Registration No. 333-244362



CELLECTAR BIOSCIENCES, INC.

Common Stock

This Supplement No. 1 to Prospectus Supplement (this "Supplement") supplements and amends the Prospectus Supplement dated August 20, 2020 (the "Prospectus Supplement"). This Supplement should be read in conjunction with the Prospectus Supplement and the Prospectus dated August 20, 2020. This Supplement is qualified by reference to the Prospectus Supplement, except to the extent that the information presented herein supersedes the information contained in the Prospectus Supplement.

On August 11, 2020, we entered into an Equity Distribution Agreement, dated August 11, 2020 (the "Equity Distribution Agreement"), with Oppenheimer & Co. Inc. ("Oppenheimer") relating to shares of our common stock offered by the Prospectus Supplement dated August 20, 2020. In accordance with the terms of the Equity Distribution Agreement, we could offer and sell shares of our common stock having an aggregate offering price of up to \$14,500,000 from time to time through Oppenheimer pursuant to atthe-market transactions (ATM). As of the date of this Supplement, we have sold an aggregate of 4,169 shares of our common stock pursuant to the Sales Agreement for aggregate gross proceeds of \$69,000.

The purpose of this Supplement is to suspend the ATM and to terminate the continuous offering by us under the Prospectus Supplement effective on October 20, 2022. We will not make any sales of our common stock pursuant to the Equity Distribution Agreement unless and until a new prospectus supplement is filed with the Securities and Exchange Commission; however, the Equity Distribution Agreement remains in full force and effect.

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

The date of this Supplement No. 1 to the Prospectus Supplement is October 20, 2022.