

Supplement dated December 31, 2020

To Prospectus Supplement dated December 4, 2020
(To Prospectus dated December 4, 2020)



This supplement, or Supplement, updates and supplements certain information contained in the prospectus supplement dated December 4, 2020, or the Prospectus Supplement, relating to the offer and sale of shares of our common stock, having an aggregate offering price of up to \$100,000,000 from time to time through or directly to B. Riley Securities, Inc. (formerly B. Riley, Inc.), Cantor Fitzgerald & Co., National Securities Corporation and Oppenheimer & Co Inc. This Supplement should be read in conjunction with the Prospectus Supplement and the prospectus dated December 4, 2020, or the Prospectus. Capitalized terms used and not defined herein shall have the meanings ascribed to such terms in the Prospectus Supplement.

We have entered into an amendment, the Amendment, to our At Market Issuance Sales Agreement, dated July 27, 2018 as amended on July 20, 2020, or the Original Sales Agreement and together with the Amendment, the Sales Agreement, with B. Riley Securities, Inc., Cantor Fitzgerald & Co., National Securities Corporation, Oppenheimer & Co. Inc. and H.C. Wainwright & Co., LLC, each an Agent and collectively, the Agents, acting as agents in sales deemed to be “at the market offerings” as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, or the Securities Act. This Supplement is being filed to reflect the Amendment which added H.C. Wainwright & Co., LLC as an additional Agent. Accordingly, each reference to the terms “Agent” and “Agents” in the Prospectus Supplement are hereby amended to include H.C. Wainwright & Co., LLC. The Amendment is filed as an exhibit to the Current Report on Form 8-K filed with the SEC on December 31, 2020, which is incorporated by reference in this Supplement.

As of December 29, 2020, we have sold 21,085,369 shares of our common stock having an aggregate offering price of approximately \$82.3 million under the Sales Agreement pursuant to the Prospectus Supplement. As of December 29, 2020, shares of common stock having an aggregate offering price of approximately \$86.5 million are available for sale under the Prospectus Supplement and this Supplement. Our common stock is traded on The Nasdaq Global Market, or the Exchange, under the symbol “MBIO.” The last reported sale price of our common stock on December 29, 2020 was \$3.78 per share.

Investing in these securities involves a high degree of risk. Before buying shares of our common stock, you should carefully consider the risk factors described in “Risk Factors” beginning on page S-3 of the Prospectus Supplement and in the documents incorporated by reference into the Prospectus Supplement and any free writing prospectus that we have authorized for use in connection with this offering.

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

B. Riley Securities

Cantor

National Securities Corporation

Oppenheimer & Co.

H.C. Wainwright & Co.

The date of this Supplement is December 31, 2020

The following section of the Prospectus Supplement is hereby amended and restated as follows:

PLAN OF DISTRIBUTION

We entered into an amendment on December 31, 2020, the Amendment, to our At Market Issuance Sales Agreement, dated July 27, 2018 as amended on July 20, 2020, or the Original Sales Agreement and together with the Amendment, the Sales Agreement, with B. Riley Securities, Inc., Cantor Fitzgerald & Co., National Securities Corporation, Oppenheimer & Co. Inc. and H.C. Wainwright & Co., LLC, each an Agent and collectively, the Agents, to add H.C. Wainwright & Co. as an additional Agent. Acting as agents, the Agents will conduct sales of our common stock deemed to be “at the market offerings” as defined in Rule 415 promulgated under the Securities Act.

Upon delivery of a placement notice and subject to the terms and conditions of the sales agreement, an Agent may sell our common stock by any method permitted by law deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act. We may instruct the Agents not to sell common stock if the sales cannot be effected at or above the price designated by us from time to time. We or the Agents may suspend the offering of common stock upon notice and subject to other conditions.

We will pay the Agents commissions, in cash, for their services in acting as an agent in the sale of our common stock. The Agents will be entitled to compensation at a commission rate of up to 3% of the gross sales price per share sold. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions, expenses, and proceeds to us, if any, are not determinable at this time but will be reported in our periodic reports.

Settlement for sales of common stock will generally occur on the second business day following the date on which any sales are made (or such earlier day as is industry practice for regular-way trading), or on some other date that is agreed upon by us and the Agents in connection with a particular transaction, in return for payment of the net proceeds to us. Sales of our common stock as contemplated in this Prospectus Supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and the Agents may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

The Agents will use their commercially reasonable efforts, consistent with their sales and trading practices, to solicit offers to purchase the common stock shares under the terms and subject to the conditions set forth in the Sales Agreement. In connection with the sale of the common stock on our behalf, the Agents will be deemed to be “underwriters” within the meaning of the Securities Act and the compensation of the Agents will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to the Agents against certain civil liabilities, including liabilities under the Securities Act.

The offering of our common stock pursuant to this Prospectus Supplement will terminate upon the earlier of (1) the sale of all shares of our common stock subject to this Prospectus Supplement or (2) termination of the Sales Agreement as permitted therein. We and the Agents may each terminate the Sales Agreement at any time upon five days’ prior notice.

The Agents and their respective affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees. To the extent required by Regulation M, the Agents will not engage in any market making activities involving our common stock while the offering is ongoing under this Prospectus Supplement.
