

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) **January 23, 2023**

YIELD10 BIOSCIENCE, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation)

001-33133

(Commission File Number)

04-3158289

(IRS Employer Identification No.)

19 Presidential Way,

Woburn, Massachusetts

(Address of principal executive offices)

01801

(Zip Code)

Registrant's Telephone Number, Including Area Code: **(617) 583-1700**

N/A

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common stock, par value \$0.01 per share	YTEN	The Nasdaq Capital Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 1.01 Entry into a Material Definitive Agreement.

On January 23, 2023, Yield10 Bioscience, Inc. (the “Company”) entered into an Equity Distribution Agreement (the “Distribution Agreement”) with Maxim Group LLC as agent (“Maxim”), pursuant to which the Company may offer and sell shares of its common stock, \$0.01 par value per share, having an aggregate offering price of up to \$4,200,000 (the “Shares”), from time to time through Maxim (the “Offering”). On January 23, 2023, the Company filed a prospectus supplement with the Securities and Exchange Commission in connection with the Offering (the “Prospectus Supplement”) under its existing Registration Statement on Form S-3 (File No 333-254830), which was declared effective on April 2, 2021 (the “Registration Statement”).

Subject to the terms and conditions of the Distribution Agreement, Maxim will use its commercially reasonable efforts to sell the Shares from time to time, based on the Company’s instructions. Under the Distribution Agreement, Maxim may sell the Shares by any method permitted by law deemed to be an “at-the-market” offering as defined in Rule 415 promulgated under the Securities Act of 1933, as amended (the “Securities Act”).

The Company has no obligation to sell any of the Shares, and the Company or Maxim may suspend or terminate the offering of Shares upon notice to the other party and subject to other conditions.

Under the terms of the Distribution Agreement, Maxim will be entitled to a transaction fee at a fixed rate of 2.75% of the gross sales price of Shares sold under the Distribution Agreement. The Company will also reimburse Maxim for certain expenses incurred in connection with the Distribution Agreement, and agreed to provide customary indemnification and contribution rights to Maxim.

The foregoing description of the Distribution Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the Distribution Agreement, a copy of which is attached hereto as Exhibit 1.1 and incorporated by reference herein.

The Shares will be offered and sold pursuant to the Registration Statement, and offering of the Shares will be made only by means of the Prospectus Supplement. This Current Report on Form 8-K shall not constitute an offer to sell or the solicitation of an offer to buy the Shares, nor shall there be any offer, solicitation or sale of the Shares in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to the Company, has issued a legal opinion relating to the Shares. A copy of such legal opinion, including the consent included therein, is attached as Exhibit 5.1 hereto.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
1.1	Equity Distribution Agreement, dated January 23, 2023, by and between the Company and Maxim Group LLC.
5.1	Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
23.1	Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (included in Exhibit 5.1)
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

YIELD10 BIOSCIENCE, INC.

January 23, 2023

By: /s/ Oliver P. Peoples
Oliver P. Peoples
President & Chief Executive Officer

YIELD10 BIOSCIENCE, INC.

Up to \$4,200,000 of Common Stock

EQUITY DISTRIBUTION AGREEMENT

January 23, 2023

Maxim Group LLC
300 Park Avenue, 16th Floor
New York, New York 10022

Ladies and Gentlemen:

Yield10 Bioscience, Inc., a Delaware corporation (the “*Company*”), proposes to issue and sell through Maxim Group LLC (the “*Agent*”), as sales agent, common stock of the Company, par value \$0.01 per share (the “*Common Stock*”), having an aggregate offering price of up to \$4,200,000 of Common Stock (the Common Stock subject to this Equity Distribution Agreement (this “*Agreement*”) being referred to herein as the “*Shares*”) on terms set forth herein. The Shares consist entirely of authorized but unissued Common Stock to be issued and sold by the Company.

The Company hereby confirms its agreement with the Agent with respect to the sale of the Shares.

1. ***Representations and Warranties of the Company.***

(a) The Company represents and warrants to, and agrees with, the Agent as follows:

(i) A registration statement on Form S-3 (File No. 333-254830) (the “*registration statement*”) was initially declared effective by the Securities and Exchange Commission (the “*Commission*”) on April 2, 2021, and is currently effective, under the Securities Act of 1933, as amended (the “*Securities Act of 1933*”), and the rules and regulations promulgated thereunder (the “*Rules and Regulations*” and collectively with the Securities Act of 1933, the “*Securities Act*”); since the date of effectiveness of the registration statement, no additional or supplemental information was requested by the Commission; no stop order of the Commission preventing or suspending the use of any Base Prospectus (as defined below), the Prospectus Supplement (as defined below), the Prospectus (as defined below) or any Permitted Free Writing Prospectus (as defined below), or the effectiveness of the Registration Statement, has been issued, and no proceedings for such purpose have been instituted or, to the Company’s knowledge, are contemplated by the Commission. Except where the context otherwise requires, “*Registration Statement*,” as used herein, means the registration statement, as amended at the time of such registration statement’s effectiveness for purposes of Section 11 of the Securities Act, as such section applies to the Agent, including (1) all documents filed as a part thereof or incorporated or deemed to be incorporated by reference therein, (2) any information contained or incorporated by reference in a prospectus filed with the Commission pursuant to Rule 424(b) under the Securities Act, to the extent such information is deemed, pursuant to Rule 430B or Rule 430C under the Securities Act, to be part of the registration statement at such time, and (3) any registration statement filed to register the offer and sale of Shares pursuant to Rule 462(b) under the Securities Act (the “*462(b) Registration Statement*”). Except where the context otherwise requires, “*Base Prospectus*,” as used herein, means the prospectus filed as part of the Registration Statement, together with any amendments or supplements thereto as of the date of this Agreement. Except where the context otherwise requires, “*Prospectus Supplement*,” as used herein, means the most recent prospectus supplement relating to the Shares, filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act and in accordance with the terms of this Agreement. Except where the context otherwise requires, “*Prospectus*,” as used herein, means the Prospectus Supplement together with the Base Prospectus attached to or used with the Prospectus Supplement, as may be amended or supplemented from time to time. “*Permitted Free Writing Prospectus*,” as used herein, means the documents, if any, listed on Schedule A attached hereto and, after the date hereof, any “issuer free writing prospectus” as defined in Rule 433 of the Securities Act, that is expressly agreed to by the Company and the Agent in writing to be a Permitted Free Writing Prospectus. Any reference herein to the Registration Statement, the Base Prospectus, the Prospectus Supplement, the Prospectus or any Permitted Free Writing Prospectus shall be deemed to refer to and include the documents, if any, incorporated by reference, or deemed to be incorporated by reference, therein pursuant to Item 12 of Form S-3 (the “*Incorporated Documents*”), including, unless the context otherwise requires, the documents, if any, filed as exhibits to such Incorporated Documents. For purposes of this Agreement, all references to the Registration Statement, the Rule 462(b) Registration Statement, the Base Prospectus, the Prospectus or any amendment or supplement to any of the foregoing shall be deemed to include the copy filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval System (“*EDGAR*”). All references in this Agreement to financial statements and schedules and other information which is “described,” “contained,” “included” or “stated” in the Registration Statement, the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus (or other references of like import) shall be deemed to mean and include all such financial statements and schedules and other information which is incorporated by reference in or otherwise deemed by the Rules and Regulations to be a part of or included in the Registration Statement, the Base Prospectus, the Prospectus or Permitted Free Writing Prospectus as the case may be. Any reference herein to the terms “*amend*,” “*amendment*” or “*supplement*” with respect to the Registration Statement, any Base Prospectus, the Prospectus, the Prospectus Supplement or any Permitted Free Writing Prospectus shall be deemed to refer to and include the filing of any document under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively, the “*Exchange Act*”) on or after the initial effective date of the Registration Statement, or the date of such Base Prospectus, the Prospectus, the Prospectus Supplement or such Permitted Free Writing Prospectus, if any, as the case may be, and incorporated or deemed to be incorporated therein by reference pursuant to Item 12 of Form S-3. “*Time of Sale*” means each time a Share is purchased pursuant to this Agreement.

(ii) (A) The Registration Statement complied when it became effective, complies as of the date hereof, and will comply upon the effectiveness of any amendment thereto and at each Time of Sale and each Settlement Date (as applicable), in all material respects, with the requirements of the Securities Act; at all times during which a prospectus is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) in connection with any sale of Shares (the "**Prospectus Delivery Period**"); the Registration Statement, as may be amended, will comply, in all material respects, with the requirements of the Securities Act; the conditions to the use of Form S-3 in connection with the offering and sale of the Shares as contemplated hereby (the "**Offering**") have been satisfied; the Registration Statement meets, and the Offering complies with, the requirements of Rule 415 under the Securities Act (including, without limitation, Rule 415(a)(5)); the Registration Statement did not, as of the time of its effectiveness and as of the date hereof, and will not, as of the effective date of any amendment thereto, at each Time of Sale, if any, and at all times during a Prospectus Delivery Period, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading.

(B) The Prospectus, as of the date of the Prospectus Supplement, as of the date hereof (if filed with the Commission on or prior to the date hereof), at each Settlement Date and Time of Sale (as applicable), and at all times during a Prospectus Delivery Period, complied, complies or will comply, in all material respects, with the requirements of the Securities Act; and the Prospectus, and each supplement thereto, as of their respective dates, at each Settlement Date or Time of Sale (as applicable), and at all times during a Prospectus Delivery Period, did not and will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(C) Each Permitted Free Writing Prospectus, if any, as of its date and as of each Settlement Date and Time of Sale (as applicable), and at all times during a Prospectus Delivery Period (when taken together with the Prospectus at such time) will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

The representations and warranties set forth in subparagraphs (A), (B) and (C) above shall not apply to any statement contained in the Registration Statement, any Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus in reliance upon and in conformity with information concerning the Agent that is furnished in writing by or on behalf of the Agent expressly for use in the Registration Statement, such Base Prospectus, the Prospectus or such Permitted Free Writing Prospectus, if any, it being understood and agreed that only such information furnished by the Agent as of the date hereof consists of the information described in Section 5(b)(ii).

(iii) Prior to the execution of this Agreement, the Company has not, directly or indirectly, offered or sold any Shares by means of any “prospectus” (within the meaning of the Securities Act) or used any “prospectus” (within the meaning of the Securities Act) in connection with the Offering, in each case other than the Base Prospectus or any Permitted Free Writing Prospectus; the Company has not, directly or indirectly, prepared, used or referred to any Permitted Free Writing Prospectus except in compliance with Rules 164 and 433 under the Securities Act; assuming that a Permitted Free Writing Prospectus, if any, is sent or given after the Registration Statement was filed with the Commission (and after such Permitted Free Writing Prospectus, if any, was, if required pursuant to Rule 433(d) under the Securities Act, filed with the Commission), the Company will satisfy the provisions of Rule 164 or Rule 433 necessary for the use of a free writing prospectus (as defined in Rule 405) in connection with the Offering; the conditions set forth in one or more of subclauses (i) through (iv), inclusive, of Rule 433(b)(1) under the Securities Act are satisfied, and the registration statement relating to the Offering, as initially filed with the Commission, includes a prospectus that, other than by reason of Rule 433 or Rule 431 under the Securities Act, satisfies the requirements of Section 10 of the Securities Act; neither the Company nor the Agent is disqualified, by reason of subsection (f) or (g) of Rule 164 under the Securities Act, from using, in connection with the Offering, “free writing prospectuses” (as defined in Rule 405 under the Securities Act) pursuant to Rules 164 and 433 under the Securities Act; the Company is not an “ineligible issuer” (as defined in Rule 405 under the Securities Act) as of the eligibility determination date for purposes of Rules 164 and 433 under the Securities Act with respect to the offering of the Shares contemplated by the Registration Statement; the parties hereto agree and understand that the content of any and all “road shows” (as defined in Rule 433 under the Securities Act) related to the Offering is solely the property of the Company.

(iv) Each Permitted Free Writing Prospectus, as of its issue date, each Time of Sale and each Settlement Date occurring after such issue date and at all subsequent times through the Prospectus Delivery Period (as defined below) or until any earlier date that the Company notified or notifies the Agent as described in Section 3(c)(iii), did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement, any Base Prospectus or the Prospectus. The foregoing sentence does not apply to statements in or omissions from any Permitted Free Writing Prospectus based upon and in conformity with written information furnished to the Company by the Agent specifically for use therein, it being understood and agreed that only such information furnished by the Agent as of the date hereof consist of the information described in Section 5(b)(ii).

(v) The consolidated financial statements of the Company and the Subsidiaries (as defined below), together with the related notes, set forth or incorporated by reference in the Registration Statement and the Prospectus comply in all material respects with the requirements of the Securities Act and the Exchange Act and fairly present in all material respects the financial condition of the Company and the Subsidiaries, as a whole, as of the dates indicated and the results of operations and changes in cash flows for the periods therein specified in conformity with U.S. generally accepted accounting principles consistently applied throughout the periods involved. The selected financial data and the summary financial information included in the documents in the Registration Statement and in the Prospectus constitute a fair summary of the information purported to be summarized and have been compiled on a basis consistent with that of the audited financial statements included in the Registration Statement. No other financial statements or supporting schedules are required to be included or incorporated by reference in the Registration Statement or the Prospectus under the Securities Act except as so included or incorporated by reference. All disclosures contained in the Registration Statement or the Prospectus or incorporated by reference therein regarding “non GAAP financial measures” (as such term is defined by the applicable rules and regulations of the Commission) comply with Regulation G of the Exchange Act and Item 10 of Regulation S-K of the Securities Act to the extent applicable. To the Company’s knowledge, RSM US LLP, which has expressed its opinion with respect to the audited financial statements for the fiscal year ended December 31, 2021, and schedules, if any, and which has reviewed the unaudited financial statements for the three and nine months ended September 30, 2022 (collectively, the “**Incorporated Financial Statements**”), filed as a part of the Registration Statement and included in the Registration Statement and the Prospectus, is a registered public accounting firm within the meaning of the Securities Act, and in the performance of its work for the Company has not been in violation of the auditor independence requirements of the Sarbanes-Oxley Act of 2002 (the “**Sarbanes-Oxley Act**”).

(vi) The Company has been duly organized and is validly existing as a corporation under the laws of its jurisdiction of incorporation. The Company and each of the Subsidiaries has full corporate power and authority to own its respective properties and conduct its business as currently being carried on and as described in the Registration Statement and the Prospectus, and is duly qualified to do business as a foreign corporation in good standing in each jurisdiction in which it owns or leases real property or in which the conduct of its business makes such qualification necessary and in which the failure to so qualify would have a material adverse effect upon the results of operations, business, management, properties, prospects, conditions (financial or otherwise) or operations, of the Company and the Subsidiaries, either individually or taken as a whole (“*Material Adverse Effect*”).

(vii) Except as disclosed in the Prospectus, subsequent to the dates as of which information is given in the Prospectus, the Company (including its Subsidiaries on a consolidated basis) has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to the capital stock of the Company; and there has not been any change in the capital stock of the Company, or issuance of options, warrants, convertible securities or other rights to purchase the capital stock of the Company, or any material change in the short-term or long-term debt of the Company (other than as a result of the exercise of any currently outstanding options or warrants that are disclosed in the Prospectus), or any Material Adverse Effect or any development that would reasonably be expected to result in a Material Adverse Effect. Since the date of the latest balance sheet presented in the Registration Statement and the Prospectus, neither the Company nor any Subsidiary has entered into any transactions, including any acquisition or disposition of any business or asset, which are material to the Company and the Subsidiaries taken as a whole, except for transactions which are disclosed in the Registration Statement and the Prospectus.

(viii) Except as set forth in the Prospectus, there is not pending or, to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding to which the Company or any of its Subsidiaries or of which any property or assets of the Company or any of its Subsidiaries is the subject before or by any court or governmental agency, authority or body, or any arbitrator or mediator, which, individually or in the aggregate, would reasonably be expected to result in any Material Adverse Effect.

(ix) There are no statutes, regulations, contracts or documents that are required to be described in the Registration Statement and the Prospectus or be filed as exhibits to the Registration Statement by the Securities Act that have not been so described or filed.

(x) This Agreement has been duly authorized, executed and delivered by the Company, and constitutes a valid, legal and binding obligation of the Company, enforceable against the Company in accordance with its terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity. The execution, delivery and performance of this Agreement and the consummation of the transactions herein contemplated will not result in a breach or violation of any of the terms and provisions of, or constitute a default under, (i) any law, rule or regulation to which the Company or any of its Subsidiaries is subject, (ii) any agreement or instrument to which the Company or any of its Subsidiaries or by which it is bound or to which any of its property is subject, (iii) the Company's Amended and Restated Certificate of Incorporation, as amended (the "**Charter**"), or Amended and Restated Bylaws, or the organizational documents of any of its Subsidiaries, or (iv) any order, rule, regulation or decree of any court or governmental agency or body having jurisdiction over the Company or any of its Subsidiaries or any of its properties, except, in the case of clauses (i), (ii) and (iv), for such breaches, violations or defaults that would not reasonably be expected to result in a Material Adverse Effect; no consent, approval, authorization or order of, or filing with, any court or governmental agency or body is required for the execution, delivery and performance of this Agreement or for the consummation of the transactions contemplated hereby and thereby, including the issuance or sale of the Shares by the Company, except for such consents, approvals, authorizations, orders or filings as have been obtained or made or as may be required under the Securities Act or state securities or blue sky laws; and the Company has and will have full power and authority to enter into this Agreement and to authorize, issue and sell the Shares as contemplated hereby and thereby.

(xi) All of the issued and outstanding shares of capital stock of the Company, including the outstanding Common Stock, are duly authorized and validly issued, fully paid and nonassessable, have been issued in compliance with all applicable foreign, federal and state securities laws, were not issued in violation of or subject to any preemptive rights or other rights to subscribe for or purchase securities that have not been waived in writing, and the holders thereof are not subject to personal liability by reason of being such holders; all of the issued and outstanding shares of capital stock of each of the Subsidiaries are duly authorized and validly issued, fully paid and nonassessable, and are owned by the Company, directly or through wholly-owned Subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance, claim or equity except for those arising under any credit facility or loan agreement ("**Credit Facilities**") to which the Company or any of its Subsidiaries is a party or their assets are bound as disclosed in the Registration Statement and the Prospectus, have been issued in compliance with all applicable foreign, federal and state securities laws, were not issued in violation of or subject to any preemptive rights or other rights to subscribe for or purchase securities that have not been waived in writing, and the holders thereof are not subject to personal liability by reason of being such holders; the Shares which may be sold under this Agreement by the Company have been duly authorized and, when issued, delivered and paid for in accordance with the terms of this Agreement will have been validly issued and will be fully paid and nonassessable, and the holders thereof will not be subject to personal liability solely by reason of being such holders; and the capital stock of the Company, including the Common Stock, conforms in all material respects to the description thereof in the Registration Statement and the Prospectus. Except as otherwise stated in the Registration Statement and the Prospectus, there are no preemptive rights or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any Common Stock pursuant to the Company's Certificate of Incorporation, as amended, or any agreement or other instrument to which the Company is a party or by which the Company is bound. Neither the filing of the Registration Statement nor the Offering gives rise to any rights for or relating to the registration of any Common Stock or other securities of the Company, except for such registration rights as have been duly waived. Except as described in the Registration Statement and the Prospectus, there are no options, warrants, agreements, contracts or other rights in existence to purchase or acquire from the Company any shares of the capital stock of the Company. The Company has an authorized and outstanding capitalization as set forth in the Registration Statement and the Prospectus as of the dates set forth therein.

(xii) The Company and each of its Subsidiaries holds, and is operating in compliance with all grants, authorizations, licenses, permits, consents, certificates and orders of any governmental or self-regulatory body required for the conduct of its respective businesses and all such grants, authorizations, licenses, permits, consents, certifications and orders are valid and in full force and effect, except for such noncompliance or failures to be in full force and effect that would not reasonably be expected to result in a Material Adverse Effect; and neither the Company nor any of its Subsidiaries has received notice of any revocation or modification of any such grant, authorization, license, permit, consent, certification or order or has reason to believe that any such grant, authorization, license, permit, consent, certification or order will not be renewed in the ordinary course; and the Company and each of its Subsidiaries is in compliance with all applicable federal, state, local and foreign laws, regulations, orders and decrees, except for such noncompliance that would not reasonably be expected to result in a Material Adverse Effect. No approval, authorization, consent or order of or filing with any foreign, federal, state or local governmental or regulatory commission, board, body, authority or agency is required in connection with the issuance and sale of the Shares or the consummation by the Company of the transactions contemplated hereby, other than (i) registration of the Shares under the Securities Act, (ii) any necessary qualification under the securities or blue sky laws of the various jurisdictions in which the Shares are being offered by the Agent, (iii) the filing of any reports under the Exchange Act, (iv) such approvals as may be required by the Conduct Rules of the Financial Industry Regulatory Authority, Inc. (“*FINRA*”), (v) approval of the listing of the Shares by the Nasdaq Capital Market or (vi) such approvals as have been obtained or made as of the Time of Sale.

(xiii) The Company and each of its Subsidiaries has good and marketable title to all property (whether real or personal) described in the Registration Statement and the Prospectus as being owned by it, in each case free and clear of all liens, claims, security interests, other encumbrances or defects except such as are described in the Registration Statement and the Prospectus, except as would not materially impair the use or value thereof. The property held under lease by the Company and each of its Subsidiaries is held by it under valid, subsisting and enforceable leases with only such exceptions with respect to any particular lease as do not interfere in any material respect with the conduct of the business of the Company or such Subsidiary.

(xiv) The Company and each of its Subsidiaries owns, possesses, or can acquire on reasonable terms, all Intellectual Property (as defined below) necessary for the conduct of their respective businesses as now conducted or as described in the Registration Statement and the Prospectus to be conducted, except to the extent that the failure to own or possess adequate rights to use such Intellectual Property would not, individually or in the aggregate, have a Material Adverse Effect. Except as would not result in a Material Adverse Effect, (A) there are no rights of third parties to any such Intellectual Property owned by the Company, except as otherwise disclosed to the Agent in writing by the Company prior to the date hereof; (B) to the knowledge of the Company, there is no infringement, misappropriation or violation by third parties of any such Intellectual Property; (C) there is no pending or, to the knowledge of the Company, threatened, action, suit, proceeding or claim by others challenging the Company’s or any Subsidiary’s rights in or to any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (D) the Intellectual Property owned by the Company and each of the Subsidiaries, and to the knowledge of the Company, the Intellectual Property licensed to the Company, each of the Subsidiaries, has not been adjudged invalid or unenforceable, in whole or in part, and there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (E) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others that the Company or any of its Subsidiaries infringes, misappropriates or otherwise violates any Intellectual Property or other proprietary rights of others, and neither the Company nor any of the Subsidiaries has received any written notice of such claim; and (F) to the Company’s knowledge, no employee of the Company or any of its Subsidiaries is in or has ever been in violation of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee’s employment with the Company or any of its Subsidiaries or actions undertaken by the employee while employed with the Company or any of its Subsidiaries. “*Intellectual Property*” shall mean all patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, domain names, technology, know-how and other intellectual property.

(xv) Neither the Company nor any of its Subsidiaries is (A) in violation of its Charter or similar organizational documents, or (B) in breach of or otherwise in default, and no event has occurred which, with notice or lapse of time or both, would constitute such a default in the performance of any material obligation, agreement or condition contained in any bond, debenture, note, indenture, loan agreement, mortgage, deed of trust or any other material contract, lease or other instrument to which it is subject or by which any of them may be bound, or to which any of the material property or assets of the Company or any of its Subsidiaries is subject (collectively, the “**Material Contracts**”); or (C) in violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except in the case of (B) and (C) above, as could not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect.

(xvi) The Company and each of the Subsidiaries has timely filed all applicable federal, state, local, foreign and other income and franchise tax returns required to be filed and are not in default in the payment of any taxes which were payable pursuant to said returns or any assessments with respect thereto, other than any which the Company or any of its Subsidiaries is contesting in good faith, except where the failure to timely file or any default in payment would not reasonably be expected to result in a Material Adverse Effect. There is no pending dispute with any taxing authority relating to any of such returns, and the Company has no knowledge of any proposed liability for any tax to be imposed upon the properties or assets of the Company or any of its Subsidiaries for which there is not an adequate reserve reflected in the Company’s financial statements included in the Registration Statement. There are no documentary, stamp or other issuance or transfer taxes or duties or similar fees or charges under U.S. federal law or the laws of any U.S. state, required to be paid in connection with the execution and delivery of this Agreement or the issuance, sale and delivery by the Company of the Shares.

(xvii) The Company has not distributed and will not distribute any prospectus or other offering material in connection with the Offering other than the Registration Statement and the Prospectus or other materials permitted by the Securities Act to be distributed by the Company; provided, however, that the Company has not made and will not make any offer relating to the Shares that would constitute a “free writing prospectus” as defined in Rule 405 under the Securities Act, except in accordance with the provisions of Section 3(p) of this Agreement.

(xviii) The issuance and sale of the Shares as contemplated in this Agreement does not contravene the rules and regulations of the Nasdaq Capital Market. The Common Stock are registered pursuant to Section 12(b) of the Exchange Act and are listed on the Nasdaq Capital Market and the Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from the Nasdaq Capital Market nor, except as disclosed in the Registration Statement or the Prospectus, has the Company received any notification that the Commission or the Nasdaq Capital Market is contemplating terminating such registration or listing. The Company has complied in all material respects with the applicable requirements of the Nasdaq Capital Market for maintenance of the listing of the Common Stock thereon. The Company has filed an application to include the Shares on the Nasdaq Capital Market.

(xix) The Company has no subsidiaries other than those described in the Prospectus (collectively, the “*Subsidiaries*”). The Company does not own, directly or indirectly, any shares of stock or any other equity or long-term debt securities of any other corporation or have any equity interest in any other corporation, partnership, joint venture, association, trust or other entity.

(xx) Except as described in the Registration Statement or the Prospectus, the Company and each of its Subsidiaries have established and maintain systems of internal accounting controls sufficient to provide reasonable assurances that (A) transactions are executed in accordance with management’s general or specific authorization; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (C) access to assets is permitted only in accordance with management’s general or specific authorization; and (D) amounts reflected on the Company’s consolidated balance sheet for assets are compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Except as described in the Registration Statement and the Prospectus, since the filing of the annual report on Form 10-K for the fiscal year ended December 31, 2021, there has been (i) no new material weakness identified to the Company’s board of directors (or committee thereof) in the Company’s internal control over financial reporting (whether or not remediated) and (ii) no change in the Company’s internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting.

(xxi) Except as described in the Registration Statement or the Prospectus, the Company and each of the Subsidiaries: (A) is and at all times since January 1, 2019 has been in material compliance with all United States (federal, state and local) and foreign statutes, rules, regulations, treaties, or guidance applicable to the Company or the Subsidiaries (“**Applicable Laws**”); (B) since January 1, 2019 has not received any notice of adverse finding, warning letter, untitled letter or other correspondence or notice from any Governmental Authority (as defined below) alleging or asserting noncompliance with any Applicable Laws or any licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws (“**Authorizations**”); (C) since January 1, 2019 has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Governmental Authority or third party alleging that any product operation or activity is in violation of any Applicable Laws or Authorizations and has no knowledge that any such Governmental Authority or third party intends to assert any such claim, litigation, arbitration, action, suit, investigation or proceeding; (D) since January 1, 2019 has not received notice that any Governmental Authority has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations and the Company has no knowledge that any such Governmental Authority is considering such action; and (E) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and correct in all material respects on the date filed (or were corrected or supplemented by a subsequent submission). “**Governmental Authority**” means any federal, provincial, state, local, foreign or other governmental or quasi-governmental agency or body or any other type of regulatory authority or body, including, without limitation, the Nasdaq Capital Market. The aggregate of all pending legal or governmental proceedings to which the Company or any Subsidiary is a party or of which any of their respective property or assets is the subject which are not described in the Registration Statement and the Prospectus, including ordinary routine litigation incidental to the business, would not result in a Material Adverse Effect.

(xxii) Other than as contemplated by this Agreement, the Company has not incurred any liability for any finder’s or broker’s fee or agent’s commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby. The Company has not entered into any other sales agency agreements or other similar arrangements with any agent or any other representative in respect of “at the market” offerings of the Shares in accordance with Rule 415 under the Securities Act.

(xxiii) The Company and each of the Subsidiaries carries, or is covered by, insurance in such amounts and covering such risks the Company reasonably believes are adequate for the conduct of its respective business and the value of its properties and as is customary for companies engaged in similar businesses in similar industries; all policies of insurance and any fidelity or surety bonds insuring the Company, each of its Subsidiaries and their respective businesses, assets, employees, officers and directors are in full force and effect; the Company and each of its Subsidiaries is in compliance with the terms of such policies and instruments in all material respects; there are no claims by the Company or any of the Subsidiaries under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; neither the Company nor any of the Subsidiaries has been refused any insurance coverage sought or applied for; and the Company has no reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

(xxiv) The Company is not (and is not an affiliate of), and immediately after receipt of payment for the Shares, will not be (and will not be an affiliate of), an “investment company” within the meaning of the Investment Company Act of 1940, as amended. The Company currently intends to conduct its business in a manner so that it will not become subject to the Investment Company Act of 1940, as amended.

(xxv) The Incorporated Documents, at the time they were or hereinafter are filed with the Commission, conformed and will conform in all material respects to the requirements of the Securities Act and the Exchange Act, and were filed on a timely basis with the Commission and no Incorporated Document contained or will contain an untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, that, no representation is made herein regarding the representations, warranties and covenants, or any descriptions thereof, contained in any agreements or documents included as exhibits to the Incorporated Documents. There is no material document required to be described in the Registration Statement or the Prospectus or to be filed as an exhibit to the Registration Statement which was not described or filed as required. All material agreements of the Company and all agreements governing or evidencing any and all related party transactions have been filed with the Commission to the extent required and applicable under the Exchange Act. Neither the Company nor any Subsidiaries has sent or received any communication regarding termination of, or intent not to renew, any of the contracts or agreements referred to or described in the Registration Statement and the Prospectus, or referred to or described in, or filed as an exhibit to, the Registration Statement or any Incorporated Document, and no such termination or non-renewal has been threatened by the Company or any of its Subsidiaries or, to the Company's knowledge, any other party to any such contract or agreement. Any descriptions of the terms of any of the foregoing contracts and agreements that are contained in the Registration Statement and the Prospectus are accurate and complete in all material respects.

(xxvi) The Company is in compliance in all material respects with all applicable provisions of the Sarbanes-Oxley Act and the rules and regulations of the Commission thereunder.

(xxvii) Except as described in the Registration Statement and the Prospectus, the Company has established and maintains disclosure controls and procedures (within the meaning of Rule 13a-15(e) of the Exchange Act) and such controls and procedures are designed to ensure that information required to be disclosed in the reports that the Company files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Commission and that such information is accumulated and communicated to the Company's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. The Company has utilized such controls and procedures in preparing and evaluating the disclosures in the Registration Statement and the Prospectus.

(xxviii) To the knowledge of the Company, neither the Company, the Subsidiaries, nor any director, officer, agent, employee or affiliate of the Company or any Subsidiary, has taken any action directly or indirectly, that would result in a violation by such persons of the FCPA (as defined below), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any “Foreign official” (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA, and the Company and each of its Subsidiaries has conducted its business in compliance with the FCPA and has instituted and maintains policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith. “*FCPA*” means the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder.

(xxix) The Company and each of its Subsidiaries have complied in all material respects with the money laundering statutes of applicable jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by applicable governmental agencies (collectively, the “*Money Laundering Laws*”), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its Subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(xxx) Neither the Company, any of its Subsidiaries, nor, to the knowledge of the Company, any director or officer of the Company or any of its Subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury.

(xxxi) No transaction has occurred or agreement or understanding entered into between or among the Company or any of its Subsidiaries on the one hand, and any officer, director or 5% or greater stockholder of the Company or any Subsidiary of the Company or any affiliate or affiliates of any such officer, director or 5% or greater stockholder that is required to be described that is not so described in the Registration Statement and the Prospectus. Neither the Company nor any of its Subsidiaries has, directly or indirectly, extended or maintained credit, or arranged for the extension of credit, or renewed an extension of credit, in the form of a personal loan to or for any of its directors or executive officers in violation of applicable laws, including Section 402 of the Sarbanes-Oxley Act.

(xxxii) (a) Neither the Company nor any of its Subsidiaries is in violation of any applicable international, national, state or local convention, law, regulation, order, governmental license, convention, treaty (including those promulgated by the International Maritime Organization) or other requirement relating to pollution or protection of human health or safety (as they relate to exposure to Materials of Environmental Concern (as defined below)) or protection of the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or protection of natural resources, including without limitation, conventions, laws or regulations relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum, petroleum products or other hydrocarbons (collectively, "**Materials of Environmental Concern**"), or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Materials of Environmental Concern (collectively, "**Environmental Laws**"), nor has the Company or any Subsidiary received any written communication, whether from a Governmental Authority, citizens group, employee or otherwise, that alleges that the Company or any such Subsidiary is in violation of any Environmental Law or governmental license required pursuant to Environmental Law; except, in each case, as would not, individually or in the aggregate, have a Material Adverse Effect; (b) there is no claim, action or cause of action filed with a court or Governmental Authority and no investigation, or other action with respect to which the Company or any Subsidiary has received written notice alleging potential liability for investigatory costs, cleanup costs, governmental response costs, natural resources damages, property damages, personal injuries, attorneys' fees or penalties arising out of, based on or resulting from the presence, or release into the environment, of any Material of Environmental Concern at any location owned, leased or operated by the Company or any Subsidiary, now or in the past, or from any vessel owned, leased or operated by the Company or any Subsidiary, now or in the past (collectively, "**Environmental Claim**"), pending or, to the knowledge of the Company, threatened against the Company or any Subsidiary or any person or entity whose liability for any Environmental Claim the Company or any Subsidiary has retained or assumed either contractually or by operation of law, except as would not, individually or in the aggregate, have a Material Adverse Effect; (c) to the knowledge of the Company, there are no past or present actions, activities, circumstances, conditions, events or incidents, including, without limitation, the release, emission, discharge, presence or disposal of any Material of Environmental Concern, that reasonably would be expected to result in a violation of any Environmental Law, require expenditures to be incurred pursuant to Environmental Law, or form the basis of an Environmental Claim against the Company, any Subsidiary or against any person or entity whose liability for any Environmental Claim the Company or any Subsidiary has retained or assumed either contractually or by operation of law, except as would not, individually or in the aggregate, have a Material Adverse Effect (for the avoidance of doubt, the operation of vessels in the ordinary course of business shall not be deemed, by itself, an action, activity, circumstance or condition set forth in this clause (c)); and (d) none of the Company or any Subsidiary is subject to any pending proceeding under Environmental Law to which a Governmental Authority is a party and which the Company reasonably believes is likely to result in monetary sanctions of US\$100,000 or more. The Company has reasonably concluded that any existing compliance and remediation costs and liabilities arising under Environmental Laws and resulting from the business, operations or properties of the Company or any Subsidiary would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, except as set forth in or contemplated in the Registration Statement and the Prospectus. No facts or circumstances have come to the Company's attention that could result in costs or liabilities that could be expected, individually or in the aggregate, to have a Material Adverse Effect.

(xxxiii) The Company and each of the Subsidiaries (A) is in compliance, in all material respects, with applicable foreign, federal, state and local laws, rules, regulations, statutes and codes promulgated by applicable governmental authorities (including pursuant to the Occupational Health and Safety Act) relating to the protection of human health and safety in the workplace ("**Occupational Laws**"); (B) has received all material permits, licenses or other approvals required of it under applicable Occupational Laws to conduct its business as currently conducted; and (C) is in compliance, in all material respects, with all terms and conditions of such permit, license or approval. No action, proceeding, revocation proceeding, writ, injunction or claim is pending or, to the Company's knowledge, threatened against the Company or any of its Subsidiaries relating to Occupational Laws, and the Company does not have knowledge of any facts, circumstances or developments relating to its operations or cost accounting practices that could reasonably be expected to form the basis for or give rise to such actions, suits, investigations or proceedings.

(xxxiv) No material labor problem or dispute with the employees of the Company or any of its Subsidiaries exists or, to the knowledge of the Company, is threatened or imminent.

(xxxv) The Company has not, and to its knowledge no one acting on its behalf has, (a) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Shares, (b) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Shares or (c) paid or agreed to pay to any person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (b) and (c), compensation paid to the Agent in connection with the sale of the Shares.

(xxxvi) Other than with respect to this Agreement, the Company is not a party to any agreement with an agent or underwriter for any other “at the market” offering or continuous equity transaction.

(xxxvii) There is no transaction, arrangement or other relationship between the Company or any of its Subsidiaries and an unconsolidated or other off balance sheet entity that is required to be disclosed by the Company in the Registration Statement or the Prospectus and is not so disclosed or that otherwise could be reasonably likely to have a Material Adverse Effect.

(xxxviii) To the Company’s knowledge, none of the Company, its Subsidiaries, or any of their respective affiliates (within the meaning of the Securities Act), has, prior to the date hereof, made any offers or sales of any security which are required to be “integrated” pursuant to the Securities Act or pursuant to the rules and regulations of the Nasdaq Capital Market with the offer and sale of the Shares pursuant to the Registration Statement.

(xxxix) Any statistical and market-related data included in the Registration Statement and the Prospectus are based on or derived from sources that the Company believes to be reliable and accurate and, to the extent required, the Company has obtained the written consent to the use of such data from such sources, except for such failures to obtain written consent which (individually or in the aggregate) would not reasonably be expected to have a Material Adverse Effect).

(xl) The Registration Statement is not the subject of a pending proceeding or examination under Section 8(d) or 8(e) of the Securities Act, and the Company is not the subject of a pending proceeding under Section 8A of the Securities Act in connection with the offering of the Shares.

(xli) There are no affiliations with any FINRA member firm among the Company's officers, directors, except as set forth in the Registration Statement or the Prospectus.

(xlii) The Company is not a "foreign private issuer" as defined in Rule 405 promulgated under the Securities Act.

(xliii) The Company did not qualify as a "passive foreign investment company" within the meaning of Section 1297 of the United States Internal Revenue Code of 1986, as amended, for its most recently completed taxable year, if any.

(xliv) Each "forward-looking statement" (within the meaning of Section 27A of the Securities Act or Section 21E of the Exchange Act) contained in the Registration Statement and the Prospectus has been made or reaffirmed with a reasonable basis and has been disclosed in good faith.

(b) Any certificate signed by any officer of the Company and delivered to the Agent or the Agent's counsel shall be deemed a representation and warranty by the Company to the Agent as to the matters covered thereby.

(c) At each Bringdown Date (as defined herein) and each Time of Sale, the Company shall be deemed to have affirmed each representation and warranty contained in or made pursuant to this Agreement as of such date as though made at and as of such date (except that such representations and warranties shall be deemed to relate to the Registration Statement and the Prospectus as amended and supplemented relating to such Shares on such date).

2. *Purchase, Sale and Delivery of Shares.*

(a) *At the Market Sales.* On the basis of the representations, warranties and agreements herein the Company agrees that, from time to time during the term of this Agreement, on the terms and subject to the conditions set forth herein, it may issue and sell through the Agent, acting as sales agent, the Shares up to an aggregate offering price of 4,200,000; provided, however, that in no event shall the Company issue or sell through the Agent such number of Shares that (a) exceeds the number or dollar amount of Common Stock registered on the Registration Statement, pursuant to which the Offering is being made, (b) exceeds the number of authorized but unissued Common Stock or (c) would cause the Company or the offering of the Shares to not satisfy the eligibility and transaction requirements for use of Form S-3 (including, if applicable, General Instruction I.B.6 of Form S-3 (the lesser of (a), (b) and (c), the "**Maximum Amount**"). Notwithstanding anything to the contrary contained herein, the parties hereto agree that compliance with the limitations set forth in this Section 2(a) on the number and aggregate sales price of Shares issued and sold under this Agreement shall be the sole responsibility of the Company and that Agent shall have no obligation in connection with such compliance. Notwithstanding the foregoing, the Company agrees that it will provide the Agent with written notice no less than one (1) business day prior to the date on which it makes the initial sale of Shares under this Agreement. As used herein, the terms "**business day**" means any day (other than Saturday, Sunday or any federal holiday in the United States) in which commercial banks in New York, New York are open for business.

(i) For purposes of selling the Shares through the Agent, the Company hereby appoints the Agent as exclusive agent of the Company for the purpose of soliciting purchases of the Shares from the Company pursuant to this Agreement and the Agent agrees to use its commercially reasonable efforts to sell the Shares on the terms and subject to the conditions stated herein.

(ii) Each time the Company wishes to issue and sell the Shares hereunder (each, a “*Transaction*”), it will notify the Agent by telephone (confirmed promptly by facsimile or e-mail to the appropriate individual listed on Schedule D hereto, using a form substantially similar to that set forth on Schedule C hereto (a “*Transaction Notice*”) as to the maximum number of Shares to be sold by the Agent on such day and in any event not in excess of the amount available for issuance under the Prospectus and the currently effective Registration Statement, the time period during which sales are requested to be made, any limitation on the number of shares that may be sold in any one Trading Day (as defined below), and any minimum price below which sales may not be made. The Transaction Notice shall originate from any of the individuals from the Company set forth on Schedule B (with a copy to each of the other individuals from the Company listed on such Schedule), and shall be addressed to each of the individuals from the Agent set forth on Schedule D, as such Schedule D may be amended from time to time. Subject to the terms and conditions hereof and unless the sale of the Shares described therein has been declined, suspended, or otherwise terminated in accordance with the terms of this Agreement, the Agent shall promptly acknowledge the Transaction Notice by facsimile or e-mail (or by some other method mutually agreed to in writing by the parties) and shall use its commercially reasonable efforts to sell all of the Shares so designated by the Company in, and in accordance with the terms set forth in, the Transaction Notice; provided, however, that any obligation of the Agent to use such commercially reasonable efforts shall be subject to the continuing accuracy of the representations and warranties of the Company herein, to the performance by the Company of its obligations hereunder and to the continuing satisfaction of the additional conditions specified in Section 4 of this Agreement. The gross sales price of the Shares sold under this Section 2(a) shall be equal to the market price for the Common Stock sold by the Agent under this Section 2(a) on the Nasdaq Capital Market at the time of such sale. For the purposes hereof, “*Trading Day*” means any day on which Common Stock are purchased and sold on the principal market on which the Common Stock are listed or quoted.

(iii) The Company or the Agent may, upon notice to the other party hereto by telephone (confirmed promptly by facsimile or e-mail to the respective individuals of the other party set forth on Schedule D hereto, which confirmation shall be promptly acknowledged by the other party), suspend the Offering for any reason and at any time, whereupon the Agent shall so suspend the offering of Shares until further notice is provided by the other party to the contrary; *provided, however*, that such suspension or termination shall not affect or impair the parties’ respective obligations with respect to the Shares sold hereunder prior to the receipt by the Agent of such notice. Each of the parties agrees that no such notice under this Section 2(a) (iii) shall be effective against the other unless it is made to one of the individuals named on Schedule D hereto, as such Schedule may be amended from time to time.

(iv) The Company acknowledges and agrees that (A) there can be no assurance that the Agent will be successful in selling the Shares, (B) the Agent will incur no liability or obligation to the Company or any other person or entity if it does not sell Shares for any reason other than a failure by the Agent to use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable law and regulations to sell such Shares as required under this Agreement, and (C) the Agent shall be under no obligation to purchase shares on a principal basis pursuant to this Agreement.

(v) The Agent may sell Shares by any method permitted by law to be an “at the market offering” as defined in Rule 415 under the Securities Act, including, without limitation, sales made directly on the Nasdaq Capital Market, on any other existing trading market for the Common Stock or to or through a market maker. The Agent may also sell Shares in privately negotiated transactions (which, for the avoidance of doubt, shall not include block trades initiated on the Nasdaq Capital Market) with the Company’s prior written approval.

(vi) The compensation to the Agent for sales of the Shares, as an agent of the Company, shall be a cash transaction fee equal to two point seventy-five percent (2.75%) (the “**Transaction Fee**”) of the gross sales price of all of Shares sold pursuant to this Section 2(a). The remaining proceeds, after further deduction for any transaction or other fees imposed by any governmental or self-regulatory organization in respect of such sales, shall constitute the net proceeds to the Company for such Shares (the “**Net Proceeds**”). The Agent shall notify the Company as promptly as practicable if any deduction referenced in the preceding sentence will be required.

(vii) The Agent shall provide written confirmation (which may be by facsimile or electronic mail) to the Company following the close of trading on the Nasdaq Capital Market each day in which the Shares are sold under this Section 2(a), setting forth the number of the Shares sold on such day, the aggregate gross sale proceeds, the Net Proceeds to the Company, and the compensation payable by the Company to the Agent with respect to such sales.

(viii) All Shares sold pursuant to this Section 2(a) will be delivered by the Company to Agent for the accounts of the Agent on the second full business day following the date on which such Shares are sold, or at such other time and date as Agent and the Company determine pursuant to Rule 15c6-1(a) under the Exchange Act, each such time and date of delivery being herein referred to as a “**Settlement Date**.” On each Settlement Date, the Shares sold through the Agent for settlement on such date shall be issued and delivered by the Company to the Agent against payment of the Net Proceeds from the sale of such Shares. Settlement for all such Shares shall be effected by free delivery of the Shares by the Company or its transfer agent (i) to the Agent or its designee’s account (provided the Agent shall have given the Company written notice of such designee prior to the Settlement Date) at The Depository Trust Company (“**DTC**”) or (ii) by such other means of delivery as may be mutually agreed upon by the parties hereto, which in all cases (provided that such Shares were sold pursuant to the Registration Statement) shall be freely tradable, transferable, registered shares in good deliverable form, in return for payment in same day funds delivered to an account designated by the Company. If the Company or its transfer agent (if applicable) shall default on its obligation to deliver the Shares on any Settlement Date, the Company shall (A) indemnify and hold the Agent harmless against any loss, claim or damage arising from or as a result of such default by the Company and (B) pay the Agent any commission to which it would otherwise be entitled absent such default against payment of the Net Proceeds therefor by wire transfer of same day funds payable to the order of the Company at 9:00 a.m. New York City time. If the Agent breaches this Agreement by failing to deliver the Net Proceeds on any Settlement Date for the shares delivered by the Company, the Agent will pay the Company interest based on the effective prime rate until such proceeds, together with such interest, have been fully paid.

(ix) Under no circumstances shall the Company cause or request the offer or sale of any Shares if, after giving effect to the sale of such Shares, the aggregate gross sales proceeds sold pursuant to this Agreement would exceed the lesser of (A) together with all sales of Shares under this Agreement, the Maximum Amount, (B) the amount available for offer and sale under the currently effective Registration Statement and (C) the amount authorized from time to time to be issued and sold under this Agreement by the Company's board of directors, a duly authorized committee thereof or a duly authorized executive committee, and notified to the Agent in writing. Under no circumstances shall the Company cause or request the offer or sale of any Shares at a price lower than the minimum price authorized from time to time by the Company's board of directors, duly authorized committee thereof or a duly authorized executive committee, and notified to the Agent in writing. Further, under no circumstances shall the aggregate offering amount of the Shares sold pursuant to this Agreement, including any separate underwriting or similar agreement covering principal transactions, exceed the Maximum Amount.

(x) Unless the exceptive provisions set forth in Rule 101(c)(1) of Regulation M under the Exchange Act are satisfied with respect to the Shares, the Company shall give the Agent at least one business day's prior notice of its intent to sell any Shares in order to allow the Agent time to comply with Regulation M.

(xi) The Company agrees that during the term of this Agreement, any offer to sell, any solicitation of an offer to buy, or any sales of Shares in an "at the market offering" as defined in Rule 415 under the Securities Act, including pursuant to Section 3(o) of this Agreement, shall only be effected by or through the Agent; provided, however, that the foregoing limitation shall not apply to the exercise of any outstanding option or warrant described in the Registration Statement and the Prospectus.

(b) Nothing herein contained shall constitute the Agent an unincorporated association or partner with the Company. Under no circumstances shall any Shares be sold pursuant to this Agreement after the date which is three years after the Registration Statement is first declared effective by the Commission.

(c) Notwithstanding any other provisions of this Agreement, the Company agrees that no sale of Shares shall take place, and the Company shall not request the sale of any Shares, and the Agent shall not be obligated to sell, during any period in which the Company is, or could be deemed to be, in possession of material non-public information or the Company's insider trading policy would prohibit the purchase and sale of the Company's Common Stock by its officers and directors.

3. **Covenants.** The Company covenants and agrees with the Agent as follows:

(a) After the date hereof and through any Prospectus Delivery Period, prior to amending or supplementing the Registration Statement (including any Rule 462(b) Registration Statement), Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus, the Company shall furnish to the Agent for review a copy of each such proposed amendment or supplement, allow the Agent a reasonable amount of time to review and comment on such proposed amendment or supplement, and the Company shall not file any such proposed amendment or supplement to which the Agent or counsel to the Agent reasonably object; provided, that the foregoing shall not apply with regards to the filing by the Company of any Form 10-K, Form 10-Q or other Incorporated Document. Subject to this Section 3(a), immediately following execution of this Agreement, the Company will prepare a prospectus supplement describing the selling terms of the Shares hereunder, the plan of distribution thereof and such other information as may be required by the Securities Act or the Rules and Regulations or as the Agent and the Company may deem appropriate, and if requested by the Agent, a Permitted Free Writing Prospectus containing the selling terms of the Shares hereunder and such other information as the Company and the Agent may deem appropriate, and will file or transmit for filing with the Commission, in accordance with Rule 424(b) or Rule 433, as the case may be, copies of the Prospectus as supplemented and each such Permitted Free Writing Prospectus.

(b) After the date of this Agreement, the Company shall promptly advise the Agent in writing (i) of the receipt of any comments of, or requests for additional or supplemental information from, the Commission or for any amendments or supplements to the Registration Statement, the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus (excluding any Incorporated Documents), (ii) of the time and date of any filing of any post-effective amendment to the Registration Statement or any amendment or supplement to any Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus (excluding any Incorporated Documents), (iii) of the time and date that any post-effective amendment to the Registration Statement becomes effective, (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto or of any order preventing or suspending its use or the use of any Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus, or (v) of any proceedings to remove, suspend or terminate from listing or quotation the Common Stock from any securities exchange upon which it is listed for trading or included or designated for quotation, or of the threatening or initiation of any proceedings for any of such purposes. If the Commission shall enter any such stop order at any time, the Company may terminate this Agreement. Additionally, the Company agrees that it shall comply with the provisions of Rules 424(b), 430B and 430C, as applicable, under the Securities Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b), Rule 433 or Rule 462 were received in a timely manner by the Commission (without reliance on Rule 424(b)(8) or Rule 164(b)).

(c) (i) From the date hereof through the later of (A) the termination of this Agreement and (B) the end of any applicable Prospectus Delivery Period, the Company will comply in all material respects with all requirements imposed upon it by the Securities Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, and by the Exchange Act so far as necessary to permit the continuance of sales of or dealings in the Shares as contemplated by the provisions hereof, the Base Prospectus, the Prospectus and any Permitted Free Writing Prospectus. If during any applicable Prospectus Delivery Period any event occurs as a result of which the Base Prospectus, the Prospectus, or any Permitted Free Writing Prospectus would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during any applicable Prospectus Delivery Period it is necessary or appropriate in the opinion of the Company or its counsel or in the reasonable opinion of the Agent or counsel to the Agent to amend the Registration Statement or supplement the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus, to comply with the Securities Act or to file under the Exchange Act any document which would be deemed to be incorporated by reference in the Prospectus in order to comply with the Securities Act or the Exchange Act, the Company will promptly notify Agent (or the Agent will notify the Company, as applicable), and the Agent shall suspend the offering and sale of any such Shares, and the Company will amend the Registration Statement or supplement the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus or file such document (at the expense of the Company) so as to correct such statement or omission or effect such compliance within the time period prescribed by the Securities Act or the Exchange Act.

(ii) In case the Agent is required to deliver (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule), in connection with the sale of the Shares, a Prospectus after the nine-month period referred to in Section 10(a)(3) of the Securities Act, or after the time a post-effective amendment to the Registration Statement is required pursuant to Item 512(a) of Regulation S-K under the Securities Act, the Company will prepare, at its expense, promptly upon request such amendment or amendments to the Registration Statement and the Prospectus as may be necessary to permit compliance with the requirements of Section 10(a)(3) of the Securities Act or Item 512(a) of Regulation S-K under the Securities Act, as the case may be. The Company shall cause each amendment or supplement to any Base Prospectus or the Prospectus to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act or, in the case of any document which would be deemed to be incorporated by reference therein, to be filed with the Commission as required pursuant to the Exchange Act, within the time period prescribed. The Company shall promptly notify the Agent if any Material Contract is terminated or if the other party thereto gives written notice of its intent to terminate any such Material Contract.

(iii) If at any time following issuance of a Permitted Free Writing Prospectus there occurs an event or development as a result of which such Permitted Free Writing Prospectus would conflict with the information contained in the Registration Statement, the Base Prospectus or the Prospectus, or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at that subsequent time, not misleading, the Company promptly will notify the Agent and will promptly amend or supplement, at its own expense, such Permitted Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

(d) The Company shall use commercially reasonable efforts to take or cause to be taken all necessary action to qualify the Shares for sale under the securities laws of such jurisdictions as Agent reasonably designates, if applicable, and to continue such qualifications in effect so long as required for the distribution of the Shares, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or to execute a general consent to service of process in any state. The Company shall promptly advise the Agent of the receipt by the Company of any notification with respect to the suspension of the qualification of the Shares for offer or sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose.

(e) The Company will furnish to the Agent and counsel for the Agent, to the extent requested, copies of the Registration Statement, the Base Prospectus, the Prospectus, any Permitted Free Writing Prospectus, and all amendments and supplements to such documents, in each case as soon as available and in such quantities as the Agent may from time to time reasonably request.

(f) The Company will make generally available to its security holders as soon as practicable an earnings statement (which need not be audited) covering a 12-month period that shall satisfy the provisions of Section 11(a) of the Securities Act and Rule 158 of the Rules and Regulations. If the Company makes any public announcement or release disclosing its results of operations or financial condition for a completed quarterly or annual fiscal period (each, an “*Earnings Release*”) and the Company has not yet filed an Annual Report on Form 10-K or a Form 10-Q with respect to such information, as applicable, then, prior to any sale of Shares, the Company shall be obligated to (x) file a prospectus supplement with the Commission under the applicable paragraph of Rule 424(b), which prospectus supplement shall include the applicable financial information or (y) file a Report on Form 8-K, which Form 8-K shall include the applicable financial information.

(g) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, will pay or cause to be paid (i) all expenses (including stock or transfer taxes and stamp or similar duties allocated to the respective transferees) incurred in connection with the registration, issue, sale and delivery of the Shares, (ii) all reasonable expenses and fees (including, without limitation, fees and expenses of the Company’s accountants and counsel) in connection with the preparation, printing, filing, delivery, and shipping of the Registration Statement (including the financial statements therein and all amendments, schedules, and exhibits thereto), the Base Prospectus, each Prospectus, any Permitted Free Writing Prospectus, and any amendment thereof or supplement thereto, and the producing, word-processing, printing, delivery, and shipping of this Agreement and other closing documents, including Blue Sky Memoranda (covering the states and other applicable jurisdictions) prepared by counsel, if required, and including the cost to furnish copies of each thereof to the Agent, (iii) all filing fees, (iv) listing fees, if any, and (v) all other costs and expenses of the Company incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. The Company shall reimburse the Agent upon request for its reasonable costs and out-of-pocket expenses incurred in connection with this Agreement, including the fees and disbursements of its legal counsel, not to exceed (except in the case of legal fees and disbursements as provided for below) \$40,000 without the approval of the Company (such approval not to be unreasonably withheld). In addition, the Company shall pay the Agent \$2,500 for its legal fees on each Bringdown Date. All such reimbursements under this Agreement shall be paid in U.S. dollars.

(h) The Company will apply the net proceeds from the sale of the Shares in the manner set forth under the caption “Use of Proceeds” in the Base Prospectus, the Prospectus, and any Permitted Free Writing Prospectus.

(i) The Company will not, without (i) giving the Agent at least five business days' prior written notice specifying the nature of the proposed sale and the date of such proposed sale and (ii) the Agent's suspending activity under this Agreement for such period of time as requested by the Company or as deemed appropriate by the Agent in light of the proposed sale, offer for sale, sell, contract to sell, pledge, grant any option for the sale of, enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the Company or any Subsidiary, or otherwise issue or dispose of, directly or indirectly (or publicly disclose the intention to make any such offer, sale, pledge, grant, issuance or other disposition), of any Common Stock or any securities convertible into or exchangeable for, or any options or rights to purchase or acquire, Common Stock, or permit the registration under the Securities Act of any Common Stock, such securities, options or rights, except for (i) the registration of the Shares and the sales through the Agent pursuant to this Agreement (ii) the registration of Common Stock issued or issuable with respect to any currently outstanding options and warrants that are described in the Registration Statement and the Prospectus and (iii) a registration statement on Form S-8 relating to employee benefit plans.

(j) The Company shall not, at any time at or after the execution of this Agreement, offer or sell any Shares by means of any "prospectus" (within the meaning of the Securities Act), or use any "prospectus" (within the meaning of the Securities Act) in connection with the offer or sale of the Shares, in each case other than the Prospectus or any Permitted Free Writing Prospectus.

(k) Until the termination of this Agreement, the Company will not take, directly or indirectly, any action designed to or that would constitute or that might reasonably be expected to cause or result in, under the Exchange Act or otherwise, stabilization or manipulation in violation of the Securities Act, the Exchange Act or the rules and regulations thereunder of the price of any security of the Company to facilitate the sale or resale of the Shares or otherwise violate any provision of Regulation M under the Exchange Act.

(l) The Company will not incur any liability for any finder's or broker's fee or agent's commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby or thereby, except as contemplated herein.

(m) During any applicable Prospectus Delivery Period, the Company will file on a timely basis with the Commission such periodic and current reports as required by the Rules and Regulations.

(n) Except as described in the Company's annual report on Form 10-K for the fiscal year ended December 31, 2021, the Company has maintained and will maintain, such controls and other procedures, including without limitation those required by Sections 302 and 906 of the Sarbanes-Oxley Act and the applicable regulations thereunder, that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive officer and its principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure, to ensure that material information relating to Company is made known to them by others within those entities.

(o) Each of the Company and Agent represent and agree that, neither the Company nor the Agent has made or will make any offer relating to the Shares that would constitute an “issuer free writing prospectus,” as defined in Rule 433 under the Securities Act, or that would otherwise constitute a “free writing prospectus,” as defined in Rule 405 under the Securities Act, required to be filed with the Commission other than a Permitted Free Writing Prospectus. The Company represents that it has treated or agrees that it will treat each Permitted Free Writing Prospectus as an “issuer free writing prospectus,” as defined in Rule 433, and has complied and will comply with the requirements of Rule 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record keeping.

(p) On the date hereof and each date when the Company (A) amends or supplements (other than a supplement to a Prospectus filed pursuant to Rule 424(b) under the Securities Act relating solely to the offering of securities other than the Shares) the Registration Statement or Prospectus by means of a post-effective amendment, sticker, or supplement but not by means of incorporation of documents by reference into the Registration Statement or the Prospectus relating to the Shares, (B) files an annual report on Form 10-K under the Exchange Act (including any Form 10-K/A containing amended material financial information or a material amendment to the previously filed Form 10-K) or (C) files a report on Form 10-Q containing quarterly financial information that is incorporated by reference in the Registration Statement and Prospectus (each of the dates in (A) through (C) are referred to herein as a “**Bringdown Date**”), the Agent shall receive a favorable opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel for the Company, dated as of a date within ten (10) days after the applicable Bringdown Date, addressed to the Agent and modified as necessary to relate to the Registration Statement and the Prospectus as amended and supplemented to the time of delivery of such opinions. With respect to this Section 3(p), in lieu of delivering such opinions or letters for Bringdown Dates subsequent to the date hereof, such counsel may furnish agent with a letter (a “**Reliance Letter**”) to the effect that Agent may rely upon a prior opinion or letter delivered under this Section 3(p) to the same extent as if it were dated the date of such letter (except that statement in such prior opinion shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented as of the date of such Reliance Letter); provided, however, the requirement to provide opinions and letters under this Section 3(p) is hereby waived for any Bringdown Date occurring at a time at which no Transaction Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Transaction Notice hereunder and the next occurring Bringdown Date. Notwithstanding the foregoing, if the Company subsequently decides to sell Shares following a Bringdown Date when the Company relied on such waiver and did not provide Agent with opinions and letters under this Section 3(p), then before the Company delivers the Transaction Notice or Agent sells any Shares, the Company shall cause Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., to furnish to the Agent a written opinion or Reliance Letter dated the date of the Transaction Notice.

(q) On the date hereof, and each date when the Company files an annual report on Form 10-K, or a report on Form 10-Q containing quarterly financial information that is incorporated by reference in the Registration Statement and Prospectus, the Company shall cause RSM US LLP, or other independent accountants satisfactory to the Agent, to deliver to the Agent (x) a letter, dated as of a date within ten (10) days after such date and addressed to Agent, in form and substance satisfactory to Agent (the first such letter, the “*Initial Comfort Letter*”), confirming that they are independent public accountants within the meaning of the Securities Act and are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and stating the conclusions and findings of said firm with respect to the financial information and other matters and (y) a letter updating the Initial Comfort Letter with any information that would have been included in the Initial Comfort Letter had it been given on such date and as modified as necessary to relate to the date of such letter (each such letter, a “*Bringdown Comfort Letter*”); *provided, however*, the requirement to provide a Bringdown Comfort Letter under this Section 3(q) is hereby waived for any Bringdown Date occurring at a time at which no Transaction Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Transaction Notice hereunder and the next occurring Bringdown Date. Notwithstanding the foregoing, if the Company subsequently decides to sell Shares following a Bringdown Date when the Company relied on such waiver and did not provide Agent with a Bringdown Comfort Letter under this Section 3(q), then before the Company delivers the Transaction Notice or Agent sells any Shares, the Company shall cause RSM US LLP, or other independent accountants satisfactory to the Agent, to deliver to the Agent a Bringdown Comfort Letter dated the date of the Transaction Notice.

(r) On the date hereof and each Bringdown Date, the Company shall furnish to the Agent a certificate, dated as of a date within ten (10) days after the applicable Bringdown Date and addressed to Agent, signed by the chief executive officer and by the chief financial officer of the Company, to the effect that:

(i) The representations and warranties of the Company in this Agreement are true and correct in all material respects as if made at and as of the date of the certificate, and the Company has complied in all material respects with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to the date of the certificate;

(ii) No stop order or other order suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof or the qualification of the Shares for offering or sale or notice that would prevent use of the Registration Statement, nor suspending or preventing the use of the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to the best of their knowledge, is contemplated by the Commission or any state or regulatory body;

(iii) The Shares to be sold on that date have been duly and validly authorized by the Company and all corporate action required to be taken for the authorization, issuance and sale of the Shares on that date has been validly and sufficiently taken;

(iv) Subsequent to the respective dates as of which information is given in the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus, as amended and supplemented, and except for pending transactions disclosed therein, the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, not in the ordinary course of business, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock, and there has not been any change in the capital stock or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock (other than as a result of the exercise of any currently outstanding options or warrants that are disclosed in the Prospectus), or any material change in the short-term or long-term debt, of the Company, or any Material Adverse Effect or any development that would reasonably be likely to result in a Material Adverse Effect (whether or not arising in the ordinary course of business), or any material loss by strike, fire, flood, earthquake, accident or other calamity, whether or not covered by insurance, incurred by the Company; and

(v) Except as stated in the Base Prospectus, the Prospectus, and any Permitted Free Writing Prospectus, as amended and supplemented, there is not pending, or, to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding to which the Company is a party before or by any court or governmental agency, authority or body, or any arbitrator, which would reasonably be likely to result in any Material Adverse Effect; provided, however, the requirement to provide a certificate under this Section 3(r) is hereby waived for any Bringdown Date occurring at a time at which no Transaction Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Transaction Notice hereunder and the next occurring Bringdown Date. Notwithstanding the foregoing, if the Company subsequently decides to sell Shares following a Bringdown Date when the Company relied on such waiver and did not provide Agent with a certificate under this Section 3(r), then before the Company delivers the Transaction Notice or Agent sells any Shares, the Company shall provide Agent with a certificate dated the date of the Transaction Notice.

(s) A reasonable time prior to each Bringdown Date, the Company, if so requested by the Agent, shall conduct a due diligence session, in form and substance, satisfactory to the Agent, which shall include representatives of the management and the accountants of the Company.

(t) The Company shall disclose in its annual report on Form 10-K and its reports on Form 10-Q with quarterly financial information the number of Shares sold through the Agent under this Agreement, the Net Proceeds to the Company and the compensation paid by the Company with respect to sales of the Shares pursuant to this Agreement.

(u) The Company shall ensure that there are at all times sufficient Common Stock to provide for the issuance, free of any preemptive rights, out of its authorized but unissued Common Stock, of the maximum aggregate number of Shares authorized for issuance by the Company's board of directors pursuant to the terms of this Agreement. The Company will use its reasonable best efforts to cause the Shares to be listed on the Nasdaq Capital Market, and to maintain such listing. The Company shall cooperate with Agent and use its reasonable efforts to permit Shares to be eligible for clearance and settlement through the facilities of DTC.

(v) At any time during the term of this Agreement, the Company will advise the Agent promptly after it receives notice or obtains knowledge of any information or fact that would alter or affect any opinion, certificate, letter and other document provided to the Agent pursuant to Section 3 herein.

(w) Subject to compliance with any applicable requirements of Regulation M under the Exchange Act and compliance with applicable securities laws, the Company consents to the Agent trading in Common Stock for the Agent's own account and for the account of its clients (in compliance with all applicable laws) at the same time as sales of the Shares occur pursuant to this Agreement.

(x) If to the knowledge of the Company, any condition set forth in Section 4 of this Agreement shall not have been satisfied on the applicable Settlement Date, the Company will offer to any person who has agreed to purchase the Shares on such Settlement Date from the Company as the result of an offer to purchase solicited by the Agent the right to refuse to purchase and pay for such Shares.

(y) On the date hereof and each Bringdown Date, the Company shall furnish to the Agent an incumbency certificate, dated as of such date and addressed to Agent, signed by the secretary of the Company.

(z) Each acceptance by the Company of an offer to purchase the Shares hereunder shall be deemed to be an affirmation to the Agent that the representations and warranties of the Company contained in or made pursuant to this Agreement are true and correct as of the date of such acceptance as though made at and as of such date, and an undertaking that such representations and warranties will be true and correct as of the Settlement Date for the Shares relating to such acceptance, as though made at and as of such date (except that such representations and warranties shall be deemed to relate to the Registration Statement and the Prospectus as amended and supplemented relating to such Shares).

(aa) The Company shall ensure that there are at all times sufficient Common Stock to provide for the issuance, free of any preemptive rights, out of its authorized but unissued Common Stock or Common Stock held in treasury, of the maximum aggregate number of Shares authorized for issuance by the Company's board of directors pursuant to the terms of this Agreement.

(bb) During any period when the delivery of a prospectus relating to the Shares is required (including in circumstances where such requirement may be satisfied pursuant to Rule 172, 173 or any similar rule) to be delivered under the Securities Act, the Company will file all documents required to be filed with the Commission pursuant to the Exchange Act within the time periods required by the Exchange Act and the regulations thereunder.

(cc) The Company shall cooperate with Agent and use its reasonable efforts to permit the Shares to be eligible for clearance and settlement through the facilities of DTC.

(dd) The Company will apply the Net Proceeds from the sale of the Shares in the manner set forth in the Prospectus.

(ee) To the extent that the Registration Statement is not available for the sales of the Shares as contemplated by this Agreement, the Company shall file a new registration statement with respect to any additional shares of Common Stock necessary to complete such sales of the Shares and shall cause such registration statement to become effective as promptly as practicable. After the effectiveness of any such registration statement, all references to "Registration Statement" included in this Agreement shall be deemed to include such new registration statement, including all documents incorporated by reference therein pursuant to Item 12 of Form S-3, and all references to "Base Prospectus" included in this Agreement shall be deemed to include the final form of prospectus, including all documents incorporated therein by reference, included in any such registration statement at the time such registration statement became effective.

4. **Conditions of Agent's Obligations.** The obligations of the Agent hereunder are subject to (i) the accuracy of, as of the date hereof, each Bringdown Date, and each Time of Sale (in each case, as if made at such date), and compliance with, all representations, warranties and agreements of the Company contained herein, (ii) the performance by the Company of its obligations hereunder and (iii) the following additional conditions:

(a) If the filing of the Prospectus, or any amendment or supplement thereto, or any Permitted Free Writing Prospectus, is required under the Securities Act or the Rules and Regulations, the Company shall have filed the Prospectus (or such amendment or supplement) or such Permitted Free Writing Prospectus with the Commission in the manner and within the time period so required (without reliance on Rule 424(b)(8) or Rule 164(b)); the Registration Statement shall remain effective; no stop order suspending the effectiveness of the Registration Statement or any part thereof, any Rule 462(b) Registration Statement, or any amendment thereof, nor suspending or preventing the use of the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus shall have been issued; no proceedings for the issuance of such an order shall have been initiated or threatened; and any request of the Commission for additional information (to be included in the Registration Statement, the Base Prospectus, the Prospectus, any Permitted Free Writing Prospectus or otherwise) shall have been complied with to the Agent's satisfaction.

(b) The Agent shall not have advised the Company that the Registration Statement, the Base Prospectus, the Prospectus, or any amendment or supplement thereto, or any Permitted Free Writing Prospectus, contains an untrue statement of fact which, in the Agent's opinion, is material, or omits to state a fact which, in the Agent's opinion, is material and is required to be stated therein or is necessary to make the statements therein (i) with respect to the Registration Statement, not misleading and (ii) with respect to the Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus, in light of the circumstances under which they were made, not misleading.

(c) Except as set forth or contemplated in the Base Prospectus, the Prospectus and any Permitted Free Writing Prospectus, subsequent to the respective dates as of which information is given therein, the Company shall not have incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock and there shall not have been any change in the capital stock, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock (other than as a result of the exercise of any currently outstanding options or warrants that are disclosed in the Prospectus), or any material change in the short-term or long-term debt, of the Company, or any Material Adverse Effect or any development that would be reasonably likely to result in a Material Adverse Effect (whether or not arising in the ordinary course of business), or any material loss by strike, fire, flood, earthquake, accident or other calamity, whether or not covered by insurance, incurred by the Company, the effect of which, in any such case described above, in the Agent's judgment, makes it impractical or inadvisable to offer or deliver the Shares.

- (d) The Company shall have performed each of its obligations under Section 3(q).
- (e) The Company shall have performed each of its obligations under Section 3(r).
- (f) The Company shall have performed each of its obligations under Section 3(s).
- (g) FINRA shall not have raised any objection to the fairness and reasonableness of the terms and arrangements under this Agreement.
- (h) All filings with the Commission required by Rule 424 under the Securities Act to have been filed by the Settlement Date shall have been made within the applicable time period prescribed for such filing by Rule 424.
- (i) The Company shall have furnished to Agent and the Agent's counsel such additional documents, certificates and evidence as they may have reasonably requested.
- (j) Trading in the Common Stock shall not have been suspended on the Nasdaq Capital Market. The Shares shall have been listed and authorized for trading on the Nasdaq Capital Market prior to the first Settlement Date, and satisfactory evidence of such actions shall have been provided to the Agent and its counsel, which may include oral confirmation from a representative of the Nasdaq Capital Market.

All such opinions, certificates, letters and other documents will be in compliance with the provisions hereof only if they are reasonably satisfactory in form and substance to Agent and the Agent's counsel. The Company will furnish Agent with such conformed copies of such opinions, certificates, letters and other documents as Agent shall reasonably request.

5. ***Indemnification and Contribution.***

(a) (i) The Company agrees to indemnify and hold harmless the Agent and each of the other Indemnified Parties (as defined below) from and against, and pay on demand for, any losses, claims, damages, obligations, penalties, judgments, awards, liabilities, costs, expenses and disbursements, and any and all actions, suits, proceedings and investigations in respect thereof and any and all legal and other costs, expenses and disbursements in giving testimony or furnishing documents in response to subpoena or otherwise (including, without limitation, the costs, expenses and disbursements, as and when incurred, of investigating, preparing, pursuing or defending any such action, suit, proceeding or investigation (whether or not in connection with litigation in which any Indemnified Party is a party)) (collectively, "***Losses***"), directly or indirectly, caused by, relating to, based upon, arising out of, or in connection with this Agreement, including, without limitation, any act or omission by the Agent in connection with its acceptance of or the performance or non-performance of its obligations under the Agreement, any breach by the Company of any representation, warranty, covenant or agreement contained in the Agreement (or in any instrument, document or agreement relating thereto, including any agency agreement), or the enforcement by the Agent of its rights under the Agreement or these indemnification provisions, except to the extent that any such Losses are found in a final judgment by a court of competent jurisdiction (not subject to further appeal) to have resulted primarily and directly from the gross negligence or willful misconduct of the Indemnified Party seeking indemnification hereunder. The Company also agrees that no Indemnified Party shall have any liability (whether direct or indirect, in contract or tort or otherwise) to the Company for or in connection with this Agreement for any other reason, except to the extent that any such liability is found in a final judgment by a court of competent jurisdiction (not subject to further appeal) to have resulted primarily and directly from such Indemnified Party's gross negligence or willful misconduct. This indemnity agreement will be in addition to any liability that the Company otherwise might have.

(ii) These indemnification provisions shall extend to the following persons (collectively, the “*Indemnified Parties*”): Maxim, its managers, members, officers, employees and controlling persons (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act), and the officers, directors, partners, stockholders, members, managers, employees and controlling persons of any of them. These indemnification provisions shall be in addition to any liability which the Company may otherwise have to any Indemnified Party.

(iii) If any action, suit, proceeding or investigation is commenced, as to which an Indemnified Party proposes to demand indemnification, it shall notify the Company with reasonable promptness; provided, however, that any failure by an Indemnified Party to notify the Company shall not relieve the Company from its obligations hereunder except to the extent that the Company is actually and materially prejudiced by such failure to notify. An Indemnified Party shall have the right to retain counsel of its own choice to represent it, and the fees, expenses and disbursements of such counsel shall be borne by the Company. Any such counsel shall, to the extent consistent with its professional responsibilities, cooperate with the Company and any counsel designated by the Company. The Company shall be liable for any settlement of any claim against any Indemnified Party made with the Company’s written consent. The Company shall not, without the prior written consent of the Agent, settle or compromise any claim, or permit a default or consent to the entry of any judgment in respect thereof, unless such settlement, compromise or consent (i) includes, as an unconditional term thereof, the giving by the claimant to all of the Indemnified Parties of an unconditional release from all liability in respect of such claim, and (ii) does not contain any factual or legal admission by or with respect to an Indemnified Party or an adverse statement with respect to the character, professionalism, expertise or reputation of any Indemnified Party or any action or inaction of any Indemnified Party.

(iv) In order to provide for just and equitable contribution, if a claim for indemnification pursuant to these indemnification provisions is made but it is found in a final judgment by a court of competent jurisdiction (not subject to further appeal) that such indemnification may not be enforced in such case, even though the express provisions hereof provide for indemnification in such case, then the Company shall contribute to the Losses to which any Indemnified Party may be subject (i) in accordance with the relative benefits received by the Company and its stockholders, subsidiaries and affiliates, on the one hand, and the Indemnified Party, on the other hand, and (ii) if (and only if) the allocation provided in clause (i) of this sentence is not permitted by applicable law, in such proportion as to reflect not only the relative benefits, but also the relative fault of the Company, on the one hand, and the Indemnified Party, on the other hand, in connection with the statements, acts or omissions which resulted in such Losses as well as any relevant equitable considerations. No person found liable for a fraudulent misrepresentation shall be entitled to contribution from any person who is not also found liable for fraudulent misrepresentation. The relative benefits received (or anticipated to be received) by the Company and its stockholders, subsidiaries and affiliates shall be deemed to be equal to the aggregate consideration payable or receivable by such parties in connection with the transaction or transactions to which the Agreement relates relative to the amount of fees actually received by the Agent in connection with such transaction or transactions. Notwithstanding the foregoing, in no event shall the amount contributed by all Indemnified Parties exceed the amount of fees previously received by the Agent pursuant to the Agreement.

(b) (i) The Agent will indemnify and hold harmless the Company and its affiliates, employees, and directors and each officer of the Company who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act and controlling persons of any of them (the “*Company Indemnified Parties*”) from and against any Losses to which the Company or the Company Indemnified Parties may become subject, under the Securities Act or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of the Agent), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or omission or alleged untrue statement or omission of a material fact contained in the Registration Statement, any Base Prospectus, the Prospectus, or any amendment or supplement thereto or any Permitted Free Writing Prospectus, but only and solely to the extent that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, any Base Prospectus, the Prospectus, or any amendment or supplement thereto, or any Permitted Free Writing Prospectus in reliance upon and in conformity with written information furnished to the Company by Agent expressly for use in the preparation thereof, it being understood and agreed that the only information furnished by the Agent consists of the information described as such in Section 5(b)(ii) hereof, by the Company in connection with investigating or defending against any such loss, claim, damage, liability or action.

(ii) The Agent confirms and the Company acknowledges that as of the date hereof no information has been furnished in writing to the Company by or on behalf of the Agent specifically for inclusion in the Registration Statement, any Base Prospectus, the Prospectus or any Permitted Free Writing Prospectus.

(c) If the indemnification provided for in this Section 5 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Agent on the other from the Offering or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company on the one hand and the Agent on the other in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Agent on the other shall be deemed to be in the same proportion as the total net proceeds from the Offering (before deducting expenses) received by the Company and the total commissions received by the Agent, bear to the total public offering price of the Shares. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Agent and the parties' relevant intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Agent agree that it would not be just and equitable if contributions pursuant to this subsection (c) were to be determined by pro rata allocation or by any other method of allocation which does not take account of the equitable considerations referred to in the first sentence of this subsection (c). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (c) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending against any action or claim which is the subject of this subsection (c). Notwithstanding the provisions of this subsection (c), the Agent shall not be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages that the Agent has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

(d) Neither termination of this Agreement nor completion of the Offering shall affect these indemnification provisions which shall remain operative and in full force and effect. The indemnification provisions shall be binding upon the Company and the Agent and their respective successors and assigns and shall inure to the benefit of the Indemnified Parties and the Company Indemnified Parties and their respective successors, assigns, heirs and personal representatives.

6. ***Representations and Agreements to Survive Delivery.*** All representations and warranties of the Company herein or in certificates delivered pursuant hereto, and agreements of the Agent and the Company herein, including but not limited to the agreements of the Agent and the Company contained in Section 5 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of the Agent or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons, and shall survive delivery of, and payment for, the Shares to and by the Agent hereunder.

7. ***Termination of this Agreement.***

(a) The Company shall have the right, by giving written notice as hereinafter specified, to terminate the provisions of this Agreement relating to the solicitation of offers to purchase the Shares in its sole discretion at any time upon ten (10) days' prior written notice. Any such termination shall be without liability of any party to any other party except that (i) if the Shares have been sold through the Agent for the Company, then Sections 3(g), 3(o) and 3(y) shall remain in full force and effect, (ii) with respect to any pending sale, through the Agent for the Company, the obligations of the Company with respect to such pending sale of Shares, including in respect of compensation of the Agent, shall remain in full force and effect notwithstanding such termination and (iii) the provisions of Section 2(a)(vi), Section 3(g), Section 3(o), Section 5 and Section 6 of this Agreement shall remain in full force and effect notwithstanding such termination.

(b) The Agent shall have the right, by giving written notice as hereinafter specified, to terminate the provisions of this Agreement if the Agent is not fully satisfied, in its sole discretion, with the results of its and its representatives' review of the Company and the Company's business. Any such termination shall be without liability of any party to any other party except that (i) the provisions of the last three sentences of Section 3(g) and the entirety of Section 3(o), Section 5 and Section 6 of this Agreement shall remain in full force and effect notwithstanding such termination and (ii) the provisions of Section 3(g) other than the last three sentences thereof shall remain in full force and effect only if the Agent has terminated this Agreement as a result of the Company's default of its obligations hereunder and its failure to cure any default within a reasonable period of time.

(c) This Agreement shall remain in full force and effect for twelve (12) months from the date hereof unless terminated pursuant to Sections 7(a) or (b) above or otherwise by mutual agreement of the parties; provided that any such termination by mutual agreement shall in all cases be deemed to provide that Section 3(g), Section 3(o), Section 5 and Section 6 shall remain in full force and effect. This Agreement shall terminate automatically upon the issuance and sale of Shares having an aggregate offering price equal to the amount set forth in the first paragraph of this Agreement.

(d) Any termination of this Agreement shall be effective on the date specified in such notice of termination; provided that such termination shall not be effective until the close of business on the date of receipt of such notice by the Agent or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of the Shares, such sale shall settle in accordance with the provisions of Section 2(a) of this Agreement.

8. **Default by the Company.** If the Company shall fail at any Settlement Date to sell and deliver the number of Shares which it is obligated to sell hereunder, then this Agreement shall terminate without any liability on the part of the Agent or, except as provided in Section 3(g) hereof, any non-defaulting party. No action taken pursuant to this Section 8 shall relieve the Company from liability, if any, in respect of such default, and the Company shall (A) hold the Agent harmless against any loss, claim or damage arising from or as a result of such default by the Company and (B) pay the Agent any commission to which it would otherwise be entitled absent such default.

9. **Notices.** Except as otherwise provided herein, all communications under this Agreement shall be in writing and, if to the Agent, shall be mailed, delivered or sent by facsimile or email transmission to:

Maxim Group LLC
300 Park Avenue, 16th Floor
New York, New York 10022
Attention: Clifford A. Teller, Co-President

with a required copy (which shall not constitute notice) to:

Pryor Cashman LLP
7 Times Square
New York, New York 10036
Attention: M. Ali Panjwani, Esq.

Notices to the Company shall be given to it at:

19 Presidential Way
Woburn, Massachusetts 01801
Attention: Oliver Peoples, Ph. D.

with a required copy (which shall not constitute notice) to:

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, Massachusetts 02111
Attn: Megan N. Gates, Esq.

Any party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose.

10. **Persons Entitled to Benefit of Agreement.** This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns and the controlling persons, officers and directors referred to in Section 5. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term "successors and assigns" as herein used shall not include any purchaser, as such purchaser, of any of the Shares from the Agent.

11. **Absence of Fiduciary Relationship.** The Company acknowledges and agrees that: (a) the Agent has been retained solely to act as an sales agent and/or principal in connection with the sale of the Shares and that no fiduciary, advisory or agency relationship between the Company and the Agent has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Agent has advised or are advising the Company on other matters; (b) the price and other terms of the Shares set forth in this Agreement were established by the Company following discussions and arms-length negotiations with the Agent and the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement; (c) it has been advised that the Agent and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that the Agent has no obligation to disclose such interest and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; (d) it has been advised that the Agent is acting, in respect of the transactions contemplated by this Agreement, solely for the benefit of the Agent, and not on behalf of the Company; and (e) it waives to the fullest extent permitted by law, any claims it may have against the Agent for breach of fiduciary duty or alleged breach of fiduciary duty in respect of any of the transactions contemplated by this Agreement and agrees that the Agent shall have no liability (whether direct or indirect) to the Company in respect of such a fiduciary duty claim on behalf of or in right of the Company, including stockholders, employees or creditors of the Company.

12. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the State of New York, including Section 5-1401 of the General Obligations Law of the State of New York, but otherwise without regard to conflict of laws rules that would apply the laws of any other jurisdiction.

13. **Counterparts.** This Agreement may be executed in one or more counterparts and, if executed in more than one counterpart, the executed counterparts shall each be deemed to be an original and all such counterparts shall together constitute one and the same instrument.

14. **Adjustments for Stock Splits.** The parties acknowledge and agree that all share-related numbers contained in this Agreement shall be adjusted to take into account any stock split, stock dividend or similar event effected with respect to the Shares.

15. **Entire Agreement; Amendment; Severability; Headings.** This Agreement (including all schedules and exhibits attached hereto and transaction notices issued pursuant hereto) constitutes the entire agreement and supersedes all other prior and contemporaneous agreements and undertakings, both written and oral, among the parties hereto with regard to the subject matter hereof. Neither this Agreement nor any term hereof may be amended except pursuant to a written instrument executed by the Company and the Agent. In the event that any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable as written by a court of competent jurisdiction, then such provision shall be given full force and effect to the fullest possible extent that it is valid, legal and enforceable, and the remainder of the terms and provisions herein shall be construed as if such invalid, illegal or unenforceable term or provision was not contained herein, but only to the extent that giving effect to such provision and the remainder of the terms and provisions hereof shall be in accordance with the intent of the parties as reflected in this Agreement. The section headings used in this Agreement are for convenience only and shall not affect the construction hereof.

16. **Waiver of Jury Trial.** Each of the Company and the Agent hereby waives any right it may have to a trial by jury in respect of any claim based upon or arising out of this Agreement or the transactions contemplated hereby.

17. **Submission to Jurisdiction.** The Company irrevocably submits to the non-exclusive jurisdiction of any New York State or United States federal court sitting in The City of New York, Borough of Manhattan, over any suit, action or proceeding arising out of or relating to this Agreement, the Prospectus, the Registration Statement, or the offering of the Shares. The Company irrevocably waives, to the fullest extent permitted by law, any objection which it may now or hereafter have to the laying of venue of any such suit, action or proceeding brought in such a court and any claim that any such suit, action or proceeding brought in such a court has been brought in an inconvenient forum. To the extent that the Company has or hereafter may acquire any immunity (on the grounds of sovereignty or otherwise) from the jurisdiction of any court or from any legal process with respect to itself or its property, the Company irrevocably waives, to the fullest extent permitted by law, such immunity in respect of any such suit, action or proceeding including without limitation, any immunity pursuant to the U.S. Foreign Sovereign Immunities Act of 1976, as amended. Each of the Agent and the Company further agrees to accept and acknowledge service of any and all process which may be served in any such suit, action or proceeding in the Supreme Court of the State of New York, New York County, or in the United States District Court for the Southern District of New York and agrees that service of process upon the Company mailed by certified mail or delivered by Federal Express via overnight delivery to the Company's address shall be deemed in every respect effective service of process upon the Company in any such suit, action or proceeding, and service of process upon the Agent mailed by certified mail or delivered by Federal Express via overnight delivery to the Agent's address shall be deemed in every respect effective service of process upon such Agent in any such suit, action or proceeding.

[Signature Page Follows]

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company the enclosed duplicate of this Sales Agreement, whereupon this letter and your acceptance shall represent a binding agreement between the Company and the Agent in accordance with its terms.

Very truly yours,

YIELD10 BIOSCIENCE, INC.

By /s/ Oliver Peoples, Ph.D.

Name: Oliver Peoples, Ph.D.

Title: President and Chief Executive Officer

Confirmed as of the date first above mentioned.

MAXIM GROUP LLC

By /s/ Clifford A. Teller

Name: Clifford A. Teller

Title: Co-President

Schedule A

Permitted Free Writing Prospectus

None.

Schedule A-1

Schedule B

Individuals Permitted to Authorize Sales of Shares

Schedule B-1

Schedule C

Form of Transaction Notice

From: Yield10 Bioscience, Inc.

To: Maxim Group LLC

Subject: Transaction Notice

Date: [•], 202__

Ladies and Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Sales Agreement between Yield10 Bioscience, Inc. (the "**Company**"), and Maxim Group LLC ("**Agent**"), dated January [], 2023, the Company hereby requests that the Agent sell up to [•] of the Company's common stock, par value \$0.01 per share, at a minimum market price of \$[•] per share, during the time period beginning [month, day, time] and ending [month, day, time].

Schedule C-1

Schedule D

Individual to Which Notice Can Be Given

Maxim Group LLC

Exhibit D-1



One Financial Center
Boston, MA 02111
617 542 6000
mintz.com

January 23, 2023

Yield10 Bioscience, Inc.
19 Presidential Way
Woburn, MA 01801

Ladies and Gentlemen:

This opinion is furnished to you in connection with a prospectus supplement, dated January 23, 2023, to a prospectus dated April 2, 2021 (the "Prospectus and Prospectus Supplement"), filed pursuant to a registration statement on Form S-3, Registration No. 333-254830 (the "Registration Statement"), filed by Yield10 Bioscience, Inc., a Delaware corporation (the "Company"), with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), with respect to the sale of up to \$4,200,000 of shares (the "Shares") of the Company's common stock, par value \$0.01 per share (the "Common Stock"). The Shares are to be offered and sold pursuant to an Equity Distribution Agreement, dated as of January 23, 2023, by and between the Company and Maxim Group LLC (the "Sales Agreement"), which is being filed with the Commission on the date hereof as Exhibit 1.1 to the Company's Current Report on Form 8-K. Pursuant to the Sales Agreement, the Company may offer and sell the Shares pursuant to the Registration Statement and the Prospectus and Prospectus Supplement.

In connection with this opinion, we have examined the Company's Amended and Restated Certificate of Incorporation, as amended to date, and Amended and Restated By-Laws, both as currently in effect; the minutes of all pertinent meetings of the board of directors of the Company relating to the Registration Statement, the Prospectus and Prospectus Supplement and the transactions contemplated thereby; such other records of the corporate proceedings of the Company and certificates of the Company's officers as we deemed relevant for the purposes of rendering the opinions in this letter; the Registration Statement and the exhibits thereto filed with the Commission; the Prospectus and Prospectus Supplement; and the Sales Agreement.

In our examination, we have assumed the genuineness of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, photostatic or facsimile copies and the authenticity of the originals of such copies.

Based upon the foregoing, and subject to the limitations set forth below, we are of the opinion that the Shares, when issued by the Company out of the Company's duly authorized Common Stock and issued and delivered by the Company against payment therefor as contemplated by the Sales Agreement and a Transaction Notice (as defined in the Sales Agreement) properly delivered by the Company, will be duly and validly issued, fully paid and non-assessable.

Our opinion is limited to the General Corporation Law of the State of Delaware and we express no opinion with respect to the laws of any other jurisdiction. No opinion is expressed herein with respect to the qualification of the Shares under the securities or blue sky laws of any state or any foreign jurisdiction.

BOSTON LONDON LOS ANGELES NEW YORK SAN DIEGO SAN FRANCISCO WASHINGTON

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.



We have relied as to certain matters on information obtained from public officials, officers of the Company and other sources believed by us to be reliable.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion with the Commission as an exhibit to a Current Report on Form 8-K (and its incorporation by reference into the Registration Statement) in accordance with the requirements of Item 601(b)(5) of Regulation S-K promulgated under the Securities Act and to the use of this Firm's name therein and in the Prospectus and Prospectus Supplement under the caption "Legal Matters." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

/s/ Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
