

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1

REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

Artelo Biosciences, Inc.

(Exact name of registrant as specified in its charter)

Nevada

(State or other jurisdiction of
incorporation or organization)

7389

(Primary Standard Industrial
Classification Code Number)

33-1220924

(I.R.S. Employer
Identification Number)

**505 Lomas Santa Fe, Suite 160
Solana Beach, CA USA
(858) 925-7049**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Gregory D. Gorgas
Chief Executive Officer and President
505 Lomas Santa Fe, Suite 160
Solana Beach, CA USA
(858) 925-7049**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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12235 El Camino Real
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Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☒

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☒ Smaller reporting company ☒ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period with any new or revised accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission acting pursuant to such Section 8(a) may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities, and we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated July 11, 2025

PRELIMINARY PROSPECTUS



Artelo Biosciences, Inc.

Up to 920,092 Shares of Common Stock

This prospectus relates to the offer and resale, from time to time, by the selling securityholders named in this prospectus (the "Selling Securityholders") of up to an aggregate of 920,092 shares of common stock, par value \$0.001 per share (the "Common Stock"), of Artelo Biosciences, Inc., consisting of (i) 136,843 shares of Common Stock (the "Shares"), (ii) 93,180 shares of Common Stock issuable upon the exercise of pre-funded warrants (the "Pre-Funded Warrants"), (iii) 460,046 shares of Common Stock issuable upon the exercise of warrants at an exercise price of \$5.82 per share (the "\$5.82 Warrants"), and (iv) 230,023 shares of Common Stock issuable upon the exercise of warrants at an exercise price of \$10.00 per share (the "\$10.00 Warrants"). The Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants are collectively referred to herein as the "Warrants" and the shares issuable upon such Warrants, the "Warrant Shares."

The shares of Common Stock being registered for resale by the Selling Securityholders in the registration statement of which this prospectus forms a part were issued and sold pursuant to a private placement (the "Private Placement"), which was priced at the market on June 24, 2025 and closed on June 26, 2025. Each Share or, in lieu of Shares, each Pre-Funded Warrant, was issued and sold in the Private Placement along with two (2) \$5.82 Warrants and one (1) \$10.00 Warrant. The combined purchase price for the securities was (i) \$6.195 per Share of Common Stock and three accompanying Warrants and (ii) \$6.194 per Pre-Funded Warrant and three accompanying Warrants. We are filing the registration statement of which is prospectus is a part pursuant to the securities purchase agreement, dated as of June 24, 2025 (the "Purchase Agreement"), entered into with the purchasers in the Private Placement.

We will not receive any proceeds from the sale of the shares by the Selling Securityholders. We will, however, receive the net proceeds of any Warrants exercised for cash. Our registration of the shares of Common Stock covered by this prospectus does not mean that the Selling Securityholders will offer or sell any of the shares of Common Stock.

We will bear all costs, expenses and fees in connection with the registration of the shares of Common Stock. The Selling Securityholders will bear all commissions and discounts, if any, attributable to their sales of the shares of Common Stock. The Selling Securityholders and any of their permitted transferees may offer and sell the shares covered by this prospectus in a number of different ways and at varying prices. The Securities and Exchange Commission may take a position that each of the Selling Securityholders is an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended (the "Securities Act"). Additional information on the Selling Securityholders, and the times and manner in which they may offer and sell shares of our Common Stock under this prospectus, is provided under "*Selling Securityholders*" and "*Plan of Distribution*" in this prospectus.

Our Common Stock is traded on the Nasdaq Capital Market under the symbol "ARTL." The last reported sales price of our shares of Common Stock on July 10, 2025 was \$28.50 per share.

On June 11, 2025, we filed a Certificate of Change (the "Certificate of Change") to our Amended and Restated Articles of Incorporation (as amended, the "Articles of Incorporation") with the Secretary of State of Nevada to effect a 1-for-6 reverse stock split of the shares of our common stock, par value \$0.001 per share, either issued and outstanding, held by us as treasury stock and authorized, effective as of 2:01 a.m. (Eastern time) on June 13, 2025 (the "Reverse Stock Split"). All Common Stock share and per share amounts in this prospectus have been adjusted to give effect to the Reverse Stock Split unless otherwise stated.

You should read this prospectus, together with additional information described under the heading "*Where You Can Find More Information*" carefully before you invest in any of our securities.

We are a "smaller reporting company" as defined under the federal securities laws and, as such, we may continue to elect to comply with certain reduced public company reporting requirements in future reports.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 8 of this prospectus and in the other documents that are incorporated by reference into this prospectus before purchasing any of the shares offered by this prospectus.

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

The date of this prospectus is , 2025

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ABOUT THIS PROSPECTUS

As used in this prospectus, unless the context otherwise requires or indicates, references to “the Company,” “we,” “our,” “ourselves,” “us” and “Artelo” refer to Artelo Biosciences, Inc.

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission (the “SEC”), under which the Selling Securityholders may, from time to time, sell the securities described in this prospectus in one or more offerings or otherwise described under “*Plan of Distribution*.”

We may also file a prospectus supplement or post-effective amendment to the registration statement of which this prospectus forms a part that may contain material information relating to these offerings. Such prospectus supplement or post-effective amendment may also add, update or change information contained in this prospectus with respect to that offering. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement or post-effective amendment, you should rely on the prospectus supplement or post-effective amendment, as applicable. Before purchasing any securities, you should carefully read this prospectus, any post-effective amendment, and any applicable prospectus supplement, together with the additional information described under the headings “*Where You Can Find More Information*” and “*Incorporation by Reference*.”

Neither we, nor the Selling Securityholders, have authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus, any post-effective amendment, or any applicable prospectus supplement prepared by or on behalf of us or to which we have referred you. We and the Selling Securityholders take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The Selling Securityholders will not make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus, any post-effective amendment and any applicable prospectus supplement to this prospectus is accurate only as of the date on its respective cover and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference or, in each case, any earlier date specified for such information, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference filed with the SEC before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in a document incorporated by reference is inconsistent with a statement in another document incorporated by reference having a later date, the statement in the document having the later date modifies or supersedes the earlier statement.

This prospectus incorporates by reference, and any post-effective amendment or any prospectus supplement may contain or 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, neither we nor the Selling Securityholders guarantee the accuracy or completeness of this information and neither we nor the Selling Securityholders have independently verified this information. In addition, the market and industry data and forecasts that may be included or incorporated by reference in this prospectus, any post-effective amendment or any prospectus supplement 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, any post-effective amendment and any applicable prospectus supplement, and under similar headings in other documents that are incorporated by reference into this prospectus. Accordingly, investors should not place undue reliance on this information.

We obtained certain statistical data, market data and other industry data and forecasts used in this prospectus from publicly available information. While we believe that the statistical data, industry data, forecasts and market research are reliable, we have not independently verified the data, and we do not make any representation as to the accuracy of the information.

This prospectus contains forward-looking statements that are subject to a number of risks and uncertainties, many of which are beyond our control. Please read “*Cautionary Note Regarding Forward- Looking Statements*” and “*Risk Factors*”.

SUMMARY

This summary is not complete and does not contain all of the information that you should consider before investing in the securities offered by this prospectus. You should read this summary together with the entire prospectus carefully, including “Risk Factors” and our financial statements and the related notes incorporated by reference into this prospectus, before making an investment decision. See “Risk Factors” for a discussion of the risks involved in investing in our securities.

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 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 and enrollment of approximately 40 participants is projected during the first half of 2025.

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 world-wide 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
<i>ART27.13 – Synthetic Dual Cannabinoid GPCR Agonist</i>	Cancer-related anorexia	Clinical	Cancer anorexia cachexia syndrome: >\$3 billion
<i>ART26.12 – FABP5 inhibitor</i>	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
<i>ART12.11 – Synthetic CBD Co-crystal</i>	Anxiety, depression, PTSD, and other potential indications	Pre-clinical	Anxiety disorders: >\$13 billion PTSD: approximately \$13 billion
Background			
<p>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.</p>			
<p>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.</p>			
<p>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.</p>			
<p>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.</p>			

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 Factor Summary

Investing in our securities involves a high degree of risk. You should carefully consider the risks described below, as well as other information and risk factors included in our Quarterly Report on Form 10-Q for the period ended March 31, 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. We have organized the description of these risks into groupings in an effort to enhance readability, but many of the risks interrelate or could be grouped or ordered in other ways, so no special significance should be attributed to the groupings or order below.

Risks Related to This Offering

- Our financial condition raises substantial doubt as to our ability to continue as a going concern.
- Our Common Stock may be delisted from Nasdaq if we fail to regain and maintain compliance with continued listing standards.
- The sale or availability for sale of shares issuable pursuant to this prospectus may depress the price of our Common Stock, dilute the interest of our existing stockholders, and encourage short sales by third parties, which could further depress the price of our Common Stock.
- Any market activity involving short selling or other market making activities could result in negative impact to the market price for our Common Stock.
- We will need to raise additional capital to fund our planned future operations, and we may be unable to secure such capital without significant dilutive financing transactions, or at all. If we are not able to raise additional capital, we may not be able to complete the development, testing and commercialization of our drug candidates and will not be able to continue as a going concern.
- We have never paid dividends on our capital stock, and we do not anticipate paying dividends in 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.
- We are obligated to use commercially reasonable efforts to invest \$250,000 of the net proceeds from the Private Placement to purchase Solana, a cryptocurrency, the price of which has been, and will likely continue to be, highly volatile.
- 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.

Risks Related to our Business and Product Candidates

- We will need to raise additional financing to support our business objectives. We cannot be sure we will be able to obtain additional financing on terms favorable to us when needed, or at all. If we are unable to obtain additional financing to meet our needs, our operations may be adversely affected or terminated.
- We are currently receiving Research and Development, or R&D, tax credits from the UK in connection with our clinical trials being conducted in the UK. With effect for accounting periods starting on or after April 1, 2024, expenditure on certain staffing costs in connection with activities which take place outside the UK as part of our clinical trials, will not qualify for R&D tax credits unless restrictive conditions are met.

- If we fail to comply with our obligations under our patent licenses with third parties, we 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.
- We face many of the risks and difficulties frequently encountered by relatively new companies with respect to our operations.
- We have no mature product candidates and may not be successful in licensing any.
- Even if we are successful in licensing lead product candidates, resource limitations may limit our ability to successfully develop them.

Risks Related to our Intellectual Property

- If we are 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 we 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.
- We 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.

Risks Related to our Securities

- If we sell securities in future financings stockholders may experience immediate dilution and, as a result, our stock price may decline.
- The price of our securities may be volatile, and you could lose all or part of your investment. Further, we do not know whether an active, liquid and orderly trading market will continue for our securities or what the market price of our securities will be and as a result it may be difficult for you to sell your shares of our securities.
- Shares of our Common Stock that have not been registered under federal securities laws are subject to resale restrictions imposed by Rule 144, including those set forth in Rule 144(i) which apply to a former “shell company.”
- Sales of our currently issued and outstanding stock may become freely tradable pursuant to Rule 144 and sales of such shares may have a depressive effect on the share price of its Common Stock.

Private Placement

On June 24, 2025, the Company entered into a securities purchase agreement (the “Purchase Agreement”) with certain accredited investors for the issuance and sale in the Private Placement of (i) 136,843 shares of Common Stock, (ii) Pre-Funded Warrants to purchase up to 93,180 shares of Common Stock, at an exercise price of \$0.001 per share, and (iii) \$5.82 Warrants to purchase up to 460,046 shares of Common Stock, at an exercise price of \$5.82 per share, and (iv) and (ii) \$10.00 Warrants to purchase 230,023 shares of Common Stock at an exercise price of \$10.00 per share. The Private Placement was priced at the market on June 24, 2025 and closed on June 26, 2025. Each Share or, in lieu of Shares, each Pre-Funded Warrant, was issued and sold in the Private Placement along with two (2) \$5.82 Warrants and one (1) \$10.00 Warrant. The combined purchase price for the securities was (i) \$6.195 per Share of Common Stock and three accompanying Warrants and (ii) \$6.194 per Pre-Funded Warrant and three accompanying Warrants.

The Pre-Funded Warrants are exercisable immediately and may be exercised at any time until all of the Pre-Funded Warrants are exercised in full, subject to the Beneficial Ownership Limitation described below. The \$5.82 Warrants and \$10.00 Warrants are exercisable immediately and have a term of exercise equal to five (5) years from June 26, 2025, subject to the Beneficial Ownership Limitation described below.

The Warrants may only be exercised on a cashless basis if there is no registration statement registering, or the prospectus contained therein is not available for, the resale of the shares of Common Stock underlying the Warrants to the holder. A holder of a Warrant may not exercise any such Warrant to the extent that such exercise would result in the number of shares of Common Stock beneficially owned by such holder and its affiliates exceeding 4.99% or 9.99% (at the election of the holder) of the total number of shares of Common Stock outstanding immediately after giving effect to the exercise, which percentage may be increased or decreased at the holder’s election not to exceed 9.99% (the “Beneficial Ownership Limitation”).

In connection with the Private Placement and pursuant to the terms of the Purchase Agreement, the Company agreed to prepare and file a registration statement with the SEC registering the resale of the shares of Common Stock and the shares of Common Stock underlying the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants.

Recent Developments

On May 22, 2025, the Company received a letter from the staff (the “Staff”) of Nasdaq indicating that it is no longer in compliance with the minimum stockholders’ equity requirement for continued listing pursuant to Nasdaq Listing Rule 5550(b)(1), which requires listed companies to maintain stockholders’ equity of at least \$2,500,000 or meet the alternative compliance standards relating to the market value of listed securities or net income from continuing operations, which the Company does not currently meet. Nasdaq’s notice has no immediate effect on the listing of the Company’s Common Stock on Nasdaq, which continues to trade under the symbol “ARTL.” Pursuant to the notice and the Listing Rules of Nasdaq, the Company submitted a plan to regain compliance with the minimum stockholders’ equity requirement within 45 calendar days of receiving the letter from the Staff. If the Company’s plan to regain compliance is accepted, the Staff can grant an extension of up to 180 calendar days from the date of the Notice to evidence compliance. If the Company’s plan to regain compliance is not accepted, or if it is accepted and the Company does not regain compliance in the timeframe required by Nasdaq, the Staff could provide notice that the Company’s shares of Common Stock are subject to delisting. In such an event, the Company would have the right to request a hearing before a Nasdaq Hearings Panel. The Company is currently evaluating options to regain compliance and intends to timely submit a plan to regain compliance with the minimum stockholders’ equity requirement. Although the Company intends to use all reasonable efforts to achieve compliance with the minimum stockholders’ equity requirement, there can be no assurance that the Company will be able to regain compliance with the minimum stockholders’ equity requirement or that the Company will otherwise be in compliance with other applicable Nasdaq listing criteria. The notice is unrelated to the Company’s previously disclosed deficiency relating to Nasdaq’s minimum bid price requirement.

On June 11, 2025, we filed a Certificate of Change (the “Certificate of Change”) to our Amended and Restated Articles of Incorporation (as amended, the “Articles of Incorporation”) with the Secretary of State of Nevada to effect a 1-for-6 reverse stock split of the shares of our common stock, par value \$0.001 per share, either issued and outstanding, held by us as treasury stock and authorized, effective as of 2:01 a.m. (Eastern time) on June 13, 2025 (the “Reverse Stock Split”). All Common Stock share and per share amounts in this prospectus have been adjusted to give effect to the Reverse Stock Split unless otherwise stated.

Corporate Information

We were incorporated in the State of Nevada on May 2, 2011. 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, 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.

Implications of Being a Smaller Reporting Company

Additionally, 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 will remain a smaller reporting company until the last day of the fiscal year in which (1) the market value of our Common Stock held by non-affiliates equals or exceeds \$250 million as of the end of that year’s second fiscal quarter, or (2) our annual revenues equalled or exceeded \$100 million during such completed fiscal year and the market value of our Common Stock held by non-affiliates equals or exceeds \$700 million as of the end of that year’s second fiscal quarter.

The Offering	
Shares of Common Stock Offered by the Selling Securityholders	920,092 shares of Common Stock, consisting of: (i) 136,843 shares of Common Stock, (ii) 93,180 shares of Common Stock issuable upon the exercise of the Pre-Funded Warrants, (iii) 460,046 shares of Common Stock issuable upon the exercise of the \$5.82 Warrants, and (iv) 230,023 shares of Common Stock issuable upon the exercise of the \$10.00 Warrants.
Use of proceeds	We will not receive any proceeds from any sale of the shares being offered for sale by the Selling Securityholders. We will, however, receive the net proceeds of any Warrants exercised for cash.
Dividend policy	We have never declared or paid any cash dividends on our shares of Common Stock. We do not anticipate paying any cash dividends in the foreseeable future.
Risk factors	You should carefully consider the risk factors described in the section of this prospectus entitled “Risk Factors,” together with all of the other information included in this prospectus, before deciding to purchase our shares of Common Stock.
Market and trading symbol	Our shares of Common Stock are traded on the Nasdaq Capital Market under the symbol “ARTL.”

RISK FACTORS

An investment in our securities involves a high degree of risk. Our business, financial condition or results of operations could be materially and adversely affected by any of these risks. If any of these risks occur, the value of our shares of Common Stock and our other securities may decline. Before making your investment decision, you should carefully consider the risks together with all of the other information contained or incorporated by reference in this prospectus, including any risks in the section entitled “*Risk Factors*” contained in any supplements to this prospectus, in our Quarterly Report on Form 10-Q filed with the SEC on May 13, 2025, and in our subsequent filings with the SEC. Each of the referenced risks and uncertainties could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our securities. Additional risks not known to us or that we believe are immaterial may also adversely affect our business, operating results and financial condition and the value of an investment in our securities.

Risks Related to This Offering

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

As of March 31, 2025, we had approximately \$0.7 million in cash and cash equivalents, and working capital of negative \$1.4 million, and we have incurred and expect to continue to incur significant costs in pursuit of our drug candidates. For the three months ended March 31, 2025, we recorded a net loss of approximately \$2.4 million and used cash in operations of approximately \$1.6 million. Our financial statements for the three months ended March 31, 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, the Company 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. If the 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.

The sale or availability for sale of shares issuable pursuant to this prospectus may depress the price of our Common Stock, dilute the interest of our existing stockholders, and encourage short sales by third parties, which could further depress the price of our Common Stock.

As of June 30, 2025, there were 704,425 total shares outstanding and the Selling Securityholders may sell up to 920,092 shares of Common Stock pursuant to this prospectus (assuming they choose to exercise all of their Pre-Funded Warrants, \$5.82 Warrants and \$10.00 Warrants). To the extent that the Selling Securityholders sell shares of our Common Stock, the market price of our Common Stock may decrease due to the additional selling pressure in the market. In addition, the dilution from exercise of the Warrants may cause stockholders to sell their shares of our Common Stock, which could further contribute to any decline in the price of our Common Stock. Any downward pressure on the price of our Common Stock caused by the sale or potential sale of such shares could encourage short sales by third parties. Such sales could place downward pressure on the price of our Common Stock by increasing the number of shares of our Common Stock being sold, which could further contribute to any decline in the market price of our Common Stock.

Any market activity involving short selling or other market making activities could result in negative impact to the market price for our Common Stock.

Short selling is a method used to capitalize on an expected decline in the market price of a security and could depress the price of our Common Stock, which could further increase the potential for future short sales. Sales of our Common Stock could encourage short sales by market participants, which could create negative market momentum. Continued short selling may bring about a temporary, or possibly long term, decline in the market price of our Common Stock. The Company cannot predict the size of future issuances or sales of Common Stock or the effect, if any, that future issuances and sales of Common Stock will have on its market price or the activities of short sellers. Sales involving significant amounts of Common Stock, including issuances made in the ordinary course of the Company's business, or the perception that such sales could occur, may materially and adversely affect prevailing market prices of the Common Stock.

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 the Nasdaq Capital Market 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 the Private Placement to purchase Solana, as required by the 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 are obligated to use commercially reasonable efforts to invest \$250,000 of the net proceeds from the Private Placement to purchase Solana, a cryptocurrency, the price of which has been, and will likely continue to be, highly volatile.

Under the Purchase Agreement, we are obligated to use commercially reasonable efforts to use \$250,000 of the net proceeds from the Private Placement to purchase Solana, a cryptocurrency. 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.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference contains forward-looking statements that are based on our management's beliefs and assumptions and on information currently available. This section should be read in conjunction with our financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2024. The statements contained or incorporated by reference in this prospectus that are not historical facts are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended.

Forward-looking statements can be identified by words such as "believe," "anticipate," "may," "might," "can," "could," "continue," "depends," "expect," "expand," "forecast," "intend," "predict," "plan," "rely," "should," "will," "may," "seek," or the negative of these terms and other similar expressions, although not all forward-looking statements contain these words. You should read these statements carefully because they discuss future expectations, contain projections of future results of operations or financial condition, or state other "forward-looking" information. These statements relate to our future plans, objectives, expectations, intentions and financial performance and the assumptions that underlie these statements.

These forward-looking statements are subject to a number of risks, uncertainties, and assumptions, including, but not limited to, those described in "*Risk Factors*." These forward-looking statements reflect our beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus and are subject to risks and uncertainties. We discuss many of these risks in greater detail in the section entitled "*Risk Factors*" and elsewhere in this prospectus, including the information incorporated by reference. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We qualify all of the forward-looking statements in this prospectus by these cautionary statements. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in any forward-looking statements, whether as a result of 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 information incorporated by reference also contains estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the estimated size of those markets. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from reports, research surveys, studies, and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data, and similar sources.

USE OF PROCEEDS

All shares of our Common Stock offered by this prospectus are being registered for resale by the Selling Securityholders identified herein. We will not receive any of the proceeds from the sale of the shares of our Common Stock being offered for sale by the Selling Securityholders.

The shares of Common Stock covered by the registration statement of which this prospectus is a part includes 783,249 shares of Common Stock issuable upon exercise of the Warrants. If all such warrants are exercised in cash, then we will receive gross proceeds of approximately \$5.0 million. Proceeds to us from the exercise of such warrants will be used for general corporate purposes, including working capital.

The Selling Securityholders will pay any underwriting discounts and commissions and expenses incurred by the Selling Securityholders for brokerage, accounting, tax or legal services or any other expenses incurred by the Selling Securityholders in disposing of the securities. We will bear the costs, fees and expenses incurred in effecting the registration of the shares of Common Stock covered by this prospectus, including all registration and filing fees, Nasdaq listing fees and fees and expenses of our counsel and our independent registered public accounting firm.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our Common Stock and do not anticipate paying any cash dividends on our Common Stock at any time in the foreseeable future. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our Common Stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on, among other factors, our financial condition, operating results, capital requirements, general business conditions, the terms of any future credit agreements and other factors that our board of directors may deem relevant. See the section captioned “*Management’s Discussion and Analysis of Financial Condition and Results of Operations*” contained in our Annual Report on Form 10-K and in our Quarterly Reports on Form 10-Q for additional information regarding our financial condition.

SELLING SECURITYHOLDERS

This prospectus covers the resale or other disposition by the Selling Securityholders of the Common Stock and the shares of Common Stock underlying the Warrants that were issued and sold pursuant to the Private Placement. The Selling Securityholders listed in the table below may from time to time offer and sell any or all of the shares of Common Stock set forth below pursuant to this prospectus. When we refer to the “Selling Securityholders” in this prospectus, we refer to the persons listed in the table below and the permitted transferees that hold any of the Selling Securityholders’ interest in the shares of Common Stock after the date of this prospectus.

The following table sets forth certain information concerning the Common Stock that may be offered from time to time by each Selling Securityholder pursuant to this prospectus. The number of shares beneficially owned by each Selling Securityholder is determined under rules issued by the SEC. Under these rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power. Percentage ownership is based on 704,425 shares of Common Stock outstanding as of June 30, 2025. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that person or entity, shares of Common Stock subject to warrants or other rights held by such person or entity that are currently exercisable or convertible or will become exercisable or convertible or will vest within 60 days of such date are considered outstanding, although these shares are not considered outstanding for purposes of computing the percentage ownership of any other person. The percentages included in the table below take into account the beneficial ownership limitations included in the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants, which provide that a holder of such warrants may not exercise any portion of such holder’s Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants to the extent that the holder, together with its affiliates, would beneficially own more than 4.99% (or, at the election of the holder, 9.99%) of the Company’s outstanding shares of Common Stock immediately after exercise, except that upon at least 61 days’ prior notice from the holder to the Company, the holder may increase the beneficial ownership limitation to up to 9.99% of the number of shares of Common Stock outstanding immediately after giving effect to the exercise. Except as otherwise indicated, to our knowledge, each of the Selling Securityholders listed has sole voting and investment power with respect to the shares beneficially owned by the Selling Securityholder, subject to community property laws where applicable.

The Selling Securityholders identified below may have sold, transferred or otherwise disposed of all or a portion of their securities included in the table below in transactions exempt from the registration requirements of the Securities Act. Any changed or new information provided to us by the Selling Securityholders, including regarding the identity of, and the securities held by, each Selling Securityholder, will be set forth in a prospectus supplement or amendments to the registration statement of which this prospectus is a part, if and when necessary. A Selling Securityholder may sell all, some or none of such securities in this offering. See “*Plan of Distribution.*” For purposes of this table, we have assumed that the Selling Securityholders will have sold all of the securities covered by this prospectus upon the completion of the offering.

The Selling Securityholders do not have, and within the past three years have not had, any position, office or other material relationship with us.

Selling Securityholder⁽¹⁾	Number of Shares of Common Stock Beneficially Owned Prior to Offering	Percentage of Shares Beneficially Owned Prior to Offering %	Maximum Number of Shares of Common Stock to be Sold Pursuant to this Prospectus	Number of Shares of Common Stock Beneficially Owned After Offering	Percentage of Shares Beneficially Owned after Shares are Sold
Roxy Capital Corporation ⁽²⁾	35,150	4.99%	322,840	—	*%
RJL Capital 18 GP LLC ⁽³⁾	35,150	4.99%	322,840	—	*%
Bower Four Capital Corp ⁽⁴⁾	35,150	4.99%	96,852	—	*%
Proof Group Capital Partners II LP ⁽⁵⁾	35,150	4.99%	64,568	—	*%
Daniel Farb ⁽⁶⁾	35,150	4.99%	45,196	—	*%
BCL Sunset, LLC ⁽⁷⁾	32,284	4.43%	32,284	—	*%
Bevilacqua PLLC ⁽⁸⁾	32,284	4.43%	32,284	—	*%
Mathew Lazarus ⁽⁹⁾	3,228	*%	3,228	—	*%

* Less than 1.0%.

- (1) This table and the information in the notes below are based upon information supplied by the Selling Securityholders.
- (2) Consists of (i) 34,120 shares of Common Stock, (ii) 46,590 shares of Common Stock issuable upon exercise of the Pre-Funded Warrants, (iii) 161,420 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iv) 80,710 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. As a result of the beneficial ownership limitation of the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants, the “Shares of Common Stock Beneficially Owned Prior to Offering” excludes an aggregate of 287,690 shares of Common Stock issuable upon the exercise of the Warrants due to the beneficial ownership limitation. Eric Lazer has voting and investment power with respect to the securities beneficially owned by Roxy Capital Corporation. The principal address of Roxy Capital Corporation is 20 Canal Beach, Old Fort Bay, P.O. Box N7776, Nassau, Bahamas, 00000.
- (3) Consists of (i) 34,120 shares of Common Stock, (ii) 46,590 shares of Common Stock issuable upon exercise of the Pre-Funded Warrants, (iii) 161,420 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iv) 80,710 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. As a result of the beneficial ownership limitation of the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants, the “Shares of Common Stock Beneficially Owned Prior to Offering” excludes an aggregate of 287,690 shares of Common Stock issuable upon the exercise of the Warrants due to the beneficial ownership limitation. Dean Lazer has voting and investment power with respect to the securities beneficially owned by RJL Capital 18 GP LLC. The principal address of RJL Capital 18 GP LLC is 4701 N. Meridian Ave., Apt. 627, Miami, FL 33140.
- (4) Consists of (i) 24,213 shares of Common Stock, (ii) 48,426 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iii) 24,213 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. As a result of the beneficial ownership limitation of the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants, the “Shares of Common Stock Beneficially Owned Prior to Offering” excludes an aggregate of 61,702 shares of Common Stock issuable upon the exercise of the Warrants due to the beneficial ownership limitation. Greg Lipshitz has voting and investment power with respect to the securities beneficially owned by Bower Four Capital Corp. The principal address of Bower Four Capital Corp is 104 - One Cable Beach, Nassau, Bahamas.
- (5) Consists of (i) 16,142 shares of Common Stock, (ii) 32,284 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iii) 16,142 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. As a result of the beneficial ownership limitation of the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants, the “Shares of Common Stock Beneficially Owned Prior to Offering” excludes an aggregate of 29,418 shares of Common Stock issuable upon the exercise of the Warrants due to the beneficial ownership limitation. Noah Jessop has voting and investment power with respect to the securities beneficially owned by Proof Group Capital Partners II LP. The principal address of Proof Group Capital Partners II LP is 545 Middlefield Road, Suite 240, Menlo Park, CA 94025.

- (6) Consists of (i) 11,299 shares of Common Stock, (ii) 22,598 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iii) 11,299 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. As a result of the beneficial ownership limitation of the Pre-Funded Warrants, the \$5.82 Warrants and the \$10.00 Warrants, the “Shares of Common Stock Beneficially Owned Prior to Offering” excludes an aggregate of 10,046 shares of Common Stock issuable upon the exercise of the Warrants due to the beneficial ownership limitation. The principal address of Daniel Farb is 100 Essex Road, Newton, MA 02467.
- (7) Consists of (i) 8,071 shares of Common Stock, (ii) 16,142 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iii) 8,071 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. Constantine Karides has voting and investment power with respect to the securities beneficially owned by BCL Sunset, LLC. The principal address of BCL Sunset, LLC is 2767 Sunset Drive, Miami Beach, FL 33140.
- (8) Consists of (i) 8,071 shares of Common Stock, (ii) 16,142 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iii) 8,071 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. Louis A. Bevilacqua has voting and investment power with respect to 8,071 shares of Common Stock held directly by, and registered in the name of, Bevilacqua PLLC. Louis A. Bevilacqua does not beneficially own any other shares of Common Stock or convertible securities of the Company. Mr. Bevilacqua disclaims beneficial ownership of such shares except to the extent of his pecuniary interest, if any, in such shares. The principal address of Bevilacqua PLLC is 1050 Connecticut Ave., NW, Suite 500, Washington, DC 20036.
- (9) Consists of (i) 807 shares of Common Stock, (ii) 1,614 shares of Common Stock issuable upon exercise of the \$5.82 Warrants and (iii) 807 shares of Common Stock issuable upon exercise of the \$10.00 Warrants. The principal address of Mathew Lazarus is 44 Ball Road, Mountain Lakes, N.J. 07046.

PLAN OF DISTRIBUTION

Each Selling Securityholder of the shares of the securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on Nasdaq or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Securityholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Securityholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- to or through one or more underwriters or dealers in a public offering and sale by them, whether individually or through an underwriting syndicate led by one or more managing underwriters;
- through agents;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Securityholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

If underwriters are used in the sale of any securities, such securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions described above. Securities may be either offered to the public through underwriting syndicates represented by managing underwriters or directly by underwriters.

If a dealer is used in an offering of securities, the dealer may purchase the securities, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of sale.

Securities may be sold directly or through agents designated from time to time. We will name any agent involved in the offering and sale of such securities and we will describe any commissions paid to the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, the agent will act on a best-efforts basis for the period of its appointment.

Underwriters, dealers and agents may be entitled to indemnification by the Selling Securityholders and/or us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the agents, broker-dealers or underwriters may be required to make in respect thereof.

Underwriters, dealers or agents may receive compensation in the form of discounts, concessions or commissions from the Selling Securityholders or the purchasers, as their agents in connection with the sale of securities. If the shares are sold through underwriters, broker-dealers or agents, the Selling Securityholders will be responsible for underwriting discounts or commissions or agent's commissions. These underwriters, dealers or agents may be considered to be underwriters under the Securities Act. As a result, discounts, commissions or profits on resale received by the underwriters, dealers or agents may be treated as underwriting discounts and commissions. Each accompanying prospectus supplement will identify any such underwriter, dealer or agent and describe any compensation received by them from the Selling Securityholders. Any initial public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

In connection with the sale of the securities or interests therein, the Selling Securityholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Securityholders may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Securityholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Securityholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. If the Selling Securityholders are deemed to be underwriters, the Selling Securityholders may be subject to certain liabilities under statutes including, but not limited to, Section 11, 12 and 17 of the Securities Act and Section 10(b) and Rule 10b-5 under the Exchange Act.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Securityholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We have agreed to keep this prospectus effective until all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect.

In order to comply with the securities laws of some states, if applicable, the shares may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the shares may not be sold unless they have been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the Common Stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Securityholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the Common Stock by the Selling Securityholders or any other person. We will make copies of this prospectus available to the Selling Securityholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information with respect to the beneficial ownership of our Common Stock as of June 30, 2025 by:

- each person, or group of affiliated persons, who we know to beneficially own more than 5% of our Common Stock;
- each of our named executive officers;
- each of our directors; and
- all of our executive officers and directors as a group.

The percentage beneficial ownership information shown in the table is based on an aggregate of 704,425 shares of our Common Stock outstanding as June 30, 2025.

Beneficial ownership is determined according to the rules of the SEC, which generally provide that a person has beneficial ownership of a security if he, she or it possesses sole or shared voting or investment power over that security. Under those rules, beneficial ownership includes securities that the individual or entity has the right to acquire, such as through the exercise of stock options, within 60 days of June 30, 2025. Shares subject to options that are currently exercisable or exercisable within 60 days of June 30, 2025 are considered outstanding and beneficially owned by the person holding such options for the purpose of computing the percentage ownership of that person but are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Except as noted by footnote, and subject to community property laws where applicable, based on the information provided to us, we believe that the persons and entities named in the table below have sole voting and investment power with respect to all shares shown as beneficially owned by them.

Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws. Except as otherwise noted below, the address of each of the individuals and entities named in the table below is c/o Artelo Biosciences, Inc., 505 Lomas Santa Fe, Suite 160, Solana Beach, California 92075.

Name and Address of Beneficial Owner	Shares	Percentage
5% Stockholders:		
None		
Other Directors and Named Executive Officers:		
Gregory D. Gorgas(1)	25,736	3.7%
Connie Matsui(2)	1,788	*
Steven Kelly(3)	1,199	*
Douglas Blayney, M.D.(4)	1,154	*
R. Martin Emanuele, Ph.D.(5)	1,123	*
Gregory R. Reyes M.D., Ph.D.(6)	827	*
Tamara A. Favorito(7)	385	*
All directors and executive officers as a group (7 persons)(8)	32,212	4.6%

* Less than 1%

- (1) Consists of (i) 3,007 shares held directly by Gregory D. Gorgas and 400 shares held indirectly by Gorgas Family Trust, and (ii) 22,329 shares of Common Stock issuable pursuant to options held directly by Gregory D. Gorgas exercisable within 60 days of June 30, 2025.
- (2) Consists of (i) 629 shares held directly by Connie Matsui (ii) 1,159 shares of Common Stock issuable pursuant to options held directly by Connie Matsui exercisable within 60 days of June 30, 2025.
- (3) Consists of (i) 139 shares held by Steven Kelly, and (ii) 1,060 shares of Common Stock issuable pursuant to options held directly by Steven Kelly exercisable within 60 days of June 30, 2025.
- (4) Consists of (i) 139 shares held by Douglas Blayney, M.D., and (ii) 1,015 shares of Common Stock issuable pursuant to options held directly by Douglas Blayney, M.D. exercisable within 60 days of June 30, 2025.
- (5) Consists of (i) 139 shares held by R. Marty Emanuele, Ph.D., and (ii) 984 shares of Common Stock issuable pursuant to options held directly by R. Marty Emanuele, Ph.D. exercisable within 60 days of June 30, 2025.
- (6) Consists of 827 shares of Common Stock issuable pursuant to options held directly by Gregory R. Reyes M.D., Ph.D. exercisable within 60 days of June 30, 2025.
- (7) Consists of 385 shares of Common Stock issuable pursuant to options held directly by Tamara A. Favorito exercisable within 60 days of June 30, 2025.
- (8) Includes 27,759 shares of Common Stock subject to options exercisable within 60 days of June 30, 2025.

DESCRIPTION OF CAPITAL STOCK

The following description summarizes certain terms of our capital stock and certain provisions of our certificate of incorporation and bylaws. This summary does not purport to be complete and is qualified in its entirety by the provisions of our certificate of incorporation and bylaws, copies of which are filed with the SEC as exhibits to the Registration Statement on Form S-1 of which this prospectus forms a part, and to the applicable provisions of Nevada law.

Authorized Capital Stock

Our authorized capital stock consists of 8,402,778 shares of capital stock, of which 8,333,333 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 March 31, 2025, there were 567,582 shares of Common Stock issued and outstanding held by approximately 165 holders of record of our Common Stock, 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 the Nasdaq Capital Market under the symbol “ARTL.”

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon for us by Fennemore Craig, P.C., Reno, Nevada.

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 the Company's 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 MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of our Common Stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, some of which is contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our Common Stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC maintains an Internet website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

You may request a copy of this prospectus by contacting us at: Artelo Biosciences, Inc. at 505 Lomas Santa Fe, Suite 160, Solana Beach, CA or 858-925-7049. Our website address is www.artelobio.com and such reports and documents may be accessed from <https://ir.artelobio.com/>. Information contained on or accessible through Artelo's website is not a part of the registration statement of which this prospectus forms a part, and the inclusion of Artelo's website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus certain information we file with it, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus. We incorporate by reference the documents listed below that we have previously filed with the SEC (excluding those portions of any Form 8-K that are not deemed “filed” pursuant to the General Instructions of Form 8-K):

- 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 three-months ended March 31, 2025, filed with the SEC on May 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](#) and [July 11, 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.

This prospectus forms part of a registration statement on Form S-1 that we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement or the documents incorporated by reference herein and therein. For further information with respect to us and the securities that we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement and the documents incorporated by reference herein and therein. You should rely only on the information incorporated by reference or provided in this prospectus and registration statement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus and the documents incorporated by reference herein and therein is accurate as of any date other than the respective dates thereof.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

We will provide you without charge, upon your oral or written request, with a copy of any or all reports, proxy statements and other documents we file with the SEC, as well as any or all of the documents incorporated by reference in this prospectus or the registration statement (other than exhibits to such documents unless such exhibits are specifically incorporated by reference into such documents). Requests for such copies should be directed to Artelo Biosciences, Inc., Attn: Chief Executive Officer, 505 Lomas Santa Fe, Suite 160, Solana Beach, California, 92075. You may also direct any requests for documents to us by telephone at (858) 925-7049.



Artelo Biosciences, Inc.

Up to 920,092 Shares of Common Stock

PRELIMINARY PROSPECTUS

, 2025

PART II**INFORMATION NOT REQUIRED IN THE PROSPECTUS****Item 13. Other Expenses of Issuance and Distribution.**

The following table sets forth all expenses paid or payable by the registrant in connection with this offering. All amounts shown are estimates except for the SEC registration fee.

	Amount Paid or to Be Paid
SEC registration fee	\$ 1,470
Printing expenses	2,000
Legal fees and expenses	75,000
Accounting fees and expenses	10,000
Other fees and expenses	—
Total	<u>\$ 88,470</u>

Item 14. Indemnification of Directors and Officers.

The Company's Articles of Incorporation and Bylaws provide that, to the fullest extent permitted by the laws of the State of Nevada, the Company shall indemnify any officer or director of the Company, who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he/she is or was or has agreed to serve at the request of the Company as a director, officer, employee or agent of the Company, or while serving as a director or officer of the Company, is or was serving or has agreed to serve at the request of the Company as a director, officer, employee or agent (which, for purposes hereof, shall include a trustee, partner or manager or similar capacity) of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity. For the avoidance of doubt, the foregoing indemnification obligation includes, without limitation, claims for monetary damages against the indemnitee to the fullest extent permitted under Section 78.7502 of the Nevada Revised Statutes.

The indemnification provided shall be from and against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the indemnitee or on the indemnitee's behalf in connection with such action, suit or proceeding and any appeal therefrom, but shall only be provided if the indemnitee acted in good faith and in a manner that the indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and, with respect to any criminal action, suit or proceeding, had no reasonable cause to believe the indemnitee's conduct was unlawful.

In the case of any threatened, pending or completed action or suit by or in the right of the Company to procure a judgment in its favor by reason of the fact that he/she is or was a director, officer, employee or agent of the Company, or while serving as a director or officer of the Company, is or was serving or has agreed to serve at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, no indemnification shall be made in respect of any claim, issue or matter as to which the indemnitee shall have been adjudged to be liable to the Company unless, and only to the extent that, the Nevada courts or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, the indemnitee is fairly and reasonably entitled to indemnity for such expenses which the Nevada courts or such other court shall deem proper.

The termination of any action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of *nolo contendere* or its equivalent, shall not, of itself, create a presumption that he/she did not act in good faith and in a manner which the indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and, with respect to any criminal action or proceeding, had reasonable cause to believe that the indemnitee's conduct was unlawful.

To the extent that indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling our company pursuant to the foregoing provisions, we have been informed that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable. If a claim for indemnification against such liabilities (other than the payment by us of expenses incurred or paid by a director, officer or controlling person of our company in the successful defense of any action, suit or proceeding) is asserted by any of our directors, officers or controlling persons in connection with the securities being registered, we will, unless in the opinion of our counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by us is against public policy as expressed in the Securities Act and will be governed by the final adjudication of that issue.

The rights conferred in the Company's Articles of Incorporation and Bylaws are not exclusive, and the Company is authorized to enter into indemnification agreements with its directors, officers, employees, and agents and to obtain insurance to indemnify such persons. The Company may not retroactively amend the Bylaws to reduce its indemnification obligations to directors, officers, employees, and agents.

The Company has entered into indemnification agreements with its directors and executive officers that provide the maximum indemnity allowed to directors and executive officers by Section 78.7502 of the Nevada Revised Statutes and also to provide for certain additional procedural protections, in addition to the indemnification provided for in the Company's Articles of Incorporation and Bylaws, and intends to enter into indemnification agreements with any new directors and executive officers in the future.

The Company has purchased and currently intends to maintain insurance on behalf of each and any person who is or was a director or officer of the Company against any loss arising from any claim asserted against him or her and incurred by him or her in any such capacity, subject to certain exclusions.

See also the undertakings set out in response to Item 17 herein.

Item 15. Recent Sales of Unregistered Equity Securities.

We have sold the securities described below within the past three years which were not registered under the Securities Act. All of the sales listed below were made pursuant to an exemption from registration afforded by Section 4(a)(2) of the Securities Act (and Regulation D thereunder).

On May 13, 2022, we executed a private placement to Lincoln Park Capital Fund, LLC pursuant to which we have the right to sell to Lincoln Park up to \$20,000,000 in shares of our Common Stock, subject to certain limitations, from time to time over the 36-month period commencing on the date that the conditions set forth in the purchase agreement have been satisfied, which includes that a registration statement covering the resale of the shares is declared effective by the SEC. We issued 3,255 shares of our Common Stock to Lincoln Park as consideration for its commitment to purchase our shares under the Purchase Agreement. In the Purchase Agreement, Lincoln Park represented to the Company, among other things, that it was an "accredited investor" (as such term is defined in Rule 501(a) of Regulation D under the Securities Act of 1933, or the Securities Act). The securities were sold by the Company under the Purchase Agreement in reliance upon an exemption from the registration requirements under the Securities Act afforded by Section 4(a)(2) of the Securities Act. As of December 31, 2024, in accordance with the Equity Line, the Company issued 70,897 shares of the Company's Common Stock.

Between April 27, 2025 and May 1, 2025, we entered into subscription agreements with various investors, pursuant to which the Company issued convertible notes to the investors in an aggregate principal amount of \$900,000. A portion of the convertible notes are convertible into shares of our Common Stock, at the election of each investor, and the remaining portion of each note will be converted into warrants to purchase shares of our Common Stock. The sale and issuance of the convertible notes closed on May 1, 2025. The notes accrue interest at a rate of 12.0% per annum. All unpaid principal, together with any then unpaid and accrued interest and other amounts payable thereunder, shall be due and payable on October 28, 2025.

On June 24, 2025, the Company entered into a securities purchase agreement with certain accredited investors for the issuance and sale in a private placement of (i) 136,843 shares of Common Stock, (ii) up to 93,180 shares of Common Stock issuable upon the exercise of pre-funded warrants (the "Pre-Funded Warrants"), (iii) up to 460,046 shares of Common Stock issuable upon the exercise of common warrants at an exercise price of \$5.82 per share (the "\$5.82 Warrants"), and (iv) 230,023 shares of Common Stock issuable upon the exercise of warrants at an exercise price of \$10.00 per share (the "\$10.00 Warrants"). The private placement was priced at the market on June 24, 2025 and closed on June 26, 2025. Each share or, in lieu of shares, each Pre-Funded Warrant, was issued and sold in the private placement along with two (2) \$5.82 Warrants and one (1) \$10.00 Warrant. The combined purchase price for the securities was (i) \$6.195 per share of Common Stock and three accompanying warrants and (ii) \$6.194 per Pre-Funded Warrant and three accompanying warrants.

Each of the foregoing issuances was made in a transaction not involving a public offering pursuant to an exemption from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act, or Regulation D or Regulation S promulgated under the Securities Act.

Item 16. Exhibits and Financial Statement Schedules.

(a) Reference is made to the attached Exhibit Index.

(b) No financial statement schedules are provided because the information called for is not required or is shown in the financial statements or the notes thereto.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability under the Securities Act to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness; *provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(6) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(7) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

(8) The undersigned registrant hereby undertakes that:

(i) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(ii) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

EXHIBIT INDEX

Exhibit Number	Description	Form	File No.	Filing Date	Filed Herewith
3.1	Articles of Incorporation, as amended	10-Q	001-38951	5/11/2023	
3.2	Certificate of Change	8-K	001-38951	06/13/2025	
3.3	Amended and Restated Bylaws	8-K	001-38951	04/21/2023	
4.1	Specimen Common Stock Certificate	S-8	333-251387	12/16/2020	
4.2	Form of Pre-Funded Warrant	8-K	001-38951	6/26/2025	
4.3	Form of \$5.82 Warrant	8-K	001-38951	6/26/2025	
4.4	Form of \$10.00 Warrant	8-K	001-38951	6/26/2025	
5.1	Legal Opinion of Fennemore Craig, P.C.				X
10.1	Purchase Agreement between the Company and Lincoln Park Capital Fund, LLC, dated May 13, 2022.	8-K	001-38951	05/16/2022	
10.2	Registration Rights Agreement between the Company and Lincoln Park Capital Fund, LLC, dated May 13, 2022.	8-K	001-38951	05/16/2022	
10.3#	Amended and Restated Employment Agreement by and between the Company and Gregory D. Gorgas dated August 30, 2019.	10-K	001-38951	11/25/2019	
10.4	Securities Purchase Agreement by and between the Company and Gregory D. Gorgas dated April 3, 2017.	8-K	333-199213	4/7/2017	
10.5#	Form of Indemnification Agreement	8-K	333-199213	5/8/2017	
10.6	Stock Purchase Agreement dated May 4, 2017	8-K	333-199213	5/8/2017	
10.7	Form of Private Placement Subscription Agreement	8-K	333-199213	8/4/2017	
10.8	Form of Registration Rights Agreement	8-K	333-199213	8/4/2017	
10.9	Stock Purchase Agreement dated as of August 1, 2017	8-K	333-199213	8/4/2017	
10.10	Material and Data Transfer, Option and License Agreement dated as of December 20, 2017 by and between the Company and NEOMED Institute+	10-Q	333-199213	1/16/2018	
10.11+	First Amendment to Material and Data Transfer, Option and License Agreement by and between the Company and NEOMED Institute, dated as of January 4, 2019	10-Q	333-199213	4/15/2019	
10.12#	2018 Equity Incentive Plan and Forms of Award Agreement Thereunder	8-K	001-38951	12/3/2020	
10.13+	License Agreement with Stony Brook University, by and between the Company and Stony Brook University, dated January 18, 2018	S-1/A	333-222756	4/17/2018	
10.14	Form of Note and Warrant Subscription Agreement	8-K	001-38951	5/1/2025	
10.15	Form of Securities Purchase Agreement by and between Artelo Biosciences Inc. and the purchasers named therein	8-K	001-38951	6/26/2025	
23.1	Consent of Fennemore Craig, P.C. relating to opinion as to validity of the securities being registered (included in Exhibit 5.1 hereto).				X
23.2	Consent of Independent Registered Public Accounting Firm				X
24.1	Power of Attorney (included on the signature page to this registration statement)				X
107	Calculation of Filing Fee Table				X

Management contracts or compensatory plans, contracts or arrangements.

+ Certain portions of this exhibit have been omitted.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-1 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Solana Beach, State of California, on July 11, 2025.

ARTELO BIOSCIENCES, INC.

By: /s/ Gregory D. Gorgas

Name: Gregory D. Gorgas

Title: President & Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints, jointly and severally, Gregory D. Gorgas, as his or her attorney-in-fact, with full power of substitution and resubstitution, for him or her and in his or her name, place, and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments), and any and all registration statements filed pursuant to Rule 462 under the Securities Act of 1933, as amended, in connection with or related to the offering contemplated by this registration statement and its amendments, if any, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorney to any and all amendments to said registration statement.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Gregory D. Gorgas</u> Gregory D. Gorgas	President, Chief Executive Officer and Director (Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer)	July 11, 2025
<u>/s/ Connie Matsui</u> Connie Matsui	Director, Chair of the Board	July 11, 2025
<u>/s/ Steven Kelly</u> Steven Kelly	Director	July 11, 2025
<u>/s/ Douglas Blayney</u> Douglas Blayney, M.D.	Director	July 11, 2025
<u>/s/ R. Martin Emanuele</u> R. Martin Emanuele, Ph.D.	Director	July 11, 2025
<u>/s/ Gregory Reyes</u> Gregory Reyes, M.D., Ph.D.	Director	July 11, 2025
<u>/s/ Tamara A. Favorito</u> Tamara A. Favorito	Director	July 11, 2025

7800 Rancharra Pkwy.
Reno, NV 89511
PH (775) 788-2200
Fennemorelaw.com

July 11, 2025

Artelo Biosciences, Inc.
505 Lomas Santa Fe, Suite 160
Solana Beach, CA 92075

Re: Registration on Form S-1 for Artelo Biosciences, Inc.

Ladies and Gentlemen:

We are acting as special Nevada counsel for Artelo Biosciences, Inc., a Nevada corporation (the “*Company*”), in connection with its filing with the Securities and Exchange Commission (the “*Commission*”) of a Registration Statement on Form S-1 (the “*Registration Statement*”), pursuant to which the Company is registering under the Securities Act of 1933, as amended, 920,092 shares of the Company’s common stock, consisting of: (a) 136,843 of common stock of the Company (the “*Common Stock*”), (b) 93,180 shares of the Company’s common stock issuable upon exercise of certain pre-funded warrants (such warrant, a “*Pre-Funded Warrant*” and each share of common stock issuable thereunder, a “*Pre-Funded Warrant Share*,” (c) 460,046 shares of the Company’s common stock issuable upon exercise of certain warrants with an exercise price of \$5.82 per share (such warrant, a “*\$5.82 Warrant*” and each share of common stock issuable thereunder, a “*\$5.82 Share*”); and (d) 230,023 shares of the Company’s common stock issuable upon exercise of certain warrants with an exercise price of \$10.00 (each such warrant, a “*\$10.00 Warrant*” and each share of common stock issuable thereunder, a “*\$10.00 Share*” and, together with the Pre-Funded Warrant Shares and the \$5.82 Shares, the “*Warrant Shares*”).

We have examined originals or copies of each of the documents listed below:

1. The Articles of Incorporation of the Company, as amended, as certified by an officer of the Company as of the date hereof;
 2. The Bylaws of the Company, as certified by an officer of the Company as of the date hereof;
 3. The meeting minutes of the Company’s Board of Directors held on June 20, 2025 and the minutes and related resolutions of the Company’s Audit-Finance Committee held on June 24, 2025;
 4. The form of the Pre-Funded Warrants;
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5. The form of the \$5.82 Warrants;
6. The form of the \$10.00 Warrants;
7. The form of the Securities Purchase Agreement relating to the purchase and sale of the Common Stock and the Warrants; and
8. The Registration Statement.

We have examined originals or copies of such other corporate records, certificates of corporate officers and public officials and other agreements and documents as we have deemed necessary or advisable for purposes of this opinion letter. We have relied upon the certificates of all public officials and corporate officers with respect to the accuracy of all factual matters contained therein.

Without limiting the generality of the foregoing, in our examination, we have, with your permission, assumed without independent verification, that (i) all documents submitted to us as originals are authentic, the signatures on all documents that we examined are genuine, and all documents submitted to us as certified, conformed, photostatic, electronic or facsimile copies conform to the original document; and (ii) all corporate records made available to us by the Company and all public records we have reviewed are accurate and complete. We note that the Company has reserved, and assume it will continue to maintain reserved, a sufficient number of shares of its duly authorized, but unissued, common stock as is necessary to provide for the issuance of the Warrant Shares.

1. Issuance of the Common Stock has been duly authorized by the Company and such Common Stock has been validly issued, is fully paid and is nonassessable.

2. Issuance of the Warrants has been duly authorized by the Company and, when issued and paid for in accordance with the terms of the relevant Warrant, the Pre-Funded Warrant Shares, the \$5.82 Shares and the \$10.00 Shares will be validly issued, fully paid, and nonassessable.

We express no opinion as to the laws of any jurisdiction other than the laws of the State of Nevada; provided, however, that we express no opinion with respect to any securities law or rule. The opinions expressed above concern only the effect of the laws (excluding the principles of conflict of laws) of the State of Nevada currently in effect. We assume no obligation to supplement this opinion if any applicable laws change after the date of this opinion, or if we become aware of any facts that might change the opinions expressed above after the date of this opinion.

This opinion is issued in the State of Nevada. By issuing this opinion, Fennemore Craig, P.C. (i) shall not be deemed to be transacting business in any other state or jurisdiction other than the State of Nevada and (ii) does not consent to the jurisdiction of any state other than the State of Nevada. Any claim or cause of action arising out of the opinions expressed herein must be brought in the State of Nevada. Your acceptance of this opinion shall constitute your agreement to the foregoing.

We consent to your filing of this opinion as an exhibit to the Registration Statement and further consent to the use of our name wherever appearing in the Registration Statement. We further consent to the incorporation by reference of this opinion and consent in any registration statement filed pursuant to Rule 462(b) under the Act with respect to the Common Stock. In giving these consents, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Act, the rules and regulations of the Securities and Exchange Commission promulgated thereunder, or Item 509 of Regulation S-K. The opinions expressed in this letter are rendered as of the date hereof, and we express no opinion as to circumstances or events that may occur subsequent to such date. Our opinion is expressly limited to the matters set forth above and we render no opinion, whether by implication or otherwise, as to any other matters relating to the Company or the common stock of the Company.

Very truly yours,

/s/ Fennemore Craig, P.C.
FENNEMORE CRAIG, P.C.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the inclusion in this Registration Statement on Form S-1 of our report dated March 3, 2025, except for Notes 1, 2, 5 and 10 which are dated July 11, 2025 with respect to the audited consolidated financial statements of Artelo Biosciences, Inc. for the years ended December 31, 2024 and 2023.

We also consent to the references to us under the heading “Experts” in such Registration Statement.

/s/ *MaloneBailey, LLP*
www.malonebailey.com
Houston, Texas
July 11, 2025

CALCULATION OF FILING FEE TABLES

Form S-1
(Form Type)Artelo Biosciences, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered ⁽¹⁾ (2)	Proposed Maximum Offering Price Per Unit ⁽³⁾	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Newly Registered Securities								
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share	457(c)	920,092	\$10.43	\$9,596,560	0.00015310	\$1,470
	Total Offering Amounts					\$9,596,560		\$1,470
	Total Fees Previously Paid							—
	Total Fee Offsets							—
	Net Fee Due							\$1,470

- (1) Pursuant to Rule 416(a) of the Securities Act of 1933, as amended, this registration statement shall also cover any additional shares of the registrant's common stock that become issuable by reason of any stock dividend, stock split, recapitalization or other similar transaction effected without receipt of consideration that increases the number of the registrant's outstanding shares of common stock.
- (2) This registration statement registers an aggregate 920,092 shares of the registrant's common stock, consisting of (i) 136,843 shares of the registrant's common stock currently outstanding, (ii) 93,180 shares of the registrant's common stock issuable upon the exercise of pre-funded warrants, (iii) 460,046 shares of the registrant's common stock issuable upon the exercise of warrants at an exercise price of \$5.82 per share, and (iv) 230,023 shares of the registrant's common stock issuable upon the exercise of warrants at an exercise price of \$10.00 per share.
- (3) Represents shares that may be sold by the selling stockholders identified in the registration statement. Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) under the Securities Act based on the average of the high and low prices of the registrant's common stock on the Nasdaq Capital Market on July 3, 2025.