

This preliminary prospectus supplement relates to an effective registration statement under the Securities Act of 1933, as amended, but the information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying base prospectus are not an offer to sell and are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED SEPTEMBER 4, 2025

**PRELIMINARY PROSPECTUS SUPPLEMENT
(to Prospectus dated July 14, 2023)**



**[] Shares of Common Stock
Pre-Funded Warrants to Purchase up to [] Shares of Common Stock**

Pursuant to this prospectus supplement and the accompanying prospectus, Artelo Biosciences, Inc. (the “Company,” “Artelo,” “Artelo Biosciences,” “we,” “us,” and “our”) is offering up to [] shares of our common stock, par value \$0.001 per share, at a price of \$[] per share. We are also offering [] pre-funded warrants (each a “Pre-funded Warrant”) to purchase up to [] shares of our common stock, exercisable at an exercise price of \$0.001 per share, to those purchasers whose purchase of shares of common stock in this offering would otherwise result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the holder, 9.99%) of our outstanding shares of common stock immediately following the consummation of this offering. The purchase price of each Pre-funded Warrant is \$[], which equals the price per share of common stock being sold to the public in this offering, minus \$0.001. The Pre-funded Warrants will be immediately exercisable upon issuance until exercised in full.

Our common stock is listed on The Nasdaq Capital Market tier of The Nasdaq Stock Market LLC (“Nasdaq”) under the symbol “ARTL.” On September 3, 2025, the last reported sale price for our common stock on the Nasdaq Capital Market was \$8.76 per share. There is no established trading market for the Pre-funded Warrants, and we do not intend to apply for listing of the Pre-funded Warrants on any national securities exchange.

As of the date of this prospectus supplement, the aggregate market value of our outstanding common stock held by non-affiliates was approximately \$22,062,306, based on 774,116 shares of outstanding common stock held by non-affiliates, and a per share price of \$28.50 based on the closing sale price of our common stock on July 10, 2025. In no event will the aggregate market value of securities sold by us or on our behalf under this prospectus supplement pursuant to General Instruction I.B.6 of Form S-3 during the twelve-month period immediately prior to, and including, the date of any such sale, exceed one-third of the aggregate market value of our common stock held by non-affiliates. During the twelve-month period that ends on and includes the date hereof, we have sold 50,858 shares of our common stock pursuant to General Instruction I.B.6 of Form S-3, for aggregate gross proceeds of \$451,526.95.

Investing in our securities involves a high degree of risk. Please read “Risk Factors” beginning on page S-7 of this prospectus supplement, page 9 of the accompanying prospectus, and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus for a discussion of the factors you should carefully consider before deciding to purchase our securities.

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

	Per Share	Per Pre-Funded Warrant	Total ⁽²⁾
Offering Price	\$	\$	\$
Underwriting discounts ⁽¹⁾	\$	\$	\$
Proceeds, before expenses, to us	\$	\$	\$

- (1) We will also pay the underwriter for certain expenses incurred in this offering. See “Underwriting” on page S-19 of this prospectus supplement for more information regarding the underwriting compensation.
- (2) Assumes the underwriter does not exercise its over-allotment option.

We have granted the underwriter an option for a period ending 45 days after the closing date of this offering to purchase up to an additional [] shares of common stock at the public offering price, less the underwriting discounts, solely to cover over-allotments, if any. If the underwriter exercises the option in full, the total underwriting discounts will be \$[], and the total proceeds to us, before expenses, will be \$[].

The underwriter expects to deliver the shares of common stock and the Pre-funded Warrants on or about , 2025.

Sole Book Running Manager

R.F. Lafferty & Co., Inc.

The date of this prospectus supplement is , 2025.

TABLE OF CONTENTS

Prospectus Supplement

	Page
About This Prospectus Supplement	S-i
Forward-Looking Statements	S-ii
Prospectus Supplement Summary	S-1
The Offering	S-6
Risk Factors	S-7
Use of Proceeds	S-11
Capitalization	S-12
Dilution	S-13
Description of Securities We Are Offering	S-15
Underwriting	S-19
Legal Matters	S-23
Experts	S-23
Where You Can Find Additional Information	S-23
Incorporation of Documents by Reference	S-24

Prospectus

	Page
About this Prospectus	3
Prospectus Summary	4
Risk Factors	9
Forward-Looking Statements	9
Use of Proceeds	9
Description of Capital Stock	10
Description of Debt Securities	10
Description of Warrants	17
Description of Units	17
Plan of Distribution	18
Legal Matters	20
Experts	20
Where You Can Find More Information	20
Incorporation by Reference	20

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying base prospectus are part of a registration statement that we filed on Form S-3 (Registration No. 333-273153) with the U.S. Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. The shelf registration statement was filed with the SEC on July 6, 2023, and was declared effective by the SEC on July 14, 2023. Under the shelf registration statement, we have registered to sell, from time to time, up to \$75 million in the aggregate of common stock, preferred stock, debt securities, warrants, and units. This prospectus is deemed a prospectus supplement to the accompanying prospectus included in the registration statement of which this prospectus forms a part.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus, or the base prospectus, and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus supplement, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference that was filed with the U.S. Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, you should rely on the information in this prospectus supplement; provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in the accompanying prospectus—the statement in the document having the later date modifies or supersedes the earlier statement.

This prospectus supplement, together with the accompanying base prospectus, the documents incorporated by reference into this prospectus supplement and the accompanying base prospectus and any free writing prospectus we have authorized for use in connection with this offering, include all material information relating to this offering. We have not, and the underwriter has not, authorized anyone to provide you with different or additional information and you must not rely on any unauthorized information or representations.

We further note that 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 herein 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.

As permitted by the rules and regulations of the SEC, the registration statement, of which this prospectus supplement and the accompanying prospectus form a part, includes additional information not contained in this prospectus supplement or the accompanying prospectus. You should read this prospectus supplement, the registration statement and the accompanying prospectus together with the documents incorporated by reference into this prospectus supplement and into the accompanying prospectus before buying any of our securities in this offering. See “*Where You Can Find Additional Information*” in this prospectus supplement and in the accompanying base prospectus.

This prospectus supplement and the accompanying prospectus may contain and incorporate by reference, market data and industry statistics and forecasts that are based on independent industry publications and other publicly available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information, and we have not independently verified this information. In addition, the market and industry data and forecasts that may be included or incorporated by reference in this prospectus supplement and the accompanying prospectus or any applicable free writing prospectus may involve estimates, assumptions and other risks and uncertainties and are subject to change based on various factors, including those discussed under the heading “*Risk Factors*” contained in this prospectus supplement and the accompanying base prospectus and any applicable free writing prospectus, and under similar headings in other documents that are incorporated by reference into this prospectus supplement. Accordingly, investors should not place undue reliance on this information.

You should not assume that the information in this prospectus supplement, the accompanying prospectus or any other offering materials is accurate as of any date other than the date on the front of each document, regardless of the time of delivery of this prospectus supplement, the accompanying prospectus or such other offering materials or the time of any sale of securities. Our business, financial condition, results of operations and prospects may have changed since then.

FORWARD-LOOKING STATEMENTS

The information in this prospectus supplement and the accompanying prospectus and the information incorporated herein and therein by reference includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements are based on current expectations and beliefs and involve numerous risks and uncertainties that could cause actual results to differ materially from expectations. These forward-looking statements should not be relied upon as predictions of future events as we cannot assure you that the events or circumstances reflected in these statements will be achieved or will occur. When used in this report, the words “believe,” “may,” “could,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “indicate,” “seek,” “should,” “would” and similar expressions are intended to identify forward-looking statements, though not all forward-looking statements contain these identifying words. All statements, other than statements of historical fact, are statements that could be deemed forward-looking statements.

You should not rely upon forward-looking statements as guarantees of future performance or as predictions of future events. We have based these forward-looking statements largely on our current estimates of our financial results and our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions that may cause our actual results to differ materially from those contained in any forward-looking statements, including those described in “*Risk Factors*” in this prospectus supplement, the accompanying prospectus and in our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q and in our other filings with the SEC that are incorporated by reference in this prospectus supplement or the accompanying prospectus. Moreover, we operate in a very competitive and rapidly changing environment and new risks emerge from time to time. In light of these risks, uncertainties and assumptions, the forward-looking statements discussed in this prospectus supplement, the accompanying prospectus and in our most recent Annual Report on Form 10-K, subsequent Quarterly Reports on Form 10-Q and any other filings with the SEC that are incorporated by reference in this prospectus supplement or the accompanying prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

These forward-looking statements include, among other things, statements about:

- our financial condition and our ability to continue as a going concern;
- our plans to obtain funding for our operations, including funding necessary to complete our clinical trials, develop, manufacture and commercialize our product candidates;
- our ability to raise any current or future funding to meet our capital requirements;
- the expected timing of the initiation and completion of our clinical studies for our product candidates;
- the size and growth of the markets for our product candidates;
- our commercialization, marketing, and manufacturing capabilities and strategies;
- geopolitical tensions, including tariffs and any war, regional conflict, or acts of terror, that can disrupt investment, supply chains and the economy generally;
- our ability to compete with companies currently producing alternative treatment methods;
- the cost, timing and outcomes of any potential litigation involving our product candidates;
- regulatory developments in the U.S. and internationally;
- the development, regulatory approval, efficacy and commercialization of competing product candidates;

- our ability to attract and retain key scientific or management personnel;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our products and technology;
- the terms and conditions of licenses granted to us and our ability to license additional intellectual property related to our product candidates, as appropriate;
- potential claims related to our intellectual property;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;
- our ability to regain and maintain compliance with Nasdaq listing requirements;
- our ability to develop and maintain our corporate infrastructure, including our internal controls;
- our cash investment strategy;
- our ability to develop innovative new product candidates; and
- our financial performance.

If any of these risks or uncertainties materialize or any of these assumptions prove incorrect, our results could differ materially from the forward-looking statements in this prospectus supplement. All forward-looking statements in this prospectus supplement are current only as of the date of this prospectus supplement. We do not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any statement is made or to reflect the occurrence of unanticipated events except as required by law.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus supplement, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information.

PROSPECTUS SUPPLEMENT SUMMARY

This summary description about us and our business highlights selected information contained elsewhere in this prospectus supplement or incorporated by reference in this prospectus supplement and the accompanying prospectus. This summary does not contain all of the information that you should consider before deciding to invest in our securities pursuant to this prospectus supplement and the accompanying prospectus. You should carefully read this entire prospectus supplement, the accompanying prospectus and any related free writing prospectus, including each of the documents incorporated herein or therein by reference, before making an investment decision. Investors should carefully consider the information set forth under “Risk Factors” in this prospectus supplement on page S-7, in any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus supplement. You also should carefully read the information incorporated by reference into this prospectus supplement, including our financial statements, other information and the exhibits to the registration statement of which the accompanying prospectus is a part.

Corporate Overview

We are a clinical stage biopharmaceutical company focused on the development and commercialization of therapeutics that target lipid-signaling modulation pathways, including the endocannabinoid system (the “ECS”), a network of receptors and neurotransmitters that form a biochemical communication system throughout the body.

Our product candidate pipeline broadly leverages leading scientific methodologies and balances risk across mechanisms of action and stages of development. Our programs represent a comprehensive approach in utilizing the power and promise of lipid signaling to develop pharmaceuticals for patients with unmet healthcare needs. We are currently developing a dual cannabinoid (CB) agonist that targets both the CB₁ and CB₂ receptors. This synthetic small molecule program is a G protein-coupled receptor (“GPCR”) designated ART27.13. We are developing ART27.13 as a potential treatment for cancer-related anorexia in a Phase 1b/2a trial, titled the Cancer Appetite Recovery Study (“CAREs”).

Our second program, ART26.12 is a small molecule and the lead product candidate from our chemical library of inhibitors of fatty acid binding proteins, notably Fatty Acid Binding Protein 5 (“FABP5”). We received U.S. Food & Drug Administration (the “FDA”) clearance for our Investigational New Drug (“IND”) application for ART26.12 in July 2024 and have completed enrolment to a Phase 1 clinical trial in healthy subjects to support the development towards an agent intended to treat chemotherapy-induced peripheral neuropathy. In addition, ART26.12 may have broad applications as a cancer therapeutic, as a treatment for dermatologic conditions, such as psoriasis, as a treatment for pain and inflammation, and potential use in anxiety-related disorders, including post-traumatic stress disorder. In June 2025, we announced favorable results from our first-in-human study evaluating ART26.12. The Phase 1 Single Ascending Dose (SAD) study was designed to assess the safety, tolerability, and pharmacokinetics of ART26.12 in healthy volunteers and enrolled 49 subjects. All adverse events (AEs) were mild, transient, and self-resolving. No drug-related AEs were observed in the blinded dataset, and no tolerability issues or safety signals were detected across multiple assessments (vital signs, ECGs, clinical laboratory tests, physical examinations, and visual analogue mood scales). In addition, full dose-exposure profiles were successfully explored. Plasma analysis confirmed dose-dependent, linear absorption across the evaluated range. A wide safety margin was observed between estimated therapeutic plasma concentrations and the highest exposure levels achieved, supporting potential titration for maximum efficacy in future studies.

We are also developing our own invention ART12.11 (the “CBD cocrystal”). ART12.11 is our patented solid-state composition of cannabidiol (“CBD”) and tetramethylpyrazine (“TMP”). TMP serves as the cofomer in the CBD cocrystal. ART12.11 may be considered by the regulatory authorities as a fixed drug combination instead of a new chemical entity (“NCE”).

We obtained two of our patent protected product candidates through our in-licensing activities. Our first in-licensed program, ART27.13, is being developed for cancer-related anorexia. ART27.13 is a peripherally-selective high-potency dual CB₁ and CB₂ full-receptor agonist, which was originally invented at AstraZeneca plc (“AstraZeneca”). We exercised our option to exclusively license this product candidate through the NEOMED Institute (“NEOMED”), a Canadian not-for-profit corporation, renamed adMare Bioinnovations (“adMare”) in June 2019, which had obtained rights to ART27.13 from AstraZeneca. In Phase 1, single dose studies in healthy volunteers and a multiple ascending dose study in individuals with chronic low back pain conducted by AstraZeneca, ART27.13 exhibited an attractive pharmacokinetic and absorption, distribution, metabolism, and excretion profile and was well tolerated within the target exposure range. It also exhibited dose-dependent and potentially clinically meaningful increases in body weight. Importantly, the changes in body weight were not associated with fluid retention or other adverse effects and occurred at exposures without central nervous system (“CNS”) side effects. Discussions with United Kingdom (“UK”), U.S. and Canadian regulators indicate there is a potential pathway for development of ART27.13 for the treatment of cancer-related anorexia, which affects approximately 60% of advanced stage cancer patients.

We commenced enrollment and dosed the first patient in CARES, our Phase 1b/2a clinical study of cancer-related anorexia with ART27.13, in April 2021 and completed enrolling patients in the Phase 1b during the first quarter of 2023. Data from the Phase 1b stage was used to determine the most effective and safe dose selected as the starting dose for the Phase 2a portion of CARES. We received approval from the regulatory authorities in the UK, Ireland and Norway to increase the daily dose from the starting dose of 650 micrograms to 1,000 micrograms after 4 weeks and up to 1,300 micrograms initiated at 8 weeks in patients for whom intra-patient dose escalation is expected to be well tolerated. We also received approval from the regulatory authorities to enroll 40 evaluable patients into the Phase 2a stage with a 3:1 randomization of ART27.13 to placebo. We initiated the Phase 2a portion of CARES during April 2023. As of May 6, 2025, 18 clinical sites across five countries are open for enrollment.

As of June 30, 2025, 32 participants have been enrolled. On September 3, 2025, we announced interim results from the Phase 2a CARES trial. In the interim analysis, 18 evaluable patients—primarily with lung and gastrointestinal cancers not receiving cyclic chemotherapy—were included. After 12 weeks of treatment in patients who titrated to the top dose evaluated of 1300 micrograms (n=5), ART27.13 demonstrated compelling increases in mean body weight of 6.38% (Standard Deviation or SD 9.50) compared to patients on placebo (n=6) who lost -5.42% (SD 8.17). The maximum weight gain in the ART27.13 group reached 18.5%, versus only 0.4% in placebo. The maximum weight loss in the placebo arm was -17.4%, compared to just -3.0% in the ART27.13 group. Additional benefits were seen in lean body mass, with a +4.23% increase (SD 5.37) in the treatment group versus a -3.15% loss (SD 4.89) in placebo at one month, as well as qualitative improvements in total and weekly activity scores.

Safety results were consistent with prior findings. Among the 32 participants enrolled in the CARES Phase 2 trial to date, 7 patients (22%) experienced adverse events that may be related to ART27.13. All were mild or moderate, with the exception of a single case of severe malaise, and no drug-related serious adverse events were reported. These data are aligned with safety outcomes observed in Phase 1 of CARES, supporting ART27.13's overall favorable tolerability and acceptable safety profile.

Our second in-licensed patented program is being advanced from our platform of small-molecule inhibitors of fatty acid binding proteins, notably FABP5. Fatty acid binding proteins ("FABPs") are attractive therapeutic targets, however, the high degree of sequence and structural similarities among family members made the creation of drugs targeting specific FABPs challenging. FABP5 is believed to specifically target and regulate one of the body's endogenous cannabinoids, anandamide ("AEA"). While searching for a FABP5 inhibitor to regulate AEA, researchers at Stony Brook University ("SBU") discovered the chemistry for creating a large library of compounds which we believe to be highly specific and potent small molecule inhibitors of FABP5 and other isoforms. SBU had received approximately \$8.0 million in funding from the National Institutes of Health to develop FABP5 inhibitor candidates including a \$4.2 million grant in 2020 to advance research of FABP5 inhibition in prostate cancer. We licensed the rights to worldwide intellectual property in all fields and certain know-how to these inhibitors from SBU.

Our lead FABP5 inhibitor program is designated ART26.12. Preclinical research with ART26.12 showed evidence of activity in multiple pain models including osteoarthritis, cancer bone pain, and neuropathic pain. Based upon positive preclinical evidence from five separate studies showing promising activity and a differentiated mechanism-of-action for the prevention and treatment of painful neuropathies, including diabetic neuropathy and Chemotherapy Induced Peripheral Neuropathy ("CIPN"), we prioritized CIPN as the initial indication for development of ART26.12. Treatment and/or prevention of CIPN is a significant unmet need, often resulting in anti-cancer treatment delays or discontinuations, and there are currently no approved treatments for CIPN by the regulatory authorities in the U.S., UK or EU. We submitted an IND application for ART26.12 to the FDA on 10th of June 2024 and received a study may proceed notice from the FDA on the 8th of July 2024. First-in-human studies for ART26.12 began in Q4 of 2024 and we successfully completed dosing all 48 healthy volunteers planned for the Phase 1 Single Ascending Dose study at the end of April 2025. In addition to its potential as a synthetic endocannabinoid modulator with development targeting pain, inflammation, dermatologic conditions such as psoriasis, FABP5 is understood to play an important role in lipid signaling and is believed to be an attractive strategy for drug development in oncology. Large amounts of human biomarker and animal model data support FABP5 as an oncology target, including triple negative breast cancer, ovarian cancer, cervical cancer, and castration-resistant prostate cancer. Through our sponsored research we have also subsequently identified a potential role for FABP5 inhibition to treat anxiety disorders, such as Post Traumatic Stress Disorder ("PTSD"). We have been awarded a research grant in Canada to expand on our earlier research at the University of Western Ontario in this new development area.

In addition to our in-licensed programs, we have internal discovery research initiatives which resulted in ART12.11, a proprietary cocrystal composition of CBD and TMP. The crystal structure of CBD is known to exhibit solid polymorphism, or the ability to manifest in different forms. Polymorphism can adversely affect stability, dissolution, and bioavailability of a drug product and thus may affect its quality, safety, and efficacy. Based upon our research, we believe our CBD cocrystal exists as a single crystal form and as such is anticipated to have advantages over other solid forms of CBD that exhibit polymorphism. Emerging data demonstrates potential advantages of this single crystal structure, including improved stability, solubility, and a more consistent absorption profile. We believe these features have contributed to a more consistent and improved bioavailability and pharmacokinetic profile which may ultimately lead to improved safety and efficacy in human therapeutics, as already demonstrated in animal studies.

Presently, we have two U.S. patents, one pending U.S. patent application, six foreign patents (Australia, Brazil, China, Mexico, Japan and Taiwan) and three pending foreign patent applications (Canada, Europe, and South Korea) directed to our cocrystal composition of CBD. Composition claims are generally known in the pharmaceutical industry as the most desired type of intellectual property and should provide for long lasting market exclusivity for our synthetic CBD cocrystal drug product candidate. In addition, due to the reasons outlined above, we believe that our synthetic CBD cocrystal will continue to demonstrate a superior set of pharmaceutical properties compared to non-cocrystal CBD compositions. We plan to develop ART12.11 for multiple potential indications where CBD has shown activity of such anxiety disorders, including PTSD, depression, and other possible uses such as epilepsy and insomnia.

We are developing our product candidates in accordance with traditional regulated drug development standards and expect to make them available to patients via prescription or physician orders only after obtaining marketing authorization from a country's regulatory authority, such as the FDA. Our management team has experience developing, commercializing, and partnering ethical pharmaceutical products, including several first-in-class therapeutics. Based upon our current management's capabilities and the future talent we may attract, we plan to retain rights to internally develop and commercialize products; however, we may seek collaborations with partners in the biopharmaceutical industry when a partnering strategy serves to maximize value for our stockholders.

Product Candidate Pipeline:

Product Candidate	Target Indication(s)	Development Phase	Estimated Global Market Size
ART27.13 - Synthetic Dual Cannabinoid GPCR Agonist	Cancer-related anorexia	Clinical	Cancer anorexia cachexia syndrome: >\$3 billion
ART26.12 - FABP5 inhibitor	CIPN, prostate cancer and breast cancer, pain, dermatologic conditions, and anxiety disorders	Clinical	CIPN: >\$2 billion Prostate cancer: approximately \$13 billion Breast cancer: approximately \$33 billion Psoriasis: \$31 billion PTSD: approximately \$13 billion
ART12.11 - Synthetic CBD Cocrystal	Anxiety, depression, PTSD, and other potential indications	Pre-clinical	Anxiety disorders: >\$13 billion PTSD: approximately \$13 billion

Background

Emerging science suggests that modulating lipid-signaling pathways can unlock novel therapeutic strategies for diseases and medical conditions for which there are no or limited options. Lipids are critical to certain cell signaling pathways. Lipid-signaling modulation is the alteration of the signaling of lipid molecules to change biological activity or function within cellular communication pathways. Lipids contain various fatty acids as their building blocks and are the key components of lipid activity. Fatty Acid Binding Proteins (FABPs) facilitate lipid-signaling by binding to fatty acids which control various cellular functions. FABPs are essential mediators of normal cell signaling processes and under certain conditions can be associated with dysfunctional signaling. Inhibition of specific FABPs may correct abnormal lipid-signaling or improve the function of the ECS, which holds promise as new treatment modalities. We are at the forefront of advancing the application of lipid-modulating therapeutics.

The ECS is composed of cannabinoid receptors, endogenous receptor ligands (“endocannabinoids”) and their associated transporter mechanisms, as well as enzymes responsible for the synthesis and degradation of endocannabinoids and has emerged as a considerable target for pharmacotherapy approaches of numerous human diseases. As a widespread modulatory and lipid-signaling system, the ECS plays important roles in the CNS, development, synaptic plasticity, and the response to endogenous and environmental factors.

The modulation of the ECS can be affected by using selective or non-selective agonists, partial agonists, inverse agonists, and antagonists of the cannabinoid receptors, CB₁ and CB₂. The CB₁ receptor is distributed in brain areas associated with motor control, emotional responses, motivated behavior and energy homeostasis. In the periphery, CB₁ is ubiquitously expressed in the adipose tissue, pancreas, liver, gastrointestinal tract, skeletal muscles, heart and the reproductive system. The CB₂ receptor is mainly expressed in the immune system regulating its functions and is upregulated in response to tissue stress or damage in most cell types. The ECS is therefore involved in pathophysiological conditions in both the central and peripheral tissues.

The actions of endogenous ligands can be enhanced or attenuated by targeting mechanisms that are associated with their transport within the cellular and extra cellular matrix as well as their synthesis and breakdown. Small molecule chemical modulators of the ECS can be derived from plants (phytocannabinoids), can be semi-synthetic derivatives of phytocannabinoids or endocannabinoids, or can be completely synthetic new chemical entities. We plan to develop approaches within our portfolio that address receptor binding and endocannabinoid transport modulation using only synthetic new chemical entities. Future approaches may also involve targeting synthesis or breakdown enzymes.

ECS targeting cannabinoid-based medicines are already approved and used to treat numerous medical conditions. The ECS is further implicated in many disease states within the peer reviewed literature including conditions which involve the regulation of food intake, central nervous system, pain, cardiovascular, gastrointestinal, immune and inflammation, behavioral, antiproliferative and reproductive functions. These areas of ECS pathophysiology are aligned with our therapeutic areas of focus: anxiety, pain, inflammation, anorexia, and cancer.

Business Strategy

Our objective is to develop and commercialize ethical pharmaceutical products that provide physicians access to the therapeutic potential of lipid signaling modulation, including within the ECS. We intend to pursue technologies and compounds that offer promising therapeutic approaches to known and validated signaling pathways, specifically lipid-signaling which includes compounds that promote the effectiveness of the ECS. While several of our programs are directed towards improving the lives of people suffering with cancer and cancer treatments, our portfolio may ultimately be used to treat a wide range of diseases and conditions where lipid-signaling modulation is particularly promising, including pain, inflammation, various neurological diseases, epilepsy, anxiety disorders, and dermatologic conditions.

Risk Factors

Investing in our securities involves a high degree of risk. You should carefully consider the risks described in the section entitled “*Risk Factors*” below, as well as other information and risk factors included in our Quarterly Report on Form 10-Q for the period ended June 30, 2025, and our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, including our financial statements and the related notes, and the section titled “*Management’s Discussion and Analysis of Financial Condition and Results of Operations*,” any of which may be relevant to decisions regarding an investment in or ownership of our securities. The occurrence of any of these risks could have a significant adverse effect on our reputation, business, financial condition, results of operations, growth and ability to accomplish our strategic objectives.

Recent Developments

On July 18, 2025, we entered into an At-The-Market Offering Agreement (the “Sales Agreement”) with R.F. Lafferty & Co., Inc. (“R.F. Lafferty”) under which we may offer and sell up to \$6.5 million of shares of our common stock from time to time through an “at the market” offering program under which R.F. Lafferty will act as sales agent. Under the Sales Agreement, we will set the parameters for the sale of shares, including the number or dollar amount of shares to be issued, the time period during which sales are requested to be made, limitations on the number or dollar amount of shares that may be sold in any one trading day and any minimum price below which sales may not be made. Subject to the terms and conditions of the Sales Agreement, R.F. Lafferty may sell the shares by methods deemed to be an “at the market” offering as defined in Rule 415 promulgated under the Securities Act of 1933, as amended. We have no obligation to sell any shares under the Sales Agreement and may at any time suspend solicitation and offers under the Sales Agreement. The shares will be issued pursuant to our shelf registration statement on Form S-3, including the prospectus supplement contained therein, which was declared effective by the SEC on July 14, 2023. As of September 3, 2025, 50,858 shares of common stock have been sold under the ATM for net proceeds of \$451,526.95.

On August 1, 2025, we entered into a securities purchase agreement (the “Purchase Agreement”) for an at-the market PIPE (private investment in public equity) for the purchase and sale of securities at a price of \$10.45 per security, consisting of: (a) 906,687 shares of common stock (or pre-funded warrants in lieu thereof); (b) three-year warrants to purchase 906,687 shares of common stock at an exercise price of \$10.20 per share; and (c) three-year warrants to purchase 906,687 shares of common stock at an exercise price of \$50.00 per share, for expected aggregate gross proceeds of approximately \$9.475 million. We agreed that the net proceeds of the sale will be used to purchase Solana. However, on August 19, 2025, we entered into a Termination and Mutual Release Agreement (the “Purchase Termination Agreement”), which terminates in its entirety, effective as of the August 19, 2025, the Purchase Agreement, the three-year warrants, and any other certificates, agreements, or instruments executed in connection therewith. Concurrently with execution of the Purchase Termination Agreement, the Company paid \$50,000 to TingleMerrett LLP, counsel to the investors, for legal fees incurred in connection with the transaction.

On August 1, 2025, we entered into a Consulting Agreement (the “Consulting Agreement”) with ABK Labs, Inc., a Delaware corporation (“ABK Labs”), pursuant to which ABK Labs will provide strategic advisory services to the Company related to the development, implementation, and communication of the Company’s digital asset strategy, as well as business development, financial and technical advisory, investor relations, and other related support services. The term of the Consulting Agreement is four years from the Effective Date, with automatic renewal for additional 12-month periods unless terminated by either party upon 30 days’ prior written notice. As consideration for the services to be provided under the Consulting Agreement, the Company agreed to issue to ABK Labs a warrant (the “ABK Labs Warrant”) to purchase up to 55,000 shares of the Company’s common stock at an exercise price of \$10.20 per share. However, on August 19, 2025, we entered into a Termination Agreement (the “ABK Labs Termination Agreement”) pursuant to which the parties mutually agreed to terminate, effective as of August 16, 2025 (the “Termination Date”), the Consultant Agreement and the ABK Labs Warrant and provided mutual releases of claims relating thereto. No cash payments, penalties, or other consideration were paid in connection with the termination.

We have adopted a Digital Asset Treasury strategy whereby we will purchase the digital currency known as Solana. As of August 6, 2025, the Company has expended \$250,000 to purchase Solana.

On September 3, 2025, we announced interim results from the Phase 2 CARES trial, which 32 participants have been enrolled in as of June 30, 2025. In the interim analysis, 18 evaluable patients—primarily with lung and gastrointestinal cancers not receiving cyclic chemotherapy—were included. After 12 weeks of treatment in patients who titrated to the top dose evaluated of 1300 micrograms (n=5), ART27.13 demonstrated compelling increases in mean body weight of 6.38% (Standard Deviation or SD 9.50) compared to patients on placebo (n=6) who lost -5.42% (SD 8.17). The maximum weight gain in the ART27.13 group reached 18.5%, versus only 0.4% in placebo. The maximum weight loss in the placebo arm was -17.4%, compared to just -3.0% in the ART27.13 group. Additional benefits were seen in lean body mass, with a +4.23% increase (SD 5.37) in the treatment group versus a -3.15% loss (SD 4.89) in placebo at one month, as well as qualitative improvements in total and weekly activity scores.

Safety results were consistent with prior findings. Among the 32 participants enrolled in the CARES Phase 2 trial to date, 7 patients (22%) experienced adverse events that may be related to ART27.13. All were mild or moderate, with the exception of a single case of severe malaise, and no drug-related serious adverse events were reported. These data are aligned with safety outcomes observed in Phase 1 of CARES, supporting ART27.13’s overall favorable tolerability and acceptable safety profile.

On September 4, 2025, we filed a prospectus supplement that reduced the maximum aggregate gross sales price of our Common Stock that may be offered, issued and sold under the At the Market Offering Agreement between us and R.F. Lafferty & Co., Inc., to \$3,451,527, including the \$451,526.95 of Common Stock previously sold pursuant to such agreement.

Corporate Information

We were incorporated in the State of Nevada on May 2, 2011 as Knight Knox Development Corp. On January 19, 2017 we changed our name to Reactive Medical, Inc. and on April 14, 2017 we changed our name to Artelo Biosciences, Inc. Our principal executive office is located at 505 Loma Santa Fe, Suite 160, Solana Beach, California 92075 and our telephone number is (858) 925-7049. Our corporate website address is www.artelobio.com. Information contained on or that can be accessed through the website is not incorporated by reference into this prospectus supplement or accompanying base prospectus and should not be considered to be part of this prospectus supplement or the accompanying base prospectus.

Implications of Being an Smaller Reporting Company

We are a “smaller reporting company” as defined in Rule 10(f)(1) of Regulation S-K. Smaller reporting companies may take advantage of certain reduced disclosure obligations, including, among other things, providing only two years of audited financial statements. We may continue to be a smaller reporting company in any given year if either (1) the market value of our common stock held by non-affiliates is less than \$250 million as of the end of the most recently completed fiscal year’s second fiscal quarter, or (2) our annual revenue is less than \$100 million during the most recently completed fiscal year and the market value of our common stock held by non-affiliates is less than \$700 million as of the end of the most recently completed fiscal year’s second fiscal quarter.

For further information regarding us and our financial information, you should refer to our recent filings with the SEC. See “*Where You Can Find Additional Information.*”

THE OFFERING

Securities offered by us [] shares of our common stock and Pre-funded Warrants. The Pre-funded Warrants will have an exercise price of \$0.001 per share, will be immediately exercisable upon issuance until exercised in full. We are also offering Ordinary Shares issuable upon exercise of the Pre-funded Warrants.

Public offering price of common stock \$[] per share of common stock.

Public offering price of Pre-funded Warrants \$[*] per Pre-funded Warrant.

Over-allotment option We have granted the underwriter an option for a period ending 45 days after the closing date of this offering to purchase up to an additional [] shares of common stock at the public offering price, less the underwriting discounts, solely to cover over-allotments, if any.

Common stock to be outstanding immediately after this offering [] shares of common stock, assuming none of the Pre-funded Warrants in this offering are exercised, and [] shares of common stock if the underwriter exercises its over-allotment option in full.

Total Pre-funded Warrants outstanding immediately after this offering [] Pre-funded Warrants, assuming none of the Pre-funded Warrants in this offering are exercised.

Use of proceeds We estimate that our net proceeds from this offering will be approximately \$[] (or approximately \$[] if the underwriter exercises its over-allotment option in full), after deducting the underwriting discounts and commissions and the estimated offering expenses payable by us. We intend to use the net proceeds from this offering to advance our product candidates, as well as for working capital and general corporate purposes. See “*Use of Proceeds*.”

Risk Factors An investment in our securities involves certain risks. We urge you to carefully consider all of the information described in the section entitled “*Risk Factors*” in this prospectus supplement, the accompanying base prospectus and otherwise incorporated by reference into this prospectus supplement and the accompanying base prospectus for a discussion of factors you should consider carefully before deciding to invest in securities.

Nasdaq symbol “ARTL”

The number of shares of our common stock to be outstanding immediately after this offering is based on 704,425 shares of our common stock outstanding as of June 30, 2025, and excludes as of that date:

- 128,976 shares of our common stock issuable upon the exercise of options or restricted stock awards granted under our 2018 Equity Incentive Plan (the “2018 Plan”), with a weighted-average exercise price of \$11.02 per share;
- 23,315 shares of our common stock issuable upon the exercise of warrants, with a weighted-average exercise price of \$67.50 per share issued prior to June 2025;
- 123,255 shares of common stock issuable upon the voluntary conversion of convertible notes issued in our May 2025 private placement;
- 246,511 shares of common stock issuable upon the automatic conversion of convertible notes issued in our May 2025 private placement to warrants to purchase common stock, with an exercise price of \$1.04 per share;
- 93,180 shares of our common stock issuable upon the exercise of pre-funded warrants issued in our June 2025 private placement, with an exercise price of \$0.001 per share;
- 460,046 shares of our common stock issuable upon the exercise of warrants issued in our June 2025 private placement, with an exercise price of \$5.82 per share;
- 230,023 shares of our common stock issuable upon the exercise of warrants issued in our June 2025 private placement, with a weighted-average exercise price of \$10.00 per share; and
- 206,588 shares of our common stock reserved for future issuance under our 2018 Plan.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise of outstanding options or warrants to purchase common stock or conversion of convertible notes since June 30, 2025, and assumes no exercise of the underwriter’s over-allotment option. The number of shares outstanding does not include options to purchase common stock issued after June 30, 2025.

RISK FACTORS

Before you invest in our securities, you should be aware that our business faces numerous financial and market risks, including those described below, as well as general economic and business risks. Our securities are speculative, and you should not make an investment in Artelo unless you can afford to bear the loss of your entire investment. Prior to making a decision about investing in our common stock, you should carefully consider the risks, uncertainties and assumptions discussed under Item 1A, “Risk Factors,” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, and in our Quarterly Reports on Form 10-Q as updated by our subsequent filings with the Securities and Exchange Commission, or the SEC, under the Securities Exchange Act of 1934, as amended, or the Exchange Act, which are incorporated herein by reference, together with the information in this prospectus supplement and the base prospectus and any other information incorporated by reference herein or therein. Before you decide whether to invest in our securities, you should carefully consider these risks and uncertainties, together with all of the other information included in or incorporated by reference into, this prospectus supplement or the base prospectus. The risks and uncertainties identified are not the only risks and uncertainties we face. If any of the material risks or uncertainties that we face were to occur, you could lose part or all of your investment.

Risks Related to this Offering

We have broad discretion in the use of our available cash and other sources of funding, including the net proceeds we receive from this offering, and may not use them effectively.

Our management has broad discretion in the use of our available cash and other sources of funding, including the net proceeds we receive in this offering, and could spend those resources for purposes other than those described in the “Use of Proceeds” portion of this prospectus supplement, and in ways that do not improve our results of operations or enhance the value of our common stock. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest our available cash, including the net proceeds we receive in this offering, in a manner that does not produce income or that loses value.

If you purchase our securities sold in this offering, you may experience immediate and substantial dilution in the net tangible book value of your shares. In addition, we may issue additional equity or convertible debt securities in the future, which may result in additional dilution to investors.

Because the price per share of our common stock being offered may be higher than the net tangible book value per share of our common stock, you may experience dilution to the extent of the difference between the offering price per share of common stock you pay in this offering and the net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of June 30, 2025, was approximately \$(4.89) per share of common stock. Net tangible book value per share is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding. Furthermore, if any of our outstanding options or warrants are exercised at prices below the public offering price, we grant additional options or other awards under our equity incentive plans or issue additional warrants, you may experience further dilution of your investment. See the section entitled “Dilution” below for a more detailed illustration of the dilution you would incur if you participate in this offering.

We may be required to raise additional financing by issuing new securities with terms or rights superior to those of our existing securityholders, which could adversely affect the market price of shares of common stock and our business.

We will require additional financing to fund future operations, including for research and development, clinical trials, expansion in current and new markets, development and acquisition, capital costs and the costs of any necessary implementation of technological innovations or alternative technologies. We may not be able to obtain financing on favorable terms, if at all. If we raise additional funds by issuing equity securities, the percentage ownership of our current stockholders will be reduced, and the holders of the new equity securities may have rights superior to those of our existing securityholders, which could adversely affect the market price of our common stock and the voting power of shares of our common stock.

Risks Related to Our Common Stock

Our financial condition raises substantial doubt as to our ability to continue as a going concern.

As of June 30, 2025, we had approximately \$2.1 million in cash and cash equivalents, and working capital of negative \$3.5 million, and we have incurred and expect to continue to incur significant costs in pursuit of our drug candidates. For the six months ended June 30, 2025, we recorded a net loss of approximately \$5.6 million and used cash in operations of approximately \$2.1 million. Our financial statements for the six months ended June 30, 2025 have been prepared assuming that we will continue to operate as a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. To date, we have not generated substantial product revenues from our activities and have incurred substantial operating losses. We expect that we will continue to generate substantial operating losses for the foreseeable future until we complete development and approval of one of our product candidates. We expect to continue to fund our operations primarily through utilization of our current financial resources and additional raises of capital.

These conditions raise substantial doubt about our ability to continue as a going concern. We have evaluated the significance of the uncertainty regarding our financial condition in relation to our ability to meet our obligations, which has raised substantial doubt about our ability to continue as a going concern. While it is very difficult to estimate our future liquidity requirements, we believe if we are unable to obtain additional financing, existing cash resources will not be sufficient to enable us to fund the anticipated level of operations through one year from the date the accompanying financial statements are issued. There can be no assurances that we will be able to secure additional financing on acceptable terms. In the event we do not secure additional financing, we will be forced to delay, reduce, or eliminate some or all of its discretionary spending, which could adversely affect our business prospects, ability to meet long-term liquidity needs and the ability to continue operations.

Our common stock may be delisted from Nasdaq if we fail to comply with continued listing standards.

Our common stock is currently traded on Nasdaq under the symbol “ARTL.” If we fail to comply with Nasdaq’s continued listing standards, we may be delisted and our common stock will trade, if at all, only on the over-the-counter market, such as the OTC Bulletin Board or OTCQX market, and then only if one or more registered broker-dealer market makers comply with quotation requirements. In addition, delisting of our common stock could depress our stock price, substantially limit liquidity of our common stock and materially adversely affect our ability to raise capital on terms acceptable to us, or at all. Further, delisting of our common stock would likely result in our common stock becoming a “penny stock” under the Exchange Act.

On May 22, 2025, we received a notice from the Staff notifying us that, because our stockholders’ equity was below \$2.5 million as reported on our Quarterly Report on Form 10-Q for the quarter ended March 31, 2025, we no longer meet the minimum stockholders’ equity requirement for continued listing on Nasdaq under Nasdaq Rule 5550(b)(1). Pursuant to the notice and the Listing Rules of Nasdaq, we submitted a plan to regain compliance with the minimum stockholders’ equity requirement within 45 calendar days of receiving the letter from the Staff. If such compliance plan is accepted, Nasdaq may grant an extension of 180 calendar days from the date of the notice. This plan was updated and resubmitted to Nasdaq on August 29, 2025. If the updated plan is not accepted, we may appeal the Staff’s determination to a Nasdaq Hearings Panel. We are currently evaluating options to regain compliance and intend to timely submit a plan to regain compliance with the minimum stockholders’ equity requirement. Although we intend to use all reasonable efforts to achieve compliance with all Nasdaq listing standards, there can be no assurance that we will be able to regain compliance with the listing standards or that we will otherwise be in compliance with other applicable Nasdaq listing criteria. Furthermore, Nasdaq may delist our common stock for public interest concerns, even if we are able to regain compliance for continued listing on Nasdaq under the listing requirements.

If our common stock were to be delisted by Nasdaq, it may be eligible for quotation on an over-the-counter quotation system or on the pink sheets. Upon any such delisting, our common stock would become subject to the regulations of the SEC relating to the market for penny stocks. A penny stock is any equity security not traded on a national securities exchange that has a market price of less than \$5.00 per share. The regulations applicable to penny stocks may severely affect the market liquidity for our common stock and could limit the ability of stockholders to sell securities in the secondary market. In such a case, an investor may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock, and there can be no assurance that our common stock will be eligible for trading or quotation on any alternative exchanges or markets.

Delisting from Nasdaq could adversely affect our ability to raise additional financing through public or private sales of equity securities, would significantly affect the ability of investors to trade our securities and would negatively affect the value and liquidity of our common stock. Delisting could also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

We have never paid dividends on our capital stock, and we do not anticipate paying dividends in the foreseeable future.

We have never paid dividends on any of our capital stock and currently intend to retain any future earnings to fund the growth of our business. We may also enter into credit agreements or other borrowing arrangements in the future that will restrict our ability to declare or pay cash dividends on our common stock. Any determination to pay dividends in the future will be at the discretion of our board of directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant. As a result, capital appreciation, if any, of the securities will be the sole source of gain, if any, for the foreseeable future.

The market price of our shares may be subject to fluctuation and volatility. You could lose all or part of your investment.

The market price of our common stock is subject to wide fluctuations in response to various factors, some of which are beyond our control. The market price of our shares on Nasdaq may fluctuate as a result of a number of factors, some of which are beyond our control, including, but not limited to:

- actual or anticipated variations in our and our competitors' results of operations and financial condition
- changes in earnings estimates or recommendations by securities analysts, if our shares are covered by analysts;
- market acceptance of our product candidates;
- our obligation to use commercially reasonable efforts to use \$250,000 of the net proceeds from our June 2025 private placement to purchase Solana, as required by the related purchase agreement;
- development of technological innovations or new competitive products by others;
- announcements of technological innovations or new products by us;
- publication of the results of preclinical or clinical trials for our product candidates;
- failure by us to achieve a publicly announced milestone;
- delays between our expenditures to develop and market new or enhanced products and the generation of sales from those products;
- developments concerning intellectual property rights, including our involvement in litigation brought by or against us;
- regulatory developments and the decisions of regulatory authorities as to the approval or rejection of new or modified products;
- changes in the amounts that we spend to develop, acquire or license new products, technologies or businesses;
- changes in our expenditures to promote our product candidates;
- our sale or proposed sale, or the sale by our significant stockholders, of our shares or other securities in the future;
- changes in key personnel;
- success or failure of our research and development projects or those of our competitors;
- the trading volume of our shares; and
- general economic and market conditions and other factors, including factors unrelated to our operating performance.

These factors and any corresponding price fluctuations may materially and adversely affect the market price of our shares and result in substantial losses being incurred by our investors. In the past, following periods of market volatility, public company stockholders have often instituted securities class action litigation. If we were involved in securities litigation, it could impose a substantial cost upon us and divert the resources and attention of our management from our business.

We were obligated to use commercially reasonable efforts to invest \$250,000 of our cash to purchase Solana, a cryptocurrency, the price of which has been, and will likely continue to be, highly volatile.

As a condition of our June 2025 private placement, we were obligated to use commercially reasonable efforts to use \$250,000 of the net proceeds from the private placement to purchase Solana, a cryptocurrency, which we purchased on August 6, 2025. Solana is a highly volatile asset. Solana does not pay interest, but if management determines to stake the Solana tokens in treasury, certain rewards can be earned on Solana. The ability to generate a return on investment from the purchase of Solana will depend on whether there is appreciation in the value of Solana. Future fluctuations in Solana's trading prices may result in our converting Solana into cash with a value substantially below the value at which such Solana was purchased.

Any Solana we purchase may be less liquid than our existing cash and cash equivalents and may not be able to serve as a source of liquidity for us to the same extent as cash and cash equivalents.

Historically, the crypto markets have been characterized by: significant volatility in price, limited liquidity and trading volumes compared to sovereign currencies markets; relative anonymity; a developing regulatory landscape; potential susceptibility to market abuse and manipulation; compliance and internal control failures at exchanges; and various other risks inherent in its entirely electronic, virtual form and decentralized network. During times of market instability, we may not be able to sell our Solana at favorable prices or at all. Further, Solana which we may hold with a custodian does not enjoy the same protections as are available to cash or securities deposited with or transacted by institutions subject to regulation by the Federal Deposit Insurance Corporation or the Securities Investor Protection Corporation. If we are unable to sell our Solana or otherwise generate funds using our Solana holdings, or if we are forced to sell our Solana at a significant loss, in order to meet our working capital requirements, our business and financial condition could be negatively impacted.

USE OF PROCEEDS

We estimate that our net proceeds from this offering will be approximately \$[] (or approximately \$[] if the underwriter exercises the overallotment option in full), after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering to advance our product candidates through preclinical and clinical development, including manufacturing, research and technical development, clinical studies, capital expenditures, and for working capital and general corporate purposes. In addition, we may use the net proceeds from this offering for investments in products or technologies that are complementary to our business, although we have no present commitments or agreements to make any such investments as of the date of this prospectus.

This expected use of net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. As a result, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Pending use of the proceeds as described above or otherwise, we intend to invest the net proceeds of this offering in government securities, high quality short-term corporate debt obligations and SEC-registered money market accounts.

CAPITALIZATION

The table below sets forth our capitalization and indebtedness as of June 30, 2025:

- on an actual basis; and
- on an as adjusted basis to give further effect to this offering based on a public offering price of \$[] per share of common stock and a public offering price of \$[] per Pre-funded Warrant, after deducting the underwriting discounts, and estimated offering expenses payable by us.

You should read this table together with our consolidated financial statements and notes included in the information incorporated by reference into this prospectus supplement and the accompanying prospectus.

	As of June 30, 2025	
	Actual	As Adjusted
	(Unaudited)	(Unaudited)
	(U.S. \$ in thousands)	
Cash and cash equivalents	\$ 2,066	\$ -
Total current liabilities	\$ 5,712	\$ -
Stockholders' equity		
Preferred Stock, par value \$0.001, 69,445 shares authorized, 0 shares issued and outstanding as of June 30, 2025	-	-
Common Stock, par value \$0.001, 500,000,000 shares authorized and 704,425 shares issued and outstanding as of June 30, 2025	1	
Additional paid in capital	54,617	
Accumulated deficit	(55,729)	
Accumulated other comprehensive loss	(295)	
Total stockholders' (deficit) equity	\$ (1,406)	\$ -

The above discussion and table is based on 704,425 shares of our common stock outstanding as of June 30, 2025, and excludes as of that date:

- 128,976 shares of our common stock issuable upon the exercise of options or restricted stock awards granted under our 2018 Equity Incentive Plan (the "2018 Plan"), with a weighted-average exercise price of \$11.02 per share;
- 23,315 shares of our common stock issuable upon the exercise of warrants, with a weighted-average exercise price of \$67.50 per share issued prior to June 2025;
- 123,255 shares of common stock issuable upon the voluntary conversion of convertible notes issued in our May 2025 private placement;
- 246,511 shares of common stock issuable upon the automatic conversion of convertible notes issued in our May 2025 private placement to warrants to purchase common stock, with an exercise price of \$1.04 per share;
- 136,843 shares of our common stock issued in our June 2025 private placement;
- 93,180 shares of our common stock issuable upon the exercise of pre-funded warrants issued in our June 2025 private placement, with an exercise price of \$0.001 per share;
- 460,046 shares of our common stock issuable upon the exercise of warrants issued in our June 2025 private placement, with an exercise price of \$5.82 per share;
- 230,023 shares of our common stock issuable upon the exercise of warrants issued in our June 2025 private placement, with a weighted-average exercise price of \$10.00 per share; and
- 206,588 shares of our common stock reserved for future issuance under our 2018 Plan.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the price per share of our common stock in this offering and the as adjusted net tangible book value per share of our common stock immediately after this offering.

As of June 30, 2025, our net tangible book value was \$(3.4) million, or \$(4.89) per share of our common stock, based upon 704,425 shares of common stock outstanding as of that date. Historical net tangible book value per share is equal to our total tangible assets, less total liabilities, divided by the number of outstanding shares of our common stock. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of common stock immediately after this offering.

After giving effect to the sale by us in this offering of up to [] shares of common stock, at an offering price of \$[] per share, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2025, would have been approximately \$[] per share. This represents an immediate increase in net tangible book value of approximately \$[] per share to our existing security holders and an immediate dilution in as adjusted net tangible book value of approximately \$[] per share to purchasers of our securities in this offering, as illustrated by the following table:

Public offering price per share	\$
Net tangible book value per share as of June 30, 2025	\$ (4.89)
Increase in net tangible book value per share attributable to this offering	\$
As adjusted net tangible book value per share after giving effect to this offering	\$
Dilution per share to new investors participating in this offering	\$

If the underwriter exercises the option to purchase up to [] additional shares of common stock in full at the public offering price of \$[] per share, our adjusted net tangible book value as of June 30, 2025, after giving effect to this offering, would have been approximately \$[] per share, representing an increase in net tangible book value of approximately \$[] per share to existing security holders and immediate dilution in net tangible book value of approximately \$[] per share to investors participating in this offering.

The above discussion and table is based on 704,425 shares of our common stock outstanding as of June 30, 2025, and excludes as of that date:

- 128,976 shares of our common stock issuable upon the exercise of options or restricted stock awards granted under our 2018 Equity Incentive Plan (the “2018 Plan”), with a weighted-average exercise price of \$11.02 per share;
- 23,315 shares of our common stock issuable upon the exercise of warrants, with a weighted-average exercise price of \$67.50 per share issued prior to June 2025;
- 123,255 shares of common stock issuable upon the voluntary conversion of convertible notes issued in our May 2025 private placement;
- 246,511 shares of common stock issuable upon the automatic conversion of convertible notes issued in our May 2025 private placement to warrants to purchase common stock, with an exercise price of \$1.04 per share;
- 136,843 shares of our common stock issued in our June 2025 private placement;
- 93,180 shares of our common stock issuable upon the exercise of pre-funded warrants issued in our June 2025 private placement, with an exercise price of \$0.001 per share;
- 460,046 shares of our common stock issuable upon the exercise of warrants issued in our June 2025 private placement, with an exercise price of \$5.82 per share;
- 230,023 shares of our common stock issuable upon the exercise of warrants issued in our June 2025 private placement, with a weighted-average exercise price of \$10.00 per share; and
- 206,588 shares of our common stock reserved for future issuance under our 2018 Plan.

The above illustration of dilution per share to investors participating in this offering assumes no exercise of outstanding options or warrants to purchase our common stock and assumes no exercise by the underwriter of the option to purchase additional shares. The exercise of outstanding options or warrants having an exercise or conversion price less than the offering price would increase dilution to investors participating in this offering. In addition, we may choose to raise additional capital depending on market conditions, our capital requirements and strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through our sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

DESCRIPTION OF SECURITIES WE ARE OFFERING

We are offering shares of common stock and Pre-funded Warrants to purchase up to [] shares of common stock pursuant to this prospectus supplement and the accompanying prospectus.

The shares of our common stock are registered under Section 12 of the Exchange Act and are traded on Nasdaq under the symbol “ARTL”. No other securities of the Company are registered under Section 12 of the Exchange Act. The following description of the shares of our common stock and Pre-funded Warrants is a summary of the material terms of such securities. For more information, we refer you to our Articles of Incorporation, as amended (our “Articles of Incorporation”) and our Bylaws, as amended (our “Bylaws”), copies of which are included as exhibits to our Annual Report on Form 10-K. We encourage you to read our Articles of Incorporation, our Bylaws and the applicable provisions of the Nevada Corporate Law, for additional information.

Authorized Capital Stock

Our authorized capital stock consists of 500,069,445 shares of capital stock, of which 500,000,000 shares are designated as common stock, \$0.001 par value per share, and 69,445 shares are designated as preferred stock, \$0.001 par value per share. As of June 30, 2025, there were 704,425 shares of common stock issued and outstanding, and no outstanding shares of preferred stock.

Common Stock

The holders of our common stock (i) have equal ratable rights to dividends from funds legally available, therefore, when, as and if declared by our board of directors; (ii) are entitled to share in all of our assets available for distribution to holders of common stock upon liquidation, dissolution or winding up of our affairs; (iii) do not have preemptive, subscription or conversion rights and there are no redemption or sinking fund provisions or rights; and (iv) are entitled to one non-cumulative vote per share on all matters submitted to a vote of stockholders. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Preferred Stock

The Company has authorized 69,445 shares of preferred stock. There is no preferred stock outstanding.

Anti-Takeover Effects of Nevada Law and our Articles of Incorporation and Bylaws.

Certain provisions of Nevada law and certain provisions that are included in our Articles of Incorporation and our Bylaws may have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our Board. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Classified Board. Our amended and restated certificate of incorporation provides that our board of directors is divided into three classes, designated Class I, Class II, and Class III. Each class will be an equal number of directors, as nearly as possible, consisting of one third of the total number of directors constituting the entire board of directors. The term of Class I directors shall terminate on the date of the 2027 annual meeting, the term of the Class II directors shall terminate on the date of the 2025 annual meeting, and the term of the Class III directors shall terminate on the date of the 2026 annual meeting. At each annual meeting of stockholders, successors to the class of directors whose term expires at that annual meeting will be elected for a three-year term.

Stockholder Meetings. Our Bylaws provide that a special meeting of stockholders may be called only by our president, by all of the directors provided that there are no more than three directors, or if more than three, by any three directors, or by the holder of a majority share of our capital stock.

Stockholder Action by Written Consent. Our Bylaws allow for any action that may be taken at any annual or special meeting of the stockholders to be taken without a meeting and without prior notice, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding shares having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

Stockholders Not Entitled to Cumulative Voting. Our Bylaws do not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of our Common Stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of our preferred stock may be entitled to elect.

Nevada Business Combination Statutes. The “business combination” provisions of Sections 78.411 to 78.444, inclusive, of the Nevada Revised Statutes, (the “NRS”), generally prohibit a Nevada corporation with at least 200 stockholders of record from engaging in various “combination” transactions with any interested stockholder for a period of two years after the date of the transaction in which the person became an interested stockholder, unless the transaction is approved by the Board prior to the date the interested stockholder obtained such status or the combination is approved by the Board and thereafter is approved at a meeting of the stockholders by the affirmative vote of stockholders representing at least 60% of the outstanding voting power held by disinterested stockholders, and extends beyond the expiration of the two-year period, unless:

- the combination was approved by the Board prior to the person becoming an interested stockholder or the transaction by which the person first became an interested stockholder was approved by the Board before the person became an interested stockholder or the combination is later approved by a majority of the voting power held by disinterested stockholders; or
- if the consideration to be paid by the interested stockholder is at least equal to the highest of: (a) the highest price per share paid by the interested stockholder within the two years immediately preceding the date of the announcement of the combination or in the transaction in which it became an interested stockholder, whichever is higher, (b) the market value per share of common stock on the date of announcement of the combination and the date the interested stockholder acquired the shares, whichever is higher, or (c) for holders of preferred stock, the highest liquidation value of the preferred stock, if it is higher.

A “combination” is generally defined to include mergers or consolidations or any sale, lease exchange, mortgage, pledge, transfer, or other disposition, in one transaction or a series of transactions, with an “interested stockholder” having: (a) an aggregate market value equal to 5% or more of the aggregate market value of the assets of the corporation, (b) an aggregate market value equal to 5% or more of the aggregate market value of all outstanding voting shares of the corporation, (c) more than 10% of the earning power or net income of the corporation, and (d) certain other transactions with an interested stockholder or an affiliate or associate of an interested stockholder.

In general, an “interested stockholder” is a person who, together with affiliates and associates, beneficially owns (or within two years, did own) 10% or more of the voting power of the outstanding voting shares of a corporation. The statute could prohibit or delay mergers or other takeover or change in control attempts and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

Nevada Control Share Acquisition Statutes. The “control share” provisions of Sections 78.378 to 78.3793, inclusive, of the NRS apply to “issuing corporations” that are Nevada corporations with at least 200 stockholders of record, including at least 100 stockholders of record who are Nevada residents, and that conduct business in Nevada directly or through an affiliated corporation. The control share statute prohibits an acquirer, under certain circumstances, from voting its shares of a target corporation’s stock after crossing certain ownership threshold percentages, unless the acquirer obtains approval of the target corporation’s disinterested stockholders. The statute specifies three thresholds: one-fifth or more but less than one-third, one-third or more but less than a majority, and a majority or more, of the outstanding voting power. Generally, once an acquirer crosses one of the above thresholds, those shares in an offer or acquisition and acquired within 90 days thereof become “control shares” and such control shares are deprived of the right to vote until disinterested stockholders restore the right. These provisions also provide that if control shares are accorded full voting rights and the acquiring person has acquired a majority or more of all voting power, all other stockholders who do not vote in favor of authorizing voting rights to the control shares are entitled to demand payment for the fair value of their shares in accordance with statutory procedures established for dissenters’ rights.

A corporation may elect to not be governed by, or “opt out” of, the control share provisions by making an election in its articles of incorporation or bylaws, provided that the opt-out election must be in place on the 10th day following the date an acquiring person has acquired a controlling interest, that is, crossing any of the three thresholds described above. We have not opted out of the control share statutes and will be subject to these statutes if we are an “issuing corporation” as defined in such statutes.

The effect of the Nevada control share statutes is that the acquiring person, and those acting in association with the acquiring person, will obtain only such voting rights in the control shares as are conferred by a resolution of the stockholders at an annual or special meeting. The Nevada control share law, if applicable, could have the effect of discouraging takeovers of us.

Amendment of Charter and Bylaw Provisions. The amendment of any of the above provisions would require approval by holders of at least a 35% of the total voting power of all of our outstanding voting stock, except in certain circumstances.

The provisions of Nevada law, our Articles of Incorporation, and our Bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of our board and management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Equiniti Trust Company, LLC. The transfer agent’s address is 48 Wall Street, 23rd floor, New York, NY 10043.

Market Listing

Our common stock is listed on Nasdaq under the symbol “ARTL.”

Pre-Funded Warrants

The material terms and provisions of the Pre-Funded Warrants being offered are summarized below. The summary is subject to, and qualified in its entirety by reference to, the form of Pre-Funded Warrant which has been provided to each investor in this offering and will be filed as an exhibit to a Report on Form 8-K with the SEC in connection with this offering.

The term “pre-funded” refers to the fact that the purchase price of our shares of common stock in this offering includes almost the entire exercise price that will be paid under the Pre-funded Warrants, except for a nominal remaining exercise price of \$0.001. The purpose of the Pre-funded Warrants is to enable investors that may have restrictions on their ability to beneficially own more than 4.99% (or, upon election of the holder, 9.99%) of our outstanding common stock following the consummation of this offering the opportunity to make an investment in the Company without triggering their ownership restrictions, by receiving Pre-funded Warrants in lieu of our common stock which would result in such ownership of more than 4.99% (or 9.99%), and receive the ability to exercise their option to purchase the shares underlying the Pre-funded Warrants at such nominal price at a later date.

Exercise of Warrants

Each Pre-funded Warrant is exercisable for one share of our common stock, with an exercise price equal to \$0.001 per share, at any time that the Pre-funded Warrant is outstanding. There is no expiration date for the Pre-funded Warrants. The holder of a Pre-funded Warrant will not be deemed a holder of our underlying common stock until the Pre-funded Warrant is exercised.

Subject to limited exceptions, a holder of Pre-funded Warrants will not have the right to exercise any portion of its Pre-funded Warrants if the holder (together with such holder’s affiliates, and any persons acting as a group together with such holder or any of such holder’s affiliates) would beneficially own a number of shares of common stock in excess of 4.99% (or, at the election of the purchaser prior to the date of issuance, 9.99%) of our common stock then outstanding after giving effect to such exercise.

The exercise price and the number of shares issuable upon exercise of the Pre-funded Warrants is subject to appropriate adjustment in the event of recapitalization events, stock dividends, stock splits, stock combinations, reclassifications, reorganizations or similar events affecting our common stock. The Pre-funded Warrant holders must pay the exercise price in cash upon exercise of the Pre-funded Warrants, unless such Pre-funded Warrant holders are utilizing the cashless exercise provision of the Pre-funded Warrants.

Upon the holder’s exercise of a Pre-funded Warrant, we will issue shares of common stock issuable upon exercise of the Pre-funded Warrant within two trading days following our receipt of a notice of exercise, provided that payment of the exercise price has been made (unless exercised to the extent permitted via the “cashless” exercise provision). Prior to the exercise of any Pre-funded Warrants to purchase common stock, holders of the Pre-funded Warrants will not have any of the rights of holders of the common stock purchasable upon exercise, including the right to vote, except as set forth therein.

Cashless Exercise

In lieu of making the cash payment otherwise contemplated to be made to us upon the exercise of a Pre-Funded Warrant in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the pre-funded warrant.

Transferability

In accordance with its terms and subject to applicable laws, a Pre-Funded Warrant may be transferred at the option of the holder upon surrender of the Pre-Funded Warrant to us together with the appropriate instruments of transfer and payment of funds sufficient to pay any transfer taxes (if applicable).

Fundamental Transaction.

In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common stock is converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding common stock, then following such event, the holders of the Pre-funded Warrants will be entitled to receive upon exercise of such Pre-funded Warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised their Pre-funded Warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the Pre-funded Warrants.

No Market for Pre-Funded Warrants

We do not intend to apply to list the Pre-Funded Warrants being on any securities exchange. Accordingly, there is no established public trading market for the Pre-Funded Warrants, and we do not expect a market to develop. Without an active market, the liquidity of the Pre-Funded Warrants will be limited.

Registrar

Depending on the number of Pre-Funded Warrants holders, we may engage a warrant agent for the Pre-Funded Warrants.

UNDERWRITING

In connection with this offering, we will enter into an underwriting agreement (the “Underwriting Agreement”) with R.F. Lafferty & Co., Inc. as the sole book running manager. The underwriter named below has agreed to purchase from us, on a firm commitment basis, the number of shares of common stock and/or Pre-funded Warrants set forth opposite its name below, at the public offering price, less the underwriting discount set forth on the cover page of this prospectus supplement.

Name of Underwriters	Number of shares of common stock	Number of Pre-funded Warrants
R.F. Lafferty & Co., Inc.		
Total		

The Underwriting Agreement will provide that the underwriter is obligated to purchase all of the shares of common stock and/or Pre-funded Warrants offered by this prospectus supplement, other than those covered by the over-allotment option, if any shares of common stock are purchased. The underwriter is offering the shares when, as and if issued to and accepted by it, subject to a number of conditions. These conditions include, among other things, the requirements that no stop order suspending the effectiveness of the registration statement be in effect and that no proceedings for this purpose have been initiated or threatened by the SEC. Furthermore, pursuant to the Underwriting Agreement, the underwriter’s obligations are subject to customary conditions, representations and warranties contained in the Underwriting Agreement, such as receipt by the underwriter of officers’ certificates and legal opinions.

Over-allotment Option

We have granted a 45-day option to the underwriter, exercisable one or more times in whole or in part, to purchase up to an additional [] shares of our common stock on the same terms as the other shares being purchased by the underwriter from us, less underwriting discounts and commissions to cover over-allotments, if any. The underwriter may exercise the option solely for the purpose of covering over-allotments, if any, in connection with this offering. Any shares issued or sold under the option will be issued and sold on the same terms and conditions as the other shares that are the subject of this offering.

Underwriter’s Compensation

Except as disclosed in this prospectus supplement, the underwriter has not received and will not receive from us any other item of compensation or expense in connection with this offering considered by the Financial Industry Regulatory Authority, Inc. (“FINRA”), to be underwriting compensation under its rule of fair price.

Commissions and Discounts

The underwriting commission and discount is equal to the public offering price per share, less the amount paid by the underwriter to us per share. The underwriting discount was determined through an arms length negotiation between us and the underwriter.

The following table shows the price and total underwriting discounts and commissions to be paid to the underwriter. Such amounts are shown assuming both no exercise and full exercise of the underwriter's option to purchase additional shares of common stock.

	Per Share of Common Stock	Per Pre-funded Warrant	Total with no Over- Allotment	Total with Over- Allotment
Public offering price	\$	\$	\$	\$
Underwriting discount (7%)	\$	\$	\$	\$
Proceeds, before expenses, to us	\$	\$	\$	\$
	\$	\$	\$	\$

Expenses

We have agreed to pay or reimburse the underwriter for certain of its out-of-pocket expenses relating to the offering, including up to \$100,000 for the fees and expenses of the underwriter's outside legal counsel, the underwriter's actual accountable "road show" expenses for the offering, the costs associated with receiving commemorative mementos and lucite tombstones, the costs of the underwriter's use of book-building, prospectus tracking and compliance software, and fees, expenses and disbursements relating to background checks of our officers and directors. We estimate that our total expenses of the offering, excluding underwriting discounts and commissions, will be approximately \$[].

Right of First Refusal

We shall grant R.F. Lafferty & Co., Inc. a right of first refusal to act as sole and exclusive investment banker, book-runner, financial advisor, underwriter and/or placement agent, for each and every future public and private equity and debt offering, including all equity linked financings, for our Company, or any successor to or any subsidiary of our Company, until December 31, 2025.

Lock-up Agreements

We have agreed with the underwriter that we will not, subject to certain exceptions, without the prior consent of R.F. Lafferty & Co., Inc. (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; (ii) file or caused to be filed any registration statement with the SEC relating to the offering of any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; (iii) complete any offering of debt securities, other than entering into a line of credit with a traditional bank or (iv) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our capital stock for a period of 30 days after the date of this prospectus supplement.

Additionally, our executive officers, directors and 5% or greater stockholders have agreed, subject to certain exceptions, not to offer, sell, dispose of or hedge any shares of our common stock or common stock equivalents, for a period of 30 days after the date of this prospectus supplement.

Indemnification

We have agreed to indemnify the underwriter against certain liabilities, including liabilities under the Securities Act and liabilities arising from breaches of representations and warranties contained in the underwriting agreement, or to contribute to payments that the underwriters may be required to make in respect of those liabilities.

Stabilization

In connection with this offering, the underwriter may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock. Specifically, the underwriter may over-allot in connection with this offering by selling more shares than they are obligated to purchase under the Underwriting Agreement, creating a short position in our common stock. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriter is not greater than the number of shares that it may purchase in the over-allotment option. In a naked short position, the number of shares involved is greater than the number of shares in the over-allotment option. To close out a short position or to stabilize the price per share the underwriter may bid for, and purchase, shares in the open market. The underwriter may also elect to reduce any short position by exercising all or part of the over-allotment option. In determining the source of shares to close out the short position, the underwriter will consider, among other things, the price of our common stock available for purchase in the open market as compared to the price at which they may purchase shares through the over-allotment option. If the underwriter sells more than could be covered by the over-allotment option, or a naked short position, the position can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that there could be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in the offering.

Finally, the underwriter may bid for, and purchase, shares in market making transactions, including “passive” market making transactions as described below.

The foregoing transactions may stabilize or maintain the market price of our common stock at a price that is higher than the price that might otherwise exist in the absence of these activities. The underwriter is not required to engage in these activities, and may discontinue any of these activities at any time without notice. These transactions may be effected on Nasdaq or otherwise.

In connection with this offering, the underwriter and selling group members, if any, or their affiliates may engage in passive market making transactions in our common stock on Nasdaq immediately prior to the commencement of sales in this offering, in accordance with Rule 103 of Regulation M under the Exchange Act. Rule 103 generally provides that:

- a passive market maker may not effect transactions or display bids for our shares and or warrants in excess of the highest independent bid price by persons who are not passive market makers; net purchases by a passive market maker on each day are generally limited to 30% of the passive market maker's average daily trading volume in our shares during a specified two-month prior period or 200 shares, whichever is greater, and must be discontinued when that limit is reached; and
- passive market making bids must be identified as such.

Passive market making may stabilize or maintain the market price of our common stock at a level above that which might otherwise prevail and, if commenced, may be discontinued at any time.

The underwriter does not expect sales to discretionary accounts to exceed 5% of the total number of common stock and/or Pre-funded Warrants offered.

Listing

Our shares of common stock are listed on Nasdaq under the symbol “ARTL.”

Electronic Distribution

A prospectus in electronic format may be made available on websites or through other online services maintained by the underwriter of this offering, or by its affiliates. Other than the prospectus in electronic format, the information on the underwriter’s website and any information contained in any other website maintained by the underwriter is not part of this prospectus supplement or the registration statement of which this prospectus supplement forms a part, has not been approved and/or endorsed by us or the underwriter in their capacity as an underwriter, and should not be relied upon by investors.

Other Relationships

In the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments. Associated persons of the sole book running manager may participate in this offering at the public offering price.

Selling Restrictions

No action has been taken in any jurisdiction (except in the United States) that would permit a public offering of the shares, or the possession, circulation or distribution of this prospectus supplement or any other material relating to us or the shares in any jurisdiction where action for that purpose is required. Accordingly, the shares may not be offered or sold, directly or indirectly, and neither this prospectus supplement nor any other material or advertisements in connection with the shares may be distributed or published, in or from any country or jurisdiction except in compliance with any applicable laws, rules and regulations of any such country or jurisdiction.

LEGAL MATTERS

The validity of the common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Fennemore Craig, P.C., Reno, Nevada. Ellenoff Grossman & Schole LLP, New York, New York, is counsel for R.F. Lafferty in connection with this offering.

EXPERTS

The consolidated financial statements of Artelo Biosciences, Inc. incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2024 have been so incorporated in reliance on the report (which contains an explanatory paragraph regarding our ability to continue as a going concern) of MaloneBailey, LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>.

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge at our website at <http://artelobio.com/>. Such information is made available on our website as soon as reasonably practicable after we electronically file it with or furnish it to the SEC. Information contained on, or accessible through, our website is not part of this prospectus supplement.

This prospectus supplement is part of a registration statement we filed with the SEC. This prospectus supplement and the accompanying prospectus omit some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and our consolidated subsidiary and the securities we are offering. Statements in this prospectus supplement and in the accompanying prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement the information we file with the SEC, which means we may disclose important information to you by referring you to other documents we file separately with the SEC. The information we incorporate by reference is considered a part of this prospectus supplement. We hereby incorporate by reference the following documents:

- our Annual Report on Form 10-K for the year ended December 31, 2024, filed with the SEC on [March 3, 2025](#);
- our Quarterly Report on Form 10-Q for the quarters ended March 31, 2025, filed with the SEC on [May 13, 2025](#), and June 30, 2025, filed with the SEC on [August 13, 2025](#);
- our Current Reports on Form 8-K filed on [April 29, 2025](#), [May 1, 2025](#), [May 23, 2025](#), [June 13, 2025](#), [June 26, 2025](#), [July 11, 2025](#), [July 18, 2025](#), [August 4, 2025](#), [August 7, 2025](#), [August 20, 2025](#), [August 29, 2025](#), and [September 3, 2025](#); and
- the description of our common stock contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the year ended December 31, 2024, filed with the SEC on March 3, 2025, including any amendment or report filed for the purpose of updating such description.

Any information in the foregoing documents will automatically be deemed to be modified or superseded to the extent that information in this prospectus supplement modifies or replaces such information. We also incorporate by reference any future filings (other than information furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act until the termination of the offering of the shares of common stock covered by this prospectus supplement. Information in such future filings shall be deemed to update and supplement the information provided in this prospectus supplement, and any statements in such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that the statements in the later filed document modify or replace such earlier statements.

You may obtain from us copies of the documents incorporated by reference in this prospectus supplement, at no cost, by requesting them in writing or by telephone at:

Artelo Biosciences, Inc.
Attn: Chief Executive Officer
505 Lomas Santa Fe, Suite 160
Solana Beach, California, 92075
(858) 925-7049

PROSPECTUS



Artelo Biosciences, Inc.

\$75,000,000

**Common Stock
Preferred Stock
Debt Securities
Warrants
Units**

We may issue securities from time to time in one or more offerings, in amounts, at prices and on terms determined at the time of offering. This prospectus describes the general terms of these securities and the general manner in which these securities will be offered. We will provide the specific terms of these securities in supplements to this prospectus, which will also describe the specific manner in which these securities will be offered and may also supplement, update or amend information contained in this prospectus. You should read this prospectus and any applicable prospectus supplement before you invest. The aggregate offering price of the securities we sell pursuant to this prospectus will not exceed \$75,000,000.

The securities may be sold directly to you, through agents or through underwriters and dealers. If agents, underwriters or dealers are used to sell the securities, we will name them and describe their compensation in a prospectus supplement. The price to the public of those securities and the net proceeds we expect to receive from that sale will also be set forth in a prospectus supplement.

Our common stock is listed on the Nasdaq Capital Market under the symbol "ARTL." Each prospectus supplement will indicate whether the securities offered thereby will be listed on any securities exchange. As of June 30, 2023, the aggregate market value of our common stock held by our non-affiliates, as calculated pursuant to the rules of the Securities and Exchange Commission, was approximately \$5.68 million, based upon 2,855,688 shares of our outstanding common stock held by non-affiliates at the per share price of \$1.99, the closing sale price of our common stock on the Nasdaq Capital Market on June 30, 2023. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in a public offering with a value exceeding more than one-third of our "public float" (the market value of our common stock held by our non-affiliates) in any 12-month period so long as our public float remains below \$75.0 million. We have not sold any securities in reliance on General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to and including the date of this prospectus.

Investing in these securities involves risks. Please carefully read the information under the headings "Risk Factors" beginning on page 9 of this prospectus and "Item 1A – Risk Factors" of our most recent report on Form 10-K or 10-Q that is incorporated by reference in this prospectus before you invest in our securities.

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 July 14, 2023.

TABLE OF CONTENTS

	<u>Page</u>
<u>About this Prospectus</u>	3
<u>Prospectus Summary</u>	4
<u>Risk Factors</u>	9
<u>Forward-Looking Statements</u>	9
<u>Use of Proceeds</u>	9
<u>Description of Capital Stock</u>	10
<u>Description of Debt Securities</u>	10
<u>Description of Warrants</u>	17
<u>Description of Units</u>	17
<u>Plan of Distribution</u>	18
<u>Legal Matters</u>	20
<u>Experts</u>	20
<u>Where You Can Find More Information</u>	20
<u>Incorporation by Reference</u>	20

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf registration process, we may from time to time sell any combination of the securities described in this prospectus in one or more offerings.

This prospectus provides you with a general description of the securities that may be offered. Each time we sell securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any applicable prospectus supplement together with the additional information described under the heading “Where You Can Find More Information.”

We have not authorized anyone to provide you with information that is different from that contained, or incorporated by reference, in this prospectus, any applicable prospectus supplement or in any 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 and any applicable prospectus supplement or any related free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in the applicable prospectus supplement or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus, any prospectus supplement, the documents incorporated by reference and any related free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

PROSPECTUS SUMMARY

This summary highlights selected information that is presented in greater detail elsewhere, or incorporated by reference, in this prospectus. It does not contain all of the information that may be important to you and your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including the matters set forth under the section of this prospectus captioned “Risk Factors” and the financial statements and related notes and other information that we incorporate by reference herein, including our Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q. Unless the context indicates otherwise, references in this prospectus to “Artelo Biosciences, Inc.,” “we,” “our” and “us” refer, collectively, to Artelo Biosciences, Inc., a Nevada corporation, and its subsidiaries taken as a whole.

Company Overview

We incorporated in the State of Nevada on May 2, 2011, and are presently based in the County of San Diego, California. We are a clinical stage biopharmaceutical company focused on the development and commercialization of therapeutics that target lipid-signaling pathways, including the endocannabinoid system (the “ECS”), a family of receptors and neurotransmitters that form a biochemical communication network throughout the body.

Our product candidate pipeline broadly leverages leading scientific methodologies and balances risk across mechanism of action and stages of development. Our programs represent a comprehensive approach in utilizing the power and promise of lipid signaling to develop pharmaceuticals for patients with unmet healthcare needs. We are currently developing a dual cannabinoid agonist. This synthetic small molecule program is a G protein-coupled receptor (“GPCR”) designated ART27.13. We are developing ART27.13 as a potential treatment for anorexia associated with cancer in a Phase 1b/2a trial, titled the Cancer Appetite Recovery Study (“CAREs”). Our second program, ART26.12 is a small molecule and the lead product candidate from our chemical library of inhibitors of fatty acid binding proteins, notably Fatty Acid Binding Protein 5 (“FABP5”), undergoing pre-clinical research as a potential treatment for painful neuropathies. In addition, ART26.12 may have broad applications as a cancer therapeutic, a treatment for pain and inflammation, and potential use in anxiety-related disorders, including post-traumatic stress disorder. We are also developing our own invention ART12.11 (the “CBD cocrystal”). ART 12.11 is our patented solid-state composition of cannabidiol (“CBD”) and tetramethylpyrazine (“TMP”). TMP serves as the cofomer in the CBD cocrystal. ART12.11 is considered a new chemical entity (“NCE”).

We obtained two of our patent protected product candidates through our in-licensing activities. Our first in-licensed program, ART27.13, is being developed for cancer-related anorexia. ART27.13 is a peripherally-restricted high-potency dual CB₁ and CB₂ receptor full-receptor agonist, which was originally invented at AstraZeneca plc (“AstraZeneca”). We exercised our option to exclusively license this GPCR product candidate through the NEOMED Institute (“NEOMED”), a Canadian not-for-profit corporation, renamed adMare Bioinnovations (“adMare”) in June 2019, which had obtained rights to ART27.13. In Phase 1, single dose studies in healthy volunteers and a multiple ascending dose study in individuals with chronic low back pain conducted by AstraZeneca, ART27.13 exhibited an attractive pharmacokinetic and absorption, distribution, metabolism, and excretion profile and was well tolerated within the target exposure range. It also exhibited dose-dependent and potentially clinically meaningful increases in body weight. Importantly, the changes in body weight were not associated with fluid retention or other adverse effects and occurred at exposures without central nervous system (“CNS”) side effects. Discussions with UK, US and Canadian regulators indicate there is a potential pathway for development of ART27.13 for the treatment of cancer-related anorexia, which affects approximately 60% of advanced stage cancer patients.

We commenced enrollment and dosed the first patient in CAREs, our Phase 1b/2a clinical study of cancer-related anorexia with ART27.13 in April 2021 and we completed enrolling patients in the Phase 1b during the first quarter 2023. Data from the Phase 1b stage was used to determine the most effective and safe dose selected for the Phase 2a portion of CAREs. We received approval from the regulatory authorities in the UK to expand the Phase 2a to 40 patients with a 3:1 randomization of ART27.13 to placebo. We initiated the larger Phase 2a portion of CAREs during April 2023 in the UK and are planning for up to 18 sites from five countries to participate in the Phase 2a. We experienced minor delays due to COVID-19; however, we do not foresee significant ongoing impacts. We are aware the situation could change and we are working to mitigate any adverse effects that may materialize due to the pandemic or its aftermath or any other global disruption.

Our second in-licensed patented program is from our platform of small-molecule inhibitors of fatty acid binding proteins, notably FABP5 acquired from Stony Brook University (“SBU”). Our lead program FABP5 is designated ART26.12. To date, SBU has received approximately \$8.0 million in funding from the National Institutes of Health to develop these candidates including a \$4.2 million grant in 2020 to advance research of FABP5 inhibition in prostate cancer. Fatty acid binding proteins (“FABPs”) are attractive therapeutic targets, however, the high degree of sequence and structural similarities among family members have made the creation of drugs targeting specific FABPs challenging. FABP5 is believed to specifically target and regulate one of the body’s endogenous cannabinoids, anandamide (“AEA”). While searching for a FABP5 inhibitor to regulate AEA, researchers at SBU discovered the chemistry for creating a large library of compounds which we believe to be highly specific and potent small molecule inhibitors of FABP5 and other isoforms. In addition to its potential as a synthetic endocannabinoid modulator with development targeting pain, inflammation, and anxiety, FABP5 is understood to play an important role in lipid signaling and is believed to be an attractive strategy for cancer drug development. Large amounts of human biomarker and animal model data support FABP5 as an oncology target, including triple negative breast cancer, ovarian cancer, cervical cancer, and castration-resistant prostate cancer. We licensed exclusive world-wide rights to these inhibitors from SBU in all fields. Through our sponsored research we have subsequently identified a potential role for FABP5 inhibition to treat anxiety disorders, such as Post Traumatic Stress Disorder (“PTSD”). We have also been awarded a research grant in Canada to expand on our earlier research at the University of Western Ontario in this new development area.

Based upon recently disclosed positive pre-clinical evidence of promising activity and a differentiated mechanism-of-action for the prevention and treatment of Chemotherapy Induced Peripheral Neuropathy (“CIPN”), we have prioritized CIPN as the initial indication for development of our lead product candidate among our library of FABP5 inhibitor compounds, ART26.12. Treatment and/or prevention of CIPN is a significant unmet need, often resulting in anti-cancer treatment delays or discontinuations, and there are currently no approved treatments for CIPN by the regulatory authorities in the US, UK or EU. The ART26.12 program is in the early stages of regulatory-enabling studies. We anticipate first-in-human studies could begin in the second half of 2024 depending, in part, on the ability of selected contract research organizations to source materials and resources, including animals, in order to perform required studies, the review and approval process with the regulatory authorities, such as the US Food and Drug Administration (the “FDA”), and any lingering consequences of the global COVID-19 pandemic. The COVID-19 pandemic has created uncertainties in the expected timelines for clinical stage biopharmaceutical companies such as us, and because of such uncertainties, we are unable to predict our expected timelines with any degree of certainty at this time.

In addition to our in-licensed programs, we have internal discovery research initiatives which resulted in ART12.11, a proprietary cocrystal composition of CBD. The crystal structure of CBD is known to exhibit solid polymorphism, or the ability to manifest in different forms. Polymorphism can adversely affect stability, dissolution, and bioavailability of a drug product and thus may affect its quality, safety, and efficacy. Based upon our research, we believe our CBD cocrystal exists as a single crystal form and as such is anticipated to have advantages over other solid forms of CBD that exhibit polymorphism. Emerging data demonstrates potential advantages of this single crystal structure, including improved stability, solubility, and a more consistent absorption profile. We believe these features have contributed to a more consistent and improved bioavailability profile and, as already demonstrated in animal studies, may ultimately lead to improved safety and efficacy in human therapeutics.

Presently, we have two US patents, one pending US patent application, two foreign patents (Mexico and Taiwan) and seven pending foreign patent applications (Australia, Brazil, Canada, China, Europe, South Korea, and Japan) directed to our cocrystal composition of CBD. Composition claims are generally known in the pharmaceutical industry as the most desired type of intellectual property and should provide for long lasting market exclusivity for our synthetic CBD cocrystal drug product candidate. In addition, due to the reasons outlined above, we believe that our synthetic CBD cocrystal will continue to demonstrate a superior set of pharmaceutical properties compared to non-cocrystal CBD compositions. We plan to develop ART12.11 for multiple potential indications where CBD has shown activity such anxiety disorders, including PTSD, depression, and Inflammatory Bowel Disease (“IBD”).

We are developing our product candidates in accordance with traditional regulated drug development standards and expect to make them available to patients via prescription or physician orders only after obtaining marketing authorization from a regulatory authority, such as the FDA. Our management team has experience developing, commercializing, and partnering ethical pharmaceutical products, including several first-in-class therapeutics. Based upon our current management’s capabilities and the future talent we may attract, we expect to retain rights to internally develop and commercialize products; however, we may seek collaborations with partners in the biopharmaceutical industry when that strategy serves to maximize value for our stockholders.

Product Candidate Pipeline:

Product Candidate	Target Indications	Development Phase	Estimated Market Size
ART27.13 – Synthetic Dual Cannabinoid GPCR Agonist	Anorexia associated with cancer	Clinical	Cancer anorexia cachexia syndrome: >\$2 billion
ART26.12 – FABP5 inhibitor	Chemotherapy Induced Peripheral Neuropathy, Prostate cancer and Breast cancer, pain, and anxiety disorders	Pre-clinical	CIPN: >\$1 billion Prostate cancer: approximately \$9 billion Breast cancer: approximately \$18 billion PTSD: approximately \$7 billion
ART12.11 – Synthetic CBD Cocrystal	Inflammatory Bowel Disease (IBD), Post-Traumatic Stress Disorder (PTSD), and other potential indications	Pre-clinical	IBD: approximately \$7 billion PTSD: approximately \$7 billion

Background

The ECS is composed of cannabinoid receptors, endogenous receptor ligands (“endocannabinoids”) and their associated transporter mechanisms, as well as enzymes responsible for the synthesis and degradation of endocannabinoids and has emerged as a considerable target for pharmacotherapy approaches of numerous human diseases. As a widespread modulatory and lipid-signaling system, the ECS plays important roles in the CNS, development, synaptic plasticity, and the response to endogenous and environmental factors.

The modulation of the ECS can be affected by using selective or non-selective agonists, partial agonists, inverse agonists, and antagonists of the cannabinoid receptors, CB₁ and CB₂. The CB₁ receptor is distributed in brain areas associated with motor control, emotional responses, motivated behavior and energy homeostasis. In the periphery, CB₁ is ubiquitously expressed in the adipose tissue, pancreas, liver, gastrointestinal tract, skeletal muscles, heart and the reproductive system. The CB₂ receptor is mainly expressed in the immune system regulating its functions and is upregulated in response to tissue stress or damage in most cell types. The ECS is therefore involved in pathophysiological conditions in both the central and peripheral tissues.

The actions of endogenous ligands can be enhanced or attenuated by targeting mechanisms that are associated with their transport within the cellular and extra cellular matrix as well as their synthesis and breakdown. Small molecule chemical modulators of the ECS can be derived from plants (phytocannabinoids), can be semi-synthetic derivatives of phytocannabinoids or endocannabinoids, or can be completely synthetic new chemical entities. We plan to develop approaches within our portfolio that address receptor binding and endocannabinoid transport modulation using only synthetic new chemical entities. Future approaches may also involve targeting synthesis or breakdown enzymes.

ECS targeting cannabinoid-based medicines are already approved and used to treat numerous medical conditions. The ECS is further implicated in many disease states within the peer reviewed literature including conditions which involve the regulation of food intake, central nervous system, pain, cardiovascular, gastrointestinal, immune and inflammation, behavioral, antiproliferative and reproductive functions. These areas of ECS pathophysiology are aligned with our therapeutic areas of focus: anxiety, pain, inflammation, anorexia, and cancer.

Business Strategy

Our objective is to develop and commercialize ethical pharmaceutical products that provide physicians access to the therapeutic potential lipid signaling of modulators, including modulating the ECS. We intend to pursue technologies and compounds that offer promising therapeutic approaches to known and validated signaling pathways, specifically lipid signaling which includes compounds that promote the effectiveness of the ECS. While many of our programs are directed towards improving the lives of people suffering with cancer and cancer treatments, the Company’s portfolio may ultimately be used to treat a wide range of diseases and conditions where leveraging the ECS is particularly useful.

Risks Associated with Our Business

- The Company will need to raise additional financing to support our business objectives. The Company cannot be sure the Company will be able to obtain additional financing on terms favorable to us when needed, or at all. If the Company is unable to obtain additional financing to meet our needs, our operations may be adversely affected or terminated.
- The Company is currently receiving Research and Development, or R&D, tax credits from the United Kingdom (“UK”) in connection with our clinical trials being conducted in the UK. With effect from April 2024 if expenditure is incurred in connection with activities which take place outside the UK as part of our clinical trials, such credits are not expected to be available.

- If the Company fails to comply with our obligations under our patent licenses with third parties, the Company could lose license rights that are vital to our business.
- Changes in regulatory requirements or other unforeseen circumstances may impact the timing of the initiation or completion of our clinical trials.
- The Company faces many of the risks and difficulties frequently encountered by relatively new companies with respect to our operations.
- The Company has no mature product candidates and may not be successful in licensing any.
- Even if the Company is successful in licensing lead product candidates, resource limitations may limit our ability to successfully develop them.
- If the Company is unable to obtain and maintain patent protection for our products, our competitors could develop and commercialize products and technology similar or identical to our product candidates, and our ability to successfully commercialize any product candidates the Company may develop, and our science may be adversely affected.
- Obtaining and maintaining our patent protection depends on compliance with various procedural measures, document submissions, fee payments and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.
- The Company may be subject to claims challenging the inventorship of our patents and other intellectual property.
- Intellectual property rights do not necessarily address all potential threats.
- Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Corporate Information

We were incorporated in the State of Nevada on May 2, 2011 as Knight Knox Development Corp. On January 19, 2017 we changed our name to Reactive Medical, Inc. and on April 14, 2017 we changed our name to Artelo Biosciences, Inc. Our principal executive offices are located at 505 Lomas Santa Fe, Suite 160, Solana Beach, California 92075 and our telephone number is (858) 925-7049. Our corporate website address is www.artelobio.com. Information contained on, or that can be accessed through, our website is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus.

The Securities That May Be Offered

We may offer or sell common stock, preferred stock, debt securities, warrants, and units in one or more offerings and in any combination. The aggregate offering price of the securities we sell pursuant to this prospectus will not exceed \$75,000,000. Each time securities are offered with this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and terms of the securities being offered and the net proceeds we expect to receive from that sale.

The securities may be sold to or through underwriters, dealers or agents or directly to purchasers or as otherwise set forth in the section of this prospectus captioned "Plan of Distribution." Each prospectus supplement will set forth the names of any underwriters, dealers, agents or other entities involved in the sale of securities described in that prospectus supplement and any applicable fee, commission or discount arrangements with them.

Common Stock

We may offer shares of our common stock, par value \$0.001 per share, either alone or underlying other registered securities convertible into our common stock. Holders of our common stock are entitled to receive dividends declared by our board of directors out of funds legally available for the payment of dividends, subject to rights, if any, of preferred shareholders. We have not paid dividends in the past and have no current plans to pay dividends. Each holder of common stock is entitled to one vote per share. The holders of common stock have no preemptive rights.

Preferred Stock

Our board of directors has the authority, subject to limitations prescribed by Nevada law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series, and to fix the designation, powers, preferences and rights of the shares of each series and any of its qualifications, limitations or restrictions, in each case without further vote or action by our shareholders. Each series of preferred stock offered by us will be more fully described in the particular prospectus supplement that will accompany this prospectus, including redemption provisions, rights in the event of our liquidation, dissolution or winding up, voting rights and rights to convert into common stock.

Debt Securities

We may offer secured or unsecured obligations in the form of one or more series of senior or subordinated debt. The senior debt securities and the subordinated debt securities are together referred to in this prospectus as the “debt securities.” The subordinated debt securities generally will be entitled to payment only after payment of our senior debt. Senior debt generally includes all debt for money borrowed by us, except debt that is stated in the instrument governing the terms of that debt to be not senior to, or to have the same rank in right of payment as, or to be expressly junior to, the subordinated debt securities. We may issue debt securities that are convertible into shares of our common stock.

The debt securities will be issued under an indenture between us and a trustee to be identified in an accompanying prospectus supplement. We have summarized the general features of the debt securities to be governed by the indenture in this prospectus and the form of indenture has been filed as an exhibit to the registration statement of which this prospectus forms a part. We encourage you to read the indenture.

Warrants

We may offer warrants for the purchase of common stock or preferred stock. We may offer warrants independently or together with other securities.

Units

We may offer units comprised of one or more of the other classes of securities described in this prospectus 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.

RISK FACTORS

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the section in the applicable prospectus supplement captioned “Risk Factors,” together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under “Part I—Item 1A—Risk Factors” of our most recent Annual Report on Form 10-K and in “Part II—Item 1A—Risk Factors” in our most recent Quarterly Report on Form 10-Q filed subsequent to such Form 10-K that are incorporated herein by reference, as may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations.

FORWARD-LOOKING STATEMENTS

This prospectus, each prospectus supplement and the information incorporated by reference in this prospectus and each prospectus supplement contain certain statements that constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. The words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “could,” “would,” “project,” “plan,” “potentially,” “likely,” and similar expressions and variations thereof are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements. Those statements appear in this prospectus, any accompanying prospectus supplement and the documents incorporated herein and therein by reference, particularly in the sections captioned “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and include statements regarding the intent, belief or current expectations of our management that are subject to known and unknown risks, uncertainties and assumptions. You are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, and that actual results may differ materially from those projected in the forward-looking statements as a result of various factors.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely upon forward-looking statements as predictions of future events. The events and circumstances reflected in the forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, including the securities laws of the United States and the rules and regulations of the SEC, we do not plan to publicly update or revise any forward-looking statements contained herein after we distribute this prospectus, whether as a result of any new information, future events or otherwise.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and although we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted a thorough inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

This prospectus and the documents incorporated by reference in this prospectus may contain market data that we obtain from industry sources. These sources do not guarantee the accuracy or completeness of the information. Although we believe that our industry sources are reliable, we do not independently verify the information. The market data may include projections that are based on a number of other projections. While we believe these assumptions to be reasonable and sound as of the date of this prospectus, actual results may differ from the projections.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds to us from the sale of our securities under this prospectus. Unless otherwise provided in the applicable prospectus supplement, we currently expect to use the net proceeds that we receive from this offering for working capital and other general corporate purposes. We may also use a portion of the net proceeds to acquire, license or invest in complementary products, technologies or businesses; however, we currently have no agreements or commitments to complete any such transaction. The expected use of net proceeds of this offering represents our current intentions based on our present plans and business conditions. We cannot specify with certainty all of the particular uses for the net proceeds to be received upon the closing of this offering. Pending these uses, we plan to invest the net proceeds of this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.¹

DESCRIPTION OF CAPITAL STOCK

The description of our capital stock is incorporated by reference from Exhibit 4.1 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 filed with the SEC on March 31, 2023.

DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes certain general terms and provisions of the debt securities that we may offer under this prospectus. When we offer to sell a particular series of debt securities, we will describe the specific terms of the series in a supplement to this prospectus. We will also indicate in the supplement to what extent the general terms and provisions described in this prospectus apply to a particular series of debt securities.

We may issue debt securities either separately, or together with, or upon the conversion or exercise of or in exchange for, other securities described in this prospectus. Debt securities may be our senior, senior subordinated or subordinated obligations and, unless otherwise specified in a supplement to this prospectus, the debt securities will be our direct, unsecured obligations and may be issued in one or more series.

The debt securities will be issued under an indenture between us and a trustee to be identified in an accompanying prospectus supplement. We have summarized select portions of the indenture below. The summary is not complete. The form of the indenture has been filed as an exhibit to the registration statement of which this prospectus forms a part and you should read the indenture for provisions that may be important to you. In the summary below, we have included references to the section numbers of the indenture so that you can easily locate these provisions. Capitalized terms used in the summary and not defined herein have the meanings specified in the indenture.

General

The terms of each series of debt securities will be established by or pursuant to a resolution of our board of directors and set forth or determined in the manner provided in a resolution of our board of directors, in an officer's certificate or by a supplemental indenture. The particular terms of each series of debt securities will be described in a prospectus supplement relating to such series (including any pricing supplement or term sheet).

We can issue an unlimited amount of debt securities under the indenture that may be in one or more series with the same or various maturities, at par, at a premium, or at a discount. We will set forth in a prospectus supplement (including any pricing supplement or term sheet) relating to any series of debt securities being offered the aggregate principal amount and the following terms of the debt securities, if applicable:

- the title and ranking of the debt securities (including the terms of any subordination provisions);
- the price or prices (expressed as a percentage of the principal amount) at which we will sell the debt securities;
- any limit upon the aggregate principal amount of the debt securities;
- the date or dates on which the principal of the securities of the series is payable;
- the rate or rates (which may be fixed or variable) per annum or the method used to determine the rate or rates (including any commodity, commodity index, stock exchange index or financial index) at which the debt securities will bear interest, the date or dates from which interest will accrue, the date or dates on which interest will commence and be payable and any regular record date for the interest payable on any interest payment date;
- the place or places where principal of, and interest, if any, on the debt securities will be payable (and the method of such payment), where the securities of such series may be surrendered for registration of transfer or exchange, and where notices and demands to us in respect of the debt securities may be delivered;

- the period or periods within which, the price or prices at which and the terms and conditions upon which we may redeem the debt securities;
- any obligation we have to redeem or purchase the debt securities pursuant to any sinking fund or analogous provisions or at the option of a holder of debt securities and the period or periods within which, the price or prices at which and the terms and conditions upon which securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;
- the dates on which and the price or prices at which we will repurchase debt securities at the option of the holders of debt securities and other detailed terms and provisions of these repurchase obligations;
- the denominations in which the debt securities will be issued, if other than denominations of \$1,000 and any integral multiple thereof;
- whether the debt securities will be issued in the form of certificated debt securities or global debt securities;
- the portion of principal amount of the debt securities payable upon declaration of acceleration of the maturity date, if other than the principal amount;
- the currency of denomination of the debt securities, which may be United States dollars or any foreign currency, and if such currency of denomination is a composite currency, the agency or organization, if any, responsible for overseeing such composite currency;
- the designation of the currency, currencies or currency units in which payment of principal of, premium and interest on the debt securities will be made;
- if payments of principal of, premium or interest on the debt securities will be made in one or more currencies or currency units other than that or those in which the debt securities are denominated, the manner in which the exchange rate with respect to these payments will be determined;
- the manner in which the amounts of payment of principal of, premium, if any, or interest on the debt securities will be determined, if these amounts may be determined by reference to an index based on a currency or currencies or by reference to a commodity, commodity index, stock exchange index or financial index;
- any provisions relating to any security provided for the debt securities;
- any addition to, deletion of or change in the Events of Default described in this prospectus or in the indenture with respect to the debt securities and any change in the acceleration provisions described in this prospectus or in the indenture with respect to the debt securities;
- any addition to, deletion of or change in the covenants described in this prospectus or in the indenture with respect to the debt securities;
- any depositaries, interest rate calculation agents, exchange rate calculation agents or other agents with respect to the debt securities;
- any other terms of the debt securities, which may supplement, modify or delete any provision of the indenture as it applies to that series, including any terms that may be required under applicable law or regulations or advisable in connection with the marketing of the securities; and
- whether any of our direct or indirect subsidiaries will guarantee the debt securities of that series, including the terms of subordination, if any, of such guarantees.

We may issue debt securities that provide for an amount less than their stated principal amount to be due and payable upon declaration of acceleration of their maturity pursuant to the terms of the indenture. We will provide you with information on the federal income tax considerations and other special considerations applicable to any of these debt securities in the applicable prospectus supplement.

If we denominate the purchase price of any of the debt securities in a foreign currency or currencies or a foreign currency unit or units, or if the principal of and any premium and interest on any series of debt securities is payable in a foreign currency or currencies or a foreign currency unit or units, we will provide you with information on the restrictions, elections, general tax considerations, specific terms and other information with respect to that issue of debt securities and such foreign currency or currencies or foreign currency unit or units in the applicable prospectus supplement.

Transfer and Exchange

Each debt security will be represented by either one or more global securities registered in the name of a clearing agency registered under the Exchange Act, which we refer to as the depository, or a nominee of the depository (we will refer to any debt security represented by a global debt security as a “book-entry debt security”), or a certificate issued in definitive registered form (we will refer to any debt security represented by a certificated security as a “certificated debt security”) as set forth in the applicable prospectus supplement. Except as set forth under the heading “Global Debt Securities and Book-Entry System” below, book-entry debt securities will not be issuable in certificated form.

Certificated Debt Securities

You may transfer or exchange certificated debt securities at any office we maintain for this purpose in accordance with the terms of the indenture. No service charge will be made for any transfer or exchange of certificated debt securities, but we may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection with a transfer or exchange.

You may effect the transfer of certificated debt securities and the right to receive the principal of, premium and interest on certificated debt securities only by surrendering the certificate representing those certificated debt securities and either reissuance by us or the trustee of the certificate to the new holder or the issuance by us or the trustee of a new certificate to the new holder.

Global Debt Securities and Book-Entry System

Each global debt security representing book-entry debt securities will be deposited with, or on behalf of, the depository, and registered in the name of the depository or a nominee of the depository.

Covenants

We will set forth in the applicable prospectus supplement any restrictive covenants applicable to any issue of debt securities.

No Protection in the Event of a Change of Control

Unless we state otherwise in the applicable prospectus supplement, the debt securities will not contain any provisions which may afford holders of the debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction (whether or not such transaction results in a change in control) which could adversely affect holders of debt securities.

Consolidation, Merger and Sale of Assets

We may not consolidate with or merge with or into, or convey, transfer or lease all or substantially all of our properties and assets to any person, which we refer to as a successor person, unless:

- we are the surviving corporation or the successor person (if other than us) is a corporation organized and validly existing under the laws of any U.S. domestic jurisdiction and expressly assumes our obligations on the debt securities and under the indenture; and
- immediately after giving effect to the transaction, no Default or Event of Default, shall have occurred and be continuing.

Notwithstanding the above, any of our subsidiaries may consolidate with, merge into or transfer all or part of its properties to us.

Events of Default

“Event of Default” means with respect to any series of debt securities, any of the following:

- default in the payment of any interest upon any debt security of that series when it becomes due and payable, and continuance of such default for a period of 30 days (unless the entire amount of the payment is deposited by us with the trustee or with a paying agent prior to the expiration of the 30-day period);
- default in the payment of principal of any security of that series at its maturity;
- default in the performance or breach of any other covenant or warranty by us in the indenture (other than a covenant or warranty that has been included in the indenture solely for the benefit of a series of debt securities other than that series), which default continues uncured for a period of 60 days after we receive written notice from the trustee, or we and the trustee receive written notice from the holders of not less than 25% in principal amount of the outstanding debt securities of that series as provided in the indenture;
- certain voluntary or involuntary events of bankruptcy, insolvency or reorganization of us; and
- any other Event of Default provided with respect to debt securities of that series that is described in the applicable prospectus supplement.

No Event of Default with respect to a particular series of debt securities (except as to certain events of bankruptcy, insolvency or reorganization) necessarily constitutes an Event of Default with respect to any other series of debt securities. The occurrence of certain Events of Default or an acceleration under the indenture may constitute an event of default under certain indebtedness of ours or our subsidiaries outstanding from time to time.

We will provide the trustee written notice of any Default or Event of Default within 30 days of becoming aware of the occurrence of such Default or Event of Default, which notice will describe in reasonable detail the status of such Default or Event of Default and what action we are taking or propose to take in respect thereof.

If an Event of Default with respect to debt securities of any series at the time outstanding occurs and is continuing, then the trustee or the holders of not less than 25% in principal amount of the outstanding debt securities of that series may, by a notice in writing to us (and to the trustee if given by the holders), declare to be due and payable immediately the principal of (or, if the debt securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series) and accrued and unpaid interest, if any, on all debt securities of that series. In the case of an Event of Default resulting from certain events of bankruptcy, insolvency or reorganization, the principal (or such specified amount) of and accrued and unpaid interest, if any, on all outstanding debt securities will become and be immediately due and payable without any declaration or other act on the part of the trustee or any holder of outstanding debt securities. At any time after a declaration of acceleration with respect to debt securities of any series has been made, but before a judgment or decree for payment of the money due has been obtained by the trustee, the holders of a majority in principal amount of the outstanding debt securities of that series may rescind and annul the acceleration if all Events of Default, other than the non-payment of accelerated principal and interest, if any, with respect to debt securities of that series, have been cured or waived as provided in the indenture. We refer you to the prospectus supplement relating to any series of debt securities that are discount securities for the particular provisions relating to acceleration of a portion of the principal amount of such discount securities upon the occurrence of an Event of Default.

The indenture provides that the trustee may refuse to perform any duty or exercise any of its rights or powers under the indenture unless the trustee receives indemnity satisfactory to it against any cost, liability or expense which might be incurred by it in performing such duty or exercising such right or power. Subject to certain rights of the trustee, the holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to the debt securities of that series.

No holder of any debt security of any series will have any right to institute any proceeding, judicial or otherwise, with respect to the indenture or for the appointment of a receiver or trustee, or for any remedy under the indenture, unless:

- that holder has previously given to the trustee written notice of a continuing Event of Default with respect to debt securities of that series; and
- the holders of not less than 25% in principal amount of the outstanding debt securities of that series have made written request, and offered indemnity or security satisfactory to the trustee, to the trustee to institute the proceeding as trustee, and the trustee has not received from the holders of not less than a majority in principal amount of the outstanding debt securities of that series a direction inconsistent with that request and has failed to institute the proceeding within 60 days.

Notwithstanding any other provision in the indenture, the holder of any debt security will have an absolute and unconditional right to receive payment of the principal of, premium and any interest on that debt security on or after the due dates expressed in that debt security and to institute suit for the enforcement of payment.

The indenture requires us, within 120 days after the end of our fiscal year, to furnish to the trustee a statement as to compliance with the indenture. If a Default or Event of Default occurs and is continuing with respect to the securities of any series and if it is known to a responsible officer of the trustee, the trustee shall send to each securityholder of the securities of that series notice of a Default or Event of Default within 90 days after it occurs or, if later, after a responsible officer of the trustee has knowledge of such Default or Event of Default. The indenture provides that the trustee may withhold notice to the holders of debt securities of any series of any Default or Event of Default (except in payment on any debt securities of that series) with respect to debt securities of that series if the trustee determines in good faith that withholding notice is in the interest of the holders of those debt securities.

Modification and Waiver

We and the trustee may modify, amend or supplement the indenture or the debt securities of any series without the consent of any holder of any debt security:

- to cure any ambiguity, defect or inconsistency;
- to comply with covenants in the indenture described above under the heading “Consolidation, Merger and Sale of Assets”;
- to provide for uncertificated securities in addition to or in place of certificated securities;
- to add guarantees with respect to debt securities of any series or secure debt securities of any series;
- to surrender any of our rights or powers under the indenture;
- to add covenants or events of default for the benefit of the holders of debt securities of any series;
- to comply with the applicable procedures of the applicable depositary;
- to make any change that does not adversely affect the rights of any holder of debt securities;
- to provide for the issuance of and establish the form and terms and conditions of debt securities of any series as permitted by the indenture;
- to effect the appointment of a successor trustee with respect to the debt securities of any series and to add to or change any of the provisions of the indenture to provide for or facilitate administration by more than one trustee; or
- to comply with requirements of the SEC in order to effect or maintain the qualification of the indenture under the Trust Indenture Act.

We may also modify and amend the indenture with the consent of the holders of at least a majority in principal amount of the outstanding debt securities of each series affected by the modifications or amendments. We may not make any modification or amendment without the consent of the holders of each affected debt security then outstanding if that amendment will:

- reduce the amount of debt securities whose holders must consent to an amendment, supplement or waiver;
- reduce the rate of or extend the time for payment of interest (including default interest) on any debt security;
- reduce the principal of or premium on or change the fixed maturity of any debt security or reduce the amount of, or postpone the date fixed for, the payment of any sinking fund or analogous obligation with respect to any series of debt securities;

- reduce the principal amount of discount securities payable upon acceleration of maturity;
- waive a default in the payment of the principal of, premium or interest on any debt security (except a rescission of acceleration of the debt securities of any series by the holders of at least a majority in aggregate principal amount of the then outstanding debt securities of that series and a waiver of the payment default that resulted from such acceleration);
- make the principal of or premium or interest on any debt security payable in currency other than that stated in the debt security;
- make any change to certain provisions of the indenture relating to, among other things, the right of holders of debt securities to receive payment of the principal of, premium and interest on those debt securities and to institute suit for the enforcement of any such payment and to waivers or amendments; or
- waive a redemption payment with respect to any debt security.

Except for certain specified provisions, the holders of at least a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all debt securities of that series waive our compliance with provisions of the indenture. The holders of a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all the debt securities of such series waive any past default under the indenture with respect to that series and its consequences, except a default in the payment of the principal of, premium or any interest on any debt security of that series; provided, however, that the holders of a majority in principal amount of the outstanding debt securities of any series may rescind an acceleration and its consequences, including any related payment default that resulted from the acceleration.

Defeasance of Debt Securities and Certain Covenants in Certain Circumstances

Legal Defeasance

The indenture provides that, unless otherwise provided by the terms of the applicable series of debt securities, we may be discharged from any and all obligations in respect of the debt securities of any series (subject to certain exceptions). We will be so discharged upon the irrevocable deposit with the trustee, in trust, of money and/or U.S. government obligations or, in the case of debt securities denominated in a single currency other than U.S. dollars, government obligations of the government that issued or caused to be issued such currency, that, through the payment of interest and principal in accordance with their terms, will provide money or U.S. government obligations in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants or investment bank to pay and discharge each installment of principal, premium and interest on and any mandatory sinking fund payments in respect of the debt securities of that series on the stated maturity of those payments in accordance with the terms of the indenture and those debt securities.

This discharge may occur only if, among other things, we have delivered to the trustee an opinion of counsel stating that we have received from, or there has been published by, the United States Internal Revenue Service a ruling or, since the date of execution of the indenture, there has been a change in the applicable United States federal income tax law, in either case to the effect that, and based thereon such opinion shall confirm that, the holders of the debt securities of that series will not recognize income, gain or loss for United States federal income tax purposes as a result of the deposit, defeasance and discharge and will be subject to United States federal income tax on the same amounts and in the same manner and at the same times as would have been the case if the deposit, defeasance and discharge had not occurred.

Defeasance of Certain Covenants

The indenture provides that, unless otherwise provided by the terms of the applicable series of debt securities, upon compliance with certain conditions:

- we may omit to comply with the covenant described under the heading “Consolidation, Merger and Sale of Assets” and certain other covenants set forth in the indenture, as well as any additional covenants which may be set forth in the applicable prospectus supplement; and
- any omission to comply with those covenants will not constitute a Default or an Event of Default with respect to the debt securities of that series.

We refer to this as covenant defeasance. The conditions include:

- depositing with the trustee money and/or U.S. government obligations or, in the case of debt securities denominated in a single currency other than U.S. dollars, government obligations of the government that issued or caused to be issued such currency, that, through the payment of interest and principal in accordance with their terms, will provide money in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants or investment bank to pay and discharge each installment of principal of, premium and interest on and any mandatory sinking fund payments in respect of the debt securities of that series on the stated maturity of those payments in accordance with the terms of the indenture and those debt securities;
- such deposit will not result in a breach or violation of, or constitute a default under the indenture or any other agreement to which we are a party;
- no Default or Event of Default with respect to the applicable series of debt securities shall have occurred or is continuing on the date of such deposit; and
- delivering to the trustee an opinion of counsel to the effect that we have received from, or there has been published by, the United States Internal Revenue Service a ruling or, since the date of execution of the indenture, there has been a change in the applicable United States federal income tax law, in either case to the effect that, and based thereon such opinion shall confirm that, the holders of the debt securities of that series will not recognize income, gain or loss for United States federal income tax purposes as a result of the deposit and related covenant defeasance and will be subject to United States federal income tax on the same amounts and in the same manner and at the same times as would have been the case if the deposit and related covenant defeasance had not occurred.

No Personal Liability of Directors, Officers, Employees or Shareholders

None of our past, present or future directors, officers, employees or stockholders, as such, will have any liability for any of our obligations under the debt securities or the indenture or for any claim based on, or in respect or by reason of, such obligations or their creation. By accepting a debt security, each holder waives and releases all such liability. This waiver and release is part of the consideration for the issue of the debt securities. However, this waiver and release may not be effective to waive liabilities under U.S. federal securities laws, and it is the view of the SEC that such a waiver is against public policy.

Governing Law

The indenture and the debt securities, including any claim or controversy arising out of or relating to the indenture or the securities, will be governed by the laws of the State of New York.

The indenture will provide that we, the trustee and the holders of the debt securities (by their acceptance of the debt securities) irrevocably waive, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to the indenture, the debt securities or the transactions contemplated thereby.

The indenture will provide that any legal suit, action or proceeding arising out of or based upon the indenture or the transactions contemplated thereby may be instituted in the federal courts of the United States of America located in the City of New York or the courts of the State of New York in each case located in the City of New York, and we, the trustee and the holder of the debt securities (by their acceptance of the debt securities) irrevocably submit to the non-exclusive jurisdiction of such courts in any such suit, action or proceeding. The indenture will further provide that service of any process, summons, notice or document by mail (to the extent allowed under any applicable statute or rule of court) to such party's address set forth in the indenture will be effective service of process for any suit, action or other proceeding brought in any such court. The indenture will further provide that we, the trustee and the holders of the debt securities (by their acceptance of the debt securities) irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or other proceeding in the courts specified above and irrevocably and unconditionally waive and agree not to plead or claim any such suit, action or other proceeding has been brought in an inconvenient forum.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase preferred stock or common stock. We may offer warrants separately or together with one or more additional warrants, preferred stock or common stock, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the applicable prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the expiration date of the warrants. The applicable prospectus supplement will also describe the following terms of any warrants:

- the specific designation and aggregate number of, and the offering price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;
- whether the warrants are to be sold separately or with other securities as parts of units;
- whether the warrants will be issued in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;
- any applicable material U.S. federal income tax consequences;
- the identity of the warrant agent for the warrants, if any, and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;
- the designation and terms of any equity securities purchasable upon exercise of the warrants;
- if applicable, the designation and terms of the preferred stock or common stock with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which any warrants issued as part of a unit and the related preferred stock or common stock will be separately transferable;
- the number of shares of preferred stock or the number of shares of common stock purchasable upon exercise of a warrant and the price at which those shares may be purchased;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- the antidilution provisions, and other provisions for changes to or adjustment in the exercise price, of the warrants, if any;
- any redemption or call provisions; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the warrants.

DESCRIPTION OF UNITS

We may issue units comprising two or more securities described in this prospectus in any combination. For example, we might issue units consisting of a combination of common stock and warrants to purchase common stock. The following description sets forth certain general terms and provisions of the units that we may offer pursuant to this prospectus. The particular terms of the units and the extent, if any, to which the general terms and provisions may apply to the units so offered will be described in the applicable prospectus supplement.

Each unit will be issued so that the holder of the unit also is the holder of each security included in the unit. Thus, the unit will have the rights and obligations of a holder of each included security. Units will be issued pursuant to the terms of a unit agreement, which 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. A copy of the forms of the unit agreement and the unit certificate relating to any particular issue of units will be filed with the SEC each time we issue units, and you should read those documents for provisions that may be important to you. For more information on how you can obtain copies of the forms of the unit agreement and the related unit certificate, see the section of this prospectus captioned “Where You Can Find More Information.”

The prospectus supplement relating to any particular issuance of units will describe the terms of those units, including, to the extent applicable, the following:

- the designation and terms of the units and the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provision for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- whether the units will be issued in fully registered or global form.

PLAN OF DISTRIBUTION

We may sell securities:

- through underwriters;
- through dealers;
- through agents;
- directly to purchasers; or
- through a combination of any of these methods of sale.

In addition, we may issue the securities as a dividend or distribution or in a subscription rights offering to our existing securityholders.

We may directly solicit offers to purchase securities or agents may be designated to solicit such offers. We will, in the prospectus supplement relating to such offering, name any agent that could be viewed as an underwriter under the Securities Act and describe any commissions that we must pay. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

The distribution of the securities may be effected from time to time in one or more transactions:

- at a fixed price or prices that may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name of the agent or any underwriters;
- the public offering or purchase price;
- if applicable, the names of any selling securityholders;
- any discounts and commissions to be allowed or paid to the agent or underwriters;
- all other items constituting underwriting compensation;
- any discounts and commissions to be allowed or paid to dealers; and
- any exchanges on which the securities will be listed.

If any underwriters or agents are utilized in the sale of the securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement or other agreement with them at the time of sale to them, and we will set forth in the prospectus supplement relating to such offering the names of the underwriters or agents and the terms of the related agreement with them.

If a dealer is utilized in the sale of the securities in respect of which the prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

If we offer securities in a subscription rights offering to our existing securityholders, we may enter into a standby underwriting agreement with dealers, acting as standby underwriters. We may pay the standby underwriters a commitment fee for the securities they commit to purchase on a standby basis. If we do not enter into a standby underwriting arrangement, we may retain a dealer-manager to manage a subscription rights offering for us.

Agents, underwriters, dealers and other persons may be entitled under agreements that they may enter into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act.

If so indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in the prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in the prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery.

The underwriters and other persons acting as agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Certain agents, underwriters and dealers, and their associates and affiliates may be customers of, have borrowing relationships with, engage in other transactions with, and/or perform services, including investment banking services, for us or one or more of our respective affiliates in the ordinary course of business.

In order to facilitate the offering of the securities, any underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the securities or any other securities the prices of which may be used to determine payments on such securities. Specifically, any underwriters may over-allot in connection with the offering, creating a short position for their own accounts. In addition, to cover over-allotments or to stabilize the price of the securities or of any such other securities, the underwriters may bid for, and purchase, the securities or any such other securities in the open market. Finally, in any offering of the securities through a syndicate of underwriters, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the securities in the offering if the syndicate repurchases previously distributed securities in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the securities above independent market levels. Any such underwriters are not required to engage in these activities and may end any of these activities at any time.

Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. The applicable prospectus supplement may provide that the original issue date for your securities may be more than two scheduled business days after the trade date for your securities. Accordingly, in such a case, if you wish to trade securities on any date prior to the third business day before the original issue date for your securities, you will be required, by virtue of the fact that your securities initially are expected to settle in more than three scheduled business days after the trade date for your securities, to make alternative settlement arrangements to prevent a failed settlement.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a national securities exchange. We can make no assurance as to the liquidity of or the existence of trading markets for any of the securities.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Fennemore Craig, P.C., Reno, Nevada. Additional legal matters may be passed on for us, or any underwriters, dealers or agents by counsel we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2022 have been so incorporated in reliance on the report of MaloneBailey LLP, an independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at <https://artelobio.com/>. Information accessible on or through our website is not a part of this prospectus.

This prospectus and any prospectus supplement is part of a registration statement that we filed with the SEC and do not contain all of the information in the registration statement. You should review the information and exhibits in the registration statement for further information on us and our consolidated subsidiaries and the securities that we are offering. Forms of any indenture or other documents establishing the terms of the offered securities are filed as exhibits to the registration statement of which this prospectus forms a part or under cover of a Current Report on Form 8-K and incorporated in this prospectus by reference. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should read the actual documents for a more complete description of the relevant matters.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference much of the information that we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated by reference in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents furnished pursuant to Items 2.02 or 7.01 of any Current Report on Form 8-K and, except as may be noted in any such Form 8-K, exhibits filed on such form that are related to such information), until the offering of the securities under the registration statement of which this prospectus forms a part is terminated or completed:

- our Annual Report on Form 10-K for the year ended December 31, 2022 filed with the SEC on [March 31, 2023](#);
- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2023 filed with the SEC on [May 11, 2023](#);
- the portions of our Definitive Proxy Statement on [Schedule 14A](#) (other than information furnished rather than filed) that are incorporated by reference into our Annual Report on Form 10-K, filed with the SEC on May 16, 2023;
- our Current Reports on Form 8-K filed with the SEC on [April 21, 2023](#) and [July 3, 2023](#); and
- The description of our common stock contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 filed with the SEC on March 31, 2023.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address:

Artelo Biosciences, Inc.
505 Lomas Santa Fe, Suite 160
Solana Beach, California 92075
Attn: Investor Relations
(858) 925-7049



Shares of Common Stock
Pre-Funded Warrants to Purchase up to Shares of Common Stock

PROSPECTUS SUPPLEMENT

R.F. Lafferty & Co., Inc.

, 2025
