdaq Capital Market was $2.77 per share.

As of December 22, 2020, the aggregate market value of our outstanding common stock held by non-affiliates was approximately $74.9 million, which was calculated based on 27,055,895 shares of outstanding common stock held by non-affiliates and on a price per share of $2.77, which was the closing price of our common stock on the Nasdaq Capital Market on December 22, 2020. As of the date hereof, we have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to and including the date of this prospectus supplement.

You should read this prospectus supplement and the accompanying prospectus and the documents incorporated by reference in this prospectus supplement carefully before you invest.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page S-16 of this prospectus supplement for more information.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

We expect that delivery of the shares of our common stock being offered pursuant to this prospectus supplement and the accompanying prospectus will be made to purchasers on or about December 28, 2020.

	Per Share of Common Stock	Total
Public offering price	$ 1.35	$ 24,499,984
Underwriting discount[(1)]	$ 0.0945	$ 1,714,999
Proceeds, before expenses, to us	$ 1.2555	$ 22,784,985

(1) See "Underwriting" for additional information regarding underwriting compensation

Sole Book-Running Manager

Oppenheimer & Co.

Co-Lead Managers

Roth Capital Partners **Maxim Group LLC** **Ladenburg Thalmann**

The date of this prospectus supplement is December 23, 2020.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement relates to part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, utilizing a "shelf" registration process. Under this shelf registration process, we may sell any combination of the securities described in our base prospectus included in the shelf registration statement in one or more offerings up to a total aggregate offering price of $100,000,000. The shares of common stock that may be offered, issued and sold under this prospectus supplement is included in the $100,000,000 of securities that may be offered, issued and sold by us pursuant to our shelf registration statement.

This prospectus supplement relates to the offering of shares of our common stock. Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus supplement, together with the information incorporated by reference as described under the headings "Where You Can Find Additional Information" and "Incorporation of Certain Information by Reference" in this prospectus supplement. These documents contain important information that you should consider when making your investment decision.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering of our common stock and also adds, updates and changes information contained in the accompanying prospectus and the documents incorporated by reference. The second part is the accompanying base prospectus, which gives more general information, some of which may not apply to this offering of our common stock. To the extent the information contained in this prospectus supplement differs or varies from the information contained in the accompanying prospectus or any document filed prior to the date of this prospectus supplement and incorporated by reference, the information in this prospectus supplement will control. Generally, when we refer to this "prospectus," we are referring to both documents combined, together with any free writing prospectus that we have authorized for use in connection with this offering.

You should rely only on the information contained in or incorporated by reference in this prospectus supplement and in any free writing prospectus that we have authorized for use in connection with this offering. We have not, and Oppenheimer & Co. Inc. has not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and Oppenheimer & Co. Inc. is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the documents incorporated by reference in this prospectus supplement, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the documents incorporated by reference in this prospectus supplement, and any free writing prospectus supplement that we have authorized for use in connection with this offering, in their entirety before making an investment decision.

The representations, warranties, and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference into this prospectus supplement or the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Examples of our forward-looking statements include:

- our current views with respect to our business strategy, business plan and research and development activities;
- the future impacts of the COVID-19 pandemic on our business, employees, operating results, ability to obtain additional funding, product development programs, research and development programs, suppliers and third-party manufacturers;
- the progress of our product development programs, including clinical testing and the timing of commencement and results thereof;
- our projected operating results, including research and development expenses;
- our ability to continue development plans for CLR 131, CLR 1900 series, CLR 2000 series and CLR 12120;
- our ability to continue development plans for our Phospholipid Drug Conjugates (PDC)™;
- our ability to maintain orphan drug designation in the U.S. for CLR 131 as a therapeutic for the treatment of multiple myeloma, neuroblastoma, osteosarcoma, rhabdomyosarcoma, Ewing's sarcoma and lymphoplasmacytic lymphoma, and the expected benefits of orphan drug status;
- any disruptions at our sole supplier of CLR 131;
- our ability to pursue strategic alternatives;
- our ability to advance our technologies into product candidates;
- our enhancement and consumption of current resources along with ability to obtain additional funding;
- our current view regarding general economic and market conditions, including our competitive strengths;
- uncertainty and economic instability resulting from conflicts, military actions, terrorist attacks, natural disasters, public health crises, including the occurrence of a contagious disease or illness, including the COVID-19 pandemic, cyber-attacks and general instability;
- assumptions underlying any of the foregoing; and
- any other statements that address events or developments that we intend or believe will or may occur in the future.

In some cases, you can identify forward-looking statements by terminology such as "expects," "anticipates," "intends," "estimates," "plans," "believes," "seeks," "may," "should," "could" or the negative of such terms or other similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties that could cause actual results to differ materially from those expressed in them. Forward-looking statements also involve risks and uncertainties, many of which are beyond our control. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus supplement.

You should read this prospectus supplement and the documents that we reference herein and therein and have filed as exhibits to the registration statement, of which this prospectus is part, completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus supplement is accurate only as of the date on the front cover of this prospectus supplement. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made, and we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. We qualify all of the information presented in this prospectus supplement, and particularly our forward-looking statements, by these cautionary statements.

SUMMARY

This summary highlights information contained elsewhere in this prospectus supplement and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including the documents to which we have referred you under the headings "Where You Can Find More Information" and "Incorporation of Documents by Reference" and the information set forth under the headings "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," in each case, included elsewhere in this prospectus supplement or incorporated herein by reference.

Overview

We are a late-stage clinical biopharmaceutical company focused on the discovery, development and commercialization of drugs for the treatment of cancer. Our core objective is to leverage our proprietary phospholipid drug conjugate™ (PDC™) delivery platform to develop PDCs that are designed to specifically target cancer cells and deliver improved efficacy and better safety as a result of fewer off-target effects. Our PDC platform possesses the potential for the discovery and development of the next generation of cancer-targeting treatments, and we plan to develop PDCs both independently and through research and development collaborations. The COVID-19 pandemic has created uncertainties in the expected timelines for clinical stage biopharmaceutical companies such as us, and because of such uncertainties, it is difficult for us to accurately predict expected outcomes at this time. We have not yet experienced any significant impacts as a result of the pandemic and have continued to enroll patients in our clinical studies. However, COVID-19 may impact our future ability to recruit patients for clinical studies, obtain adequate supply of CLR 131 and obtain additional financing.

Our lead PDC therapeutic, CLR 131 is a small-molecule PDC designed to provide targeted delivery of iodine-131 directly to cancer cells, while limiting exposure to healthy cells. We believe this profile differentiates CLR 131 from many traditional on-market treatment options. CLR 131 is the company's lead product candidate and is currently being evaluated in two clinical studies: the CLOVER-1 Phase 2 Adult B-Cell Malignancy study and the CLOVER-2 Phase 1 pediatric safety study.

The CLOVER-1 study met the primary efficacy endpoints from the Part A dose-finding portion, conducted in relapsed/refractory (r/r) B-cell malignancies, and is now enrolling in expansion cohorts to evaluate triple class refractory multiple myeloma (MM) and Bruton tyrosine kinase (BTK) inhibitor failed Waldenstrom's macroglobulinemia (WM) patients. The dosing regimen is designed to provide the optimal dose identified in Part A of ≥60mCi total body dose.

The CLOVER-2 Phase 1 pediatric study is an open-label, sequential-group, dose-escalation study to evaluate the safety and tolerability of CLR 131 in children and adolescents with relapsed or refractory cancers, including malignant brain tumors, neuroblastoma, sarcomas, and lymphomas (including Hodgkin's lymphoma). The study is being conducted internationally at seven leading pediatric cancer centers.

The U.S. Food and Drug Administration ("FDA") granted CLR 131 Fast Track Designation for both r/r MM and r/r diffuse large B-cell lymphoma (DLBCL) and Orphan Drug Designation (ODD) of MM, WM, neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. CLR 131 was also granted Rare Pediatric Disease Designation (RPDD) for the treatment of neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. Earlier this year, the European Commission granted an ODD for r/r MM and most recently, the FDA granted Fast Track Designation for CLR 131 in WM patients having received two prior treatment regimens or more.

Our product pipeline also includes one preclinical PDC chemotherapeutic program (CLR 1900) and several partnered PDC assets. The CLR 1900 Series is being targeted for solid tumors with a payload that inhibits mitosis (cell division) a validated pathway for treating cancers.

We have leveraged our PDC platform to establish four collaborations featuring five unique payloads and mechanisms of action. Through research and development collaborations, our strategy is to generate near-term capital, supplement internal resources, gain access to novel molecules or payloads, accelerate product candidate development and broaden our proprietary and partnered product pipelines.

Our PDC platform provides selective delivery of a diverse range of oncologic payloads to cancerous cells, whether a hematologic cancer or solid tumor, a primary tumor, or a metastatic tumor and cancer stem cells. The PDC platform's mechanism of entry does not rely upon specific cell surface epitopes or antigens as are required by other targeted delivery platforms. Our PDC platform takes advantage of a metabolic pathway utilized by all tumor cell types in all stages of the tumor cycle. Tumor cells modify specific regions on the cell surface as a result of the utilization of this metabolic pathway. Our PDCs bind to these regions and directly enter the intracellular compartment. This mechanism allows the PDC molecules to accumulate over time, which enhances drug efficacy, and to avoid the specialized highly acidic cellular compartment known as lysosomes, which allows a PDC to deliver molecules that previously could not be delivered. Additionally, molecules targeting specific cell surface epitopes face challenges in completely eliminating a tumor because the targeted antigens are limited in the total number on the cell surface, have longer cycling time from internalization to being present on the cell surface again and available for binding and are not present on all of the tumor cells in any cancer. This means a subpopulation of tumor cells always exist that cannot be targeted by therapies targeting specific surface epitopes. In addition to the benefits provided by the mechanism of entry, PDCs offer the ability to conjugate payload molecules in numerous ways, thereby increasing the types of molecules selectively delivered via the

PDC.

The PDC platform features include the capacity to link with almost any molecule, provide a significant increase in targeted oncologic payload delivery and the ability to target all types of tumor cells. As a result, we believe that we can generate PDCs to treat a broad range of cancers with the potential to improve the therapeutic index of oncologic drug payloads, enhance or maintain efficacy while also reducing adverse events by minimizing drug delivery to healthy cells, and increasing delivery to cancerous cells and cancer stem cells.

We employ a drug discovery and development approach that allows us to efficiently design, research and advance drug candidates. Our iterative process allows us to rapidly and systematically produce multiple generations of incrementally improved targeted drug candidates.

In June 2020, the European Medicines Agency (EMA) granted us Small and Medium-Sized Enterprise status by the EMA's Micro, Small and Medium-sized Enterprise office. SME status allows us to participate in significant financial incentives that include a 90% to 100% EMA fee reduction for scientific advice, clinical study protocol design, endpoints and statistical considerations, quality inspections of facilities and fee waivers for selective EMA pre and post-authorization regulatory filings, including orphan drug and PRIME designations. We are also eligible to obtain EMA certification of quality and manufacturing data prior to review of clinical data. Other financial incentives include EMA-provided translational services of all regulatory documents required for market authorization, further reducing the financial burden of the market authorization process.

A description of our PDC product candidates follows:

Clinical Pipeline

Our lead PDC therapeutic, CLR 131 is a small-molecule, PDC designed to provide targeted delivery of iodine-131 directly to cancer cells, while limiting exposure to healthy cells. We believe this profile differentiates CLR 131 from many traditional on-market treatments and treatments in development. CLR 131 is currently being evaluated in two clinical studies: the CLOVER-1 Phase 2 adult B-cell malignancy study and the CLOVER-2 Phase 1 pediatric safety study.

The CLOVER-1 study met the primary efficacy endpoints from the Part A dose-finding portion, conducted in r/r B-cell malignancies, and is now enrolling in expansion cohorts to evaluate triple class refractory MM and BTK inhibitor failed WM patients. The dosing regimen is designed to provide the optimal dose of ≥60mCi total body dose (TBD) identified in Part A. The initial Investigational New Drug (IND) application was accepted by the FDA in March 2014 with multiple INDs submitted since that time. Initiated in March 2017, the primary goal of the Phase 2A study was to assess the compound's efficacy in a broad range of hematologic cancers. In the expansion portion of the study the goal is to confirm the efficacy of the ≥60mCi TBD in triple class refractory MM and BTK inhibitor failed WM patients. The Phase 1 study was designed to assess the compound's safety and tolerability in patients with r/r MM (to determine maximum tolerated dose (MTD)) and was initiated in April 2015. The study completed enrollment and the final clinical study report is expected in the first half of 2021.

The CLOVER-2 Phase 1 pediatric study is being conducted internationally at seven leading pediatric cancer centers. The study is an open-label, sequential-group, dose-escalation study to evaluate the safety and tolerability of CLR 131 in children and adolescents with relapsed or refractory cancers, including malignant brain tumors, neuroblastoma, sarcomas, and lymphomas (including Hodgkin's lymphoma). The FDA previously accepted our IND application for a Phase 1 open-label, dose escalating study to evaluate the safety and tolerability of a single intravenous administration of CLR 131 in up to 30 children and adolescents with cancers including neuroblastoma, sarcomas, lymphomas (including Hodgkin's lymphoma) and malignant brain tumors. This study was initiated during the first quarter of 2019. These cancer types were selected for clinical, regulatory and commercial rationales, including the radiosensitive nature and continued unmet medical need in the r/r setting, and the rare disease determinations made by the FDA based upon the current definition within the Orphan Drug Act.

In December 2014, the FDA granted ODD for CLR 131 for the treatment of MM. In 2018, the FDA granted ODD and RPDD for CLR 131 for the treatment of neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. In May 2019, the FDA granted Fast Track designation for CLR 131 for the treatment of MM and in July 2019 for the treatment of DLBCL, in September 2019 CLR 131 received Orphan Drug Designation from the European Union for Multiple Myeloma, and in January 2020, the FDA granted Orphan Drug Designation for CLR 131 Waldenstrom's macrogloulinemia. The FDA granted Fast Track designation for CLR 131 for the treatment of WM in May 2020.

The FDA may award priority review vouchers to sponsors of a RPDD that meet its specified criteria. The key criteria to receiving a priority review voucher (PRV) is that the disease being treated is life-threatening and that it primarily effects individuals under the age of 18. Under this program, a sponsor who receives an approval for a drug or biologic for a rare pediatric disease can receive a PRV that can be redeemed to receive a priority review of a subsequent marketing application for a different product. Additionally, the PRV's can be exchanged or sold to other companies so that the receiving company may use the voucher.

Phase 2 Study in Patients with r/r select B-cell Malignancies

In February 2020, we announced positive data from our Phase 2 CLOVER-1 study in patients with relapsed/refractory B-cell lymphomas. Relapsed/Refractory MM and non-Hodgkin lymphoma (NHL) patients were treated with three different doses (<50mCi, ~50mCi and≥60mCi total body dose (TBD). The <50mCi total body dose was a deliberately planned sub-therapeutic dose. CLR 131 achieved the primary endpoint for the study. Patients with r/r MM who received the ≥60mCi TBD of CLR 131 showed a 42.8% overall response rate (ORR). Those who received ~50mCi TBD had a 26.3% ORR with a combined rate of 34.5% ORR (n=33) while maintaining a well-tolerated safety profile. Patients in the studies were elderly with a median age of 70, and heavily pre-treated, with a median of five prior lines of treatment (range: 3 to 17), which included immunomodulatory drugs, proteasome inhibitors and CD38 antibodies for the majority of patients. Additionally, a majority of the patients (53%) were quad refractory or greater and 44% of all treated multiple myeloma patients were triple class refractory. 100% of all evaluable patients (n=43) achieved clinical benefit (primary outcome measure) as defined by having stable disease or better. 85.7% of multiple myeloma patients receiving the higher total body dose levels of CLR 131 experienced tumor reduction. The ≥60mCi TBD demonstrated positive activity in both high-risk patients and triple class refractory patients with a 50% and 33% ORR, respectively.

Patients with r/r NHL who received <60mCi TBD and the≥60mCi TBD had a 42% and 43% ORR, respectively and a combined rate of 42%. These patients were also heavily pre-treated, having a median of three prior lines of treatment (range, 1 to 9) with the majority of patients being refractory to rituximab and/or ibrutinib. The patients had a median age of 70 with a range of 51 to 86. All patients had bone marrow involvement with an average of 23%. In addition to these findings, subtype assessments were completed in the r/r B-cell NHL patients. Patients with DLBCL demonstrated a 30% ORR with one patient achieving a complete response (CR), which continues at nearly 24 months post-treatment. The ORR for CLL/SLL/MZL patients was 33%. Current data from our Phase 2 CLOVER-1 clinical study show that four LPL/WM patients demonstrated 100% ORR with one patient achieving a CR which continues at nearly 35 months post-treatment. This may represent an important improvement in the treatment of relapsed/refractory LPL/WM as we believe no approved or late-stage development treatments for second- and third-line patients have reported a CR. LPL/WM is a rare, indolent and incurable form of NHL that is composed of a patient population in need of new and better treatment options.

Based upon the dose response observed in Part A patients receiving total body doses of 60mCi or greater, we determined that patient dosing of CLR 131 would be ≥60mCi TBD. Therefore, patients are now grouped as receiving <60mCi or≥60mCi TBD. In September 2020, we announced that a clinically meaningful 40% ORR was observed in the subset of refractory multiple myeloma patients deemed triple class refractory who received 60 mCi or greater TBD. Triple class refractory is defined as patients that are refractory to immunomodulatory, proteasome inhibitors and anti-CD38 antibody drug classes. The 40% ORR (6/15 patients) represents triple class refractory patients enrolled in Part A of Cellectar's CLOVER-1 study and additional patients enrolled in Part B from March through May 2020 and received ≥60mCi TBD. All MM patients enrolled in the expansion cohort are required to be triple class refractory. The additional six patients were heavily pre-treated with an average of nine prior multi-drug regimens. Three patients received a total body dose of ≥ 60 mCi and three received less than 60 mCi. Consistent with the data released in February 2020, patients receiving ≥ 60 mCi typically exhibit greater responses. Based on study results to date, patients continue to tolerate CLR 131 well, with the most common and almost exclusive treatment emergent adverse events being cytopenias.

We recently held FDA Type B guidance meeting to define the registrational pathway for our priority adult hematology oncology indications and planned initiation of the pivotal study for our lead indication in the fourth quarter

The most frequently reported adverse events in r/r MM patients were cytopenias, which followed a predictable course and timeline. The frequency of adverse events have not increased as doses were increased and the profile of cytopenias remains consistent. Importantly, these cytopenias have had a predictable pattern to initiation, nadir and recovery and are treatable. The most common grade ≥3 events at the highest dose (75mCi TBD) were hematologic toxicities including thrombocytopenia (65%), neutropenia (41%), leukopenia (30%), anemia (24%) and lymphopenia (35%). No patients experienced cardiotoxicities, neurological toxicities, infusion site reactions, peripheral neuropathy, allergic reactions, cytokine release syndrome, keratopathy, renal toxicities, or changes in liver enzymes. The safety and tolerability profile in patients with r/r NHL was similar to r/r MM patients except for fewer cytopenias of any grade. Based upon CLR 131 being well tolerated across all dose groups and the observed response rate, especially in difficult to treat patients such as high risk and triple class refractory or penta-refractory, and corroborating data showing the potential to further improve upon current ORRs and durability of those responses, the study has been expanded to test a two-cycle dosing optimization regimen with a target total body dose ≥60 mCi/m^2 of CLR 131.

In July 2016, we were awarded a $2,000,000 National Cancer Institute (NCI) Fast-Track Small Business Innovation Research grant to further advance the clinical development of CLR 131. The funds are supporting the Phase 2 study initiated in March 2017 to define the clinical benefits of CLR 131 in r/r MM and other niche hematologic malignancies with unmet clinical need. These niche hematologic malignancies include Chronic Lymphocytic Leukemia, Small Lymphocytic Lymphoma, Marginal Zone Lymphoma, Lymphoplasmacytic Lymphoma/WM and DLBCL. The study is being conducted in approximately 10 U.S. cancer centers in patients with orphan-designated relapse or refractory hematologic cancers. The study's primary endpoint is clinical benefit response (CBR), with secondary endpoints of ORR, progression free survival (PFS,) median Overall Survival (mOS) and other markers of efficacy following patients receiving one of three TBDs of CLR 131 (<50mCi, ~50mCi and ≥60mCi), with the option for a second cycle approximately 75-180 days later. Dosages were provided either as single bolus or fractionated (the assigned dose level split into two doses) given day 1 and day 15.

In May 2020, we announced that the FDA granted Fast Track Designation for CLR 131 in WM in patients having received two prior treatment regimens or more.

Phase 1 Study in Patients with r/r Multiple Myeloma

In February 2020, we announced the successful completion of our Phase 1 dose escalation study. Data from the study demonstrated that CLR 131 was safe and tolerated at total body dose of approximately 90mCi in r/r MM. The Phase 1 multicenter, open-label, dose-escalation study was designed to evaluate the safety and tolerability of CLR 131 administered as a 30-minute I.V. infusion, either as a single bolus dose or as fractionated doses. The r/r multiple myeloma patients in this study received single cycle doses ranging from approximately 20mCi to 90mCi total body dose. An independent Data Monitoring Committee determined that all doses have been safe and well-tolerated by patients.

CLR 131 in combination with dexamethasone is currently under investigation in adult patients with r/r MM. Patients must have been refractory to or relapsed from at least one proteasome inhibitor and at least one immunomodulatory agent. The clinical study is a standard three-plus-three dose escalation safety study to determine the maximum tolerable dose. Multiple myeloma is an incurable cancer of the plasma cells and is the second most common form of hematologic cancers. Secondary objectives include the evaluation of therapeutic activity by assessing surrogate efficacy markers, which include M protein, free light chain (FLC), PFS and OS. All patients have been heavily pretreated with an average of five prior lines of therapy. CLR 131 was deemed by an Independent Data Monitoring Committee (IDMC) to be safe and tolerable up to its planned maximum single, bolus dose of 31.25 mCi/m^2. The four single dose cohorts examined were: 12.5 mCi/m^2 (~25mCi TBD), 18.75 mCi/m^2 (~37.5mCi TBD), 25 mCi/m^2(~50mCi TBD), and 31.25 mCi/m^2(~62.5mCi TBD), all in combination with low dose dexamethasone (40 mg weekly). Of the five patients in the first cohort, four achieved stable disease and one patient progressed at Day 15 after administration and was taken off the study. Of the five patients admitted to the second cohort, all five achieved stable disease however one patient progressed at Day 41 after administration and was taken off the study. Four patients were enrolled to the third cohort and all achieved stable disease. In September 2017, we announced results for cohort 4, showing that a single infusion up to 30-minutes of 31.25mCi/m^2 of CLR 131 was safe and tolerated by the three patients in the cohort. Additionally, all three patients experienced CBR with one patient achieving a partial response (PR). We use the International Myeloma Working Group (IMWG) definitions of response, which involve monitoring the surrogate markers of efficacy, M protein and FLC. The IMWG defines a PR as a greater than or equal to 50% decrease in FLC levels (for patients in whom M protein is unmeasurable) or 50% or greater decrease in M protein. The patient experiencing a PR had an 82% reduction in FLC. This patient did not produce M protein, had received seven prior lines of treatment including radiation, stem cell transplantation and multiple triple combination treatments including one with daratumumab that was not tolerated. One patient experiencing stable disease attained a 44% reduction in M protein. In January 2019, we announced that the pooled mOS data from the first four cohorts was 22.0 months. In late 2018, we modified this study to evaluate a fractionated dosing strategy to potentially increase efficacy and decrease adverse events.

Cohort 5 and 6 were fractionated cohorts of 31.25 mCi/m^2(~62.5mCi TBD) and 37.5 mCi/m^2(~75mCi TBD), each administered on day 1 and on day 8. Following the determination that all prior dosing cohorts were safe and tolerated, we initiated a cohort 7 utilizing a 40mCi/m2 (~80mCi TBD) fractionated dose administered 20mCi/m2 (~40mCi TBD) on days 1 and day 8. Cohort 7 was the highest pre-planned dose cohort and subjects have completed the evaluation period. The study completed enrollment and the final clinical study report is expected in the first half of 2021.

In May 2019, we announced that the FDA granted Fast Track Designation for CLR 131 in fourth line or later r/r MM. CLR 131 is our small molecule radiotherapeutic PDC designed to deliver cytotoxic radiation directly and selectively to cancer cells and cancer stem cells. It is currently being evaluated in our ongoing CLOVER-1 Phase 2 clinical study in patients with relapsed or refractory multiple myeloma and other select B-cell lymphomas.

Phase 1 Study in r/r Pediatric Patients with select Solid tumors, Lymphomas and Malignant Brain Tumors

In December 2017 the Division of Oncology at the FDA accepted our IND and study design for the Phase 1 study of CLR 131 in children and adolescents with select rare and orphan designated cancers. This study was initiated during the first quarter of 2019. In December 2017, we filed an IND application for r/r pediatric

patients with select solid tumors, lymphomas and malignant brain tumors. The Phase 1 clinical study of CLR 131 is an open-label, sequential-group, dose-escalation study evaluating the safety and tolerability of intravenous administration of CLR 131 in children and adolescents with cancers including neuroblastoma, sarcomas, lymphomas (including Hodgkin's lymphoma) and malignant brain tumors. Secondary objectives of the study are to identify the recommended efficacious dose of CLR 131 and to determine preliminary antitumor activity (treatment response) of CLR 131 in children and adolescents. In August 2020, it was announced that four dose levels 15mCi/m^2 up to 60mCi/m^2 were deemed safe and tolerable by an independent Data Monitoring Committee and evaluation of the next higher dose cohort, 75mCi/m^2 was to initiate. In 2018, the FDA granted OD and RPDD for CLR 131 for the treatment of neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. Should any of these indications reach approval, the RPDD would enable us to receive a priority review voucher. Priority review vouchers can be used by the sponsor to receive priority review for a future New Drug Application ("NDA") or Biologic License Application ("BLA") submission, which would reduce the FDA review time from 12 months to six months. Currently, these vouchers can also be transferred or sold to another entity. This Priority Review Voucher Program is currently under evaluation for renewal.

Phase 1 Study in r/r Head and Neck Cancer

In August 2016, the University of Wisconsin Carbone Cancer Center ("UWCCC") was awarded a five-year Specialized Programs of Research Excellence ("SPORE") grant of $12,000,000 from the National Cancer Institute and the National Institute of Dental and Craniofacial Research to improve treatments and outcomes for head and neck cancer, HNC, patients. HNC is the sixth most common cancer across the world with approximately 56,000 new patients diagnosed every year in the U.S. As a key component of this grant, the UWCCC researchers completed testing of CLR 131 in various animal HNC models and initiated the first human clinical study enrolling up to 30 patients combining CLR 131 and external beam radiation with recurrent HNC in Q4 2019. This clinical study was suspended due to the COVID-19 pandemic but has now been reopened for enrollment.

Preclinical Pipeline

We believe our PDC platform has potential to provide targeted delivery of a diverse range of oncologic payloads, as exemplified by the product candidates listed below, that may result in improvements upon current standard of care ("SOC") for the treatment of a broad range of human cancers:

- CLR 1900 Series is an internally developed proprietary PDC program leveraging a novel small molecule cytotoxic compound as the payload. The payload inhibits mitosis (cell division) and targets a key pathway required to inhibit rapidly dividing cells that results in apoptosis. We believe that this program could produce a product candidate targeted to select solid tumors. Currently, the program is in early preclinical development and if we elect to progress any molecules further, we will select preferred candidates.

- CLR 2000 Series is a collaborative PDC program with Avicenna Oncology, or Avicenna, that we entered into in July 2017. Avicenna is a developer of antibody drug conjugates ("ADCs"). The objective of the research collaboration is to design and develop a series of PDCs utilizing Avicenna's proprietary cytotoxic payload. Although Avicenna is a developer of ADCs, this collaboration was sought as a means to overcome many of the challenges associated with ADCs, including those associated with the targeting of specific cell surface epitopes. The CLR 2000 Series has demonstrated improved safety, efficacy and tissue distribution with the cytotoxic payload in animal models. A candidate molecule and a back-up have been selected for further advancement at a future time.

- CLR 12120 Series is a collaborative PDC program with Orano Med for the development of novel PDCs utilizing Orano Med's unique alpha emitter, lead 212 conjugated to our phospholipid ether; the companies intend to evaluate the new PDCs in up to three oncology indications. Currently this series has shown efficacy in the first two animal models tested.

Key Risks and Uncertainties

We are subject to numerous risks and uncertainties, including the following:

- Our operations and financial condition may be adversely impacted by the COVID-19 pandemic.

- We will require additional capital in order to continue our operations and may have difficulty raising additional capital.

- We are a clinical-stage company with a going concern qualification to our financial statements and a history of losses, and we can provide no assurance as to our future operating results.

- We rely on a collaborative outsourced business model, and disruptions with these third-party collaborators may impede our ability to gain FDA approval and delay or impair commercialization of any products.

- We will require additional capital in order to continue our operations and may have difficulty raising additional capital.

- We rely on a small number of key personnel who may terminate their employment with us at any time, and our success will depend on our ability to hire additional qualified personnel.

- We cannot assure the successful development and commercialization of our compounds in development.

- Our proposed products and their potential applications are in an early stage of clinical and manufacturing/process development and face a variety of risks and uncertainties.

- Failure to complete the development of our technologies, to obtain government approvals, including required FDA approvals, or comply with ongoing governmental regulations could prevent, delay or limit introduction or sale of proposed products and result in failure to achieve revenues or maintain our ongoing business.

- Clinical studies involve a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.

- We may be required to suspend or discontinue clinical studies due to unexpected side effects or other safety risks that could preclude approval of our product candidates.
- Controls we or our third-party collaborators have in place to ensure compliance with all applicable laws and regulations may not be effective.
- We expect to rely on our patents as well as specialized regulatory designations such as orphan drug classification for our product candidates, but regulatory drug designations may not confer marketing exclusivity or other expected commercial benefits.
- The FDA has granted rare pediatric disease designation, RPDD, to CLR 131 for treatment of neuroblastoma and rhabdomyosarcoma; however, we may not be able to realize any value from such designation.
- We are exposed to product, clinical and preclinical liability risks that could create a substantial financial burden should we be sued.
- Acceptance of our products in the marketplace is uncertain and failure to achieve market acceptance will prevent or delay our ability to generate revenues.
- The market for our proposed products is rapidly changing and competitive, and new therapeutics, drugs and treatments that may be developed by others could impair our ability to develop our business or become competitive.
- We may face litigation from third parties claiming that our products infringe on their intellectual property rights, particularly because there is often substantial uncertainty about the validity and breadth of medical patents.
- If we are unable to adequately protect or enforce our rights to intellectual property or to secure rights to third-party patents, we may lose valuable rights, experience reduced market share, assuming any, or incur costly litigation to protect our intellectual property rights.
- Conflicts, military actions, terrorist attacks, natural disasters. public health crises, including the occurrence of a contagious disease or illness, such as the COVID-19 coronavirus, cyber-attacks and general instability could adversely affect our business.
- Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.
- We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.
- Due to continued changes in marketing, sales and distribution, we may be unsuccessful in our efforts to sell our proposed products, develop a direct sales organization, or enter into relationships with third parties.
- If we are unable to convince physicians of the benefits of our intended products, we may incur delays or additional expense in our attempt to establish market acceptance.

- If users of our products are unable to obtain adequate reimbursement from third-party payors, or if additional healthcare reform measures are adopted, it could hinder or prevent the commercial success of our product candidates.
- Our business and operations may be materially, adversely affected in the event of computer system failures or security breaches.
- Failure to maintain effective internal controls could adversely affect our ability to meet our reporting requirements.
- We have in the past received notices from Nasdaq of noncompliance with its listing rules, and delisting with Nasdaq could impact the price of our common stock and our ability to raise funds.
- Our stock price has experienced price fluctuations.
- Our common stock could be further diluted as the result of the issuance of additional shares of common stock, convertible securities, warrants or options.
- Provisions of our certificate of incorporation, by-laws, and Delaware law may make an acquisition of us or a change in our management more difficult.
- We have not paid dividends in the past and do not expect to pay dividends for the foreseeable future. Any return on investment may be limited to the value of our common stock.
- Our management team will have immediate and broad discretion over the use of the net proceeds from this offering, and you may not agree with our use of the net proceeds.
- You will experience immediate and substantial dilution as a result of this offering and may experience additional dilution in the future.
- You may experience future dilution as a result of future equity offerings.

For more information regarding the material risks and uncertainties we face, please see “Risk Factors” beginning on page S-16 of this prospectus supplement.

Corporate Information

Our principal executive offices are located at 100 Campus Drive, Florham Park, New Jersey 07932 and the telephone number of our principal executive offices is (608) 441-8120. We maintain a website at www.cellectar.com. The information included or referred to on, or accessible through, our website does not constitute part of, and is not incorporated by reference into, this prospectus supplement.

The Offering

The following is a brief summary of some of the terms of the offering and is qualified in its entirety by reference to the more detailed information appearing elsewhere in this prospectus supplement. For a more complete description of the terms of our common stock, see the “Description of the Securities We Are Offering” section in this prospectus supplement.

Common stock offered by us:	18,148,136 shares
Shares of common stock outstanding before this offering:	27,260,968 shares
Use of Proceeds:	We expect to use the net proceeds received from this offering to fund our research and development activities and for general corporate purposes. For a more complete description of our anticipated use of proceeds from this offering, see "Use of Proceeds."
Risk Factors:	See "Risk Factors" beginning on page S-16 and the other information included in this prospectus supplement for a discussion of factors you should carefully consider before deciding whether to purchase our securities.
Nasdaq symbol for our common stock:	CLRB
Concurrent Private Placement:	In a separate concurrent PIPE transaction, we are selling 1,518.5180 shares of Series D Preferred Stock convertible into a number of shares of common stock equal to $13,500 divided by the Conversion Price (or 10,000 shares of common stock for each share of Series D Preferred Stock converted), at a price of $13,500 per share of Series D Preferred Stock. The Series D Preferred Stock will only be convertible into common stock upon receipt of stockholder approval of the issuance of the shares of common stock as required by Nasdaq Marketplace Rule 5635(d) at a special stockholder meeting to be called for that purpose. The shares of common stock, Series D Preferred Stock and the shares of our common stock issuable upon the exercise of the Series D Preferred Stock, are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder. See "Private Placement Transaction."

Shares of common stock to be outstanding after this offering:	45,409,104 Shares
Shares of Series D Preferred Stock to be outstanding after this offering:	1,518.5180 Shares
No listing of Series D Preferred Stock:	We do not intend to apply for listing of the shares of Series D Preferred Stock on any securities exchange or trading system.

Unless we specifically state otherwise, the share information in this prospectus, including the number of shares of common stock outstanding before this offering, is as of December 22, 2020.

The number of shares of our common stock outstanding before and after this offering is based on 27,260,968 shares of common stock outstanding as of December 22, 2020 and excludes, as of that date:

- an aggregate of 1,184,464 shares of common stock issuable upon the exercise of outstanding stock options issued to employees, directors and consultants;
- an aggregate of 537,500 shares of common stock issuable upon the conversion of outstanding shares of Series C preferred stock;
- an aggregate of 17,489,891 additional shares of common stock reserved for issuance under outstanding warrants having expiration dates between April 1, 2021, and June 5, 2025, and exercise prices ranging from $1.21 to $30.40 per share; and
- 15,185,180 shares of our common stock that may be issued upon the conversion of the Series D Preferred Stock issued in the PIPE.

Unless otherwise noted, the information in this prospectus supplement reflects and assumes no exercise of outstanding options and warrants.

RISK FACTORS

An investment in our securities involves a high degree of risk. Prior to making a decision about investing in our securities, prospective investors should consider carefully all of the information included and incorporated by reference or deemed to be incorporated by reference in this prospectus supplement, including the risk factors incorporated by reference herein from our Annual Report on Form 10-K for the fiscal year ended December 31, 2019as updated by annual, quarterly and other reports and documents we file with the SEC after the date of this prospectus supplement and that are incorporated by reference herein. Each of these risk factors could have a material adverse effect on our business, results of operations, financial position or cash flows, which may result in the loss of all or part of your investment. For more information, see "Where You Can Find Additional Information" and "Incorporation of Certain Information by Reference."

In addition, you should carefully consider the following risks related to this offering, together with the other information about these risks contained in this prospectus supplement, as well as the other information contained in this prospectus generally, before deciding to buy our securities. Any of the risks we describe below could adversely affect our business, financial condition, operating results, or prospects. The market price for our securities could decline if one or more of these risks and uncertainties develop into actual events and you could lose all or part of your investment. Additional risks and uncertainties that we do not yet know of, or that we currently think are immaterial, may

also impair our business operations.

RISKS RELATED TO THIS OFFERING

We have broad discretion to determine how to use the proceeds raised in this offering, and we may not use the proceeds effectively.

The net proceeds from this offering will be immediately available to our management to use at its discretion. We currently intend to use the net proceeds from this offering to fund our research and development activities, general corporate purposes, and possibly for acquisitions of other companies, products or technologies, although no such acquisitions are currently contemplated. See "Use of Proceeds." We have not allocated specific amounts of the net proceeds from this offering for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds of this offering. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for us or our stockholders. The failure of our management to use such funds effectively could have a material adverse effect on our business, prospects, financial condition and results of operation.

You will experience immediate and substantial dilution as a result of this offering and may experience additional dilution in the future.

You will incur immediate and substantial dilution as a result of this offering. After giving effect to the sale by of the securities offered in this offering, at a public offering price of $1.35 per share, and assuming the issuance of all of the shares of common stock underlying the Series D Preferred Stock, and after deducting the underwriter's discounts and commissions and other estimated offering expenses payable by us, investors in this offering can expect an immediate dilution of $0.39 per share, or 29%. In addition, in the past, we have issued preferred stock, options and warrants to acquire shares of common stock. To the extent these options are ultimately exercised, you will sustain future dilution.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, in the future we may offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price in this offering. We may sell shares or other securities in any other offering at a price that is less than the price paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price paid by investors in this offering.

USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of the securities that we are offering in the public offering and the PIPE will be approximately $41.4 million, after deducting underwriting discounts and commissions and estimated offering expenses.

We expect to use any proceeds received from this offering as follows:

- research and development activities, including the further development of CLR 131, and the research advancement of our PDC platform, including product candidates, CLR 1900, CLR 2000 and CLR 12120.
- general corporate purposes, such as human resource acquisition to support organizational priorities, general and administrative expenses, capital expenditures, working capital, repayment of debt, prosecution and maintenance of our intellectual property, and the potential investment in technologies, products or collaborations that complement our business.

Even if we sell all of the securities subject to this offering, we will still need to obtain additional financing in the future in order to fully fund these product candidates through the regulatory approval process. We may seek such additional financing through public or private equity or debt offerings or other sources, including collaborative or other arrangements with corporate partners, and through government grants and contracts. There can be no assurance we will be able to obtain additional financing. Although we currently anticipate that we will use the net proceeds of this offering as described above, there may be circumstances when a reallocation of funds is necessary. The amounts and timing of our actual expenditures will depend upon numerous factors, including the progress of our development and commercialization efforts, the progress of our clinical studies, whether or not we enter into strategic collaborations or partnerships, and our operating costs and expenditures. Accordingly, our management will have significant flexibility in applying the net proceeds of this offering.

The costs and timing of drug development and regulatory approval, particularly conducting clinical studies, are highly uncertain, subject to substantial risks, and can often change. Accordingly, we may change the allocation of use of these proceeds as a result of contingencies such as the progress and results of our clinical studies and other development activities, the establishment of collaborations, our manufacturing requirements, and regulatory or competitive developments.

Pending the application of the net proceeds as described above or otherwise, we may invest the proceeds in short-term, investment-grade, interest-bearing securities or guaranteed obligations of the U.S. government or other securities.

DILUTION

Our net tangible book value as of September 30, 2020, was approximately $16.2 million, or $0.61 per share of common stock, based upon 26,813,593 shares outstanding. Net tangible book value per share is determined by dividing such number of outstanding shares of common stock into our net tangible book value, which is our total tangible assets, less total liabilities.

After giving effect to the sale of an estimated18,148,136 shares of our common stock, and assuming the issuance of all of the shares of common stock underlying the Series D Preferred Stock, each at the offering price or conversion price of $1.35 per share, gross proceeds will be approximately $45 million. After deducting the underwriting commission and our estimated offering expenses, our as-adjusted net tangible book value as of September 30, 2020 would have been $0.96 per share. This represents an immediate increase in net tangible book value of approximately $0.35 per share to our existing stockholders, and an immediate dilution of $0.39 per share to investors purchasing securities in the offering.

The following table illustrates the per share dilution to investors purchasing securities in the offering:

Public offering price per share of common stock			$	1.35
Net tangible book value per share as of September 30, 2020	$	0.61		
Increase per share attributable to the sale of securities to investors	$	0.35		
Adjusted net tangible book value per share after the offering			$	0.96
Dilution per share to investors in this offering			$	0.39

The foregoing illustration does not reflect potential dilution from the exercise of outstanding options or warrants to purchase shares of our common stock. The dilution information set forth in the table above is illustrative only and will be adjusted based on the actual sales made during this offering. The information set forth above is based on shares of common stock outstanding as of September 30, 2020 and excludes, as of December 22, 2020:

- an aggregate of 447,500 shares of common stock issued upon the exercise of outstanding warrants issued and an aggregate of 125 shares of common stock that were surrendered since September 30, 2020;
- an aggregate of 1,184,464 shares of common stock issuable upon the exercise of outstanding stock options issued to employees, directors and consultants;
- an aggregate of 537,500 shares of common stock issuable upon the conversion of outstanding shares of Series C preferred stock; and
- an aggregate of 17,489,891 additional shares of common stock reserved for issuance under outstanding warrants having expiration dates between April 1, 2021, and June 5, 2025, and exercise prices ranging from $1.21 to $30.40 per share.

DESCRIPTION OF THE SECURITIES WE ARE OFFERING

The following summary description of our common stock is based on the provisions of our Second Amended and Restated Certificate of Incorporation, as amended, which we refer to as our certificate of incorporation or charter, our by-laws, and the applicable provisions of the Delaware General Corporation Law, which we refer to as the DGCL. This description may not contain all of the information that is important to you and is subject to, and is qualified in its entirety by reference to, our certificate of incorporation, our by-laws and the applicable provisions of the DGCL. For information on how to obtain copies of our certificate of incorporation and by-laws, see "Where You Can Find More Information."

Authorized and Outstanding Capital Stock

Our authorized capital stock consists of 80,000,000 shares of common stock, $0.00001 par value per share and 7,000 shares of preferred stock, $0.00001 par value per share. Our certificate of incorporation, as amended, authorizes us to issue shares of our preferred stock from time to time in one or more series without stockholder approval, each such series to have rights and preferences, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, as our Board may determine. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of holders of any preferred stock that we may issue in the future. The issuance of preferred stock, while providing desirable flexibility in connection with possible acquisitions and other corporate purposes, could have the effect of making it more difficult for others to acquire, or of discouraging others from attempting to acquire, a majority of our outstanding voting stock.

As of December 22, 2020, there were 27,260,968 shares of common stock outstanding and 215 shares of preferred stock outstanding. All outstanding shares of our common stock and preferred stock are duly authorized, validly issued, fully paid and nonassessable.

Common Stock

Voting. Holders of our common stock are entitled to one vote per share held of record on all matters to be voted upon by our stockholders. Our common stock does not have cumulative voting rights. Persons who hold a majority of the outstanding common stock entitled to vote on the election of directors can elect all of the directors who are eligible for election.

Dividends. Subject to preferences that may be applicable to the holders of any outstanding shares of our preferred stock, the holders of our common stock are entitled to receive such lawful dividends as may be declared by our Board.

Liquidation and Dissolution. In the event of our liquidation, dissolution or winding up, and subject to the rights of the holders of any outstanding shares of our preferred stock, the holders of shares of our common stock will be entitled to receive pro rata all of our remaining assets available for distribution to our stockholders.

Other Rights and Restrictions. Our charter prohibits us from granting preemptive rights to any of our stockholders.

PRIVATE PLACEMENT TRANSACTION

In the separate PIPE, we are selling 1,518.5180 shares of Series D Preferred Stock. The Series D Preferred Stock are convertible into a number of shares of common at the Conversion Price (or 10,000 shares of common stock for each share of Series D Preferred Stock converted), at a price of $13,500 per share of Series D Preferred Stock.

The offering and sale of the shares of comment stock, the Series D Preferred Stock and the shares of our common stock issuable upon the conversion of the Series D Preferred Stock are not being registered under the Securities Act, are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder. Accordingly, purchasers may only sell shares acquired in the PIPE pursuant to an effective registration statement under the Securities Act covering the resale of those shares, an exemption under Rule 144 under the Securities Act or another applicable exemption under the Securities Act.

We will be required to file a registration statement on either Form S-3 or Form S-1 within 30 days of closing of the private placement to provide for the resale of the shares of common stock and common stock issuable upon the conversion of the Series D Preferred Stock, and will be obligated to use our reasonable best efforts to keep such registration statement effective until the earlier of (i) the date on which the shares of common stock and common stock issuable upon conversion of the Series D Preferred Stock may be sold without registration pursuant to Rule 144 under the Securities Act, and (ii) the date on which all of the shares of common stock and common stock issuable upon conversion of the Series D Preferred Stock have been sold under the registration statement or pursuant to Rule 144 under the Securities Act or any other rule of similar effect.

UNDERWRITING

We entered into an underwriting agreement with Oppenheimer & Co. Inc. on December 23, 2020 as the representative of the underwriters, named below and the sole book-running manager of this offering. The underwriting agreement provides for the purchase of a specific number of shares of common stock by the underwriters. Subject to the terms and conditions of the underwriting agreement, the underwriters have agreed to purchase the number of shares set forth below:

Underwriter	Number of Shares of Common Stock
Oppenheimer & Co. Inc.	14,518,509
Roth Capital Partners, LLC	1,451,851
Maxim Group LLC	1,451,851
Ladenburg Thalmann & Co. Inc.	725,925
Total	18,148,136

The underwriters have agreed to purchase all of the shares of common stock offered by this prospectus supplement.

The shares of common stock offered hereby are expected to be ready for delivery on or about December 28, 2020 against payment in immediately available funds.

The underwriters are offering the shares of common stock subject to various conditions and may reject all or part of any order in their sole discretion. The underwriters propose to initially offer the shares of common stock to the public at the public offering price set forth on the cover page of this prospectus supplement and to dealers at a price less a concession not in excess of $0.0567 per share. After the shares of common stock are released for sale to the public, the underwriters may change the offering price, the concession, and other selling terms at various times.

The following table provides information regarding the amount of the discounts and commissions to be paid to the underwriters by us, before expenses:

	Per Share of Common Stock	Total
Public offering price	$ 1.35	$ 24,499,984
Underwriting discount (7.0%)	$ 0.0945	$ 1,714,999
Proceeds, before expenses, to us	$ 1.2555	$ 22,784,985

We estimate that our total expenses of the offering, excluding the estimated underwriting discounts and commissions, will be approximately $415,000, which includes the fees and expenses for which we have agreed to reimburse the representative, provided that any such fees and expenses in excess of an aggregate of $125,000 will be subject to our prior written approval.

Regulation M

Rules of the Securities and Exchange Commission may limit the ability of the underwriters to bid for or purchase shares before the distribution of the shares is completed. However, the underwriters may engage in the following activities in accordance with the rules:

- Passive market making - market makers in the shares who are underwriters or prospective underwriters may make bids for or purchases of shares, subject to limitations, until the time, if ever, at which a stabilizing bid is made.

Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of the shares. These transactions may occur on The Nasdaq Capital Market or otherwise. If such transactions are commenced, they may be discontinued without notice at any time.

Electronic Delivery of Prospectus Supplement

A prospectus supplement in electronic format may be delivered to potential investors by the underwriters. The prospectus supplement in electronic format will be identical to the paper version of such prospectus supplement. Other than the prospectus supplement in electronic format, the information on the underwriters' websites and any information contained in any other website maintained by an underwriter is not part of this prospectus supplement or the registration statement of which this prospectus supplement forms a part.

Determination of Offering Price

Our common stock is currently traded on the Nasdaq Capital Market under the symbol "CLRB." On December 22, 2020, the closing price of our common stock was $2.77 per share.

The public offering price of the securities offered by this prospectus supplement will be determined by negotiation between us and the underwriters. Among the factors considered in determining the public offering price of the shares were:

- our history and our prospects;
- the industry in which we operate;
- our past and present operating results;
- the previous experience of our executive officers; and
- the general condition of the securities markets at the time of this offering.

The offering price stated on the cover page of this prospectus supplement should not be considered an indication of the actual value of the securities. That price is subject to change as a result of market conditions and other factors, and we cannot assure you that the securities can be resold at or above the public offering price.

Lock-up Agreements

Our officers and directors have agreed with the underwriters to be subject to a lock-up period of 90 days following the date of this prospectussupplement. This means that, during the applicable lock-up period, such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, or exercisable or exchangeable for, shares of our common stock. Certain limited transfers are permitted during the lock-up period if the transferee agrees to these lock-up restrictions. We have also agreed, in the underwriting agreement, to similar lock-up restrictions on the issuance and sale of our securities for 90 days following the closing of this offering, although we will be permitted to issue stock options or stock awards to directors, officers and employees under our existing plans. The lock-up period is subject to an additional extension to accommodate for our reports of financial results or material news releases. The representative may, in its sole discretion and without notice, waive the terms of any of these lock-up agreements.

Right of First Refusal

Upon completion of an offering that meets certain criteria, we have granted Oppenheimer & Co. Inc. a right of first refusal to act as lead underwriter, lead initial purchaser, lead placement agent or lead selling agent, as the case may be, in connection with any subsequent financing by us. This right of first refusal extends for seven months from the effective date of this registration statement. The terms of any such engagement of Oppenheimer & Co. Inc. will be determined by separate agreement.

Other Relationships

Stefan D. Loren, Ph.D. began serving as director of Cellectar in June 2015. Dr. Loren is currently a managing director with Oppenheimer & Co. Inc. in its healthcare investment banking group. Dr. Loren did not participate in the offering on behalf of the Company or Oppenheimer & Co. Inc.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company.

Indemnification

We have agreed to indemnify the underwriters and selected dealers against certain liabilities, including certain liabilities arising under the Securities Act, or to contribute to payments that the underwriters or selected dealers may be required to make for these liabilities.

LEGAL MATTERS

The validity of the securities being offered by this prospectus supplement has been passed upon for us by Michael Best & Friedrich LLP, Madison, Wisconsin. Ellenoff Grossman & Schole LLP, New York, New York, is acting as counsel to the underwriters in this offering.

EXPERTS

The audited financial statements incorporated by reference in this prospectus supplement and elsewhere in the registration statement have been so incorporated by reference in reliance upon the report of Baker Tilly US, LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and special reports, and other information with the SEC. Copies of the reports and other information may be read and copied at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You can request copies of such documents by writing to the SEC and paying a fee for the copying cost. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a web site at http://www.sec.gov that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC.

This prospectus supplement is part of a registration statement on Form S-3 that we filed with the SEC. Certain information in the registration statement has been omitted from this prospectus supplement in accordance with the rules and regulations of the SEC. We have also filed exhibits and schedules with the registration statement that are excluded from this prospectus supplement. For further information you may:

- read a copy of the registration statement, including the exhibits and schedules, without charge at the SEC's Public Reference Room; or
- obtain a copy from the SEC upon payment of the fees prescribed by the SEC.

We are subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, are required to file periodic reports, proxy statements and other information with the SEC. We make available free of charge, on or through the investor relations section of our website, annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The information found on our website, other than as specifically incorporated by reference in this prospectus supplement, is not part of this prospectus supplement.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus supplement. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus supplement, except for any information that is superseded by other information that is included in this prospectus supplement.

We incorporate by reference into this prospectus supplement the following document, which we have previously filed with the SEC:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed with the SEC on March 9, 2020;
- our Quarterly Report on Form 10-Q for the quarter year ended March 31, 2020, filed with the SEC on May 7, 2020;
- our Quarterly Report on Form 10-Q for the quarter year ended June 30, 2020, filed with the SEC on August 10, 2020;
- our Quarterly Report on Form 10-Q for the quarter year ended September 30, 2020, filed with the SEC on November 9, 2020;
- our Definitive Proxy Statement on Schedule 14A for the annual meeting of stockholders, filed with the SEC on April 28, 2020;

- our Current Report on Form 8-K, filed with the SEC on January 7, 2020;
- our Current Report on Form 8-K, filed with the SEC on May 26, 2020;
- our Current Report on Form 8-K, filed with the SEC on June 1, 2020;
- our Current Report on Form 8-K, filed with the SEC on June 5, 2020;
- our Current Report on Form 8-K, filed with the SEC on June 25, 2020;
- our Current Report on Form 8-K, filed with the SEC on July 1, 2020;
- our Current Report on Form 8-K, filed with the SEC on August 11, 2020;
- our Current Report on Form 8-K, filed with the SEC on December 23, 2020; and

- the description of our securities contained in our Registration Statement on Form 8-A filed on April 18, 2016, including any amendment or report filed for the purpose of updating such description.

In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of the offering will be deemed to be incorporated by reference into this prospectus supplement.

You should rely only on the information contained in this prospectus supplement or that information to which this prospectus supplement has referred you by reference. We have not authorized anyone to provide you with any additional information.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein will be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained herein modifies or supersedes such statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement.

You may request and obtain a copy of any of the filings incorporated herein by reference, at no cost, by writing or telephoning us at the following address or phone number:

Cellectar Biosciences, Inc.
100 Campus Drive
Florham Park, New Jersey 07932
Attention: Chief Financial Officer (608) 441-8120

CELLECTAR BIOSCIENCES, INC.

18,148,136 shares of Common Stock

Prospectus Supplement

Sole Book-Running Manager
Oppenheimer & Co.

Co-Lead Managers
Roth Capital Partners **Maxim Group LLC** **Ladenburg Thalmann**

December 23, 2020

PROSPECTUS

CELLECTAR BIOSCIENCES, INC.

$100,000,000
Common Stock
Preferred Stock
Warrants
Units
Subscription Rights

Cellectar Biosciences, Inc. ("we," "us" or the "Company") may from time to time offer to sell any combination of the securities described in this prospectus, in one or more offerings. The aggregate initial offering price of all securities sold under this prospectus will not exceed $100,000,000.

This prospectus provides a general description of the securities we may offer. Each time we sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference herein or therein before you invest in any securities.

This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

Our common stock is traded on the Nasdaq Capital Market under the symbol CLRB. On August 7, 2020, the last reported sale price for our common stock was $1.40 per share. The aggregate market value of our outstanding common stock held by non-affiliates, or public float, as of the date of this prospectus is approximately $43.9 million based on 26,424,893 shares of outstanding common stock held by non-affiliates, and a per share price of $1.66, which was the last reported sale price of our common stock on the Nasdaq Capital Market on July 30, 2020 (a date within 60 days of the date hereof). Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on the registration statement of which this prospectus is a part in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period if our public float, measured in accordance with such instruction, remains below $75.0 million. As of the date hereof, we have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to and including the date of this prospectus. The applicable prospectus supplement will contain information, where applicable, as to any other listing on the Nasdaq Capital Market or any securities market or other exchange of the securities, if any, covered by the prospectus supplement.

At no time will we issue shares of common stock (whether upon conversion or exercise of warrants, preferred stock, units or subscription rights) in a transaction other than a public offering if such transaction would result in the issuance of more than 19.999% of the amount of common stock issued and outstanding for less than the greater of book or market value of the common stock unless (i) our stockholders have approved the issuance of shares of common stock in excess of 20%, or (ii) Nasdaq has provided a waiver of Listing Rule 5635(d).

We may sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus. If any underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such underwriters and any applicable commissions or discounts will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 11 of this prospectus for more information.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is , 2020.

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ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we filed with the Securities and Exchange Commission (the "SEC") utilizing a "shelf" registration process. Under this shelf registration process, we may sell any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of $100,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities under this shelf registration, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus. You should read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading "Where You Can Find Additional Information."

You should rely only on the information that we have provided or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you. We have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus, the accompanying prospectus supplement or related free writing prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

This prospectus, the accompanying supplement to this prospectus and any related free writing prospectus, if any, do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus, the accompanying supplement to this prospectus or any related free writing prospectus, if any, constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference therein is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered or the applicable securities are sold on a later date.

SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including the documents to which we have referred you under the headings "Where You Can Find More Information" and "Incorporation of Documents by Reference" and the information set forth under the headings "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," in each case, included elsewhere in this prospectus or incorporated herein by reference.

Overview

We are a clinical stage biopharmaceutical company focused on the discovery, development and commercialization of drugs for the treatment of cancer. We are developing proprietary drugs independently and through research and development collaborations. Our core objective is to leverage our proprietary phospholipid drug conjugate™ (PDC™) delivery platform to develop PDCs that are designed to specifically target cancer cells, and deliver improved efficacy and better safety as a result of fewer off-target effects. Our PDC platform possesses the potential for the discovery and development of the next generation of cancer-targeting treatments, and we plan to develop PDCs both independently and through research and development collaborations. The COVID-19 pandemic has created uncertainties in the expected timelines for clinical stage biopharmaceutical companies such as us, and because of such uncertainties, it is difficult for us to accurately predict expected outcomes at this time. We have not yet experienced any significant impacts as a result of the pandemic and have continued to enroll patients in our clinical trials. However, COVID-19 may impact our future ability to recruit patients for clinical trials, obtain adequate supply of CLR 131 and obtain additional financing.

CLR 131 and PDC Platform

Our lead PDC therapeutic, CLR 131 is a small-molecule PDC designed to provide targeted delivery of iodine-131 directly to cancer cells, while limiting exposure to healthy cells. We believe this profile differentiates CLR 131 from many traditional on-market treatment options. CLR 131 is the company's lead product candidate and is currently being evaluated in a Phase 2 study in relapsed/refractory (r/r) B-cell malignancies, including multiple myeloma (MM), chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL), lymphoplasmacytic lymphoma/Waldenstrom's macroglobulinemia (LPL/WM), marginal zone lymphoma (MZL), mantle cell lymphoma (MCL), and diffuse large B-cell lymphoma (DLBCL). CLR 131 is also being evaluated in a Phase 1 dose escalation study in pediatric solid tumors and lymphoma. The U.S. Food and Drug Administration ("FDA") granted CLR 131 Fast Track Designation for both r/r MM and r/r DLBCL and Orphan Drug Designation (ODD) of MM, LPL/WM, neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. CLR 131 was also granted Rare Pediatric Disease Designation (RPDD) for the treatment of neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. Most recently, the European Commission granted an ODD for r/r MM.

Our product pipeline also includes one preclinical PDC chemotherapeutic program (CLR 1900) and several partnered PDC assets. The CLR 1900 Series is being targeted for solid tumors with a payload that inhibits mitosis (cell division) a validated pathway for treating cancers.

We have leveraged our PDC platform to establish four collaborations featuring five unique payloads and mechanisms of action. Through research and development collaborations, our strategy is to generate near-term capital, supplement internal resources, gain access to novel molecules or payloads, accelerate product candidate development and broaden our proprietary and partnered product pipelines.

Our PDC platform provides selective delivery of a diverse range of oncologic payloads to cancerous cells, whether a hematologic cancer or solid tumor, a primary tumor, or a metastatic tumor and cancer stem cells. The PDC platform's mechanism of entry does not rely upon specific cell surface epitopes or antigens as are required by other targeted delivery platforms. Our PDC platform takes advantage of a metabolic pathway utilized by all tumor cell types in all stages of the tumor cycle. Tumor cells modify specific regions on the cell surface as a result of the utilization of this metabolic pathway. Our PDCs bind to these regions and directly enter the intracellular compartment. This mechanism allows the PDC molecules to accumulate over time, which enhances drug efficacy, and to avoid the specialized highly acidic cellular compartment known as lysosomes, which allows a PDC to deliver molecules that previously could not be delivered. Additionally, molecules targeting specific cell surface epitopes face challenges in completely eliminating a tumor because the targeted antigens are limited in the total number on the cell surface, have longer cycling time from internalization to being present on the cell surface again and available for binding and are not present on all of the tumor cells in any cancer. This means a subpopulation of tumor cells always exist that cannot be targeted by therapies targeting specific surface epitopes. In addition to the benefits provided by the mechanism of entry, PDCs offer the ability to conjugate payload molecules in numerous ways, thereby increasing the types of molecules selectively delivered via the PDC.

The PDC platform features include the capacity to link with almost any molecule, provide a significant increase in targeted oncologic payload delivery and the ability to target all types of tumor cells. As a result, we believe that we can generate PDCs to treat a broad range of cancers with the potential to improve the therapeutic index of oncologic drug payloads, enhance or maintain efficacy while also reducing adverse events by minimizing drug delivery to healthy cells, and increasing delivery to cancerous cells and cancer stem cells.

We employ a drug discovery and development approach that allows us to efficiently design, research and advance drug candidates. Our iterative process allows us to rapidly and systematically produce multiple generations of incrementally improved targeted drug candidates.

In June 2020, the European Medicines Agency (EMA) granted us Small and Medium-Sized Enterprise status by the EMA's Micro, Small and Medium-sized Enterprise office. SME status allows us to participate in significant financial incentives that include a 90% to 100% EMA fee reduction for scientific advice, clinical study protocol design, endpoints and statistical considerations, quality inspections of facilities and fee waivers for selective EMA pre and post-authorization regulatory filings, including orphan drug and PRIME designations. We are also eligible to obtain EMA certification of quality and manufacturing data prior to review of clinical data. Other financial incentives include EMA-provided translational services of all regulatory documents required for market authorization, further reducing the financial burden of the market authorization process.

A description of our PDC product candidates follows:

Clinical Pipeline

Our lead PDC therapeutic, CLR 131 is a small-molecule, PDC designed to provide targeted delivery of iodine-131 directly to cancer cells, while limiting exposure to healthy cells. We believe this profile differentiates CLR 131 from many traditional on-market treatments and treatments in development. CLR 131 is currently being evaluated in a Phase 2 study in r/r B-cell lymphomas, and two Phase 1 dose-escalating clinical studies, one in r/r MM and one in r/r pediatric solid tumors and lymphoma. The initial Investigational New Drug (IND) application was accepted by the FDA in March 2014 with multiple INDs submitted since that time. Initiated in March 2017, the primary goal of the Phase 2 study is to assess the compound's efficacy in a broad range of hematologic cancers. The Phase 1 study is designed to assess the compound's safety and tolerability in patients with r/r MM (to determine maximum tolerated dose) and was initiated in April 2015. The FDA previously accepted our IND application for a Phase 1 open-label, dose escalating study to evaluate the safety and tolerability of a single intravenous administration of CLR 131 in up to 30 children and adolescents with cancers including neuroblastoma, sarcomas, lymphomas (including Hodgkin's lymphoma) and malignant brain tumors. This study was initiated during the first quarter of 2019. These cancer types were selected for clinical, regulatory and commercial rationales, including the radiosensitive nature and continued unmet medical need in the r/r setting, and the rare disease determinations made by the FDA based upon the current definition within the Orphan Drug Act.

In December 2014, the FDA granted ODD for CLR 131 for the treatment of MM. Multiple myeloma is an incurable cancer of the plasma cells and is the second most common form of hematologic cancers. In 2018, the FDA granted ODD and RPDD for CLR 131 for the treatment of neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. The FDA may award priority review vouchers to sponsors of rare pediatric disease products that meet its specified criteria. The key criteria to receiving a priority review voucher is that the disease being treated is life-threatening and that it primarily effects individuals under the age of 18. Under this program, a sponsor who receives an approval for a drug or biologic for a rare pediatric disease can receive a priority review voucher that can be redeemed to receive a priority review of a subsequent marketing application for a different product. Additionally, these priority review vouchers can be exchanged or sold to other companies for them to use the voucher. In May 2019, the FDA granted Fast Track designation for CLR 131 for the treatment of multiple myeloma in July 2019 for the treatment of DLBCL, in September, CLR 131 received Orphan Drug Designation from the European Union for Multiple Myeloma, and in January 2020, CLR 131 the FDA granted Orphan Drug Designation for CLR 131 in lymphoplasmacytic lymphoma (LPL).

Phase 2 Study in Patients with r/r select B-cell Malignancies

In February 2020, we announced positive data from our Phase 2 CLOVER-1 study in patients with relapsed/refractory B-cell lymphomas. Relapsed/Refractory MM and non-Hodgkin lymphoma (NHL) patients were treated with three different doses (<50mCi, ~50mCi and ~75mCi total body dose (TBD). The <50mCi total body dose was a deliberately planned sub-therapeutic dose. CLR 131 achieved the primary endpoint for the study. Patients with r/r MM who received the highest dose of CLR 131 showed a 42.8% overall response rate (ORR). Those who received ~50mCi TBD had a 26.3% ORR with a combined rate of 34.5% ORR (n=33) while maintaining a well-tolerated safety profile. Patients in the studies were elderly with a median age of 70, and heavily pre-treated, with a median of five prior lines of treatment (range: 3 to 17), which included immunomodulatory drugs, proteasome inhibitors and CD38 antibodies for the majority of patients. Additionally, a majority of the patients (53%) were quad refractory or greater and 44% of all treated multiple myeloma patients were triple class refractory. 100% of all evaluable patients (n=43) achieved clinical benefit (primary outcome measure) as defined by having stable disease or better. 85.7% of multiple myeloma patients receiving the higher total body dose levels of CLR 131 experienced tumor reduction. The 75mCi TBD demonstrated positive activity in both high-risk patients and triple class refractory patients with a 50% and 33% ORR, respectively.

Patients with r/r NHL who received ~50mCi TBD and the ~75mCi TBD had a 42% and 43% ORR, respectively and a combined rate of 42%. These patients were also heavily pre-treated, having a median of three prior lines of treatment (range, 1 to 9) with the majority of patients being refractory to rituximab and/or ibrutinib. The patients had a median age of 70 with a range of 51 to 86. All patients had bone marrow involvement with an average of 23%. In addition to these findings, subtype assessments were completed in the r/r B-cell NHL patients. Patients with DLBCL demonstrated a 30% ORR with one patient achieving a complete response (CR), which continues at nearly 24 months post-treatment. The ORR for CLL/SLL/MZL patients was 33%. Current data from our Phase 2 CLOVER-1 clinical study show that four LPL/WM patients demonstrated 100% ORR with one patient achieving a CR which continues at nearly 27 months post-treatment. This may represent an important improvement in the treatment of relapsed/refractory LPL/WM as we believe no approved or late-stage development treatments for second- and third-line patients have reported a CR. LPL/WM is a rare, indolent and incurable form of NHL that is composed of a patient population in need of new and better treatment options.

The most frequently reported adverse events in r/r MM patients were cytopenias, which followed a predictable course and timeline. The frequency of adverse events have not increased as doses were increased and the profile of cytopenias remains consistent. Importantly, these cytopenias have had a predictable pattern to initiation, nadir and recovery and are treatable. The most common grade ≥3 events at the highest dose (75mCi TBD) were hematologic toxicities including thrombocytopenia (65%), neutropenia (41%), leukopenia (30%), anemia (24%) and lymphopenia (35%). No patients experienced cardiotoxicities, neurological toxicities, infusion site reactions, peripheral neuropathy, allergic reactions, cytokine release syndrome, keratopathy, renal toxicities, or changes in liver enzymes. The safety and tolerability profile in patients with r/r NHL was similar to r/r MM patients except for fewer cytopenias of any grade. Based upon CLR 131 being well tolerated across all dose groups and the profound observed response rate, especially in difficult to treat patients such as high risk and triple class refractory or penta-refractory, and corroborating data showing the potential to further improve upon current ORRs and durability of those responses, the study has been expanded to test a two-cycle dosing optimization regimen of CLR 131.

In July 2016, we were awarded a $2,000,000 National Cancer Institute (NCI) Fast-Track Small Business Innovation Research grant to further advance the clinical development of CLR 131. The funds are supporting the Phase 2 study initiated in March 2017 to define the clinical benefits of CLR 131 in r/r MM and other niche hematologic malignancies with unmet clinical need. These niche hematologic malignancies include Chronic Lymphocytic Leukemia, Small Lymphocytic Lymphoma, Marginal Zone Lymphoma, Lymphoplasmacytic Lymphoma and DLBCL. The study is being conducted in approximately 10 U.S. cancer centers in patients with orphan-designated relapse or refractory hematologic cancers. The study's primary endpoint is clinical benefit response (CBR), with additional endpoints of ORR, progression free survival (PFS), median Overall Survival (mOS) and other markers of efficacy following a single 25.0 mCi/m2 dose of CLR 131, with the option for a second 25.0 mCi/m2 dose approximately 75-180 days later. Based on the performance results from Cohort 5 of our Phase 1 study in patients with r/r MM, reviewed below, we have modified the dosing regimen of this study to a fractionated dose of 15.625 mCi/m2 administered on day 1 and day 8.

Phase 1 Study in Patients with r/r Multiple Myeloma

In February 2020, we announced the successful completion of our Phase 1 dose escalation study. Data from the study demonstrated that CLR 131 was safe and tolerated at total body dose of approximately 90mCi in r/r MM, The Phase 1 multicenter, open-label, dose-escalation study was designed to evaluate the safety and tolerability of CLR 131 administered as a 30-minute I.V. infusion, either as a single bolus dose or as two fractionated doses. The r/r multiple myeloma patients in this study received single cycle doses ranging from approximately 20mCi to 90mCi total body dose. To date, an independent Data Monitoring Committee determined that all doses have been safe and well-tolerated by patients.

CLR 131 in combination with dexamethasone is currently under investigation in adult patients with r/r MM. Patients must have been refractory to or relapsed from at least one proteasome inhibitor and at least one immunomodulatory agent. The clinical study is a standard three-plus-three dose escalation safety study to determine the maximum tolerable dose. Multiple myeloma is an incurable cancer of the plasma cells and is the second most common form of hematologic cancers. Secondary objectives include the evaluation of therapeutic activity by assessing surrogate efficacy markers, which include M protein, free light chain (FLC), PFS and OS. All patients have been heavily pretreated with an average of five prior lines of therapy. CLR 131 was deemed by an Independent Data Monitoring Committee (IDMC) to be safe and tolerable up to its planned maximum single, bolus dose of 31.25 mCi/m2. The four single dose cohorts examined were: 12.5 mCi/m2 (~25mCi TBD), 18.75 mCi/m2 (~37.5mCi TBD), 25 mCi/m2(~50mCi TBD), and 31.25 mCi/m2(~62.5mCi TBD), all in combination with low dose dexamethasone (40 mg weekly). Of the five patients in the first cohort, four achieved stable disease and one patient progressed at Day 15 after administration and was taken off the study. Of the five patients admitted to the second cohort, all five achieved stable disease however one patient progressed at Day 41 after administration and was taken off the study. Four patients were enrolled to the third cohort and all achieved stable disease. In September 2017, we announced results for cohort 4, showing that a single infusion up to 30-minutes of 31.25mCi/m2 of CLR 131 was safe and tolerated by the three patients in the cohort. Additionally, all three patients experienced CBR with one patient achieving a partial response (PR). We use the International Myeloma Working Group (IMWG) definitions of response, which involve monitoring the surrogate markers of efficacy, M protein and FLC. The IMWG defines a PR as a greater than or equal to 50% decrease in FLC levels (for patients in whom M protein is unmeasurable) or 50% or greater decrease in M protein. The patient experiencing a PR had an 82% reduction in FLC. This patient did not produce M protein, had received seven prior lines of treatment including radiation, stem cell transplantation and multiple triple combination treatments including one with daratumumab that was not tolerated. One patient experiencing stable disease attained a 44% reduction in M protein. In January 2019, we announced that the pooled mOS data from the first four cohorts was 22.0 months. In late 2018, we modified this study to evaluate a fractionated dosing strategy to potentially increase efficacy and decrease adverse events.

Following the determination that all prior dosing cohorts were safe and tolerated, we initiated a cohort 7 utilizing a 40mCi/m2 fractionated dose administered 20mCi/m2 (~40mCi TBD) on days 1 and day 8. Cohort 7 was the highest pre-planned dose cohort and subjects have completed the evaluation period. Final study report and study close-out will be completed later this year.

In May 2019, we announced that the FDA granted Fast Track Designation for CLR 131 in fourth line or later r/r MM. CLR 131 is our small-molecule radiotherapeutic PDC designed to deliver cytotoxic radiation directly and selectively to cancer cells and cancer stem cells. It is currently being evaluated in our ongoing CLOVER-1 Phase 2 clinical study in patients with relapsed or refractory multiple myeloma and other select B-cell lymphomas.

Phase 1 Study in r/r Pediatric Patients with select Solid tumors, Lymphomas and Malignant Brain Tumors

In December 2017 the Division of Oncology at the FDA accepted our IND and study design for the Phase 1 study of CLR 131 in children and adolescents with select rare and orphan designated cancers. This study was initiated during the first quarter of 2019. In December 2017, we filed an IND application for r/r pediatric patients with select solid tumors, lymphomas and malignant brain tumors. The Phase 1 clinical study of CLR 131 is an open-label, sequential-group, dose-escalation study evaluating the safety and tolerability of intravenous administration of CLR 131 in up to 30 children and adolescents with cancers including neuroblastoma, sarcomas, lymphomas (including Hodgkin's lymphoma) and malignant brain tumors. Secondary objectives of the study are to identify the recommended Phase 2 dose of CLR 131 and to determine preliminary antitumor activity (treatment response) of CLR 131 in children and adolescents. In 2018, the FDA granted OD and RPDD for CLR 131 for the treatment of neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma and osteosarcoma. Should any of these indications reach approval, the RPDD would enable us to receive a priority review voucher. Priority review vouchers can be used by the sponsor to receive priority review for a future New Drug Application ("NDA") or Biologic License Application ("BLA") submission, which would reduce the FDA review time from 12 months to six months. Currently, these vouchers can also be transferred or sold to another entity.

Phase 1 Study in r/r Head and Neck Cancer

In August 2016, the University of Wisconsin Carbone Cancer Center ("UWCCC") was awarded a five-year Specialized Programs of Research Excellence ("SPORE") grant of $12,000,000 from the National Cancer Institute and the National Institute of Dental and Craniofacial Research to improve treatments and outcomes for head and neck cancer, HNC, patients. HNC is the sixth most common cancer across the world with approximately 56,000 new patients diagnosed every year in the U.S. As a key component of this grant, the UWCCC researchers completed testing of CLR 131 in various animal HNC models and initiated the first human clinical trial enrolling up to 30 patients combining CLR 131 and external beam radiation with recurrent HNC in Q4 2019. This clinical trial was suspended due to the COVID-19 pandemic but has now been reopened for enrollment.

Preclinical Pipeline

We believe our PDC platform has potential to provide targeted delivery of a diverse range of oncologic payloads, as exemplified by the product candidates listed below, that may result in improvements upon current standard of care ("SOC") for the treatment of a broad range of human cancers:

- CLR 1800 Series was a collaborative PDC program with Pierre Fabre that expired in January 2019. The program has been successful in demonstrating improved tolerability and efficacy in multiple animal models. The newly developed PDCs may provide enhanced therapeutic indices to otherwise highly potent, nontargeted payloads through the targeted delivery of the chemotherapeutic payload to cancer cells via our proprietary phospholipid ether delivery platform. The CLR 1800 Series remains under evaluation by us as a number of PDC molecules have the potential to be progressed toward and into IND enabling studies.

- CLR 1900 Series is an internally developed proprietary PDC program leveraging a novel small molecule cytotoxic compound as the payload. The payload inhibits mitosis (cell division) and targets a key pathway required to inhibit rapidly dividing cells that results in apoptosis. We believe that this program could produce a product candidate targeted to select solid tumors. Currently, the program is in early preclinical development and if we elect to progress any molecules further, we will select preferred candidates.

- CLR 2000 Series is a collaborative PDC program with Avicenna Oncology, or Avicenna, that we entered into in July 2017. Avicenna is a developer of antibody drug conjugates ("ADCs"). The objective of the research collaboration is to design and develop a series of PDCs utilizing Avicenna's proprietary cytotoxic payload. Although Avicenna is a developer of ADCs, this collaboration was sought as a means to overcome many of the challenges associated with ADCs, including those associated with the targeting of specific cell surface epitopes. The CLR 2000 Series has demonstrated improved safety, efficacy and tissue distribution with the cytotoxic payload in animal models. A candidate molecule and a back-up have been selected for further advancement.

- CLR 2100 and 2200 Series are collaborative PDC programs with Onconova Therapeutics, Inc., or Onconova, that we entered into in September 2017. Onconova is a biotechnology company specializing in the discovery and development of novel small molecule cancer therapies. The collaboration is structured such that we will design and develop a series of PDCs utilizing different small molecules that Onconova was developing as payloads with the intent to show improved targeting and specificity to the tumor. At least one of the molecules was taken into Phase 1 clinical studies previously by Onconova. We would own all new intellectual property associated with the design of the new PDCs, and both companies will have the option to advance compounds.

- CLR 12120 Series is a collaborative PDC program with Orano Med for the development of novel PDCs utilizing Orano Med's unique alpha emitter, lead 212 conjugated to our phospholipid ether; the companies intend to evaluate the new PDCs in up to three oncology indications. Currently this series has shown efficacy in the first two animal models tested.

Our shares are listed on the Nasdaq Capital Market under the symbol CLRB. Before August 15, 2014, our shares were quoted on the OTCQX marketplace, and prior to February 12, 2014, they were quoted under the symbol NVLT.

Key Risks and Uncertainties

We are subject to numerous risks and uncertainties, including the following:

- Our operations and financial condition may be adversely impacted by the COVID-19 pandemic.
- We will require additional capital in order to continue our operations and may have difficulty raising additional capital.
- We are a clinical-stage company with a going concern qualification to our financial statements and a history of losses, and we can provide no assurance as to our future operating results.
- We rely on a collaborative outsourced business model, and disruptions with these third-party collaborators may impede our ability to gain FDA approval and delay or impair commercialization of any products.
- We will require additional capital in order to continue our operations and may have difficulty raising additional capital.
- We rely on a small number of key personnel who may terminate their employment with us at any time, and our success will depend on our ability to hire additional qualified personnel.
- We cannot assure the successful development and commercialization of our compounds in development.
- Our proposed products and their potential applications are in an early stage of clinical and manufacturing/process development and face a variety of risks and uncertainties.
- Failure to complete the development of our technologies, to obtain government approvals, including required FDA approvals, or comply with ongoing governmental regulations could prevent, delay or limit introduction or sale of proposed products and result in failure to achieve revenues or maintain our ongoing business.
- Clinical studies involve a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.
- We may be required to suspend or discontinue clinical studies due to unexpected side effects or other safety risks that could preclude approval of our product candidates.
- Controls we or our third-party collaborators have in place to ensure compliance with all applicable laws and regulations may not be effective.
- We expect to rely on our patents as well as specialized regulatory designations such as orphan drug classification for our product candidates, but regulatory drug designations may not confer marketing exclusivity or other expected commercial benefits.
- The FDA has granted rare pediatric disease designation, RPDD, to CLR 131 for treatment of neuroblastoma and rhabdomyosarcoma; however, we may not be able to realize any value from such designation.
- We are exposed to product, clinical and preclinical liability risks that could create a substantial financial burden should we be sued.

- Acceptance of our products in the marketplace is uncertain and failure to achieve market acceptance will prevent or delay our ability to generate revenues.
- The market for our proposed products is rapidly changing and competitive, and new therapeutics, drugs and treatments that may be developed by others could impair our ability to develop our business or become competitive.
- We may face litigation from third parties claiming that our products infringe on their intellectual property rights, particularly because there is often substantial uncertainty about the validity and breadth of medical patents.
- If we are unable to adequately protect or enforce our rights to intellectual property or to secure rights to third-party patents, we may lose valuable rights, experience reduced market share, assuming any, or incur costly litigation to protect our intellectual property rights.
- Conflicts, military actions, terrorist attacks, natural disasters. public health crises, including the occurrence of a contagious disease or illness, such as the COVID-19 coronavirus, cyber-attacks and general instability could adversely affect our business.
- Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.
- We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.
- Due to continued changes in marketing, sales and distribution, we may be unsuccessful in our efforts to sell our proposed products, develop a direct sales organization, or enter into relationships with third parties.
- If we are unable to convince physicians of the benefits of our intended products, we may incur delays or additional expense in our attempt to establish market acceptance.
- If users of our products are unable to obtain adequate reimbursement from third-party payors, or if additional healthcare reform measures are adopted, it could hinder or prevent the commercial success of our product candidates.
- Our business and operations may be materially, adversely affected in the event of computer system failures or security breaches.
- Failure to maintain effective internal controls could adversely affect our ability to meet our reporting requirements.
- We have in the past received notices from Nasdaq of noncompliance with its listing rules, and delisting with Nasdaq could impact the price of our common stock and our ability to raise funds.
- Our stock price has experienced price fluctuations.
- Our common stock could be further diluted as the result of the issuance of additional shares of common stock, convertible securities, warrants or options.
- Provisions of our certificate of incorporation, by-laws, and Delaware law may make an acquisition of us or a change in our management more difficult.
- We have not paid dividends in the past and do not expect to pay dividends for the foreseeable future. Any return on investment may be limited to the value of our common stock.
- Our management team will have immediate and broad discretion over the use of the net proceeds from this offering, and you may not agree with our use of the net proceeds.
- You will experience immediate and substantial dilution as a result of this offering and may experience additional dilution in the future.
- You may experience future dilution as a result of future equity offerings.
- Warrants issued in this offering may not have any value.

- A warrant does not entitle the holder to any rights as common stockholders until the holder exercises the warrant for shares of our common stock.

- There is no public market for any securities other than our common stock being offered by us in this offering.

For more information regarding the material risks and uncertainties we face, please see "Risk Factors" beginning on page 11 of this prospectus.

Corporate Information

Our principal executive offices are located at 100 Campus Drive, Florham Park, New Jersey 07932 and the telephone number of our principal executive offices is (608) 441-8120. We maintain a website at www.cellectar.com. The information included or referred to on, or accessible through, our website does not constitute part of, and is not incorporated by reference into, this prospectus.

Securities We May Offer

We may offer shares of our common stock and preferred stock, various series of warrants to purchase any of such securities, either individually or in units and/or subscription rights, from time to time under this prospectus, together with any applicable prospectus supplement and related free writing prospectus, at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- rates and times of payment of dividends, if any;
- redemption, conversion or exchange terms, if any;
- conversion or exchange prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion or exchange prices or rates and in the securities or other property receivable upon conversion or exchange;
- ranking;
- restrictive covenants, if any;
- voting or other rights, if any; and
- important United States federal income tax considerations.

A prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

We may sell the securities directly to or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

- the names of those underwriters or agents;
- applicable fees, discounts and commissions to be paid to them;
- details regarding over-allotment options, if any; and
- the net proceeds to us.

Common Stock

We may offer shares of our common stock, par value $0.00001 per share, either alone or underlying other registered securities convertible into or exercisable for our common stock. Holders of our common stock are entitled dividends as the Board of Directors of the Company (the "Board") may declare from time to time out of legally available funds, subject to the preferential rights of the holders of any shares of our preferred stock that are outstanding or that we may issue in the future. Currently, we have 215 issued and outstanding shares of preferred stock. Each holder of our common stock is entitled to one vote per share. In this prospectus, we provide a general description of, among other things, our dividend policy and the rights and restrictions that apply to holders of our common stock. Our common stock is described in greater detail in this prospectus under "Description of Capital Stock — Common Stock."

Preferred Stock

We may issue shares of preferred stock, par value $0.00001 per share, in one or more classes or series. Our Board or a committee designated by our Board will determine the dividend, voting and conversion rights and other provisions at the time of sale. The particular terms of each class or series of preferred stock, including redemption privileges, liquidation preferences, voting rights, dividend rights and/or conversion rights, will be more fully described in the applicable prospectus supplement relating to the preferred stock offered thereby. Our preferred stock is described in greater detail in this prospectus under "Description of Capital Stock — Preferred Stock."

Warrants

We may from time to time offer warrants for the purchase of our common stock and/or preferred stock in one or more series. We may issue warrants independently or together with common stock and/or preferred, and the warrants may be attached to or separate from those securities. The warrants may be evidenced by warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent for the holders of the warrants. In this prospectus, we have summarized certain general features of the warrants under "Description of Warrants." We urge you, however, to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the series of warrants being offered, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement which includes this prospectus.

Units

We may offer units consisting of common stock, preferred stock, and/or warrants to purchase any of such securities in one or more series. In this prospectus, we have summarized certain general features of the units under "Description of Units." We urge you, however, to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the series of units being offered, as well as the unit agreements that contain the terms of the units. We will evidence each series of units by unit certificates that we will issue under a separate agreement. We will enter into the unit agreements with a unit agent. Each unit agent will be a bank or trust company that we select. We will indicate the name and address of the unit agent in the applicable prospectus supplement relating to a particular series of units. The specific form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units will be incorporated by reference as an exhibit to the registration statement which includes this prospectus.

Subscription Rights

We may issue subscription rights to purchase common stock, preferred stock or other securities described in this prospectus or any combination thereof. In this prospectus, we have summarized certain general features of the units under "Description of Subscription Rights." These subscription rights may be issued independently or together with any other security offered by us and may or may not be transferable by the securityholder receiving the subscription rights in such offering. In connection with any offering of subscription rights, we may enter into a standby arrangement with one or more underwriters or other investors pursuant to which the underwriters or other investors may be required to purchase any securities remaining unsubscribed for after such offering. The specific form of subscription rights agreement and any supplemental agreements that describe the terms of the subscription rights we are offering before the issuance of the related subscription rights will be incorporated by reference as an exhibit to the registration statement which includes this prospectus.

RISK FACTORS

Investment in our securities involves a high degree of risk. Prior to making a decision about investing in our securities, prospective investors should consider carefully all of the information included and incorporated by reference or deemed to be incorporated by reference in this prospectus or the applicable prospectus supplement, including the risk factors incorporated by reference herein from our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 as updated by annual, quarterly and other reports and documents we file with the SEC after the date of this prospectus and that are incorporated by reference herein or in the applicable prospectus supplement. Each of these risk factors could have a material adverse effect on our business, results of operations, financial position or cash flows, which may result in the loss of all or part of your investment. For more information, see "Where You Can Find Additional Information" and "Incorporation of Certain Information by Reference."

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Examples of our forward-looking statements include:

- our current views with respect to our business strategy, business plan and research and development activities;
- the impact of the COVID-19 pandemic on our business, employees, operating results, ability to obtain additional funding, product development programs, research and development programs, suppliers and third-party manufacturers;
- the progress of our product development programs, including clinical testing and the timing of commencement and results thereof;
- our projected operating results, including research and development expenses;
- our ability to continue development plans for CLR 131, CLR 1800 series, CLR 1900 series, CLR 2000 series, CLR 2100 series, CLR 2200 series and CLR 12120;
- our ability to continue development plans for our Phospholipid Drug Conjugates (PDC)™;
- our ability to maintain orphan drug designation in the U.S. for CLR 131 as a therapeutic for the treatment of multiple myeloma, neuroblastoma, osteosarcoma, rhabdomyosarcoma, Ewing's sarcoma and lymphoplasmacytic lymphoma, and the expected benefits of orphan drug status;
- any disruptions at our sole supplier of CLR 131;
- our ability to pursue strategic alternatives;
- our ability to advance our technologies into product candidates;
- our enhancement and consumption of current resources along with ability to obtain additional funding;
- our current view regarding general economic and market conditions, including our competitive strengths;
- uncertainty and economic instability resulting from conflicts, military actions, terrorist attacks, natural disasters, public health crises, including the occurrence of a contagious disease or illness, including the COVID-19 pandemic, cyber-attacks and general instability;

- assumptions underlying any of the foregoing; and

- any other statements that address events or developments that we intend or believe will or may occur in the future.

In some cases, you can identify forward-looking statements by terminology such as “expects,” “anticipates,” “intends,” “estimates,” “plans,” “believes,” “seeks,” “may,” “should,” “could” or the negative of such terms or other similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties that could cause actual results to differ materially from those expressed in them. Forward-looking statements also involve risks and uncertainties, many of which are beyond our control. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus.

You should read this prospectus and the documents that we reference herein and therein and have filed as exhibits to the registration statement, of which this prospectus is part, completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus or such prospectus supplement. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made, and we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. We qualify all of the information presented in this prospectus and any accompanying prospectus supplement, and particularly our forward-looking statements, by these cautionary statements.

USE OF PROCEEDS

Unless we specify otherwise in a prospectus supplement, we intend to use the net proceeds from our sale of the securities under this prospectus for general corporate purposes, which may include making additions to our working capital, funding future acquisitions, or for any other purpose we describe in the applicable prospectus supplement.

We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes. Accordingly, our management will have broad discretion over the uses of such proceeds. The specific allocations of the proceeds we receive from the sale of our securities will be described in the applicable prospectus supplement.

DESCRIPTION OF SECURITIES WE MAY OFFER

We may offer shares of our common stock and preferred stock, various series of warrants to purchase any of such securities, either individually or in units and/or subscription rights, from time to time under this prospectus, together with any applicable prospectus supplement and related free writing prospectus, at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities. We may offer up to $100,000,000 of securities under this prospectus.

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock, together with any additional information we include in any applicable prospectus supplement or any applicable free writing prospectus, summarizes the material terms and provisions of our common stock and the preferred stock that we may offer under this prospectus. While the terms we have summarized below will apply generally to any future common stock or preferred stock that we may offer, we will describe the particular terms of any class or series of these securities in more detail in the applicable prospectus supplement. The following summary description of our common stock is based on the provisions of our Second Amended and Restated Certificate of Incorporation, as amended, which we refer to as our certificate of incorporation, our by-laws, and the applicable provisions of the Delaware General Corporation Law, which we refer to as the DGCL. This description may not contain all of the information that is important to you and is subject to, and is qualified in its entirety by reference to our certificate of incorporation, our by-laws and the applicable provisions of the DGCL. Our certificate of incorporation and our by-laws are incorporated by reference into the registration statement of which this prospectus is a part or may be incorporated by reference in this prospectus or any applicable prospectus supplement.

Authorized and Outstanding Capital Stock

Our authorized capital stock consists of 80,000,000 shares of common stock, $0.00001 par value per share and 7,000 shares of preferred stock, $0.00001 par value per share. Our certificate of incorporation authorizes us to issue shares of our preferred stock from time to time in one or more series without stockholder approval, each such series to have rights and preferences, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences as our Board may determine. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of holders of any preferred stock that we may issue in the future. The issuance of preferred stock, while providing desirable flexibility in connection with possible acquisitions and other corporate purposes, could have the effect of making it more difficult for others to acquire, or of discouraging others from attempting to acquire, a majority of our outstanding voting stock.

As of August 7, 2020, we had 26,626,633 shares of common stock outstanding and 215 shares of preferred stock outstanding. All outstanding shares of our common stock are duly authorized, validly issued, fully paid and non-assessable.

Common Stock

Voting. Holders of our common stock are entitled to one vote per share held of record on all matters to be voted upon by our stockholders. Our common stock does not have cumulative voting rights. Persons who hold a majority of the outstanding common stock entitled to vote on the election of directors can elect all of the directors who are eligible for election.

Dividends. Subject to preferences that may be applicable to the holders of any outstanding shares of our preferred stock, the holders of our common stock are entitled to receive such lawful dividends as may be declared by our Board.

Liquidation and Dissolution. In the event of our liquidation, dissolution or winding up, and subject to the rights of the holders of any outstanding shares of our preferred stock, the holders of shares of our common stock will be entitled to receive pro rata all of our remaining assets available for distribution to our stockholders.

Other Rights and Restrictions. Our certificate of incorporation prohibits us from granting preemptive rights to any of our stockholders.

All of the outstanding shares of our common stock are, and the shares of common stock issued upon the conversion of any securities convertible into our common stock will be, fully paid and non-assessable. The shares of common stock offered by this prospectus or upon the conversion of any preferred stock or exercise of any warrants offered pursuant to this prospectus, when issued and paid for, will also be, fully paid and non-assessable.

Our common stock is listed on the Nasdaq Capital Market under the symbol CLRB. The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company.

Preferred Stock

We are authorized to issue 7,000 shares of preferred stock, 215 of which were issued and outstanding as of August 7, 2020. Our Board is authorized, without action by our stockholders, to classify or reclassify any unissued portion of our authorized shares of preferred stock to provide for the issuance of shares of other classes or series, including preferred stock in one or more series. Our Board may fix or alter the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption, the redemption price or prices, the liquidation preferences of any wholly unissued series of Preferred Stock, and the number of shares constituting any such series and the designation thereof, or any of them; and to increase or decrease the number of shares of any series subsequent to the issue of shares of that series, but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be so decreased, the shares constituting such decrease shall resume the status which they had prior to the adoption of the resolution originally fixing the number of shares of such series.

The particular terms of each class or series of preferred stock that we may offer under this prospectus, including redemption privileges, liquidation preferences, voting rights, dividend rights and/or conversion rights, will be more fully described in the applicable prospectus supplement relating to the preferred stock offered thereby. The rights, preferences, privileges and restrictions of the preferred stock of each series will be fixed by the certificate of designation relating to each series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. The applicable prospectus supplement will specify the terms of the series of preferred stock we may offer, including, but not limited to:

- the distinctive designation and the maximum number of shares in the series;
- the number of shares we are offering and purchase price per share;
- the liquidation preference, if any;
- the terms on which dividends, if any, will be paid;
- the voting rights, if any, on the shares of the series;
- the terms and conditions, if any, on which the shares of the series shall be convertible into, or exchangeable for, shares of any other class or classes of capital stock;
- the terms on which the shares may be redeemed, if at all;
- any listing of the preferred stock on any securities exchange or market;
- a discussion of any material or special United States federal income tax considerations applicable to the preferred stock; and
- any or all other preferences, rights, restrictions, including restrictions on transferability, and qualifications of shares of the series.

The issuance of preferred stock may delay, deter or prevent a change in control.

The description of preferred stock above and the description of the terms of a particular series of preferred stock in any applicable prospectus supplement are not complete. You should refer to the applicable certificate of designation for complete information.

The DGCL provides that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of that preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

Possible Anti-Takeover Effects of Delaware Law and our Certificate of Incorporation and By-laws

Authorized but Unissued Stock. We have shares of common stock and preferred stock available for future issuance, in some cases without stockholder approval. We may issue these additional shares for a variety of corporate purposes, including public offerings to raise additional capital, corporate acquisitions, stock dividends on our capital stock or equity compensation plans. The existence of unissued and unreserved common stock and preferred stock may enable our Board to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us, thereby protecting the continuity of our management. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

Amendments to By-laws. Our certificate of incorporation and by-laws authorize the Board to amend, repeal, alter or rescind the by-laws at any time without stockholder approval. Allowing the Board to amend our by-laws without stockholder approval enhances Board control over our by-laws.

Classification of Board; Removal of Directors; Vacancies. Our certificate of incorporation provide for the division of the Board into three classes as nearly equal in size as possible with staggered three-year terms; that directors may be removed only for cause by the affirmative vote of the holders of two-thirds of our shares of capital stock entitled to vote; and that any vacancy on the Board, however occurring, including a vacancy resulting from an enlargement of the Board, may be filled only by the vote of a majority of the directors then in office. The limitations on the removal of directors and the filling of vacancies could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from acquiring, control of us. Our certificate of incorporation requires the affirmative vote of the holders of at least 75% of our shares of capital stock issued and outstanding and entitled to vote to amend or repeal any of these provisions.

Notice Periods for Stockholder Meetings. Our by-laws provide that for business to be brought by a stockholder before an annual meeting of stockholders, the stockholder must give written notice to the corporation not less than 90 nor more than 120 days prior to the one year anniversary of the date of the annual meeting of stockholders of the previous year; provided, however, that in the event that the annual meeting of stockholders is called for a date that is not within 30 days before or after such anniversary date, notice by the stockholder must be received not later than the close of business on the tenth day following the day on which the corporation's notice of the date of the meeting is first given or made to the stockholders or disclosed to the general public, whichever occurs first.

Stockholder Action; Special Meetings. Our certificate of incorporation provides that stockholder action may not be taken by written action in lieu of a meeting and provides special meetings of the stockholders may only be called by our president or by our Board. These provisions could have the effect of delaying until the next stockholders' meeting stockholder actions that are favored by the holders of a majority of our outstanding voting securities. These provisions may also discourage another person or entity from making a tender offer for our common stock, because that person or entity, even if it acquired a majority of our outstanding voting securities, would be able to take action as a stockholder only at a duly called stockholders' meeting, and not by written consent. Our certificate of incorporation requires the affirmative vote of the holders of at least 75% of our shares of capital stock issued and outstanding and entitled to vote to amend or repeal the provisions relating to prohibition on action by written consent and the calling of a special meeting of stockholders.

Nominations. Our by-laws provide that nominations for election of directors may be made only by (i) the Board or a committee appointed by the Board; or (ii) a stockholder entitled to vote on director election, if the stockholder provides notice to the Secretary of the Corporation presented not less than 90 days nor more than 120 days prior to the anniversary of the last annual meeting (subject to the limited exceptions set forth in the by-laws). These provisions may deter takeovers by requiring that any stockholder wishing to conduct a proxy contest have its position solidified well in advance of the meeting at which directors are to be elected and by providing the incumbent Board with sufficient notice to allow them to put an election strategy in place.

Delaware Anti-Takeover Statute. We are subject to Section 203 of the DGCL, an anti-takeover statute. In general, Section 203 of the DGCL prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years following the time the person became an interested stockholder, unless the business combination or the acquisition of shares that resulted in a stockholder becoming an interested stockholder is approved in a prescribed manner. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns (or within three years prior to the determination of interested stockholder status did own) 15% or more of a corporation's voting stock. The existence of this provision would be expected to have an anti-takeover effect with respect to transactions not approved in advance by our Board, including discouraging attempts that might result in a premium over the market price for the shares of common stock held by our stockholders

The above provisions may deter a hostile takeover or delay a change in control or management of us.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which may consist of warrants to purchase common stock or preferred stock and may be issued in one or more series. Warrants may be offered independently or together with common stock or preferred stock offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants that we may offer in more detail in the applicable prospectus supplement and any applicable free writing prospectus. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will issue the warrants under a warrant agreement that we will enter into with a warrant agent to be selected by us. The warrant agent will act solely as an agent of ours in connection with the warrants and will not act as an agent for the holders or beneficial owners of the warrants. We will file as exhibits to the registration statement of which this prospectus is a part the form of warrant agreement, including a form of warrant certificate that describes the terms of the particular series of warrants we are offering before the issuance of the related series of warrants. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants. We urge you to read the applicable prospectus supplement and any applicable free writing prospectus related to the particular series of warrants that we sell under this prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants.

The applicable prospectus supplement will specify the terms relating to a series of warrants, including:

- the offering price and aggregate number of warrants offered;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreements and warrants may be modified;

- United States federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants to purchase common stock or preferred stock will not have any of the rights of holders of the securities purchasable upon such exercise, including the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file as exhibits to the registration statement of which this prospectus is a part the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we sell under this prospectus, as well as the complete unit agreement and any supplemental agreements that contain the terms of the units.

We may issue units comprised of one or more shares of common stock, shares of preferred stock and warrants in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units, including:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock” and “Description of Warrants” will apply to each unit and to any common stock, preferred stock or warrant included in each unit, respectively.

DESCRIPTION OF SUBSCRIPTION RIGHTS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses, summarizes the material terms and provisions of the subscription rights that we may offer under this prospectus. While the terms we have summarized below will apply generally to any subscription rights that we may offer under this prospectus, we will describe the particular terms of any series of subscription rights in more detail in the applicable prospectus supplement. The terms of any subscription rights offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file as exhibits to the registration statement of which this prospectus is a part the form of subscription rights agreement that describes the terms of the series of subscription rights we are offering, and any supplemental agreements, before the issuance of the related series of subscription rights. The following summaries of material terms and provisions of the subscription rights are subject to, and qualified in their entirety by reference to, all the provisions of the subscription rights agreement and any supplemental agreements applicable to a particular series of subscription rights. We urge you to read the applicable prospectus supplements related to the particular series of subscription rights that we sell under this prospectus, as well as the complete subscription rights agreement and any supplemental agreements that contain the terms of the subscription rights.

We may issue subscription rights to purchase common stock, preferred stock or other securities described in this prospectus or any combination thereof. These subscription rights may be issued independently or together with any other security offered by us and may or may not be transferable by the holder receiving the subscription rights in such offering. In connection with any offering of subscription rights, we may enter into a standby arrangement with one or more underwriters or other investors pursuant to which the underwriters or other investors may be required to purchase any securities remaining unsubscribed for after such offering.

To the extent appropriate, the applicable prospectus supplement will describe the specific terms of the subscription rights to purchase shares of our securities offered thereby, including the following:

- the date of determining the holders entitled to the rights distribution;
- the price, if any, for the subscription rights;
- the exercise price payable for the common stock, preferred stock or other securities upon the exercise of the subscription right;
- the number of subscription rights issued to each holder
- the amount of common stock, preferred stock, or other securities that may be purchased per each subscription right;
- any provisions for adjustment of the amount of securities receivable upon exercise of the subscription rights or of the exercise price of the subscription rights;
- the extent to which the subscription rights are transferable;
- the date on which the right to exercise the subscription rights shall commence, and the date on which the subscription rights shall expire;
- the extent to which the subscription rights may include an over-subscription privilege with respect to unsubscribed securities;
- the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of subscription rights;
- any applicable federal income tax considerations; and
- any other terms of the subscription rights, including the terms, procedures and limitations relating to the transferability, exchange and exercise of the subscription rights.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

- through agents to the public or to investors;
- to underwriters for resale to the public or to investors;
- in "at the market" offerings, within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market on an exchange or otherwise;
- directly to investors; or
- through a combination of any of these methods of sale.

We will set forth in a prospectus supplement the terms of the particular offering of securities, including:

- the terms of the offering;
- the name or names of any agents or underwriters;
- the purchase price of the securities being offered and the proceeds we will receive from the sale;
- any over-allotment options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- any initial public offering price;
- any discounts or concessions allowed or reallowed or paid to dealers; and
- any securities exchanges or markets on which such securities may be listed.

We may issue to the holders of our common stock on a pro rata basis for no consideration, subscription rights to purchase shares of our common stock or preferred stock. These subscription rights may or may not be transferable by stockholders. The applicable prospectus supplement will describe the specific terms of any offering of our common or preferred stock through the issuance of subscription rights, including the terms of the subscription rights offering, the terms, procedures and limitations relating to the exchange and exercise of the subscription rights and, if applicable, the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of common or preferred stock through the issuance of subscription rights.

Agents

We may designate agents who agree to use their reasonable efforts to solicit purchases of our securities for the period of their appointment or to sell our securities on a continuing basis.

Underwriters

If we use underwriters for a sale of securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. The underwriters will be obligated to purchase all the securities of the series offered if they purchase any of the securities of that series. We may change from time to time any initial public offering price and any discounts or concessions the underwriters allow or reallow or pay to dealers. We may use underwriters with whom we have a material relationship. We will describe the nature of any such relationship in any prospectus supplement naming any such underwriter. Only underwriters we name in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

Direct Sales

We may also sell securities directly to one or more purchasers without using underwriters or agents. Underwriters, dealers and agents that participate in the distribution of the securities may be underwriters as defined in the Securities Act, and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the Securities Act. Underwriters, dealers and agents may engage in transactions with or perform services for us in the ordinary course of their businesses.

Delayed Delivery Contracts

If the prospectus supplement indicates, we may authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase securities at the public offering price under delayed delivery contracts. These contracts would provide for payment and delivery on a specified date in the future. The contracts would be subject only to those conditions described in the prospectus supplement. The applicable prospectus supplement will describe the commission payable for solicitation of those contracts.

Market Making, Stabilization and Other Transactions

Unless the applicable prospectus supplement states otherwise, each series of offered securities will be a new issue and will have no established trading market. We may elect to list any series of offered securities on an exchange. Any underwriters that we use in the sale of offered securities may make a market in such securities, but may discontinue such market making at any time without notice. Therefore, we cannot assure you that the securities will have a liquid trading market.

Any underwriter may also engage in stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Rule 104 under the Exchange Act. Stabilizing transactions involve bids to purchase the underlying security in the open market for the purpose of pegging, fixing or maintaining the price of the securities. Syndicate covering transactions involve purchases of the securities in the open market after the distribution has been completed in order to cover syndicate short positions.

Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of the securities to be higher than it would be in the absence of the transactions. The underwriters may, if they commence these transactions, discontinue them at any time.

Passive Market Making

Any underwriters who are qualified market makers on the Nasdaq Capital Market may engage in passive market making transactions in the securities on the Nasdaq Capital Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security. If all independent bids are lowered below the passive market maker’s bid, however, the passive market maker’s bid must then be lowered when certain purchase limits are exceeded.

Derivative Transactions and Hedging

We, the underwriters or other agents may engage in derivative transactions involving the securities. These derivatives may consist of short sale transactions and other hedging activities. The underwriters or agents may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes in the price of the securities. In order to facilitate these derivative transactions, we may enter into security lending or repurchase agreements with the underwriters or agents. The underwriters or agents may effect the derivative transactions through sales of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others. The underwriters or agents may also use the securities purchased or borrowed from us or others (or, in the case of derivatives, securities received from us in settlement of those derivatives) to directly or indirectly settle sales of the securities or close out any related open borrowings of the securities.

Electronic Auctions

We may also make sales through the Internet or through other electronic means. Since we may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of such securities, you will want to pay particular attention to the description of that system we will provide in a prospectus supplement.

Such electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which such securities are sold. These bidding or ordering systems may present to each bidder, on a so-called "real-time" basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder's individual bids would be accepted, prorated or rejected.

Upon completion of such an electronic auction process, securities will be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders would be based in whole or in part on the results of the Internet or other electronic bidding process or auction.

General Information

Agents, underwriters, and dealers may be entitled, under agreements entered into with us, to indemnification by us against certain liabilities, including liabilities under the Securities Act. Our agents, underwriters, and dealers, or their affiliates, may be customers of, engage in transactions with or perform services for us, in the ordinary course of business.

The maximum consideration or discount to be received by any Financial Industry Regulatory Authority, or FINRA, member or independent broker dealer may not exceed 8.0% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

LEGAL MATTERS

The validity of the securities being offered by this prospectus has been passed upon for us by Michael Best & Friedrich LLP, Madison, Wisconsin.

EXPERTS

The audited financial statements incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance upon the report of Baker Tilly US, LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and special reports, and other information with the SEC. Copies of the reports and other information may be read and copied at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You can request copies of such documents by writing to the SEC and paying a fee for the copying cost. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a web site at http://www.sec.gov that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC.

This prospectus is part of a registration statement on Form S-3 that we filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules and regulations of the SEC. We have also filed exhibits and schedules with the registration statement that are excluded from this prospectus. For further information you may:

- read a copy of the registration statement, including the exhibits and schedules, without charge at the SEC's Public Reference Room; or

- obtain a copy from the SEC upon payment of the fees prescribed by the SEC.

We are subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, are required to file periodic reports, proxy statements and other information with the SEC. We make available free of charge, on or through the investor relations section of our website, annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The information found on our website, other than as specifically incorporated by reference in this prospectus, is not part of this prospectus.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus, except for any information that is superseded by other information that is included in this prospectus.

We incorporate by reference into this prospectus the following document, which we have previously filed with the SEC:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed with the SEC on March 9, 2020;
- our Quarterly Report on Form 10-Q for the quarter year ended March 31, 2020, filed with the SEC on May 7, 2020;
- our Quarterly Report on Form 10-Q for the quarter year ended June 30, 2020, filed with the SEC on August 10, 2020;
- our Definitive Proxy Statement on Schedule 14A for the annual meeting of stockholders, filed with the SEC on April 28, 2020;
- our Current Report on Form 8-K, filed with the SEC on January 7, 2020;
- our Current Report on Form 8-K, filed with the SEC on May 26, 2020;
- our Current Report on Form 8-K, filed with the SEC on June 1, 2020;
- our Current Report on Form 8-K, filed with the SEC on June 5, 2020;
- our Current Report on Form 8-K, filed with the SEC on June 25, 2020;
- our Current Report on Form 8-K, filed with the SEC on July 1, 2020; and
- the description of our securities contained in our Registration Statement on Form 8-A filed on April 18, 2016, including any amendment or report filed for the purpose of updating such description.

In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of the offering will be deemed to be incorporated by reference into this prospectus.

You should rely only on the information contained in this prospectus, as updated and supplemented by any prospectus supplement, or that information to which this prospectus or any prospectus supplement has referred you by reference. We have not authorized anyone to provide you with any additional information.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein modifies or supersedes such statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You may request and obtain a copy of any of the filings incorporated herein by reference, at no cost, by writing or telephoning us at the following address or phone number:

Cellectar Biosciences, Inc.
100 Campus Drive
Florham Park, New Jersey 07932
Attention: Chief Financial Officer (608) 441-8120

CELLECTAR BIOSCIENCES, INC.

$100,000,000

Common Stock
Preferred Stock
Warrants
Units
Subscription Rights

PROSPECTUS

August , 2020