

**PROSPECTUS SUPPLEMENT  
(To Prospectus dated April 2, 2021)****Yield10 Bioscience, Inc.****931,600 Shares of Common Stock  
Pre-Funded Warrants to Purchase up to 75,110 Shares of Common Stock**

We are offering to a certain institutional investor and to an existing investor an aggregate of 931,600 shares of our common stock, par value \$0.01 per share, and a pre-funded warrant to purchase 75,110 shares of our common stock, referred to herein as the Pre-Funded Warrant or the Pre-Funded Warrants.

The offering price of each share of common stock is \$2.98 per share. The offering price of the Pre-Funded Warrant, calculated on a per underlying share basis, is equal to the offering price per share of common stock being sold in this offering, minus \$0.0001, and the exercise price per underlying share of the Pre-Funded Warrant is \$0.0001 per share. Subject to limited exceptions, a holder of a Pre-Funded Warrant will not have the right to exercise any portion of its Pre-Funded Warrant if the holder, together with its affiliates, would beneficially own in excess of 9.99% of the number of shares of common stock outstanding immediately after giving effect to such exercise. This prospectus supplement also relates to the offering of shares of our common stock issuable upon the exercise of such Pre-Funded Warrant. Subject to the limitations described above, the Pre-Funded Warrant may be exercised at any time until exercised in full.

In a concurrent private placement, we are also issuing to the same investors private placement warrants, or the Private Warrants, to purchase up to an aggregate of 1,006,710 shares of our common stock at an exercise price of \$2.98 per share. The Private Warrants will be exercisable beginning six months from the date of issuance and will terminate five years from the initial exercise date. The Private Warrants and the shares of our common stock issuable upon the exercise of the Private Warrants, or the Private Warrant Shares, are not being registered under the Securities Act of 1933, as amended, or the Securities Act, pursuant to the registration statement of which this prospectus supplement and the accompanying prospectus form a part, nor are such Private Warrants or Private Warrant Shares being offered pursuant to such prospectus supplement and accompanying prospectus. The Private Warrants are being offered pursuant to the exemption provided in Section 4(a)(2) of the Securities Act and/or Rule 506(b) promulgated thereunder. The Private Warrants are being sold together with the shares of common stock and Pre-Funded Warrant being sold in this offering, and we will receive additional proceeds from the Private Warrants to the extent such Private Warrants are exercised for cash.

There is no established trading market for the Pre-Funded Warrants, and we do not expect a market to develop. We do not intend to apply for a listing for the Pre-Funded Warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the Pre-Funded Warrants will be limited.

We engaged Maxim Group LLC to act as our exclusive placement agent, or the Placement Agent, in connection with this offering. The Placement Agent is not purchasing the securities offered by us in this offering and is not required to arrange the purchase or sale of any specific number or dollar amount of securities, but will use its reasonable best efforts to arrange for the sale of the securities offered.

As of May 3, 2023, the aggregate market value of our outstanding common stock held by non-affiliates was \$12,850,519 based on 5,087,995 shares of outstanding common stock, of which 4,066,620 shares were held by non-affiliates, and a per share price of \$3.16 per share, which was the last reported sale price of our common stock on the Nasdaq Capital Market on April 11, 2023. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell our common stock in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below

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\$75,000,000. During the previous 12 calendar months prior to and including the date of this prospectus supplement (excluding this offering), we have sold 94,665 shares of our common stock pursuant to General Instruction I.B.6 of Form S-3.

Our common stock is listed on the Nasdaq Capital Market under the symbol “YTEN.” The last reported sale price of our common stock on May 3, 2023 was \$3.00 per share.

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

**See “Risk Factors” on page S-8 of this prospectus supplement to read about factors you should consider before buying shares of our common stock.**

	Per Share	Total
Offering price	\$2.98	\$2,999,995.80
Placement Agent fees <sup>(1)</sup>	\$0.14	\$ 139,999.80
Proceeds, before expenses, to Yield10 Bioscience	\$2.84	\$2,859,996.00

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- (1) Excludes certain out-of-pocket expenses of the Placement Agent which we have agreed to reimburse. See the section captioned “Plan of Distribution” in this prospectus supplement for additional information.

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

Delivery of the securities is expected to be made on or about May 5, 2023, subject to customary closing conditions.

***Sole Placement Agent***

**Maxim Group LLC**

The date of this prospectus supplement is May 3, 2023.

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## Prospectus

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## ABOUT THIS PROSPECTUS SUPPLEMENT

This document consists of two parts. The first part is this prospectus supplement, which describes the specific terms of the offering and other matters relating to us. The second part is the accompanying prospectus, which provides more general information about the securities we may offer from time to time, some of which may not apply to this offering. This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the Securities and Exchange Commission (the “SEC”) on March 29, 2021, which registration statement was declared effective on April 2, 2021. You should read both this prospectus supplement and the accompanying prospectus, together with the documents incorporated by reference and the additional information described under the heading “Where You Can Find More Information” in this prospectus supplement and the accompanying prospectus before making an investment decision.

To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus, on the other hand, the information contained in this prospectus supplement shall control. If any statement in this prospectus supplement conflicts with any statement in a document that has been incorporated herein by reference, then you should consider only the statement in the more recent document. You should assume that the information contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference is accurate only as of their respective dates.

We have not, and the underwriter has not, authorized any person to provide you with any information or to make any representation other than as contained in this prospectus supplement or in the accompanying prospectus and the information incorporated by reference herein and therein. We and the underwriter do not take any responsibility for, and can provide no assurance as to the reliability of, any information that others may provide you. The information appearing or incorporated by reference in this prospectus supplement and the accompanying prospectus is accurate only as of the date of this prospectus supplement or the date of the document in which incorporated information appears unless otherwise noted in such documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

The distribution of this prospectus supplement and the accompanying prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. We are not, and the underwriter is not, making an offer of the common stock in any jurisdiction where the offer is not permitted. Persons who come into possession of this prospectus supplement and the accompanying prospectus should inform themselves about and observe any such restrictions. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer or solicitation by anyone in any jurisdiction in which such offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so or to any person to whom it is unlawful to make such offer or solicitation.

## SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein contain forward-looking statements. All statements, other than statements of historical facts contained in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference herein, including statements regarding our efforts to develop and commercialize our products, anticipated yields and product performance, our short-term and long-term business strategies, market and industry expectations and future results of operations and financial position are forward-looking statements. In many cases, you can identify forward-looking statements by terms such as “may”, “will”, “should”, “expect”, “plan”, “anticipate”, “could”, “intend”, “target”, “project”, “contemplate”, “believe”, “estimate”, “potential”, “continue” or other similar words.

We based these forward-looking statements largely on our current expectations and projections about future events or trends that we believe may affect our business and financial performance. These forward-looking statements involve known and unknown risks and uncertainties that may cause our actual results, performance or achievements to materially differ from any future results, performance or achievements expressed or implied by these forward-looking statements. We have described in the “Risk Factors” section and elsewhere in this prospectus supplement and in the documents incorporated by reference herein the

material risks and uncertainties that we believe could cause actual results to differ from these forward-looking statements. Because forward-looking statements are inherently subject to risks and uncertainties, some of which we cannot predict or quantify, you should not rely on these forward-looking statements as guarantees of future results, performance or achievements.

The forward-looking statements in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference herein represent our views as of the date of the document in which the forward-looking statement appears. We undertake no obligation to update publicly, except to the extent required by law, any forward-looking statements for any reason to conform these statements to actual results or to changes in our expectations.

## PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights some information from this prospectus supplement. It may not contain all the information important to making an investment decision. You should read the following summary together with the more detailed information regarding our Company and the securities being sold in this offering, including “Risk Factors” and other information incorporated by reference herein.*

### Business Overview

Yield10 Bioscience, Inc. (“Yield10” or the “Company”) is an agricultural bioscience company focused on the large-scale production of low carbon sustainable products from processing Camelina seed using the oilseed Camelina sativa (“Camelina”) as a platform crop. These seed products include:

- Camelina oil for use as a low carbon biofuel feedstock
- Omega-3 oils for nutrition
- PHA Bioplastics for biodegradable zero waste packaging solutions

The co-product from producing these seed products is Camelina meal which has a protein content of over 40% and is currently approved for use in a range of animal feed rations.

Our commercial plan is based on developing and releasing a series of proprietary elite Camelina seed varieties incorporating genetic traits from our development pipeline which are being designed to offer improved on-farm performance that we anticipate will lead to increased acreage adoption and seed product revenue. Yield10 is headquartered in Woburn, Massachusetts and has a Canadian subsidiary, Yield10 Oilseeds Inc., located in Saskatoon, Saskatchewan, Canada.

Camelina, an annual oilseed plant in the mustard family, was selected as our platform crop based on its unique attributes, including its excellent agronomic traits such as low water and fertilizer input, drought resistance and short life cycle, making it suitable as a rotation crop within the U.S. Northwest and regions of Canada, as well as a relay or cover crop with corn and soybean in the U.S. Midwest. We estimate there is the potential for over 30 million acres of Camelina production in North America. Camelina is in the same plant family as canola and naturally produces a relatively abundant harvest of oil-containing protein-rich seeds. Camelina is highly amenable to advanced genetic engineering and genome-editing technologies. Over the last twelve years, we have been developing improved Camelina seed varieties through identification and deployment of our gene trait discoveries followed by performance evaluation in field tests. Our new seed product traits include the PHA bioplastic trait developed by us and the omega-3 (EPA, DHA+EPA) oil traits on which we secured exclusive rights to a commercial license option in 2020.

Our capital light business model is based on contracting with growers to produce Camelina grain using our proprietary Camelina seed. Yield10 will have the exclusive right to purchase the harvested grain from these growers for downstream processing to separate and sell the seed products into the different markets. Our commercial launch plan is to leverage the growing global demand for biofuels to decarbonize the transportation sector, and in particular, the renewable diesel (“RD”) and sustainable aviation fuel (“SAF”) markets. We recognized early on that we could play an important role in the biofuel value chain through the use of our advanced Camelina platform to address a key industry bottleneck; the significant shortfall in the supply of low carbon intensity feedstock oil. The establishment of downstream value chain partnerships represents a critical step towards enabling Yield10 to scale this business. We expect to build the operating foundation of our products business by securing offtake agreements with downstream oilseed processing/biofuel partners. Sources of revenue from our first Camelina seed product will be based on the financial terms negotiated with these biofuel offtake partners. Here our goal is to link the base oil price for other commodity seed oils, such as soybean, and share in the economic value of the lower carbon intensity score of the Camelina oil. Initial revenue growth from this business will scale up based on increasing the number of acres of our Camelina planted during each growing season. Feedback from our grower outreach has identified weed control and soil residues from the herbicides used on prior crop as key limitations to the adoption of existing Camelina varieties. To achieve our revenue targets, improved Camelina varieties with new genetic traits are being accelerated through our development pipeline in order to offer farmers weed control and a seamless integration into their current crop rotations. We expect to be able to substantially

increase revenue for our growers by introducing proprietary performance traits from the Yield10 pipeline, including higher seed oil content and seed yield traits that can increase the per acre harvest value of the Camelina grain. Improved grower income is expected to lead to increasing numbers of growers under contract, increased acres planted and higher product revenue and income for the Company.

Advancements in Camelina varieties, seed operations capabilities, grower network and supply chain developed for biofuels and underwritten by biofuel partnerships will position Yield10 for the subsequent launch of its second Camelina seed product omega-3 oils and in the future, PHA bioplastics.

As a first stage in our initial Camelina commercialization, during the third quarter of 2022, we engaged growers in contracts for the production of Camelina grain and Camelina seed having a total acreage of approximately 1,000 acres. These growers are located in the U.S. and Canada with each grower planting between 30 and 160 acres of our WDH2 (winter, cold tolerant) and WDH3 (winter, early maturing) seed varieties, with harvest expected to occur in the summer of 2023. We intend to use the seed harvest for toll crushing and further seed production that will provide us with seed inventory for future grower contracts during 2023 and beyond. Also, during 2022, we contracted with other growers to plant our E3902 (spring, high oil yield), WDH2 (winter, increased cold tolerance) and WDH3 (winter, early flowering) Camelina plant varieties to produce commercial planting seed. This activity is an essential part of our business model to produce commercial seed inventory for future grower contracts. We expect future grower contracts to cover Camelina grain production for large-scale grain processing to supply low-carbon intensity feedstock oil for the biofuel market and high-protein meal for the animal feed market.

We are currently pursuing the development of elite Camelina germplasm exhibiting herbicide tolerance, disease resistance and other traits that we believe in the near future, will form improved elite Camelina varieties for the biofuel market and will later be combined with the new seed product traits in development to expand our markets. We ultimately expect to have three types of elite Camelina seed varieties in contracted production to address our product markets.

We believe the market opportunity for biofuel feedstocks from our elite Camelina varieties, as well as our other proprietary seed products in development, including performance traits for use in other crops, is significant. We are targeting uses for our Camelina seed products in commercial applications such as: low-carbon feedstock oils for renewable diesel and sustainable aviation fuel, omega-3 oils for aquaculture and nutrition, and PHA bioplastics. In July 2022, we signed a nonbinding memorandum of understanding (“MOU”) with Mitsubishi Corporation to evaluate the establishment of a partnership to supply, offtake and market Camelina as a low-carbon feedstock oil for biofuel, and in February 2023, we signed another nonbinding MOU with American Airlines to collaborate in the development of the value chain for Camelina as a low-carbon feedstock oil for sustainable aviation fuel. We believe performance traits from our gene discovery and development platform (the “Trait Factory”) and value-added product strategy will provide strong differentiation for Yield10’s elite Camelina seed varieties, making them preferred by growers to address large product market opportunities as illustrated below. These traits will also be made available to leading seed companies for use in other crops to create licensing revenue.

Platform	Product	Main Markets	Revenue Potential	Status
Elite Camelina	Feedstock oil	<ul style="list-style-type: none"> <li>▪ Renewable diesel</li> <li>▪ Aviation biofuel</li> </ul> <b>\$27 billion</b>	\$180 million - \$1 billion	<ul style="list-style-type: none"> <li>▪ Early Commercial</li> <li>▪ Accelerating elite variety development</li> <li>▪ Focus: US, Canada</li> <li>▪ Biofuel partner outreach</li> </ul>
Elite PHA Camelina	PHA Bioplastics Feedstock oil	<ul style="list-style-type: none"> <li>▪ Single use plastic</li> </ul> <b>\$200 billion</b>	\$3.6 billion	<ul style="list-style-type: none"> <li>▪ Trait optimization</li> <li>▪ Pilot process development</li> <li>▪ Partner outreach</li> </ul>
Elite Omega-3 Camelina	Omega-3 Oil (DHA+EPA)	<ul style="list-style-type: none"> <li>▪ Aquaculture feed</li> <li>▪ Nutrition</li> </ul> <b>\$4-6 billion</b>	\$0.5 billion	<ul style="list-style-type: none"> <li>▪ Pre-commercial development</li> <li>▪ Partner outreach</li> </ul>

(1) Internal Company estimates of 2030 product revenue potential.

Our Camelina platform and each of our seed product targets are well-aligned with global trends in reducing carbon emissions and improving sustainability, including the need for:

- Producing low-carbon intensity biofuel feedstock oil for renewable diesel and aviation biofuel.
- Increasing the production of cover crops to reduce the climate change impact from agriculture.
- Producing PHA bioplastics to enable single use food service items and packaging with zero waste.
- Increasing global food security by:
  - producing land-based omega-3 (EPA, DHA+EPA) fatty acid oils for use in aquaculture and nutraceuticals;
  - increasing high quality protein production from Camelina seed; and
  - developing performance traits to increase yield and/or seed oil per acre for major food crops.

We have a pipeline of more than 10 novel yield and/or seed oil content performance traits currently in research and development. Today, we also have research agreements in place for a number of our yield trait gene candidates, including agreements with GDM Seeds (“GDM”) and JR Simplot Company (“Simplot”). These companies are currently progressing the development of our traits in soybean and potato. Our plan is to support these licensees as they work to generate proof points using our traits in their crops of interest. We also plan to find partners for our traits in canola, corn and other crops as we generate additional data and new trait leads using our Trait Factory.

We are building an intellectual property portfolio around our crop technologies and traits. As of December 31, 2022, we own or hold exclusive rights to 19 patent families, including 15 issued patents and 41 pending patent applications, related to advanced technologies for increasing crop performance and composition traits in oils and PHA bioplastics, in the United States and throughout the world. As part of our agreement with Rothamsted Research Limited (“Rothamsted”), we have an exclusive option to license two patent families, including six issued patents and four pending applications, including both the original patent filing for the production of EPA, DHA+EPA oil in Camelina and for an improvement patent filed after the agreement was signed. In November 2022, Yield10 and Rothamsted agreed to extend the exclusive option and license agreement until December 31, 2023.

#### **Corporate Information**

We were incorporated in Massachusetts in 1992 under the name Metabolix, Inc. In September 1998, we reincorporated in Delaware. We changed our name to Yield10 Bioscience, Inc. in January 2017 to reflect our change in mission around innovations in agricultural biotechnology focused on developing disruptive technologies for step-change improvements in crop yield and niche crop products. Our corporate headquarters are located at 19 Presidential Way, Woburn, MA 01801, and our telephone number is +1 (617) 583-1700. Our website address is [www.yield10bio.com](http://www.yield10bio.com). The information contained on our website or that can be accessed through our website is not part of this prospectus and investors should not rely on any such information in deciding whether to purchase our securities.



<b>THE OFFERING</b>	
<b>Issuer</b>	Yield10 Bioscience, Inc.
<b>Common stock offered</b>	931,600 shares of common stock
<b>Pre-Funded Warrants offered by us</b>	We are also offering a Pre-Funded Warrant to purchase 75,110 shares of our common stock. The purchase price of the Pre-Funded Warrant, calculated on a per underlying share basis, is equal to the price per share of the shares of common stock being sold in this offering, minus \$0.0001, and the exercise price per underlying share of the Pre-Funded Warrant is \$0.0001 per share. The Pre-Funded Warrant will be exercisable at any time after the date of issuance thereof, subject to certain limitations. See “Private Placement Transaction” on page <a href="#">S-15</a> . This prospectus supplement also relates to the offering of the shares of our common stock issuable upon exercise of the Pre-Funded Warrant.
<b>Offering price</b>	\$2.98 per share of common stock and \$2.9799 per underlying share of Pre-Funded Warrant
<b>Common stock to be outstanding after this offering</b>	5,950,912 shares, assuming the exercise in full of the Pre-Funded Warrant offered herein, and no exercise of the Private Warrants being issued in a concurrent private placement transaction.
<b>Lock-ups</b>	Our officers and directors will enter into lock-ups restricting the transfer of shares of or relating to our capital stock for 45 days after the closing of this offering.
<b>Use of proceeds</b>	We expect to receive net proceeds of approximately \$2.723 million from this offering after deducting the placement agent fees and estimated offering expenses payable by us. We intend to use the net proceeds from this offering for general corporate purposes, including working capital. See “Use of Proceeds”.
<b>Risk factors</b>	Investing in our securities involves a high degree of risk. See “Risk Factors” on page <a href="#">S-8</a> of this prospectus supplement and the other information included in, or incorporated by reference into, this prospectus supplement for a discussion of certain factors that you should consider before deciding to invest in our securities.
<b>Listing</b>	There is no established public trading market for the Pre-Funded Warrants and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Pre-Funded Warrants on the Nasdaq Capital Market or on any national securities or other national recognized trading system. Without an active trading market, the liquidity of the Pre-Funded Warrants will be limited.
<b>Concurrent private placement of Private Warrants</b>	In a concurrent private placement, we are issuing to the purchasers of our common stock and Pre-Funded Warrant in this offering, Private Warrants to purchase an aggregate of 1,006,710 shares of our common stock at an exercise price per share equal to the offering price per share of common stock

being sold in this offering. The Private Warrants are being sold together with the shares of common stock and Pre-Funded Warrant being sold in this offering, and we will receive additional proceeds from the Private Warrants to the extent such Private Warrants are exercised for cash. The Private Warrants and the shares of our common stock issuable upon the exercise of the Private Warrants are not being offered pursuant to this prospectus supplement and the accompanying prospectus. See “Private Placement Transaction” on page [S-15](#).

The number of shares of common stock that will be outstanding after this offering is based on 4,944,202 shares outstanding as of December 31, 2022, and excludes:

- 979,748 shares of common stock issuable upon exercise of options to purchase our common stock outstanding as of December 31, 2022 at a weighted average exercise price of \$14.1046 per share;
- 27,123 shares of common stock issuable upon vesting of restricted stock units as of December 31, 2022;
- 14,270 shares of common stock issuable upon exercise of warrants outstanding as of December 31, 2022 and issued pursuant to the Securities Purchase Agreement we entered into with certain investors on July 3, 2017 (which warrants became exercisable on January 7, 2018 at an exercise price of \$201.60 per share and expire on January 7, 2024);
- 1,114,278 shares of common stock issuable upon exercise of Series B Warrants issued in public offerings in November 2019 and outstanding as of December 31, 2022 at an exercise price of \$8.00 per share and which expire on May 19, 2027; and
- 750 shares of common stock issuable upon exercise of immediately vested warrants outstanding as of December 31, 2022 and issued to an investor relations consultant on September 12, 2017 at an exercise price of \$116.00 per share and which expire on September 11, 2024.

## RISK FACTORS

*Our business is subject to numerous risks. In addition to risks and uncertainties discussed under the section captioned “Risk Factors” contained in our most recent Annual Report on Form 10-K and in our subsequent filings with the SEC incorporated by reference in this prospectus, together with the other information included in this prospectus and documents incorporated by reference in this prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, you should read in their entirety and carefully consider the risks described below before making an investment decision with respect to this offering. Any of the following risks could have a material adverse effect on our business, financial condition, results of operations or cash flow. This could cause the trading price of our common stock to decline, which could cause you to lose all or part of your investment.*

### **Risks Relating to this Offering**

***If you purchase shares of our common stock sold in this offering, you will incur immediate dilution.***

Investors purchasing shares of our common stock in this offering will incur immediate dilution in the net tangible book value of the common stock purchased of \$1.78 per share, representing the difference between the offering price of \$2.98 per share and our net tangible book value as of December 31, 2022 after giving effect to this offering. The exercise of outstanding stock options, restricted stock units and warrants would result in further dilution of your investment. See the section entitled “Dilution” below for a more detailed illustration of the dilution you would incur if you participate in this offering.

***There is no public market for the Pre-Funded Warrant being sold in this offering or the Private Warrants being sold in a private placement concurrently with this offering.***

There is no established public trading market for the Pre-Funded Warrant being offered in this offering or the Private Warrants being offered in a private placement concurrently with this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Pre-Funded Warrant or Private Warrants on any national securities exchange or other nationally recognized trading system. Without an active market, the liquidity of the Pre-Funded Warrant and Private Warrants will be limited.

***Any holder of a Pre-Funded Warrant or Private Warrant will have no rights as a holder of our common stock until such holder exercises its Pre-Funded Warrant and/or Private Warrant and acquires our common stock.***

Until the holder of any Pre-Funded Warrant or Private Warrant exercises such Pre-Funded Warrant and/or Private Warrant and acquires shares of our common stock, such holder will have no rights with respect to the shares of our common stock underlying such Pre-Funded Warrant or Private Warrant. Upon exercise of such Pre-Funded Warrant or Private Warrant, the holder will be entitled to exercise the rights of a holder of our common stock only as to matters for which the record date occurs after the exercise date.

***A significant holder or beneficial holder of our common stock may not be permitted to exercise the Pre-Funded Warrant or Private Warrant that it holds.***

A holder of the Pre-Funded Warrant and/or Private Warrant will not be entitled to exercise any portion of the Pre-Funded Warrants or Private Warrants that, upon giving effect to such exercise, would cause the aggregate number of shares of our common stock beneficially owned by such holder (together with its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder for purposes of Section 13(d) of the Exchange Act) to exceed 9.99% (in the case of the Pre-Funded Warrant) or 4.99% (in the case of the Private Warrant) of the total number of then issued and outstanding shares of common stock, as such percentage ownership is determined in accordance with the terms of the Pre-Funded Warrant or Private Warrant and subject to such holder’s rights under the Pre-Funded Warrant and Private Warrant to increase or decrease such percentage to any other percentage not in excess of 19.99% upon at least 61 days’ prior notice from such holder to us. As a result, a holder may not be able to exercise its Pre-Funded Warrant or Private Warrant for shares of our common stock at a time when it would be financially beneficial for such holder to do so. In such a circumstance, a holder could seek to sell its Pre-Funded Warrant or Private Warrant to realize value, but it may be unable to do so in the absence of an established trading market.

***This offering may cause the trading price of our common stock to decrease.***

The price per share, together with the number of shares of common stock and Pre-Funded Warrant we propose to issue and ultimately will issue if this offering is completed and/or the number of shares of our common stock issuable upon exercise the Private Warrants being sold concurrently herewith, may result in an immediate decrease in the market price of our common stock. This decrease may continue after the completion of this offering.

***If we do not file and maintain a current and effective prospectus relating to the common stock issuable upon exercise of the Private Warrant, the holder thereof may exercise the Private Warrant on a “cashless basis.”***

If we do not file and maintain a current and effective prospectus relating to the shares of common stock issuable upon exercise of the Private Warrant at the time that holders wish to exercise such warrant, they will be able to exercise such warrant on a “cashless basis”. As a result, the number of shares of common stock that holders will receive upon exercise of the Private Warrant will be fewer than it would have been had such holders exercised their Private Warrant for cash. We have agreed to file a registration statement to register the shares of common stock underlying the Private Warrant, or the Private Warrant Shares, as soon as practicable (and in any event within 60 calendar days of the date of this prospectus supplement), and use commercially reasonable efforts to cause such registration statement to become effective within 181 days following the closing date of this offering and to keep such registration statement effective at all times until the investor holds no Private Warrants or Private Warrant Shares issuable upon exercise thereof. However, we cannot assure you that we will be able to do so. If the Private Warrant is exercised on a “cashless” basis, we will not receive any consideration from such exercises.

***Provisions of the Private Warrants could discourage an acquisition of us by a third party.***

Certain provisions of the Private Warrants being sold in a private offering concurrently with this offering could make it more difficult or expensive for a third party to acquire us. The Private Warrants prohibit us from engaging in certain transactions constituting “fundamental transactions” unless, among other things, the surviving entity assumes our obligations under the Private Warrants. Further, the Private Warrants provide that, in the event of certain transactions constituting “fundamental transactions,” with some exceptions, holders of such warrants will have the right, at their option, to receive from us or a successor entity the same type or form of consideration (and in the same proportion) that is being offered and paid to the holders of our common stock in the fundamental transaction in the amount of the Black Scholes value (as described in such warrants) of the unexercised portion of the Private Warrant on the date of the consummation of the fundamental transaction. These and other provisions of the Private Warrant could prevent or deter a third party from acquiring us even where the acquisition could be beneficial to the holders of our common stock.

***The Private Warrants may be accounted for as a liability and the changes in value of such Private Warrants may have a material effect on our financial results.***

We are currently evaluating the terms of the Private Warrants being sold in a private placement concurrently with this offering. It is possible that we and/or our auditors will conclude that because of the terms of such Private Warrants, such Private Warrants should be accounted for as liability instruments. As a result, we would be required to classify the Private Warrants as a liability. Under the liability accounting treatment, we would be required to measure the fair value of these instruments at the end of each reporting period and recognize changes in the fair value from the prior period in our operating results for the current period. As a result of the recurring fair value measurement, our financial statements and results of operations may fluctuate quarterly based on factors which are outside our control. In the event the Private Warrants are required to be accounted for under liability accounting treatment, we will recognize noncash gains or losses due to the quarterly fair valuation of these warrants which could be material. The impact of changes in fair value on our earnings may have an adverse effect on the market price of our common stock and/or our stockholders’ equity, which may make it harder for us to, or prevent us from, meeting the continued listing standards of the Nasdaq Capital Market.

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

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

***Sales of a significant number of shares of our common stock in the public market or the perception that such sales could occur, could depress the market price of our common stock.***

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that sales may have on the prevailing market price of our common stock.

***We might apply the net proceeds from this offering in ways with which you do not agree and in ways that may impair the value of your investment.***

We currently intend to use the net proceeds from this offering for general corporate purposes, including working capital. However, our management has broad discretion as to the use of these proceeds and you will be relying on the judgment of our management regarding the application of these proceeds. We might apply these proceeds in ways with which you do not agree, or in ways that do not yield a favorable return. If our management applies these proceeds in a manner that does not yield a significant return, if any, on our investment of these net proceeds, it could compromise our ability to pursue our growth strategy and adversely affect the market price of our common stock.

***If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.***

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

### **USE OF PROCEEDS**

We expect to receive net proceeds of approximately \$2.723 million from this offering, after deducting the placement agent fees and discounts and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering for general corporate purposes, including working capital.

## DILUTION

If you invest in this offering, your ownership interest will be immediately diluted to the extent of the difference between the offering price per share of common stock and/or per underlying share of the Pre-Funded Warrant and the as adjusted net tangible book value per share after giving effect to this offering.

As of December 31, 2022, our net tangible book value was approximately \$4.4 million, or \$0.88 per share of our common stock. Net tangible book value per share represents the amount of our total tangible assets less our total liabilities, divided by the total number of shares of our common stock outstanding as of December 31, 2022.

After giving effect to the sale of (i) 931,600 shares of our common stock in this offering at an offering price of \$2.98 per share, and (ii) a Pre-Funded Warrant to purchase 75,110 shares of our common stock for \$2.98 per share (which equals \$2.9799 per underlying share purchase price, plus the \$0.0001 per underlying share exercise price), and after deducting estimated offering fees and expenses payable by us, our net tangible book value as of December 31, 2022 would have been approximately \$1.20 per share of common stock. This represents an immediate increase in net tangible book value of \$0.32 per share to our existing stockholders and an immediate dilution in net tangible book value of \$1.78 per share to investors participating in this offering. The following table illustrates this dilution per share of common stock to investors participating in this offering:

Offering price	\$2.98
Net tangible book value per share as of December 31, 2022	\$0.88
Increase in net tangible book value per share attributable to new investors	\$0.32
Adjusted net tangible book value per share after giving effect to the offering	<u>\$1.20</u>
Dilution per share to new investors in this offering	<u>\$1.78</u>

The foregoing illustration does not reflect the potential dilution from the exercise of outstanding options or warrants to purchase shares of our common stock.

The number of shares of common stock that will be outstanding after this offering is based on 4,944,202 shares outstanding as of December 31, 2022, and excludes:

- 979,748 shares of common stock issuable upon exercise of options to purchase our common stock outstanding as of December 31, 2022 at a weighted average exercise price of \$14.1046 per share;
- 27,123 shares of common stock issuable upon vesting of restricted stock units as of December 31, 2022;
- 14,270 shares of common stock issuable upon exercise of warrants outstanding as of December 31, 2022 and issued pursuant to the Securities Purchase Agreement we entered into with certain investors on July 3, 2017 (which warrants became exercisable on January 7, 2018 at an exercise price of \$201.60 per share and expire on January 7, 2024);
- 1,114,278 shares of common stock issuable upon exercise of Series B Warrants issued in public offerings in November 2019 and outstanding as of December 31, 2022 at an exercise price of \$8.00 per share and which expire on May 19, 2027; and
- 750 shares of common stock issuable upon exercise of immediately vested warrants outstanding as of December 31, 2022 and issued to an investor relations consultant on September 12, 2017 at an exercise price of \$116.00 per share and which expire on September 11, 2024.

This information above assumes no exercise of the Private Warrants.

## DESCRIPTION OF THE SECURITIES WE ARE OFFERING

We are offering through this prospectus supplement and the accompanying prospectus (i) 931,600 shares of our common stock, and (ii) a Pre-Funded Warrant to purchase up to 75,110 shares of our common stock. We are also registering the shares of our common stock issuable from time to time upon exercise of the Pre-Funded Warrant offered hereby.

### **Common Stock**

The material terms and provisions of our common stock and each other class of our securities that qualifies or limits our common stock are described under the caption “Description of Capital Stock” starting on page 8 of the accompanying prospectus.

### **Pre-Funded Warrant**

The following summary of certain terms and provisions of the Pre-Funded Warrant that is being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the Pre-Funded Warrant, the form of which will be filed with the SEC as an exhibit to a Report on Form 8-K in connection with this offering and incorporated by reference into the registration statement of which this prospectus supplement and the accompanying prospectus form a part. Prospective investors should carefully review the terms and provisions of the form of Pre-Funded Warrant for a complete description of the terms and conditions of the Pre-Funded Warrant.

### ***Duration and Exercise Price***

The Pre-Funded Warrant offered hereby will have an initial exercise price of \$0.0001 per share. The Pre-Funded Warrant will be immediately exercisable and may be exercised at any time until the Pre-Funded Warrant is exercised in full. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price.

### ***Exercisability***

The Pre-Funded Warrant will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below).

A holder (together with its affiliates) may not exercise any portion of the Pre-Funded Warrant to the extent that the holder would beneficially own more than 9.99% of the outstanding common stock immediately after exercise (the “Beneficial Ownership Limitation”), except that upon at least 61 days’ prior notice from the holder to us, the holder may increase the Beneficial Ownership Limitation, provided that the Beneficial Ownership Limitation in no event exceeds 19.99%.

No fractional shares of common stock will be issued in connection with the exercise of a Pre-Funded Warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price.

### ***Cashless Exercise***

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

### ***Fundamental Transaction***

In the event of a fundamental transaction, as described in the Pre-Funded Warrant and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into



another person, the acquisition of more than 50% of our outstanding voting securities, the holders of the Pre-Funded Warrant will be entitled to receive upon exercise of the Pre-Funded Warrant the kind and amount of securities, cash or other property that the holders would have received had they exercised the Pre-Funded Warrants immediately prior to such fundamental transaction.

***Transferability***

Subject to applicable laws, a Pre-Funded Warrant may be transferred at the option of the holder upon surrender of the Pre-Funded Warrant to us together with the appropriate instruments of transfer.

***Exchange Listing***

We do not intend to list the Pre-Funded Warrant on any securities exchange or nationally recognized trading system.

***Rights as a Stockholder***

Except as otherwise provided in the Pre-Funded Warrant or by virtue of such holder's ownership of common stock, the holders of the Pre-Funded Warrant do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise the Pre-Funded Warrant.

## PRIVATE PLACEMENT TRANSACTION

Concurrently with the sale of common stock and Pre-Funded Warrant in this offering, we will issue to the investors in this offering, private placement warrants, or Private Warrants, to purchase up to an aggregate of 1,006,710 shares of common stock at an exercise price equal to \$2.98 per share (subject to standard adjustments for stock splits, stock dividend, rights offerings and pro rata distributions). The Private Warrants are being sold together with the shares of common stock and Pre-Funded Warrant being sold in this offering, and we will receive additional proceeds from the Private Warrants to the extent such Private Warrants are exercised for cash.

The Private Warrants and the common stock issuable upon the exercise of such Private Warrants are not being registered under the Securities Act, are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and/or Rule 506(b) promulgated thereunder. Accordingly, the purchaser may only sell common stock issued upon exercise of the Private Warrants pursuant to an effective registration statement under the Securities Act covering the resale of those shares, an exemption under Rule 144 under the Securities Act or another applicable exemption under the Securities Act.

The summary below is not complete and is subject to, and qualified in its entirety by, the provisions of the Private Warrant, the form of which will be filed with the SEC as an exhibit to a Current Report on Form 8-K in connection with the concurrent private placement and incorporated by reference into the registration statement of which this prospectus supplement and the accompanying prospectus form a part. Prospective investors should carefully review the terms and provisions of the form of Private Warrant for a complete description of the terms and conditions of the Private Warrant.

### ***Duration, Exercise Price and Anti-Dilutive Rights***

The Private Warrant has an exercise price of \$2.98 per share and will be exercisable beginning six months from the date of issuance. The Private Warrant will terminate five years from the initial exercisability date. The Private Warrant contains standard adjustments to the exercise price including for stock splits, stock dividend, rights offerings and pro rata distributions.

### ***Exercisability***

The Private Warrant will be immediately exercisable, at the option of each holder and until the expiration date, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of purchased upon such exercise (except in the case of a cashless exercise as discussed below).

### ***Exercise Limitation***

A holder (together with its affiliates) may not exercise any portion of the Private Warrant to the extent that the holder would beneficially own more than 4.99% of the outstanding common stock immediately after exercise (the "Beneficial Ownership Limitation"), except that upon at least 61 days' prior notice from the holder to us, the holder may increase the Beneficial Ownership Limitation, provided that the Beneficial Ownership Limitation in no event exceeds 19.99%. No fractional shares of common stock will be issued in connection with the exercise of a Private Warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round such fractional share to a whole share.

### ***Cashless Exercise***

In lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may, in the event the shares underlying the Private Warrant, or the Private Warrant Shares, are not registered under the Securities Act, elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Private Warrant.

***Fundamental Transaction***

In the event of a fundamental transaction, as described in the Private Warrant and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding voting securities, the holders of the Private Warrant will be entitled to receive upon exercise of the Private Warrant the kind and amount of securities, cash or other property that the holders would have received had they exercised the Private Warrant immediately prior to such fundamental transaction. In addition, the holders of the Private Warrant have, at the option of the applicable holder, the right to receive from us or a successor entity the same type or form of consideration (and in the same proportion) that is being offered and paid to the holders of our common stock in the fundamental transaction in the amount of the Black Scholes value (as described in the Private Warrant) of the unexercised portion of the Private Warrant on the date of the consummation of the fundamental transaction.

***Transferability***

Subject to applicable laws, a Private Warrant may be transferred at the option of the holder upon surrender of the Private Warrant to us together with the appropriate instruments of transfer.

***Resale/Registration Rights***

We agreed pursuant to the purchase agreement pursuant to which the Private Warrants were sold, or the Purchase Agreement, that as soon as practicable (and in any event within 60 calendar days of the date of the Purchase Agreement), that we would file a registration statement on Form S-1 providing for the resale of the shares of common stock issuable upon exercise of the Private Warrants, use commercially reasonable efforts to cause such registration statement to become effective within 181 days following the closing date of this offering and to keep such registration statement effective at all times until the investor owns no Private Warrants or shares of common stock issuable upon exercise thereof.

***Exchange Listing***

We do not intend to list the Private Warrants on any securities exchange or nationally recognized trading system.

***Rights as a Stockholder***

Except as otherwise provided in the Private Warrant or by virtue of such holder's ownership of common stock, the holders of the Private Warrant do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise the Private Warrant.

## PLAN OF DISTRIBUTION

Maxim Group LLC is acting as our Placement Agent in connection with this offering. The Placement Agent is not purchasing or selling any of the securities offered by this prospectus supplement, nor is it required to arrange the purchase or sale of any specific number or dollar amount of securities, but has agreed to use its reasonable best efforts to arrange for the sale of all of the securities offered hereby. In connection with the offering of the securities described in this prospectus supplement, we have entered into a securities purchase agreement, or the Purchase Agreement, directly with certain investors in connection with this offering for the sale of all of the securities offered hereby (and the issuance of the Private Warrants, which are not being offered herein, but are being issued in a separate concurrent offering, exempt from registration under the Securities Act).

We expect to deliver the shares and Pre-Funded Warrant being offered pursuant to this prospectus supplement on or about May 5, 2023.

We have agreed to indemnify the Placement Agent against specified liabilities, including liabilities under the Securities Act, and to contribute to payments the Placement Agent may be required to make in respect thereof.

### Fees and Expenses

We have agreed to pay to the Placement Agent fees set forth in the table below. Maxim Group LLC is also acting as the placement agent for the private placement transaction and is being paid a fee related to the placement of the Private Warrants.

	Per Share	Per Pre-Funded Warrant Underlying Share	Total
Offering price	\$2.98	\$2.9799	\$2,999,995.80
Placement agent fees <sup>(1)</sup>	\$0.12	\$ 0.02	\$ 139,999.80
Proceeds to us, before expenses	\$2.86	\$2.9599	\$2,859,996.00

(1) We have agreed to pay the Placement Agent a cash placement commission equal to 7.0% of the gross proceeds from the sale of the 931,600 shares of common stock and Pre-Funded Warrants to purchase 75,110 shares of common stock sold in this offering. We have also agreed to reimburse the Placement Agent for certain expenses incurred in connection with this offering, discussed below.

We have also agreed to reimburse the Placement Agent at closing for legal and other expenses incurred by them in connection with the offering in an aggregate amount not to exceed \$40,000. We estimate the total expenses payable by us for this offering, excluding the Placement Agent fees and expenses, will be approximately \$97,000.

The Placement Agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the shares sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, the Placement Agent would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares by the Placement Agent acting as principal. Under these rules and regulations, the Placement Agent:

- may not engage in any stabilization activity in connection with our securities; and
- may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until it has completed its participation in the distribution.

This prospectus supplement and the accompanying prospectus may be made available in electronic format on websites or through other online services maintained by the placement agent or by an affiliate.

Other than this prospectus supplement and the accompanying prospectus, the information on the placement agent's website and any information contained in any other website maintained by the placement agent is not part of this prospectus supplement and the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus form a part, has not been approved and/or endorsed by us or the placement agent, and should not be relied upon by investors.

The foregoing does not purport to be a complete statement of the terms and conditions of the placement agency agreement and the securities purchase agreement. A copy of the securities purchase agreement with the purchasers will be included as an exhibit to our Current Report on Form 8-K to be filed with the SEC and incorporated by reference into the registration statement of which this prospectus supplement and the accompanying prospectus form a part. See "Information Incorporated by Reference" and "Where You Can Find More Information."

#### **Tail Fee**

We agreed pursuant to the Placement Agency Agreement that if we complete any financing of equity, equity-linked, or debt (other than the exercise by any person or entity of any options, warrants or other convertible securities) for which the Placement Agent is not acting as underwriter or placement agent within six months after the closing of the offering with any of the investors who were actually introduced to the Company by the Placement Agent, then we will pay to the Placement Agent upon the closing of such financing 7.0% of the applicable gross proceeds of the offering.

#### **Lock-Up Agreements**

Our directors and executive officers have entered into lock-up agreements. Under these agreements, these individuals have agreed, subject to specified exceptions, not to sell or transfer any shares of common stock or securities convertible into, or exchangeable or exercisable for, our shares of common stock during a period ending 45 days after the date of the closing of the offering contemplated by this prospectus supplement, without first obtaining the written consent of the investor. Specifically, these individuals have agreed, in part, not to offer, sell, contract to sell, hypothecate, pledge or otherwise dispose of (or 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), directly or indirectly, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act, with respect to, any shares of common stock of the Company or securities convertible, exchangeable or exercisable into, shares of common stock of the Company beneficially owned, held or hereafter acquired by such persons.

Notwithstanding these limitations, these shares of common stock may be transferred under limited circumstances, including, without limitation, by gift, will or intestate succession.

#### **Discretionary Accounts**

The Placement Agent does not intend to confirm sales of the securities offered hereby to any accounts over which it has discretionary authority.

#### **Other Activities and Relationships**

The Placement Agent and certain of its affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The Placement Agent and certain of its affiliates may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Placement Agent and certain of its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities

and/or instruments issued by us and our affiliates. If the Placement Agent or its affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The Placement Agent and its affiliates may hedge such exposure by entering into transactions that consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the common stock offered hereby. Any such short positions could adversely affect future trading prices of the common stock offered hereby. The Placement Agent and certain of its affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

**Transfer Agent and Registrar**

The transfer agent and registrar for our common share is American Stock Transfer & Trust Company, LLC.

**Listing**

Our common stock is traded on the Nasdaq Capital Market under the symbol “YTEN.”

## WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and other periodic reports, proxy statements and other information with the SEC. You can read our SEC filings over the Internet at the SEC's website at [www.sec.gov](http://www.sec.gov).

Our Internet address is [www.yield10bio.com](http://www.yield10bio.com). There we make available free of charge, on or through the investor relations section of our website, annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with the SEC. The information found on our website is not part of this prospectus supplement or the accompanying prospectus.

## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

We are "incorporating by reference" specific documents that we file with the SEC, which means that we can disclose important information to you by referring you to those documents that are considered part of this prospectus supplement and the accompanying prospectus. Information that we file subsequently with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below, and any documents that we file with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date of this prospectus supplement until the termination of the offering of all of the securities registered pursuant to the registration statement of which the accompanying prospectus is a part (excluding any portions of such documents that have been "furnished" but not "filed" for purposes of the Exchange Act):

1. [Annual Report on Form 10-K for the year ended December 31, 2022, filed on March 14, 2023;](#)
2. [Current Reports on Form 8-K filed on January 24, 2023, May 1, 2023, May 3, 2023 and May 4, 2023;](#)
3. [Proxy Statement on Schedule 14A for the annual meeting of stockholders to be held on May 25, 2023, filed on April 6, 2023; and](#)
4. The description of our common stock contained in Item 1 of our [Registration Statement on Form 8-A filed with the SEC on November 6, 2006](#), including any amendments or reports filed for purpose of updating the description.

You may request, and we will provide you with, a copy of these filings, at no cost, by calling us at (617) 583-1700 or by writing to us at the following address:

Yield10 Bioscience, Inc.  
19 Presidential Way  
Woburn, MA 01801  
Attn: Lynne Brum

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus supplement and the accompanying prospectus to the extent that a statement contained herein or therein, in any other subsequently filed document that also is or is deemed to be incorporated by reference herein and in any accompanying prospectus supplement, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified and superseded, to constitute a part of this prospectus supplement.

Any statement made in this prospectus supplement and the accompanying prospectus concerning the contents of any contract, agreement or other document is only a summary of the actual contract, agreement or other document. If we have filed or incorporated by reference any contract, agreement or other document as an exhibit to the registration statement, you should read the exhibit for a more complete understanding of the document or matter involved. Each statement regarding a contract, agreement or other document is qualified by reference to the actual document.

**LEGAL MATTERS**

Certain legal matters relating to the issuance of the securities offered by this prospectus supplement will be passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. Pryor Cashman LLP, New York, New York, has acted as counsel for the Placement Agent.

**EXPERTS**

The consolidated financial statements of Yield10 Bioscience, Inc. as of December 31, 2022 and 2021 and for each of the years in the two-year period ended December 31, 2022 incorporated in this prospectus supplement by reference from the Yield10 Bioscience, Inc. [Annual Report on Form 10-K for the year ended December 31, 2022](#) have been audited by RSM US LLP, an independent registered public accounting firm, as stated in their report thereon (which report expresses an unqualified opinion and includes an explanatory paragraph relating to Yield10 Bioscience, Inc.'s ability to continue as a going concern), incorporated herein by reference, and have been incorporated by reference in this prospectus supplement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.



## PROSPECTUS

**YIELD10 BIOSCIENCE, INC.****\$100,000,000  
Common Stock  
Preferred Stock  
Warrants  
Subscription Rights  
Units**

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This prospectus relates to common stock, preferred stock, warrants and subscription rights that we may sell from time to time in one or more offerings up to a total public offering price of \$100,000,000 on terms to be determined at the time of sale, which securities may be sold either individually or in units. We will provide specific terms of these securities in supplements to this prospectus. You should read this prospectus and any supplement carefully before you invest. This prospectus may not be used to offer and sell securities unless accompanied by a prospectus supplement for those securities.

Our common stock is traded on The Nasdaq Capital Market under the symbol “YTEN.” On March 26, 2021, the last reported sale price of our common stock was \$12.49 per share.

These securities may be sold directly by us, through dealers or agents designated from time to time, to or through underwriters or through a combination of these methods. See “Plan of Distribution” in this prospectus. We may also describe the plan of distribution for any particular offering of these securities in any applicable prospectus supplement. If any agents, underwriters or dealers are involved in the sale of any securities in respect of which this prospectus is being delivered, we will disclose their names and the nature of our arrangements with them in a prospectus supplement. The net proceeds we expect to receive from any such sale will also be included in a prospectus supplement.

**Investing in our securities involves a high degree of risk. See “Risk Factors” on page 6 of this prospectus. We may include additional risk factors in an applicable prospectus supplement under the heading “Risk Factors.” You should review that section of the prospectus supplement for a discussion of matters that investors in our securities should consider.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus or any accompanying prospectus supplement. Any representation to the contrary is a criminal offense.**

Our principal executive office is at 19 Presidential Way, Woburn, Massachusetts 01801, and our telephone number is (617) 583-1700. The date of this prospectus is April 2, 2021.

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**YOU SHOULD RELY ONLY ON THE INFORMATION CONTAINED IN THIS PROSPECTUS, ANY PROSPECTUS SUPPLEMENT OR ANY DOCUMENT TO WHICH WE HAVE REFERRED YOU. WE HAVE NOT AUTHORIZED ANYONE ELSE TO PROVIDE YOU WITH INFORMATION THAT IS DIFFERENT. THIS PROSPECTUS AND ANY PROSPECTUS SUPPLEMENT MAY BE USED ONLY WHERE IT IS LEGAL TO SELL THESE SECURITIES. THE INFORMATION IN THIS PROSPECTUS OR ANY PROSPECTUS SUPPLEMENT IS CURRENT ONLY AS OF THE DATE ON THE FRONT OF THESE DOCUMENTS.**

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## **ABOUT THIS PROSPECTUS**

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf process, we may sell any combination of the securities described in this prospectus in one or more offerings up to a total public offering price of \$100,000,000.

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

Unless the context otherwise requires, in this prospectus, “Yield10,” “the Company,” “we,” “us,” “our” and similar names refer to Yield10 Bioscience, Inc. and its subsidiaries.

**SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This prospectus and any accompanying prospectus supplement (including any document incorporated by reference herein or therein) contain statements with respect to the Company which constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to be covered by the “safe harbor” created by those sections. Forward-looking statements, which are based on certain assumptions and reflect our plans, estimates and beliefs, can generally be identified by the use of forward-looking terms such as “believes,” “expects,” “may,” “will,” “should,” “could,” “seek,” “intends,” “plans,” “estimates,” “anticipates” or other comparable terms. These forward-looking statements include, but are not limited to, statements concerning potential future collaborations and objectives for research and development, product development, and commercialization of current and future products. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed in “Risk Factors” in any prospectus supplement and in the documents incorporated by reference herein or therein.

We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the SEC, to publicly update or revise any such statements to reflect any change in company expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

**You should read this prospectus and any accompanying prospectus supplement and the documents that we reference herein and therein and have filed as exhibits to the registration statement, of which this prospectus is part, completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus and any accompanying prospectus supplement is accurate as of the date on the front cover of this prospectus or such prospectus supplement only. Our business, financial condition, results of operations and prospects may change. We may not update these forward-looking statements, even though our situation may change in the future, unless we have obligations under the Federal securities laws to update and disclose material developments related to previously disclosed information. We qualify all of the information presented in this prospectus and any accompanying prospectus supplement, and particularly our forward-looking statements, by these cautionary statements.**

## ABOUT YIELD10 BIOSCIENCE, INC.

### Overview

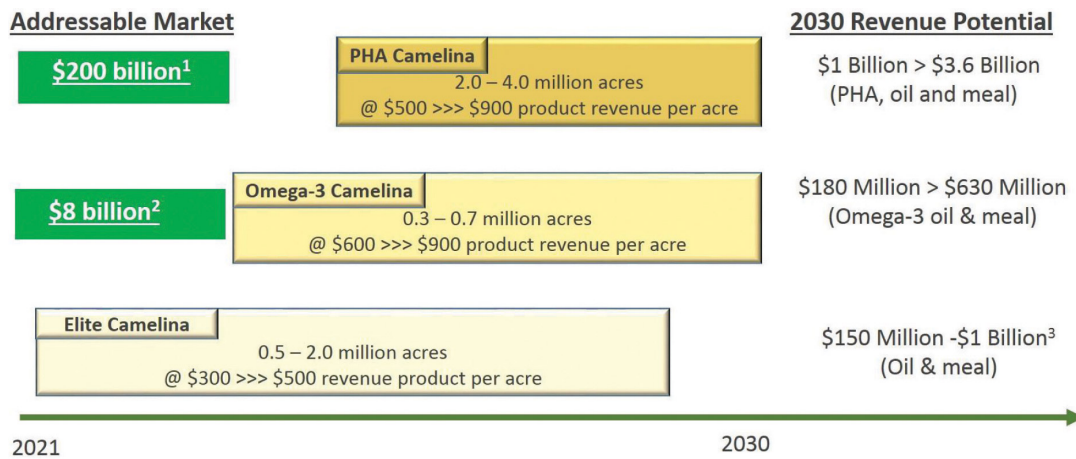
Yield10 Bioscience, Inc. is an agricultural bioscience company that is using its differentiated trait gene discovery platform, the “Trait Factory”, to develop improved Camelina varieties to produce proprietary products, and to produce other high value traits for the agriculture and food industries. Yield10 is headquartered in Woburn, Massachusetts and has an Oilseed Center of Excellence in Saskatoon, Saskatchewan, Canada. Our goals are to efficiently develop and commercialize a high value crop products business by developing superior varieties of Camelina for the production of feedstock oils, nutritional oils, and PHA bioplastics, and to license our yield traits to major seed companies for commercialization in major row crops, including corn, soybean and canola.

*Camelina sativa* (Camelina) is an annual oilseed plant in the mustard family that is native to Europe, and an essential component of our Trait Factory. It has several excellent agronomic traits, including low water and fertilizer input, drought resistance, and a short life cycle, making it suitable as a rotation crop in the U.S. Northwest, and as a relay or cover crop with corn and soybean in the U.S. Midwest. In addition, it produces a relatively abundant harvest of oil-containing protein rich seeds. For approximately ten years, Yield10 has been conducting research in Camelina, identifying and deploying its gene trait discoveries, evaluating the performance of these novel traits in field tests, developing PHA bioplastics in seed, and securing exclusive rights to omega-3 oils technology.

We are beginning to prepare for the commercial launch of our products business based on current Camelina varieties to supply oil and protein meal markets. We anticipate that this will be followed by the launch of two proprietary higher value products, omega-3 (DHA+EPA) oils, which we are developing pursuant to an agreement for technology in development with Rothamsted Research (“Rothamsted”), and PHA bioplastics. We expect the sequential launch of these products to allow us to establish the operating foundation of the commercial products business and to grow revenues and margins based on sales of omega-3 oil products thereby generating sufficient cash flow to fund the commercialization of PHA bioplastics.

We are pursuing the development of elite Camelina germplasm exhibiting herbicide tolerance, disease resistance and other traits that will form a core Camelina germplasm foundation for deploying our product traits to reduce grower costs and increase value. Based on our research and development activities in Camelina, Yield10 has a pipeline of more than 10 novel yield traits currently in research and development. We have agreements in place for a number of our current yield trait gene candidates, including with the Bayer Crop Science division of Bayer AG (“Bayer”), GDM Seeds (“GDM”), Forage Genetics International, LLC, a division of Land O’Lakes, Inc. (“Forage Genetics”) and JR Simplot Company (“Simplot”). These companies are currently progressing the development of Yield10 traits in soybean, forage sorghum, and potato. We expect to generate several proof points for our traits in various crops over the next two years and plan to find partners to license our traits for canola, corn and other crops as we generate additional data.

We believe the market opportunity for our Camelina varieties, proprietary products in development, and performance traits is significant. We are targeting uses for our Camelina products in applications such as: oils for animal and human nutrition; feedstock oils for renewable diesel, omega-3 oils for aquaculture, and PHA bioplastics in a range of applications. Leading seed companies are the potential clients for our performance trait innovations in major crops. We believe our value-added product strategy will provide strong differentiation for Yield10’s Camelina crop varieties making them preferred by growers to address large product market opportunities as illustrated below:



Each of our product targets is well-aligned with trends in food security, social responsibility, and sustainability, including the need for:

- Low-carbon index feedstocks for renewable diesel biofuel;
- New sources of oil and protein meal for animal feed;
- Nutritional oils for human consumption;
- Land-based omega-3 fatty acid oils to replace diminishing world supplies of fish oil for aquaculture;
- Biobased, biodegradable bioplastics for feed, water treatment and to reduce plastic waste;
- Increasing the organic carbon content of soil in farming; and
- Performance traits to increase yield per acre of major agricultural crops.

**CORPORATE INFORMATION**

We were incorporated in Massachusetts in June 1992 under the name of Metabolix, Inc. In September 1998, we reincorporated in Delaware. We changed our name to Yield10 Bioscience, Inc. in January 2017 to reflect our change in mission around innovations in agricultural biotechnology focused on developing disruptive technologies for step-change improvements in crop yield and niche crop products. Our corporate headquarters are located at 19 Presidential Way, Woburn, MA 01801, and our telephone number is +1 (617) 583-1700. Our website address is [www.yield10bio.com](http://www.yield10bio.com). The information on our website is not incorporated by reference into this prospectus or any prospectus supplement and should not be considered to be part of this prospectus or any prospectus supplement. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as well as reports relating to our securities filed by others pursuant to Section 16 of such act, are available through the investor relations page of our Internet website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (the "SEC"). The SEC maintains an Internet website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that website is <http://www.sec.gov>.

**RISK FACTORS**

Investing in our securities involves risk. The prospectus supplement applicable to each type or series of securities we offer will contain a discussion of the risks applicable to an investment in Yield10 and to the particular types of securities that we are offering under that prospectus supplement. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under the heading “Risk Factors” included in our most recent annual report on Form 10-K, as revised or supplemented by our most recent quarterly report on Form 10-Q, each of which are on file with the SEC and are incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future.



**USE OF PROCEEDS**

We currently intend to use the estimated net proceeds from the sale of these securities for working capital and other general corporate purposes, and possibly acquisitions of other companies, products or technologies. Working capital and other general corporate purposes may include research and development expenditures, capital expenditures, operating and administrative expenditures, and any other purpose that we may specify in any prospectus supplement. While we have no current plans for any specific acquisitions at this time, we believe opportunities may exist from time to time to expand our current business through strategic alliances or acquisitions with other companies, products or technologies. We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from the sale of these securities. Pending any use, as described above, we intend to invest the net proceeds in high-quality, short-term, interest-bearing securities. Our plans to use the estimated net proceeds from the sale of these securities may change, and if they do, we will update this information in a prospectus supplement.

## DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock, together with the additional information included in any applicable prospectus supplements, summarizes the material terms and provisions of these types of securities but is not complete. For the complete terms of our common stock and preferred stock, please refer to our Amended and Restated Certificate of Incorporation, as amended to date (our “certificate of incorporation”), and our Amended and Restated By-laws (our “by-laws”), each of which is incorporated by reference into the registration statement of which this prospectus is a part and, with respect to any new shares of preferred stock, the certificate of designation which will be filed with the SEC for each new series of preferred stock we may designate, if any.

### General

We will describe in a prospectus supplement the specific terms of any common stock or preferred stock we may offer pursuant to this prospectus. If indicated in a prospectus supplement, the terms of such common stock or preferred stock may differ from the terms described below.

We have 65,000,000 shares of capital stock authorized under our certificate of incorporation, consisting of 60,000,000 shares of common stock, par value \$0.01 per share and 5,000,000 shares of preferred stock, par value \$0.01 per share. The authorized shares of common stock and undesignated preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange or automated quotation system on which our securities may be listed or traded. If the approval of our stockholders is not so required, our board of directors may determine not to seek stockholder approval.

### Common Stock

As of March 12, 2021, there were 4,865,335 shares of our common stock outstanding held by 38 stockholders of record.

Holders of our common stock are entitled to one vote for each share of common stock held of record for the election of directors and on all matters submitted to a vote of stockholders. Holders of our common stock are entitled to receive dividends ratably, if any, as may be declared by our board of directors out of legally available funds, subject to any preferential dividend rights of any preferred stock then outstanding. Upon our dissolution, liquidation or winding up, holders of our common stock are entitled to share ratably in our net assets legally available after the payment of all our debts and other liabilities, subject to the preferential rights of any preferred stock then outstanding. Holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future. Except as described below in “Provisions of our Certificate of Incorporation and By-Laws and Delaware Anti-Takeover Law,” a majority vote of common stockholders is generally required to take action under our certificate of incorporation and by-laws.

### Preferred Stock

Our board of directors is authorized, without action by the stockholders, to designate and issue up to an aggregate of 5,000,000 shares of preferred stock in one or more series. The board of directors can fix the rights, preferences and privileges of the shares of each series and any of its qualifications, limitations or restrictions. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of common stock. The issuance of preferred stock, while providing flexibility in connection with possible future financings and acquisitions and other corporate purposes could, under certain circumstances, have the effect of delaying, deferring or preventing a change in control of our company and might harm the market price of our common stock. There are no restrictions on our ability to repurchase or reclaim our preferred shares while there is any arrearage in the payment of dividends on our preferred stock.

Our board of directors will make any determination to issue such shares based on its judgment as to our company’s best interests and the best interests of our stockholders.

### **Provisions of our Certificate of Incorporation and By-Laws and Delaware Anti-Takeover Law**

Our certificate of incorporation and by-laws includes a number of provisions that may have the effect of encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

*Board Composition and Filling Vacancies.* In accordance with our certificate of incorporation, our board is divided into three classes serving staggered three-year terms, with one class being elected each year. Our certificate of incorporation also provides that directors may be removed only for cause and then only by the affirmative vote of the holders of 75% or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum.

*No Written Consent of Stockholders.* Our certificate of incorporation provides that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting.

*Meetings of Stockholders.* Our by-laws provide that only a majority of the members of our board of directors then in office may call special meetings of stockholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our by-laws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

*Advance Notice Requirements.* Our by-laws establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. The notice must contain certain information specified in the by-laws.

*Amendment to By-Laws and Certificate of Incorporation.* As required by the Delaware General Corporation Law, any amendment of our certificate of incorporation must first be approved by a majority of our board of directors and, if required by law or our certificate of incorporation, thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment, and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of the provisions relating to stockholder action, directors, limitation of liability and the amendment of our by-laws and certificate of incorporation must be approved by not less than 75% of the outstanding shares entitled to vote on the amendment, and not less than 75% of the outstanding shares of each class entitled to vote thereon as a class. Our by-laws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the by-laws; and may also be amended by the affirmative vote of at least 75% of the outstanding shares entitled to vote on the amendment, or, if the board of directors recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

*Blank Check Preferred Stock.* Our certificate of incorporation provides for 5,000,000 authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of us or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

## DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of preferred stock or common stock. Warrants may be issued independently or together with preferred stock or common stock and may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a warrant agent. The warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any registered holders of warrants or beneficial owners of warrants. This summary of some provisions of the warrants is not complete. You should refer to the warrant agreement, including the forms of warrant certificate representing the warrants, relating to the specific warrants being offered for the complete terms of the warrant agreement and the warrants. That warrant agreement, together with the terms of the warrant certificate and warrants, will be filed with the SEC in connection with the offering of the specific warrants.

The particular terms of any issue of warrants will be described in the prospectus supplement relating to the issue. Those terms may include:

- the title of such warrants;
- the aggregate number of such warrants;
- the price or prices at which such warrants will be issued;
- the terms of the securities purchasable upon exercise of such warrants and the procedures and conditions relating to the exercise of such warrants;
- the price at which the securities purchasable upon exercise of such warrants may be purchased;
- the date on which the right to exercise such warrants will commence and the date on which such right shall expire;
- any provisions for adjustment of the number or amount of securities receivable upon exercise of the warrants or the exercise price of the warrants;
- if applicable, the minimum or maximum amount of such warrants that may be exercised at any one time;
- if applicable, the designation and terms of the securities with which such warrants are issued and the number of such warrants issued with each such security;
- if applicable, the date on and after which such warrants and the related securities will be separately transferable;
- information with respect to book-entry procedures, if any; and
- any other terms of such warrants, including terms, procedures and limitations relating to the exchange or exercise of such warrants.

The prospectus supplement relating to any warrants to purchase equity securities may also include, if applicable, a discussion of certain U.S. federal income tax considerations.

Warrants for the purchase of preferred stock and common stock will be offered and exercisable for U.S. dollars only. Securities warrants will be issued in registered form only.

Each warrant will entitle its holder to purchase the number of shares of preferred stock or common stock at the exercise price set forth in, or calculable as set forth in, the applicable prospectus supplement.

After the close of business on the expiration date, unexercised warrants will become void. We will specify the place or places where, and the manner in which, warrants may be exercised in the applicable prospectus supplement.

Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will, as soon as practicable, forward the purchased securities. If less than all of the warrants represented by the warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

Prior to the exercise of any warrants to purchase preferred stock or common stock, holders of the warrants will not have any of the rights of holders of preferred stock or common stock purchasable upon exercise, including the right to vote or to receive any payments of dividends on the preferred stock or common stock purchasable upon exercise.

### **DESCRIPTION OF SUBSCRIPTION RIGHTS**

The following is a general description of the terms of the subscription rights we may issue from time to time. Particular terms of any subscription rights we offer will be described in the prospectus supplement or free writing prospectus relating to such subscription rights, and may differ from the terms described herein.

We may issue subscription rights to purchase our securities. These subscription rights may be issued independently or together with any other security offered hereby and may or may not be transferable by the stockholder receiving the subscription rights in such offering. In connection with any offering of subscription rights, we may enter into a standby arrangement with one or more underwriters or other purchasers pursuant to which the underwriters or other purchasers may be required to purchase any securities remaining unsubscribed for after such offering.

The applicable prospectus supplement will describe the specific terms of any offering of subscription rights for which this prospectus is being delivered, including the following:

- whether common stock, preferred stock, or warrants for those securities will be offered under the stockholder subscription rights;
- the price, if any, for the subscription rights;
- the exercise price payable for each security upon the exercise of the subscription rights;
- the number of subscription rights issued to each stockholder;
- the number and terms of the securities which may be purchased per each subscription right;
- the extent to which the subscription rights are transferable;
- any other terms of the subscription rights, including the terms, procedures and limitations relating to the exchange and exercise of the subscription rights;
- the date on which the right to exercise the subscription rights shall commence, and the date on which the subscription rights shall expire;
- the extent to which the subscription rights may include an over-subscription privilege with respect to unsubscribed securities;
- if appropriate, a discussion of material U.S. federal income tax considerations; and
- if applicable, the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of subscription rights.

The description in the applicable prospectus supplement of any subscription rights we offer will not necessarily be complete and will be qualified in its entirety by reference to the applicable subscription rights certificate or subscription rights agreement, which will be filed with the SEC if we offer subscription rights.

### **DESCRIPTION OF UNITS**

The following description, together with the additional information that we include in any applicable prospectus supplements, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

We will incorporate by reference from reports that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the

issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we may offer under this prospectus, as well as any related free writing prospectuses and the complete unit agreement and any supplemental agreements that contain the terms of the units.

### ***General***

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

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

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

The provisions described in this section, as well as those set forth in any prospectus supplement or as described under “Description of Common Stock,” “Description of Preferred Stock,” “Description of Warrants,” “Description of Rights” and “Description of Purchase Contracts” will apply to each unit, as applicable, and to any common stock, preferred stock, warrant, right or purchase contract included in each unit, as applicable.

### ***Unit Agent***

The name and address of the unit agent for any units we offer will be set forth in the applicable prospectus supplement.

### ***Issuance in Series***

We may issue units in such amounts and in such numerous distinct series as we determine.

### ***Enforceability of Rights by Holders of Units***

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

## PLAN OF DISTRIBUTION

We may sell the securities being offered pursuant to this prospectus directly to purchasers, to or through underwriters, through dealers or agents, or through a combination of such methods. The prospectus supplement with respect to the securities being offered will set forth the terms of the offering of those securities, including the names of the underwriters, dealers or agents, if any, the purchase price, the net proceeds to us, any underwriting discounts and other items constituting underwriters' compensation, the public offering price, any discounts or concessions allowed or reallocated or paid to dealers and any securities exchanges on which such securities may be listed.

If underwriters are used in an offering, we will execute an underwriting agreement with such underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. The securities may be offered to the public either through underwriting syndicates represented by managing underwriters or directly by one or more investment banking firms or others, as designated. If an underwriting syndicate is used, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If underwriters are used in the sale, the offered securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the obligations of the underwriters to purchase the offered securities will be subject to conditions precedent and the underwriters will be obligated to purchase all of the offered securities if any are purchased.

We may grant to the underwriters options to purchase additional securities to cover over-allotments, if any, at the public offering price, with additional underwriting commissions or discounts, as may be set forth in a related prospectus supplement. The terms of any over-allotment option will be set forth in the prospectus supplement for those securities.

If any underwriters are involved in the offer and sale, they will be permitted to engage in transactions that maintain or otherwise affect the price of the securities. These transactions may include over-allotment transactions, purchases to cover short positions created by the underwriter in connection with the offering and the imposition of penalty bids. If an underwriter creates a short position in the securities in connection with the offering by selling more securities than set forth on the cover page of the applicable prospectus supplement, the underwriter may reduce that short position by purchasing the securities in the open market. In general, purchases of a security to reduce a short position could cause the price of the security to be higher than it might be in the absence of such purchases. As noted above, underwriters may also choose to impose penalty bids on other underwriters and/or selling group members. This means that if underwriters purchase securities on the open market to reduce their short position or to stabilize the price of the securities, they may reclaim the amount of the selling concession from those underwriters and/or selling group members who sold such securities as part of the offering.

Neither we nor any underwriter make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of such securities. In addition, neither we nor any underwriter make any representation that such underwriter will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

If dealers are used in an offering, we will sell the securities to the dealers as principals. The dealers then may resell the securities to the public at varying prices, which they determine at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

The securities may be sold directly by us or through agents we designate from time to time at a fixed price or prices, which may be changed, or at varying prices determined at the time of sale, such as in an at-the-market offering or arrangement. If agents are used in an offering, the names of the agents and the terms of the agency will be specified in a prospectus supplement. Unless otherwise indicated in a prospectus supplement, the agents will act on a best-efforts basis for the period of their appointment.

Dealers and agents named in a prospectus supplement may be deemed to be underwriters (within the meaning of the Securities Act of 1933, as amended, also referred to in this prospectus as the "Securities



Act”) of the securities described therein. In addition, we may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any resales thereof.

Underwriters, dealers and agents may be entitled to indemnification by us against specific civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the underwriters or agents may be required to make in respect thereof, under underwriting or other agreements. The terms of any indemnification provisions will be set forth in a prospectus supplement. Certain underwriters, dealers or agents and their associates may engage in transactions with and perform services for us in the ordinary course of business.

If so indicated in a prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by institutional investors to purchase securities pursuant to contracts providing for payment and delivery on a future date. We may enter into contracts with commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutional investors. The obligations of any institutional investor will be subject to the condition that its purchase of the offered securities will not be illegal at the time of delivery. The underwriters and other agents will not be responsible for the validity or performance of such contracts.

Direct sales to investors or our stockholders may be accomplished through subscription offerings or through subscription rights distributed to stockholders. In connection with subscription offerings or the distribution of subscription rights to stockholders, if all of the underlying securities are not subscribed for, we may sell any unsubscribed securities to third parties directly or through underwriters or agents. In addition, whether or not all of the underlying securities are subscribed for, we may concurrently offer additional securities to third parties directly or through underwriters or agents. If securities are to be sold through subscription rights, the subscription rights will be distributed as a dividend to the stockholders for which they will pay no separate consideration.

Any common stock sold pursuant to a prospectus supplement will be eligible for quotation and trading on Nasdaq, subject to official notice of issuance. Any underwriters to whom securities are sold by us for public offering and sale may make a market in the securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

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

#### **LEGAL MATTERS**

The validity of the securities offered hereby will be passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. If the securities are being distributed in an underwritten offering, certain legal matters will be passed upon for the underwriters by counsel identified in the applicable prospectus supplement.

#### **EXPERTS**

The consolidated financial statements of Yield10 Bioscience, Inc. as of December 31, 2020 and 2019, and for each of the years in the two-year period ended December 31, 2020 incorporated in this Prospectus by reference to the Yield10 Bioscience, Inc.’s [annual report on Form 10-K filed on March 16, 2021](#) have been audited by RSM US LLP, an independent registered public accounting firm, as stated in their report incorporated herein by reference, and have been incorporated in this Registration Statement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.



## WHERE YOU CAN FIND MORE INFORMATION

We are a public company and file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. Our SEC filings are also available to the public on the SEC's website at <http://www.sec.gov>, or on our website at <http://www.yield10bio.com/> under the "Investors" link. Information contained on our website is not part of this prospectus.

This prospectus is only part of a Registration Statement on Form S-3 that we have filed with the SEC under the Securities Act, and therefore omits certain information contained in the Registration Statement. We have also filed exhibits with the Registration Statement that are excluded from this prospectus, and you should refer to the applicable exhibit for a complete description of any statement referring to any contract or other document. You may:

- inspect a copy of this prospectus, including the exhibits and schedules, without charge at the public reference room;
- obtain a copy of this prospectus from the SEC upon payment of the fees prescribed by the SEC; or
- obtain a copy of this prospectus from the SEC website.

## INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information from other documents that we file with them, which means that we can disclose important information in this prospectus by referring to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended. The documents we are incorporating by reference as of their respective dates of filing are:

- [Our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, filed with the SEC on March 16, 2021; and](#)
- [Definitive Proxy Statement on Schedule 14A for the annual meeting of our stockholders to be held on May 24, 2021, filed with the SEC on March 29, 2021;](#)
- Current Reports on Form 8-K filed on [January 19, 2021](#) and [February 2, 2021](#); and
- The description of our common stock contained in Item 1 of our [Registration Statement on Form 8-A filed with the SEC on November 6, 2006](#), including any amendments or reports filed for the purpose of updating the description.

All documents and reports filed by us with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than Current Reports on Form 8-K containing only information furnished under Item 2.02 or Item 7.01 of Form 8-K, unless otherwise indicated therein) after the date of this prospectus and prior to the termination of the offering made hereby shall be deemed to be incorporated by reference into this prospectus and to be a part hereof from the date of filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein or in any prospectus supplement modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide, without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated herein by reference other than exhibits, unless such exhibits are specifically incorporated by reference into such documents or this document. Requests for such documents should be addressed in writing or by telephone to:

Investor Relations  
Yield10 Bioscience, Inc.  
19 Presidential Way  
Woburn, Massachusetts 01801  
(617) 583-1700

You should rely only on the information contained in this prospectus, any prospectus supplement or any document to which we have referred you. We have not authorized anyone else to provide you with information that is different. This prospectus and any prospectus supplement may be used only where it is legal to sell these securities. The information in this prospectus or any prospectus supplement is current only as of the date on the front of these documents.



**931,600 Shares of Common Stock**

**Pre-Funded Warrants to Purchase up to 75,110 Shares of Common Stock**

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**PROSPECTUS SUPPLEMENT**

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**Maxim Group LLC**

**May 4, 2023**

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