

PROSPECTUS SUPPLEMENT
(To prospectus dated November 7, 2025)

Up to \$400,000,000



COMMON STOCK

We have entered into a Sales Agreement with Guggenheim Securities, LLC ("Guggenheim Securities"), dated May 6, 2022, as amended by that certain Amendment No. 1 to Sales Agreement, dated November 7, 2025 (as amended, the "Sales Agreement"), relating to the sale of shares of our common stock offered by this prospectus supplement and the accompanying prospectus. In accordance with the terms of the Sales Agreement, under this prospectus supplement and the accompanying prospectus, we may offer and sell shares of our common stock, \$0.001 par value per share, having an aggregate offering price of up to \$400,000,000 from time to time through or to Guggenheim Securities, acting as our agent or principal.

Shares of our common stock are listed on the Nasdaq Global Select Market under the symbol "COGT." On August 7, 2026, the last reported sale price of our common stock on the Nasdaq Global Select Market was \$42.39 per share.

Sales of our common stock, if any, under this prospectus supplement and the accompanying prospectus will be made by any method permitted that is deemed an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended (the "Securities Act"). Guggenheim Securities is not required to sell any specific amount, but will act as our sales agent using commercially reasonable efforts consistent with its normal trading and sales practices. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Guggenheim Securities will be entitled to compensation at a commission rate of 3.0% of the gross sales price per share sold under the Sales Agreement. See "Plan of Distribution" beginning on page S-12 for additional information regarding the compensation to be paid to Guggenheim Securities. In connection with the sale of shares of our common stock on our behalf, Guggenheim Securities will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Guggenheim Securities will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Guggenheim Securities with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended (the "Exchange Act")

Investing in our common stock involves risks. You should read carefully and consider the risks referenced under "[Risk Factors](#)" beginning on page S-8 of this prospectus supplement, as well as the other information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus before making a decision to invest in our securities.

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

Guggenheim Securities

Prospectus Supplement dated August 10, 2026

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement is part of an automatic registration statement on Form S-3ASR that we have filed with the U.S. Securities and Exchange Commission (the “SEC”) utilizing a “shelf” registration process as a “well-known seasoned issuer,” as defined in Rule 405 under the Securities Act. By using an automatic shelf registration statement, we may sell an unspecified amount of securities from time to time. Under this prospectus supplement, we may offer shares of our common stock having an aggregate offering price of up to \$400,000,000 from time to time at prices and on terms to be determined by market conditions at the time of offering. Before buying any of the shares of common stock that we are offering, we urge you to carefully read this prospectus supplement, together with the information incorporated by reference as described under the headings “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering. These documents contain important information that you should consider when making your investment decision. In general, when we refer only to the prospectus, we are referring to both the prospectus supplement and the accompanying prospectus combined.

This prospectus supplement describes the terms of this offering of shares of common stock and also adds to and updates information contained in the documents incorporated by reference into this prospectus supplement. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in any document incorporated by reference into this prospectus supplement that was filed with the SEC before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference into this prospectus supplement—the statement in the document having the later date modifies or supersedes the earlier statement.

We have not, and Guggenheim Securities has not, authorized any other person to provide you with information that is in addition to or different from that contained or incorporated by reference in this prospectus supplement, along with the information contained in any permitted free writing prospectuses we have authorized for use in connection with this offering. Neither we nor Guggenheim Securities takes any responsibility for, or can provide any assurance as to the reliability of, any information other than the information contained or incorporated by reference in this prospectus supplement or any permitted free writing prospectuses we have authorized for use in connection with this offering. You should assume that the information appearing in this prospectus supplement is accurate only as of the date on the front cover of this prospectus supplement. Our business, financial condition, results of operations and prospects may have changed since that date.

Information contained on, or accessible through, our website is not part of this prospectus supplement. We and Guggenheim Securities are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement outside the United States. This prospectus supplement does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless the context otherwise requires, we use the terms “Cogent,” “company,” “we,” “us,” and “our” in this prospectus supplement to refer to Cogent Biosciences, Inc. and, where appropriate, our subsidiaries.

CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

This prospectus supplement, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. All statements, other than statements of historical facts contained in this prospectus supplement, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plan, objectives of management and expected market growth are forward-looking statements. These statements involve known and unknown risks, uncertainties, and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “should,” “expects,” “might,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential,” “seek,” “would” or “continue,” or the negative of these terms or other similar expressions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include, but are not limited to, the following:

- the potential impacts of raising additional capital, including dilution to our existing stockholders, restrictions on our operations or requirements that we relinquish rights to our technologies or product candidates;
- the success, cost, and duration of our product development activities and clinical trials, including the enrollment rates in our clinical trials;
- the timing of the U.S. Food and Drug Administration’s review and anticipated approval of our three pending new drug applications for our bezucastinib product candidate and any other product candidates we may develop;
- our ability to obtain and maintain regulatory approval for our bezucastinib product candidate and any other product candidates we may develop, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- the potential for our identified research priorities to advance our bezucastinib product candidate or for our teams to discover and develop additional product candidates;
- the ability to license additional intellectual property rights relating to our bezucastinib product candidate or future product candidates from third-parties and to comply with our existing or future license agreements and/or collaboration agreements;
- our ability to commercialize our bezucastinib product candidate and future product candidates in light of the intellectual property rights of others;
- our ability to obtain funding for our operations, including funding necessary to complete further discovery, development and commercialization of our existing and future product candidates;
- the scalability and commercial viability of our manufacturing methods and processes;
- the commercialization of our product candidates, if approved;
- our ability to attract collaborators with development, regulatory, and commercialization expertise;

- future agreements with third parties in connection with the commercialization of our product candidates and any other approved product;
- the size and growth potential of the markets for our product candidates, and our ability to serve those markets;
- the rate and degree of market acceptance of our product candidates;
- the pricing and reimbursement of our product candidates, if approved;
- regulatory developments in the United States and foreign countries, including pharmaceutical and biological product marketing regulation;
- the impact of adverse business and economic conditions including inflationary pressures, general economic slowdown or a recession, high interest rates, changes in monetary policy, banking institution instability, changes in trade policies, including tariffs or other trade-related actions or the threat of such actions, and the prospect of a shutdown of the U.S. federal government;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- the development and success of competing therapies that are or may be under development in clinical trials or become available commercially;
- our ability to attract and retain key scientific and management personnel;
- our ability to satisfy the conditions, covenants, and obligations applicable to our convertible notes;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements, and needs for additional financing;
- our expectations regarding our use of the proceeds from this offering and any private placements, debt issuance, sales of our preferred stock and other public offerings of our common stock that we may conduct from time to time; and
- our expectations regarding our ability to obtain and maintain intellectual property protection for our bezuclostinib product candidate and future product candidates.

These factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements that are included in this prospectus supplement, the accompanying prospectus, information incorporated by reference herein or therein, and any related free-writing prospectus. The forward-looking statements contained in this prospectus supplement are made as of the date of hereof and we undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in shares of our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information incorporated by reference herein and therein, and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information under the heading “Risk Factors” in this prospectus supplement on page S-7 and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

Company Overview

We are a clinical-stage biotechnology company focused on developing precision therapies for genetically defined diseases. Our approach is to design rational precision therapies that treat the underlying cause of disease and improve the lives of patients. Our most advanced program is bezucastinib, also known as CGT9486, a highly selective tyrosine kinase inhibitor that is designed to potently inhibit the KIT D816V mutation as well as other mutations in KIT exon 17. In the vast majority of cases, KIT D816V is responsible for driving Systemic Mastocytosis (“SM”), a serious and rare disease caused by unchecked proliferation of mast cells. Exon 17 mutations are also found in patients with advanced gastrointestinal stromal tumors (“GIST”), a type of cancer with strong dependence on oncogenic KIT signaling. Bezucastinib is a highly selective and potent KIT inhibitor with the potential to provide a new treatment option for these patient populations. We are developing bezucastinib to treat patients living with Non-Advanced Systemic Mastocytosis (“NonAdvSM”), Advanced Systemic Mastocytosis (“AdvSM”) and GIST. In 2025 we reported positive top-line results from registrational trials in each of these indications, and we subsequently filed three New Drug Applications (each, an “NDA”) that are all currently pending review with the U.S. Food and Drug Administration (“FDA”).

We submitted our first NDA for bezucastinib in patients with NonAdvSM in December 2025, which was accepted by the FDA in March 2026 and assigned a Prescription Drug User Fee Act (“PDUFA”) target action date of December 30, 2026. In March 2026, we submitted our second NDA for bezucastinib in combination with sunitinib for patients with GIST who have received prior treatment with imatinib under the FDA’s Real-Time Oncology Review program, which the FDA accepted with Priority Review and assigned a PDUFA target action date of November 30, 2026. In June 2026, we submitted our third NDA for bezucastinib in patients with AdvSM.

We believe bezucastinib represents a significant commercial opportunity across each of these indications. Based on internal analyses and external market research, we estimate a global annual market opportunity of over \$4 billion for bezucastinib in combination with sunitinib as a potential second-line treatment for patients with GIST, approximately \$3.5 billion for the treatment of patients with NonAdvSM, and approximately \$500 million for the treatment of patients with AdvSM. We are building an internal commercial organization and expect to launch bezucastinib commercially in the United States in the second half of 2026, pending regulatory approval.

In addition to bezucastinib, we have a growing portfolio of novel targeted therapy candidates. We have an ongoing Phase 1 dose escalation study of our CNS-penetrant, selective mutant ErbB2 inhibitor and a Phase 1 dose escalation study of our potential best-in-class, wild-type-sparing, PI3K α inhibitor. The Cogent Research Team is also developing additional targeted therapies to help patients fighting serious, genetically driven diseases, including programs targeting mutations in KRAS and JAK2.

For more information about our business, please see our most recent Annual Report on Form 10-K, as supplemented and updated by subsequent Quarterly Reports on Form 10-Q and Current Reports on Form 8-K that we have filed or will file with the SEC, and in other documents which are incorporated by reference into this prospectus supplement.

Corporate Information

We were incorporated in March 2014 under the laws of the State of Delaware. We completed our initial public offering in April 2018, and in July 2020 we completed the asset acquisition of Kiq Bio LLC (formerly Kiq LLC) and shifted our development to bezuclastinib, a selective tyrosine kinase inhibitor licensed from Plexxikon, Inc. In October 2020, we changed our name to Cogent Biosciences, Inc.

Our principal executive office is located at 180 Third Avenue, 4th Floor, Waltham, Massachusetts 02451, and our telephone number is (617) 945-5576. Our corporate website address is www.cogentbio.com. The information contained on our website is not incorporated by reference into this prospectus supplement or the accompanying prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus supplement or the accompanying prospectus in deciding whether to purchase our shares of common stock.

THE OFFERING	
Shares of common stock offered by us	Shares of our common stock having an aggregate offering price of up to \$400,000,000.
Shares of common stock to be outstanding immediately after this offering	Up to 195,404,096 shares, assuming sales of 9,436,187 shares of our common stock in this offering at an assumed offering price of \$42.39 per share, which was the last reported sale price of our common stock on the Nasdaq Global Select Market on August 7, 2026. The actual number of shares issued will vary depending on the sales price under this offering.
Manner of offering	“At the market offering” that may be made from time to time on the Nasdaq Global Select Market or other existing trading market for shares of our common stock through or to, Guggenheim Securities, as agent or principal. See the section entitled “Plan of Distribution” on page S-12 of this prospectus supplement.
Use of proceeds	We intend to use the net proceeds from this offering for development and regulatory activities relating to bezuclostinib and our other product candidates, the anticipated commercial launch and commercialization of bezuclostinib, as well as for working capital and general corporate purposes. See the section entitled “Use of Proceeds” on page S-9 of this prospectus supplement.
Risk factors	See “Risk Factors” beginning on page S-7 of this prospectus supplement and the other information included in, or incorporated by reference into, this prospectus supplement for a discussion of certain factors you should carefully consider before deciding to invest in shares of our common stock.
Nasdaq Global Select Market symbol	COGT
The number of shares of our common stock that will be outstanding immediately after this offering as shown above is based on 185,967,909 shares of common stock outstanding as of June 30, 2026, after giving effect to the conversion of 39,414 shares of our outstanding Series A Preferred Stock into 9,853,500 shares of common stock and the conversion of 4,516 shares of our outstanding Series B Preferred Stock into 4,516,000 shares of common stock, in each case without regard to the beneficial ownership limitations, but otherwise excludes: • 27,111,643 shares of our common stock subject to stock options outstanding as of June 30, 2026 with a weighted-average exercise price of \$11.08 per share; • up to 3,650,000 shares of our common stock subject to outstanding and unvested performance-based restricted stock units as of June 30, 2026; • 1,282,213 shares of our common stock subject to outstanding and unvested restricted stock units as of June 30, 2026; • 1,016,303 shares of our common stock reserved for future grant or issuance under the 2020 Inducement Plan as of June 30, 2026; • 1,999,348 shares of our common stock reserved for future grant or issuance under the 2018 Stock Option and Incentive Plan as of June 30, 2026;	

- 254,605 shares of our common stock reserved for future issuance under the 2018 Employee Stock Purchase Plan as of June 30, 2026;
- 5,116,787 shares of our common stock issuable upon conversion of our outstanding convertible senior notes as of June 30, 2026; and
- 1,743,528 shares of our common stock issued under the Sales Agreement subsequent to June 30, 2026.

RISK FACTORS

Investing in our securities involves risks. You should carefully consider the risks, uncertainties and other factors described in our most recent Annual Report on Form 10-K, as supplemented and updated by subsequent Quarterly Reports on Form 10-Q and Current Reports on Form 8-K that we have filed or will file with the SEC, and in other documents which are incorporated by reference into this prospectus supplement, including the risk factors and other information contained in or incorporated by reference into this prospectus supplement before investing in any of our securities. Our business, financial condition, results of operations, cash flows or prospects could be materially adversely affected by any of these risks. The risks and uncertainties described in the documents incorporated by reference herein are not the only risks and uncertainties that you may face.

Risks Relating to this Offering

We have broad discretion as to the use of proceeds from this offering and may not use the proceeds effectively.

We intend to use the net proceeds from this offering as described in the section entitled “Use of Proceeds.” Our management will retain broad discretion as to the allocation of the proceeds and may spend these proceeds in ways in which you may not agree. The failure of our management to apply these funds effectively could result in unfavorable returns and uncertainty about our prospects, each of which could cause the price of our common stock to decline.

You may experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.

Some or all of the public offering price per share in this offering may exceed the as-adjusted net tangible book value per share of our outstanding common stock. After giving effect to an assumed sale of shares of common stock in the aggregate amount of \$400,000,000 at an assumed public offering price of \$42.39 per share, which was the last reported sale price per share of our common stock on the Nasdaq Global Select Market on August 7, 2026, and after deducting the commissions and estimated offering expenses payable by us, you would incur immediate and substantial dilution in the amount of \$37.68 per share.

This dilution is due to the substantially lower price paid by our investors who purchased shares prior to this offering as compared to the assumed price offered to the public in this offering, and any previous exercise of stock options and vesting of restricted stock units granted to our employees, directors and consultants. In addition, the exercise of any outstanding options to purchase shares of our common stock, the vesting of performance-based restricted stock units, the vesting of time-based restricted stock units, and issuances of common stock in connection with the 2020 Inducement Plan, the 2018 Stock Option and Incentive Plan, and the 2018 Employee Stock Purchase Plan would result in additional dilution. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. See “Dilution” for additional information.

The actual number of shares of common stock we will issue under the Sales Agreement, at any one time or in total, is uncertain.

Subject to certain limitations in the Sales Agreement and compliance with applicable law, we have the discretion to deliver a placement notice to Guggenheim Securities at any time throughout the term of the Sales Agreement. The number of shares of common stock that are sold by Guggenheim Securities after delivering a placement notice will fluctuate based on the market price of the shares of common stock during the sales period and limits we set with Guggenheim Securities. Because the price per share of each share sold will fluctuate based on the market price of shares of our common stock during the sales period, it is not possible at this stage to predict the number of shares of common stock that will be ultimately issued.

The shares of common stock offered hereby will be sold in “at the market offerings,” and investors who buy common stock at different times will likely pay different prices.

Investors who purchase shares of common stock in this offering at different times will likely pay different prices, and so may experience different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares of common stock sold, and there is no minimum or maximum sales price. Investors may experience a decline in the value of their shares of common stock as a result of share sales made at prices lower than the prices they paid.

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

In order to raise additional capital, we expect to in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater 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 other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds, if any, from the sale of shares of our common stock offered hereby. We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$400,000,000 from time to time. Because there is no minimum offering amount required to be sold in connection with this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time.

We intend to use the net proceeds from the sale by us of the shares of common stock to which this prospectus supplement relates for development and regulatory activities relating to bezuclastinib and our other product candidates, the anticipated commercial launch and commercialization of bezuclastinib, as well as for working capital and general corporate purposes.

Pending the use of the net proceeds, we may invest the proceeds in interest-bearing, investment-grade securities, certificates of deposit or government securities.

DILUTION

Dilution represents the difference between the amount per share of common stock paid by purchasers of shares of common stock in this offering and the as-adjusted net tangible book value per share of our common stock immediately after this offering. The data in this section are derived from our balance sheet as of June 30, 2026. Net tangible book value per share of common stock is equal to our total tangible assets less the amount of our total liabilities, divided by the sum of the number of shares of common stock outstanding as of June 30, 2026, excluding shares of common stock underlying outstanding options. Our net tangible book value as of June 30, 2026 was \$532.4 million, or \$3.10 per share of common stock. For purposes of this “Dilution” section, except as otherwise noted, all subsequent share and per share information assumes the conversion of 39,414 shares of our outstanding Series A Preferred Stock into 9,853,500 shares of common stock and the conversion of 4,516 shares of our outstanding Series B Preferred Stock into 4,516,000 shares of common stock, in each case without regard to the beneficial ownership limitations (collectively, the “Conversion”) (for more information, see “Description of Capital Stock” in the accompanying prospectus). Assuming such Conversion, our pro forma net tangible book value as of June 30, 2026 was \$532.4 million, or \$2.86 per share of common stock.

We present dilution on a pro forma as-adjusted basis to give effect to (i) the assumed conversion of all outstanding shares of our Series A Preferred Stock and Series B Preferred Stock as described above and (ii) our receipt of the estimated net proceeds from the sale of shares of our common stock in this offering, based on the assumed public offering price of \$42.39 per share of common stock, the last reported sale price of our common stock on the Nasdaq Global Select Market on August 7, 2026, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. On a pro forma as-adjusted basis, our as-adjusted net tangible book value as of June 30, 2026 would have been \$920.2 million, or \$4.71 per share of common stock. This represents an immediate increase in pro forma as-adjusted net tangible book value to existing stockholders of \$1.85 per share of common stock and immediate dilution in pro forma as-adjusted net tangible book value to purchasers of shares of common stock in this offering of \$37.68 per share of common stock. The following table illustrates this dilution per share of common stock:

Assumed public offering price per share of common stock	\$42.39
Net tangible book value per share of common stock as of June 30, 2026 (excluding the assumed Conversion)	\$3.10
Pro forma net tangible book value per share as of June 30, 2026, after giving effect to the Conversion	\$2.86
Increase in pro forma net tangible book value per share of common stock attributable to purchasers of shares of common stock in this offering	<u>\$1.85</u>
Pro forma as-adjusted net tangible book value per share of common stock immediately after this offering	<u>\$ 4.71</u>
Dilution per share of common stock to purchasers of shares of common stock in this offering	<u>\$37.68</u>

The table above assumes for illustrative purposes that an aggregate of 9,436,187 shares of our common stock are sold at a price of \$42.39 per share, the last reported sale price of our common stock on the Nasdaq Global Select Market on August 7, 2026. The shares of common stock sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the assumed price at which the shares of common stock are sold would increase the dilution in pro forma net tangible book value per share to purchasers of shares of common stock in this offering to \$38.68 per share, after deducting the commissions and estimated offering expenses payable by us. A decrease of \$1.00 per share in the assumed price at which the shares of common stock are sold would decrease the dilution in pro forma net tangible book value per share to purchasers

of shares of common stock in this offering to \$36.68 per share, after deducting the commissions and estimated offering expenses payable by us. This information is supplied for illustrative purposes only.

The foregoing excludes:

- 27,111,643 shares of our common stock subject to stock options outstanding as of June 30, 2026 with a weighted-average exercise price of \$11.08 per share;
- up to 3,650,000 shares of our common stock subject to outstanding and unvested performance-based restricted stock units as of June 30, 2026;
- 1,282,213 shares of our common stock subject to outstanding and unvested restricted stock units as of June 30, 2026;
- 1,016,303 shares of our common stock reserved for future grant or issuance under the 2020 Inducement Plan as of June 30, 2026;
- 1,999,348 shares of our common stock reserved for future grant or issuance under the 2018 Stock Option and Incentive Plan as of June 30, 2026;
- 254,605 shares of our common stock reserved for future issuance under the 2018 Employee Stock Purchase Plan as of June 30, 2026;
- 5,116,787 shares of our common stock issuable upon conversion of our outstanding convertible senior notes as of June 30, 2026; and
- 1,743,528 shares of our common stock issued under the Sales Agreement subsequent to June 30, 2026.

Furthermore, we may choose to raise additional capital through the sale of equity or convertible debt securities due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. New investors may experience further dilution if any of our outstanding options are exercised, new options are issued and exercised under our equity incentive plans or we issue additional shares of common stock, other equity securities or convertible debt securities in the future.

PLAN OF DISTRIBUTION

We have entered into a Sales Agreement with Guggenheim Securities under which we may issue and sell shares of common stock from time to time through or to Guggenheim Securities as our sales agent or principal. Sales of shares of common stock, if any, under this prospectus supplement will be by any method that is deemed to be an “at the market offering,” as defined in Rule 415 under the Securities Act. If authorized by us in writing, Guggenheim Securities may purchase shares of our common stock as principal.

Guggenheim Securities will offer shares of our common stock subject to the terms and conditions of the Sales Agreement on a daily basis or as otherwise agreed upon by us and Guggenheim Securities. We will designate the maximum amount of common stock to be sold through Guggenheim Securities on a daily basis or otherwise determine such maximum amount together with Guggenheim Securities. Subject to the terms and conditions of the Sales Agreement, Guggenheim Securities will use its commercially reasonable efforts consistent with its normal trading and sales practices to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct Guggenheim Securities not to sell shares of common stock if the sales cannot be effected at or above the price designated by us in any such instruction. Guggenheim Securities or we may suspend the offering of shares of our common stock being made through Guggenheim Securities under the Sales Agreement upon proper notice to the other party. Guggenheim Securities and we each have the right, by giving written notice as specified in the Sales Agreement, to terminate the Sales Agreement in each party’s sole discretion at any time. The offering of shares of our common stock pursuant to the Sales Agreement will otherwise terminate upon the termination of the Sales Agreement as provided therein.

The aggregate compensation payable to Guggenheim Securities as sales agent will be an amount equal to 3.0% of the gross proceeds of any shares sold through it pursuant to the Sales Agreement. Under the Sales Agreement, we previously reimbursed Guggenheim Securities for up to \$50,000 of Guggenheim Securities’ actual outside legal expenses incurred in connection with executing the original Sales Agreement and have also agreed to reimburse Guggenheim Securities for certain ongoing expenses incurred in connection with Guggenheim Securities’ ongoing diligence arising from the transactions contemplated by the Sales Agreement. We estimate that the total expenses of the offering payable by us, excluding commissions payable to Guggenheim Securities under the Sales Agreement, will be approximately \$150,000.

The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such shares of common stock.

Guggenheim Securities will provide written confirmation to us following the close of trading on the Nasdaq Global Select Market on each day in which shares of common stock are sold through it as sales agent under the Sales Agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted average price of the shares of common stock sold, the percentage of the daily trading volume and the net proceeds to us.

Settlement for sales of shares of common stock will occur, unless the parties agree otherwise, on the first business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement. We will report at least quarterly the number of shares of common stock sold through Guggenheim Securities under the Sales Agreement, the net proceeds to us and the compensation paid by us to Guggenheim Securities in connection with the sales of shares of common stock during the relevant period.

In connection with the sales of shares of common stock on our behalf, Guggenheim Securities will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to Guggenheim Securities will be deemed to be underwriting commissions or discounts. We have agreed in the

Sales Agreement to provide indemnification and contribution to Guggenheim Securities against certain liabilities, including liabilities under the Securities Act. As sales agent, Guggenheim Securities will not engage in any transactions that stabilize our common stock.

Our common stock is listed and traded on the Nasdaq Global Select Market under the symbol “COGT.” Computershare Trust Company, N.A. serves as the transfer agent and registrar for our common stock.

Guggenheim Securities and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received, and may in the future receive, customary fees.

LEGAL MATTERS

Unless otherwise specified in this prospectus supplement, the validity of the shares of common stock being offered hereby will be passed upon for us by Gibson, Dunn & Crutcher LLP, San Francisco, California. Certain legal matters will be passed upon for Guggenheim Securities by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control Over Financial Reporting) incorporated in this prospectus supplement by reference to the Annual Report on Form 10-K for the year ended December 31, 2025 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC, and we have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the shares of common stock offered by this prospectus supplement. This prospectus supplement, which forms part of the registration statement, does not contain all of the information included in the registration statement, including its exhibits and schedules. For further information about us and the securities described in this prospectus supplement, you should refer to the registration statement, its exhibits and schedules and our reports, proxies, information statements and other information filed with the SEC.

Our filings are available to the public on the Internet, through a database maintained by the SEC at <http://www.sec.gov>. We also maintain a website at www.cogentbio.com. We have included our website address for the information of prospective investors and do not intend it to be an active link to our website. Information contained on our website does not constitute a part of this prospectus supplement (or any document incorporated by reference herein).

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus supplement is considered to be part of this prospectus supplement.

Because we are incorporating by reference future filings with the SEC, this prospectus supplement is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus supplement. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus supplement or in any document previously incorporated by reference have been modified or superseded. This prospectus supplement incorporates by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) following the filing of this prospectus supplement until the offering of the shares of common stock under this prospectus supplement is terminated or completed, except that we are not incorporating by reference any information furnished (and not filed) with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2025 filed with the SEC on February 17, 2026, including the Part III information incorporated by reference from our [Definitive Proxy Statement](#) on Schedule 14A filed with the SEC on April 23, 2026;
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2026](#) filed with the SEC on May 5, 2026 and [June 30, 2026](#) filed with the SEC on August 10, 2026;
- our Current Report on Form 8-K (other than information furnished rather than filed) filed with the SEC on [June 11, 2026](#); and
- the description of our common stock contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the year ended December 31, 2025, as filed with the SEC on February 17, 2026, including any amendments or reports filed for the purposes of updating this description.

You may request a copy of these filings, at no cost, by contacting us, either orally or in writing, at the following:

Cogent Biosciences, Inc.
180 Third Avenue, 4th Floor
Waltham, Massachusetts 02451
Attn: Corporate Secretary
(617) 945-5576
info@cogentbio.com

We maintain a website at www.cogentbio.com. Information about us, including our reports filed with the SEC, is available through that site. Such reports are accessible at no charge through our website and are made available as soon as reasonably practicable after such material is filed with or furnished to the SEC. Our website and the information contained on that website, or connected to that website, are not incorporated by reference in this prospectus supplement.

You may read and copy any materials we file with the SEC at the SEC's website mentioned under the heading "Where You Can Find More Information." The information on the SEC's website is not incorporated by reference in this prospectus supplement.

PROSPECTUS



**COMMON STOCK
PREFERRED STOCK
DEBT SECURITIES
WARRANTS
UNITS**

From time to time, we may issue, in one or more series or classes, an indeterminate number of shares of our common stock, preferred stock, debt securities, warrants and/or units, at prices and on terms that we will determine at the time of the offering.

This prospectus provides you with a general description of the securities we may offer. Each time we offer securities, we will provide specific terms of the securities offered in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. We may not sell any securities under this prospectus without delivery of the applicable prospectus supplement. If information in any prospectus supplement is inconsistent with the information in this prospectus, then the information in that prospectus supplement will apply and will supersede the information in this prospectus.

You should read this prospectus, the applicable prospectus supplement and any related free writing prospectus carefully, as well as any documents incorporated by reference, before you invest in any of the securities being offered.

Our shares of common stock are listed on the Nasdaq Global Select Market under the symbol "COGT". The last reported sale price of our common stock on the Nasdaq Global Select Market on November 6, 2025 was \$14.72 per share. We recommend that you obtain current market quotations for our common stock prior to making an investment decision.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "[Risk Factors](#)" contained in this prospectus beginning on page 5 and any applicable prospectus supplement, and under similar headings in the other documents that are incorporated by reference into this prospectus.

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

Prospectus dated November 7, 2025

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ABOUT THIS PROSPECTUS

This prospectus is part of an automatic shelf registration statement on Form S-3ASR that we filed with the Securities and Exchange Commission (the “SEC” or the “Commission”), as a “well-known seasoned issuer” as defined in Rule 405 under the Securities Act of 1933, as amended (the “Securities Act”) utilizing a “shelf” registration process. Under this shelf registration process, we may sell any combination of the securities described in this prospectus from time to time in one or more offerings. This prospectus provides you with a general description of the securities we may offer.

Each time we sell securities under this prospectus, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus. You should carefully read both this prospectus and any prospectus supplement together with additional information under the headings “Where You Can Find More Information” and “Incorporation by Reference.”

We have not authorized anyone to provide you with any information other than that contained or incorporated by reference in this prospectus and any applicable prospectus supplement, along with the information contained in any free writing prospectuses we have authorized for use in connection with a specific offering. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. This prospectus, any applicable supplement to this prospectus or any related free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus, any applicable supplement to this prospectus or any related free writing prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction.

You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered, or securities are sold, on a later date.

Unless the context otherwise requires, we use the terms “Cogent,” “Company,” “we,” “us,” and “our” in this prospectus to refer to Cogent Biosciences, Inc. and, where appropriate, our subsidiaries.

CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities and Exchange Act of 1934, as amended (the “Exchange Act”). All statements, other than statements of historical facts contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plan, objectives of management and expected market growth are forward-looking statements. These statements involve known and unknown risks, uncertainties, and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “should,” “expects,” “might,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential,” “seek,” “would” or “continue,” or the negative of these terms or other similar expressions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include, but are not limited to, the following:

- the potential impacts of raising additional capital, including dilution to our existing stockholders, restrictions on our operations or requirements that we relinquish rights to our technologies or product candidates;
- the success, cost, and duration of our product development activities and clinical trials, including the enrollment rates in our clinical trials;
- the timing of our planned regulatory submissions to the U.S. Food and Drug Administration for our bezucastinib product candidate and any other product candidates we may develop;
- our ability to obtain and maintain regulatory approval for our bezucastinib product candidate and any other product candidates we may develop, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- the potential for our identified research priorities to advance our bezucastinib product candidate or for our teams to discover and develop additional product candidates;
- the ability to license additional intellectual property rights relating to our bezucastinib product candidate or future product candidates from third parties and to comply with our existing or future license agreements and/or collaboration agreements;
- our ability to commercialize our bezucastinib product candidate and future product candidates in light of the intellectual property rights of others;
- our ability to obtain funding for our operations, including funding necessary to complete further discovery, development and commercialization of our existing and future product candidates;
- the scalability and commercial viability of our manufacturing methods and processes;
- the commercialization of our product candidates, if approved;
- our ability to attract collaborators with development, regulatory, and commercialization expertise;
- future agreements with third parties in connection with the commercialization of our product candidates and any other approved product;

- the size and growth potential of the markets for our product candidates, and our ability to serve those markets;
- the rate and degree of market acceptance of our product candidates;
- the pricing and reimbursement of our product candidates, if approved;
- regulatory developments in the United States and foreign countries, including pharmaceutical and biological product marketing regulation;
- the impact of adverse business and economic conditions including inflationary pressures, general economic slowdown or a recession, high interest rates, changes in monetary policy, banking institution instability, changes in trade policies, including tariffs or other trade restrictions or the threat of such actions, and the prospect of a, or any then ongoing, shutdown of the U.S. federal government;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- the development and success of competing therapies that are or may be under development in clinical trials or become available commercially;
- our ability to attract and retain key scientific and management personnel;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements, and needs for additional financing;
- our use of the proceeds from our private placements, sales of our preferred stock and other public offerings of our common stock from time to time;
- the fact that interim clinical data may not be indicative of future results; and
- our expectations regarding our ability to obtain and maintain intellectual property protection for our bezuclastinib product candidate and future product candidates.

These factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements that are included in this prospectus, any accompanying prospectus supplement, information incorporated by reference herein or therein, and any related free-writing prospectus. The forward-looking statements contained in this prospectus are made as of the date of hereof and we undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

THE COMPANY

We are a clinical-stage biotechnology company focused on developing precision therapies for genetically defined diseases. Our approach is to design rational precision therapies that treat the underlying cause of disease and improve the lives of patients. Our most advanced program is bezucastinib, also known as CGT9486, a highly selective tyrosine kinase inhibitor that is designed to potently inhibit the KIT D816V mutation as well as other mutations in KIT exon 17. In the vast majority of cases, KIT D816V is responsible for driving Systemic Mastocytosis (“SM”), a serious and rare disease caused by unchecked proliferation of mast cells. Exon 17 mutations are also found in patients with advanced gastrointestinal stromal tumors (“GIST”), a type of cancer with strong dependence on oncogenic KIT signaling. Bezucastinib is a highly selective and potent KIT inhibitor with the potential to provide a new treatment option for these patient populations. We are developing bezucastinib to treat patients living with Non-Advanced Systemic Mastocytosis (“Non-AdvSM”), Advanced Systemic Mastocytosis (“AdvSM”) and GIST. We also have an ongoing Phase 1 study of our novel internally developed FGFR2 inhibitor. In addition to bezucastinib, the Cogent Research Team is developing a portfolio of novel targeted therapies to help patients fighting serious, genetically driven diseases initially targeting mutations in ErbB2, PI3K, KRAS, and JAK2.

For more information about our business, please see our most recent Annual Report on Form 10-K, as supplemented and updated by subsequent Quarterly Reports on Form 10-Q and Current Reports on Form 8-K that we have filed or will file with the SEC, and in other documents which are incorporated by reference into this prospectus.

Corporate Information

We were incorporated in March 2014 under the laws of the State of Delaware. We completed our initial public offering in April 2018, and in July 2020 we completed the asset acquisition of Kiq Bio LLC (formerly Kiq LLC) and shifted our development to bezucastinib, a selective tyrosine kinase inhibitor licensed from Plexxikon, Inc. In October 2020, we changed our name to Cogent Biosciences, Inc.

Our principal executive office is located at 275 Wyman Street, 3rd Floor, Waltham, Massachusetts 02451, and our telephone number is (617) 945-5576. Our corporate website address is www.cogentbio.com. The information contained on our website is not incorporated by reference into this prospectus or any accompanying prospectus supplement, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or any accompanying prospectus supplement in deciding whether to purchase our securities.

RISK FACTORS

Investing in our securities involves risks. You should carefully consider the risks, uncertainties and other factors described in our most recent Annual Report on Form 10-K, as supplemented and updated by subsequent Quarterly Reports on Form 10-Q and Current Reports on Form 8-K that we have filed or will file with the SEC, and in other documents which are incorporated by reference into this prospectus, as well as the risk factors and other information contained in or incorporated by reference into any accompanying prospectus supplement before investing in any of our securities. Our business, financial condition, results of operations, cash flows or prospects could be materially and adversely affected by any of these risks. The risks and uncertainties described in the documents incorporated by reference herein are not the only risks and uncertainties that you may face.

For more information about our SEC filings, please see “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.”

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. Unless otherwise specified in a prospectus supplement accompanying this prospectus, the net proceeds from the sale by us of the securities to which this prospectus relates will be used for development and regulatory activities relating to bezuclastinib and other product candidates, the anticipated commercial launch and commercialization of bezuclastinib, as well as for working capital and general corporate purposes. Our expected use of proceeds from the sale of the securities offered hereby represents our current intentions based on our present plans and business condition. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the proceeds to be received from the sale of the securities offered hereby or the amounts that we will actually spend on the uses set forth above.

Pending the use of the net proceeds, we may invest the proceeds in interest-bearing, investment-grade securities, certificates of deposit or government securities. When we offer and sell the securities to which this prospectus relates, the prospectus supplement related to such offering will set forth our intended use of the proceeds, if any, received from the sale of such securities.

SECURITIES WE MAY OFFER

This prospectus contains summary descriptions of the securities we may offer from time to time. These summary descriptions are not meant to be complete descriptions of each security. The particular terms of any security will be described in the applicable prospectus supplement.

DESCRIPTION OF CAPITAL STOCK

The following is a summary of the material terms of our capital stock, as well as other material terms of certain provisions of Delaware law, our fourth amended and restated certificate of incorporation (as amended from time to time, our “certificate of incorporation”), and our amended and restated bylaws (“bylaws”), both of which are filed as exhibits to our most recent Annual Report on Form 10-K, filed with the SEC, and are incorporated by reference herein. This summary does not purport to be complete and is qualified in its entirety by the provisions of our certificate of incorporation and bylaws. For more information on how you can obtain our certificate of incorporation and bylaws, see the heading “Where You Can Find More Information.”

Our authorized capital stock consists of 300,000,000 shares of common stock, par value \$0.001 per share, and 10,000,000 shares of preferred stock, par value \$0.001 per share, 1,000,000 of which are designated as Series A Non-Voting Convertible Preferred Stock (“Series A Preferred Stock”), 20,580 of which are designated as Series B Non-Voting Convertible Preferred Stock (the “Series B Preferred Stock”) and 8,979,420 of which shares of preferred stock are undesignated.

Common Stock

The holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of the stockholders. The holders of our common stock do not have any cumulative voting rights. Holders of our common stock are entitled to receive ratably any dividends declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Our common stock has no preemptive rights, conversion rights, or other subscription rights or redemption or sinking fund provisions.

In the event of our liquidation, dissolution, or winding up, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock. The shares to be issued by us in this offering will be, when issued and paid for, validly issued, fully paid and non-assessable.

All outstanding shares of common stock are validly issued, fully paid and non-assessable, and any issued shares of common stock will be validly issued, fully paid and non-assessable.

Series A Preferred Stock

Holders of Series A Preferred Stock are entitled to receive dividends on shares of Series A Preferred Stock equal to, on an as-if-converted-to-common-stock basis, and in the same form as dividends actually paid on shares of the common stock. Except as otherwise required by law, the Series A Preferred Stock does not have voting rights. However, as long as any shares of Series A Preferred Stock are outstanding, we will not, without the affirmative vote of the holders of a majority of the then outstanding shares of the Series A Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series A Preferred Stock, (b) alter or amend the certificate of designations of Series A Preferred Stock (“Series A Certificate of Designations”), (c) amend its certificate of incorporation or other charter documents in any manner that adversely affects any rights of the holders of Series A Preferred Stock, (d) increase the number of authorized shares of Series A Preferred Stock, (e) prior to the stockholder approval of the conversion of the Series A Preferred Stock into shares of common stock (which stockholder approval has been received) or at any time while at least 40% of the originally issued Series A Preferred Stock remains issued and outstanding, consummate a Fundamental Transaction (as defined in the Certificate of Designation) or (f) enter into any agreement with respect to any of the foregoing. The Series A Preferred Stock does not have a preference upon any liquidation, dissolution or winding-up of the Company, and are not be redeemable.

Each share of Series A Preferred Stock is convertible into shares of common stock at any time at the option of the holder thereof, into 250 shares of common stock, subject to certain limitations, including that a holder of

Series A Preferred Stock is prohibited from converting shares of Series A Preferred Stock into shares of common stock if, as a result of such conversion, such holder, together with its affiliates, would beneficially own more than a specified percentage (as established by the holder between 4.9% and 19.9%) of the total number of shares of common stock issued and outstanding immediately after giving effect to such conversion.

As of September 30, 2025, 95,911 shares of Series A Preferred Stock have been converted to common stock and 67,414 shares of Series A Preferred Stock were issued and outstanding.

Series B Preferred Stock

Holders of Series B Preferred Stock are entitled to receive dividends on shares of Series B Preferred Stock equal to, on an as-if-converted-to-common stock basis, and in the same form as dividends actually paid on shares of the common stock. Except as otherwise required by law, the Series B Preferred Stock does not have voting rights. However, as long as any shares of Series B Preferred Stock are outstanding, we will not, without the affirmative vote of each of the holders of the then outstanding shares of the Series B Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series B Preferred Stock, (b) alter or amend the certificate of designations of Series B Preferred Stock (“Series B Certificate of Designations”), or (c) amend its certificate of incorporation or other charter documents in any manner that adversely affects any rights of the holders of Series B Preferred Stock. The Series B Preferred Stock does not have a preference upon any liquidation, dissolution or winding-up of the Company.

Each share of Series B Preferred Stock is convertible into 1,000 shares of common stock, subject to certain limitations, including that a holder of Series B Preferred Stock is prohibited from converting shares of Series B Preferred Stock into shares of common stock if, as a result of such conversion, such holder, together with its affiliates, would beneficially own more than a specified percentage (to be established by the holder between 0% and 19.9%) of the total number of shares of common stock issued and outstanding immediately after giving effect to such conversion.

As of September 30, 2025, 13,712 shares of Series B Preferred Stock have been converted to common stock and 6,868 shares of Series B Preferred Stock were issued and outstanding.

Preferred Stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 8,979,420 additional shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of the Company or other corporate action. Other than the outstanding Series A Preferred Stock and Series B Preferred Stock, no shares of preferred stock are outstanding, and we have no present plan to issue any shares of preferred stock.

Certain Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws

Anti-Takeover Effects of our Certificate of Incorporation and Bylaws and Delaware Law

Certain provisions of the Delaware General Corporation Law and of our certificate of incorporation and by laws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover

practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our board of directors. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Section 203 of the Delaware General Corporation Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or
- at or after the time the stockholder became interested, the business combination was approved by our board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, lease, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges, or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Provisions of our certificate of incorporation and bylaws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our certificate of incorporation and bylaws:

- permit our board of directors to issue up to an additional 8,979,420 shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that the authorized number of directors may be changed only by resolution adopted by a majority of the board of directors;
- provide that the board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66.67% of the voting power of all of our then outstanding common stock;
- divide our board of directors into three classes;
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges, or other financial benefits provided by or through the corporation;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent or electronic transmission;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder's notice;
- do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);
- provide that special meetings of our stockholders may be called only by the chairperson of the board, our chief executive officer, or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exists any vacancies); and
- provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers to us or our stockholders, (iii) any action asserting a claim against us arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine.

The amendment of any of these provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences, and privileges thereto, would require the affirmative vote of the holders of at least 66.67% of the voting power of all of our then outstanding common stock.

Transfer Agent and Registrar

Computershare Trust Company, N.A. serves as the transfer agent and registrar for our common stock.

DESCRIPTION OF DEBT SECURITIES

We may issue debt securities under an indenture to be entered into between us and a trustee chosen by us, qualified to act as such under the Trust Indenture Act of 1939, as amended (the “Trust Indenture Act”) and appointed under the indenture. The indenture will consist of a base indenture (the “base indenture”) as supplemented by a supplemental indenture or authorizing resolution setting forth the specific terms of any debt securities we may issue. References below to an “indenture” are references to the base indenture, as supplemented, under which a particular series of debt securities is issued. The indenture will be governed by the Trust Indenture Act unless otherwise specified in the applicable prospectus supplement. We will set forth the terms of any such debt securities in the applicable prospectus supplement.

The following is a summary of the base indenture. It does not restate the base indenture entirely. We urge you to read the indenture. We have filed the form of base indenture as an exhibit to the registration statement of which this prospectus is a part, and we will file the base indenture we enter into and the supplemental indentures or authorizing resolutions with respect to particular series of debt securities as exhibits to current or other reports we file with the SEC. See “Where You Can Find More Information” for information on how to obtain copies of the base indenture and the supplemental indentures or authorizing resolutions. You may also inspect copies of the documents for the particular series at the office of the trustee.

Terms of the Debt Securities

Our debt securities will be general obligations of Cogent Biosciences, Inc. We may issue them in one or more series. Supplemental indentures or authorizing resolutions will set forth the specific terms of each series of debt securities. We will provide a prospectus supplement for each series of debt securities that will describe:

- the title of the series;
- the aggregate principal amount (or any limit on the aggregate principal amount) of the series and, if any securities of a series are to be issued at a discount from their face amount, or with a premium, the method of computing the accretion of such discount or computing such premium;
- the interest rate or method of calculation of the interest rate;
- the date from which interest will accrue;
- the record dates for interest payable on securities of the series;
- the dates when, places where and manner in which principal and interest are payable;
- if there is more than one trustee or a trustee other than the trustee under the base indenture, the identity of the trustee and, if not the trustee, the identity of each registrar, paying agent or authenticating agent with respect to such securities;
- the terms of any mandatory (including any sinking fund requirements) or optional redemption by the company;
- the terms of any redemption at the option of holders;
- the permissible denominations in which securities of such series are issuable, if different from minimum denominations of \$2,000 and multiples of \$1,000 in excess thereof;
- whether securities of such series will be issued in registered or bearer form and the terms of any such forms of securities;
- whether the securities of the series shall be issued in whole or in part in the form of a global security or securities, the terms and conditions, if different from those contained in the base indenture, upon which such global security or securities may be exchanged in whole or in part for definitive securities;
- the depositary for such global security or securities;

- the form of any legend or legends, if any, to be borne by any such global security or securities in addition to or in lieu of the legends referred to the base indenture;
- the currency or currencies (including any composite currency) in which principal or interest or both may be paid;
- if payments of principal or interest may be made in a currency other than that in which securities of such series are denominated, the manner for determining such payments, including the time and manner of determining the exchange rate between the currency in which such securities are denominated and the currency in which such securities or any of them may be paid, and any deletions from or modifications of or additions to the terms of the indenture to provide for or to facilitate the issuance of securities denominated or payable, at the election of the company or a holder thereof or otherwise, in a foreign currency;
- whether the amount of payments of principal of or any interest on, such securities may be determined with reference to an index, formula, financial or economic measure or other method or methods (which index, formula, measure or method or methods may be based, without limitation, on one or more currencies, commodities, equity indices or other indices) and if so, the terms and conditions upon which and the manner in which such amounts shall be determined and paid or be payable;
- provisions for electronic issuance of securities or issuance of securities of such series in uncertificated form;
- any events of default, covenants, defined terms and/or other terms in addition to or in lieu of those set forth in the base indenture;
- whether and upon what terms securities of such series may be defeased or discharged if different from the provisions set forth in the base indenture;
- the form of the securities of such series;
- any terms that may be required by or advisable under applicable law;
- the percentage of the principal amount of the securities of such series which is payable if the maturity of the securities of such series is accelerated in the case of securities issued at a discount from their face amount;
- whether securities of such series will or will not have the benefit of guarantees and, if applicable, the terms and conditions upon which such guarantees may be subordinated to other indebtedness of the respective guarantors;
- whether the securities of such series are senior or subordinated debt securities, and if subordinated debt securities, the terms of such subordination;
- whether the securities of the series will be convertible into or exchangeable for other securities, common stock, other securities, cash or property of any kind of the company or another person or persons, and, if so, the terms and conditions upon which such securities will be so convertible or exchangeable, including the initial conversion or exchange price or rate or the method of calculation, how and when the conversion price or exchange ratio may be adjusted, whether conversion or exchange is mandatory, at the option of the holder or at the company's option, the conversion or exchange period, and any other provision in relation thereto; and
- any other terms in addition to or different from those contained in the base indenture applicable to such series.

The applicable prospectus supplement will also describe any material covenants to which a series of debt securities will be subject and the applicability of those covenants to any of our subsidiaries to be restricted thereby, which are referred to herein as “restricted subsidiaries.” The applicable prospectus supplement will also describe provisions for restricted subsidiaries to cease to be restricted by those covenants.

Events of Default and Remedies

Unless otherwise described in the applicable prospectus supplement, an event of default with respect to any series of debt securities will be defined in the indenture as being:

- our failure to pay interest on any debt security of such series when the same becomes due and payable and the continuance of any such failure for a period of 30 days;
- our failure to pay the principal or premium of any debt security of such series when the same becomes due and payable at maturity, upon acceleration, redemption or otherwise;
- our failure to comply with any of our agreements or covenants in, or provisions of, the debt securities of such series or the indenture (as they relate thereto) and such failure continues for a period of 90 days after our receipt of notice of the default from the trustee or from the holders of at least 25 percent in aggregate principal amount of the then outstanding debt securities of that series; and
- certain events of bankruptcy, insolvency or reorganization occur with respect to us.

The base indenture will provide that the trustee shall be protected in withholding notice to the holders of any series of debt securities of any default, except a default in payment of principal or interest, if any, with respect to such series of debt securities, if the trustee determines that it is in the interest of the holders of such series of debt securities to do so.

The base indenture will provide that if any event of default has occurred and is continuing with respect to any series of debt securities (other than an event of default resulting from certain events of bankruptcy, insolvency or reorganization), the trustee or the holders of not less than 25% in principal amount of such series of debt securities then outstanding (with a copy to the trustee if given by the holders) may declare all the debt securities of such series to be due and payable immediately. If an event of default resulting from certain events of bankruptcy, insolvency or reorganization occur, all amounts due and payable on the debt securities of such series will become and be immediately due and payable without any declaration, notice or other act on the part of the trustee, us or any holder.

The holders of a majority in principal amount of the debt securities of such series then outstanding by notice to the trustee may waive any existing default and its consequences with respect to such series of debt securities, other than a default in respect of a covenant or a provision of the indenture that cannot be modified or amended without the consent of all holders of the applicable series of debt securities.

At any time after such a declaration of acceleration with respect to any series of debt securities has been made, the holders of a majority in principal amount of the outstanding debt securities of that series, by written notice to the us and the trustee, may rescind and annul such declaration and its consequences, if the rescission would not conflict with any judgment or decree and if:

- we have paid or deposited with the trustee a sum sufficient to pay all overdue interest on all debt securities of that series, the principal of (and premium, if any, on) any debt securities of that series which have become due otherwise than by such declaration of acceleration and any interest thereon at the rate or rates prescribed therefor in such debt securities, to the extent that payment of such interest is lawful, interest upon overdue interest at the rate or rates prescribed therefor in such debt securities, and all sums paid or advanced by the trustee and the reasonable compensation, expenses, disbursements and advances of the trustee, its agents and counsel; and
- all events of default with respect to the debt securities of that series, other than the non-payment of the principal and interest, if any, of the debt securities of that series which have become due solely by such declaration of acceleration, have been cured or waived.

The holders of a majority of the outstanding principal amount of the debt securities of any series will have the right to direct the time, method and place of conducting any proceedings for any remedy available to the trustee with respect to such series, subject to limitations specified in the indenture.

Defeasance, Satisfaction and Discharge

Unless otherwise described in the applicable prospectus supplement, the indenture will permit us to terminate all our obligations under the indenture as they relate to any particular series of debt securities (“legal defeasance”), other than the right of the holders of the debt securities of such series to receive payments solely from the trust fund described below in respect of the principal and interest on such debt securities and certain other obligations, at any time by:

- depositing in trust with the trustee, under an irrevocable trust agreement, money, government obligations or a combination thereof in an amount sufficient to pay principal of and interest, if any, on the debt securities of such series to their maturity or redemption; and
- complying with other conditions, including delivery to the trustee of an opinion of counsel to the effect that (A) we have received from, or there has been published by, the Internal Revenue Service a ruling, or (B) since the date such series of debt securities were originally issued, there has been a change in the applicable federal income tax law, in either case to the effect that, and based thereon such opinion of counsel shall state that, holders will not recognize income, gain or loss for federal income tax purposes as a result of our exercise of such right and will be subject to federal income tax on the same amount and in the same manner and at the same times as would have been the case otherwise.

Unless otherwise described in the applicable prospectus supplement, the indenture will also permit us to terminate all of our obligations under covenants in the indenture as they relate to any particular series of debt securities, and the debt securities of such series shall thereafter be deemed to be not “outstanding” for the purpose of any direction, waiver, consent or declaration or act of holders of such series in connection with such covenants (“covenant defeasance”), at any time by:

- depositing in trust with the trustee, under an irrevocable trust agreement, money or government obligations in an amount sufficient to pay principal and interest, if any, on the debt securities of such series to their maturity or redemption; and
- complying with other conditions, including delivery to the trustee of an opinion of counsel to the effect that holders will not recognize income, gain or loss for federal income tax purposes as a result of our exercise of such right and will be subject to federal income tax on the same amount and in the same manner and at the same times as would have been the case otherwise.

The indenture will be discharged and will cease to be of further effect with respect to a series of debt securities when either:

- all outstanding debt securities of such series, other than any securities that have been destroyed, lost, or stolen and that have been replaced or paid as provided in the indenture, have been delivered to the trustee for cancellation; or
- all outstanding debt securities of such series that have not been delivered to the trustee for cancellation have become due and payable or will become due and payable at maturity within one year or are to be called for redemption within one year under arrangements satisfactory to the trustee for the giving of notice of redemption, and we shall have irrevocably deposited with the trustee as trust funds the entire amount, in money or governmental obligations, or a combination thereof, sufficient, in the opinion of a nationally recognized firm of independent public accountants, to pay at maturity or upon redemption of all securities of such series, including principal of and any premium and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be.

In each case, we will also pay all other sums payable by us under the indenture with respect to the securities of such series, deliver irrevocable instructions to the trustee to apply the deposited money toward the payment of the debt securities of such series at maturity or redemption, as the case may be, and deliver to the trustee an opinion of counsel and an officers’ certificate, each stating that all conditions precedent to satisfaction and discharge with respect to the securities of such series have been complied with.

Transfer and Exchange

A holder will be able to transfer or exchange debt securities only in accordance with the indenture. The registrar may require a holder, among other things, to furnish appropriate endorsements and transfer documents, and to pay any taxes and fees required by law or permitted by the indenture.

Amendment, Supplement and Waiver

Without notice to or the consent of any holder, we and the trustee may amend or supplement the indenture or the debt securities of a series to:

- cure any ambiguity or to correct or supplement any provision of the indenture which may be defective or inconsistent with any other provision in the indenture;
- comply with the provisions of the indenture regarding the consolidation, merger, sale, lease, conveyance or other disposition of all or substantially all of our assets;
- create a series and establish its terms;
- provide for uncertificated debt securities in addition to or in place of certificated debt securities;
- add to our covenants for the benefit of the holders of all or any series of debt securities or to surrender any right or power conferred upon us by the indenture;
- add any additional events of default for the benefit of holders of all or any series of debt securities;
- add a guarantor in respect of any series of debt securities;
- secure any series of debt securities;
- comply with requirements of the SEC in order to effect or maintain the qualification of the indenture under the Trust Indenture Act;
- evidence and provide for the acceptance of appointment of a successor trustee and to add to or change any of the provisions of the indenture or any supplemental indenture as shall be necessary to provide for or facilitate the administration of the trusts under such indenture or supplemental indenture by more than one trustee pursuant to the requirements set forth in the indenture;
- make any change that does not adversely affect the rights of any holder in any material respect; or
- conform the provisions of the indenture to the final offering document in respect of any series of debt securities.

With the exceptions discussed below, we and the trustee may amend or supplement the indenture or the debt securities of a series with the written consent of the holders of at least a majority in principal amount of the debt securities of each series then outstanding affected by the amendment or supplement (voting as one class). In addition, the holders of a majority in principal amount of the debt securities of each series then outstanding affected by the waiver (voting as one class) may, without notice to any holder, waive any existing default under, or compliance with, any provision of the debt securities of each such series or of the indenture relating to each such series. These consents and waivers may be obtained in connection with a purchase of, or tender offer or exchange offer for, debt securities.

However, without the consent of each holder affected, we and the trustee may not:

- change the stated maturity of the principal of, or any installment of principal of or interest thereon, or reduce the principal amount thereof or the rate of interest thereon or any premium payable upon the redemption thereof, or change the coin or currency in which, such debt securities or any premium or interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or after the stated maturity thereof (or, in the case of redemption, on or after the redemption date);

- make any change to the provision of the indenture relating to the waiver of past defaults, except to increase the percentage in principal amount of debt securities of any series the consent of whose holders is required for any waiver or to provide that certain other provisions of the indenture cannot be modified or waived without the consent of the holder of each outstanding note affected thereby;
- waive a continuing default or event of default in the payment of principal of or interest on the debt securities; or
- reduce the percentage in principal amount of debt securities of any series the consent of whose holders is required for any amendment, supplement or waiver.

Any supplemental indenture which changes or eliminates any covenant or other provision of the indenture which shall have been included expressly and solely for the benefit of one or more particular series of debt securities, or which modifies the rights of the holders of debt securities of such series with respect to such covenant or other provision, shall be deemed not to affect the rights of the holders of debt securities of any other series.

The right of any holder to participate in any consent required or sought pursuant to any provision of the indenture, and our obligation to obtain any such consent otherwise required from such holder, may be subject to the requirement that such holder shall have been the holder of record of debt securities with respect to which such consent is required or sought as of a record date fixed by us in accordance with the indenture.

Concerning the Trustee

The indenture will contain limitations on the rights of the trustee, should it become our creditor, to obtain payment of claims in specified cases or to realize on property received in respect of any such claim as security or otherwise. The indenture will permit the trustee to engage in other transactions; however, if it acquires any conflicting interest, it must eliminate such conflict or resign.

The indenture will provide that in case an event of default occurs and is not cured, the trustee will be required, in the exercise of its power, to use the degree of care of a prudent person in similar circumstances in the conduct of such person's own affairs. The trustee shall be under no obligation to exercise any of the rights or powers vested in it by the indenture at the request or direction of any of the holders pursuant to the indenture, unless such holders shall have offered to the trustee security or indemnity satisfactory to the trustee against the costs, expenses and liabilities which might be incurred by it in compliance with such request or direction.

Repurchases in the Open Market

We or any of our affiliates may at any time or from time to time repurchase any of the debt securities in the open market or otherwise. Such debt securities may, at our or the applicable affiliate's option, be held, resold or surrendered to the trustee for cancellation.

No Recourse against Others

The indenture will provide that a director, officer, employee or stockholder, as such, of the Company shall not have any liability for any obligations of the Company under the debt securities or the indenture or for any claim based on, in respect of or by reason of, such obligations or their creation.

Governing Law

The laws of the State of New York will govern the indenture and the debt securities.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we indicate in the prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms described below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement, which includes this prospectus.

General

We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from these securities.

We will evidence each series of warrants by warrant certificates that we will issue under a separate warrant agreement. We will enter into the warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the periods during which, and places at which, the warrants are exercisable;
- the manner of exercise;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreement and warrants may be modified;
- federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

DESCRIPTION OF UNITS

We may issue units comprised of shares of common stock, shares of preferred stock, debt securities and warrants in any combination. We may issue units in such amounts and in as many distinct series as we wish. This section outlines certain provisions of the units that we may issue. If we issue units, they will be issued under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. The information described in this section may not be complete in all respects and is qualified entirely by reference to the unit agreement with respect to the units of any particular series. The specific terms of any series of units offered will be described in the applicable prospectus supplement. If so described in a particular supplement, the specific terms of any series of units may differ from the general description of terms presented below. We urge you to read any prospectus supplement related to any series of units we may offer, as well as the complete unit agreement and unit certificate that contain the terms of the units. If we issue units, forms of unit agreements and unit certificates relating to such units will be incorporated by reference as exhibits to the registration statement, which includes this prospectus.

Each unit that we may issue 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 included security. 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. The applicable prospectus supplement may describe:

- 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;
- the price or prices at which such units will be issued;
- the applicable United States federal income tax considerations relating to the units;
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- any other terms of the units and of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock,” “Description of Debt Securities” and “Description of Warrants” will apply to the securities included in each unit, to the extent relevant and as may be updated in any prospectus supplements.

Issuance in Series

We may issue units in such amounts and in as many distinct series as we wish. This section summarizes terms of the units that apply generally to all series. Most of the financial and other specific terms of your series will be described in the applicable prospectus supplement.

Unit Agreements

We will issue the units under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. We may add, replace or terminate unit agents from time to time. We will identify the unit agreement under which each series of units will be issued and the unit agent under that agreement in the applicable prospectus supplement.

The following provisions will generally apply to all unit agreements unless otherwise stated in the applicable prospectus supplement:

Modification without Consent

We and the applicable unit agent may amend any unit or unit agreement without the consent of any holder:

- to cure any ambiguity, including modifying any provisions of the governing unit agreement that differ from those described below;
- to correct or supplement any defective or inconsistent provision; or
- to make any other change that we believe is necessary or desirable and will not adversely affect the interests of the affected holders in any material respect.

We do not need any approval to make changes that affect only units to be issued after the changes take effect. We may also make changes that do not adversely affect a particular unit in any material respect, even if they adversely affect other units in a material respect. In those cases, we do not need to obtain the approval of the holder of the unaffected unit; we need only obtain any required approvals from the holders of the affected units.

Modification with Consent

We may not amend any particular unit or a unit agreement with respect to any particular unit unless we obtain the consent of the holder of that unit, if the amendment would:

- impair any right of the holder to exercise or enforce any right under a security included in the unit if the terms of that security require the consent of the holder to any changes that would impair the exercise or enforcement of that right; or
- reduce the percentage of outstanding units or any series or class the consent of whose holders is required to amend that series or class, or the applicable unit agreement with respect to that series or class, as described below.

Any other change to a particular unit agreement and the units issued under that agreement would require the following approval:

- if the change affects only the units of a particular series issued under that agreement, the change must be approved by the holders of a majority of the outstanding units of that series; or
- if the change affects the units of more than one series issued under that agreement, it must be approved by the holders of a majority of all outstanding units of all series affected by the change, with the units of all the affected series voting together as one class for this purpose.

These provisions regarding changes with majority approval also apply to changes affecting any securities issued under a unit agreement, as the governing document.

In each case, the required approval must be given by written consent.

Unit Agreements Will Not Be Qualified under Trust Indenture Act

No unit agreement will be qualified as an indenture, and no unit agent will be required to qualify as a trustee, under the Trust Indenture Act. Therefore, holders of units issued under unit agreements will not have the protections of the Trust Indenture Act with respect to their units.

Mergers and Similar Transactions Permitted; No Restrictive Covenants or Events of Default

The unit agreements will not restrict our ability to merge or consolidate with, or sell our assets to, another corporation or other entity or to engage in any other transactions. If at any time we merge or consolidate with, or

sell our assets substantially as an entirety to, another corporation or other entity, the successor entity will succeed to and assume our obligations under the unit agreements. We will then be relieved of any further obligation under these agreements.

The unit agreements will not include any restrictions on our ability to put liens on our assets, nor will they restrict our ability to sell our assets. The unit agreements also will not provide for any events of default or remedies upon the occurrence of any events of default.

Governing Law

The unit agreements and the units will be governed by Delaware law.

Form, Exchange and Transfer

Unless the accompanying prospectus supplement states otherwise, we will issue each unit in global—i.e., book-entry—form only. Units in book-entry form will be represented by a global security registered in the name of a depositary, which will be the holder of all the units represented by the global security. Those who own beneficial interests in a unit will do so through participants in the depositary's system, and the rights of these indirect owners will be governed solely by the applicable procedures of the depositary and its participants. We will describe book-entry securities, and other terms regarding the issuance and registration of the units in the applicable prospectus supplement.

Unless the accompanying prospectus supplement states otherwise, each unit and all securities comprising the unit will be issued in the same form.

If we issue any units in registered, non-global form, the following will apply to them.

The units will be issued in the denominations stated in the applicable prospectus supplement. Holders may exchange their units for units of smaller denominations or combined into fewer units of larger denominations, as long as the total amount is not changed.

- Holders may exchange or transfer their units at the office of the unit agent. Holders may also replace lost, stolen, destroyed or mutilated units at that office. We may appoint another entity to perform these functions or perform them ourselves.
- Holders will not be required to pay a service charge to transfer or exchange their units, but they may be required to pay for any tax or other governmental charge associated with the transfer or exchange. The transfer or exchange, and any replacement, will be made only if our transfer agent is satisfied with the holder's proof of legal ownership. The transfer agent may also require an indemnity before replacing any units.
- If we have the right to redeem, accelerate or settle any units before their maturity, and we exercise our right as to less than all those units or other securities, we may block the exchange or transfer of those units during the period beginning 15 days before the day we mail the notice of exercise and ending on the day of that mailing, in order to freeze the list of holders to prepare the mailing. We may also refuse to register transfers of or exchange any unit selected for early settlement, except that we will continue to permit transfers and exchanges of the unsettled portion of any unit being partially settled. We may also block the transfer or exchange of any unit in this manner if the unit includes securities that are or may be selected for early settlement.

Only the depositary will be entitled to transfer or exchange a unit in global form, since it will be the sole holder of the unit.

Payments and Notices

In making payments and giving notices with respect to our units, we will follow the procedures as described in the applicable prospectus supplement.

PLAN OF DISTRIBUTION

We may sell the securities from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. We may distribute securities from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

We may also sell equity securities covered by this registration statement in an “at the market offering” as defined in Rule 415 under the Securities Act. Such offering may be made into an existing trading market for such securities in transactions at other than a fixed price, either:

- on or through the facilities of the Nasdaq Global Select Market or any other securities exchange or quotation or trading service on which such securities may be listed, quoted or traded at the time of sale; and/or
- to or through a market maker otherwise than on the Nasdaq Global Select Market or such other securities exchanges or quotation or trading services.

Such at the market offerings, if any, may be conducted by underwriters acting as principal or agent.

A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of the securities, including, to the extent applicable:

- the name or names of any underwriters, dealers or agents, if any;
- the purchase price of the securities and the proceeds we will receive from the sale;
- any options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents’ or underwriters’ compensation;
- any public offering price;
- any discounts or concessions allowed or re-allowed or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement. Any public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

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

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide agents and underwriters with indemnification against civil liabilities related to offerings pursuant to this prospectus, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

All securities we offer, other than our shares of common stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. These transactions may be effected on any exchange or over-the-counter market or otherwise.

Any underwriters who are qualified market makers on the Nasdaq Global Select Market may engage in passive market making transactions in the securities on the Nasdaq Global Select Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

LEGAL MATTERS

Certain legal matters, including the legality of the securities offered, will be passed upon for us by Gibson, Dunn & Crutcher LLP, San Francisco, California. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control Over Financial Reporting) incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2024 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC, and we have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities offered by this prospectus. This prospectus, which forms part of the registration statement, does not contain all of the information included in the registration statement, including its exhibits and schedules. For further information about us and the securities described in this prospectus, you should refer to the registration statement, its exhibits and schedules and our reports, proxies, information statements and other information filed with the SEC.

Our filings are available to the public on the Internet, through a database maintained by the SEC at <http://www.sec.gov>. We also maintain a website at www.cogentbio.com. We have included our website address for the information of prospective investors and do not intend it to be an active link to our website. Information contained on our website does not constitute a part of this prospectus or any applicable prospectus supplement (or any document incorporated by reference herein or therein).

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus.

Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) following the filing of this prospectus until the offering of the securities under this prospectus is terminated or completed, except that we are not incorporating by reference any information furnished (and not filed) with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2024 filed with the SEC on February 25, 2025, including the Part III information incorporated by reference from our [Definitive Proxy Statement](#) on Schedule 14A filed with the SEC on April 22, 2025;
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2025](#) filed with the SEC on May 6, 2025, [June 30, 2025](#) filed with the SEC on August 5, 2025 and [September 30, 2025](#) filed with the SEC on November 7, 2025;
- our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on [June 5, 2025](#), [June 11, 2025](#), [July 7, 2025](#), [July 10, 2025](#) and [September 11, 2025](#); and
- the description of our common stock contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the year ended December 31, 2024, as filed with the SEC on February 25, 2025, including any amendments or reports filed for the purposes of updating this description.

You may request a copy of these filings, at no cost, by contacting us, either orally or in writing, at the following:

Cogent Biosciences, Inc.
275 Wyman Street, 3rd Floor
Waltham, Massachusetts 02451
(617) 945-5576

We maintain a website at www.cogentbio.com. Information about us, including our reports filed with the SEC, is available through that site. Such reports are accessible at no charge through our website and are made available as soon as reasonably practicable after such material is filed with or furnished to the SEC. Our website and the information contained on that website, or connected to that website, are not incorporated by reference in this prospectus.

You may read and copy any materials we file with the SEC at the SEC's website mentioned under the heading "Where You Can Find More Information." The information on the SEC's website is not incorporated by reference in this prospectus.

Up to \$400,000,000



Common Stock

PROSPECTUS SUPPLEMENT

Guggenheim Securities

August 10, 2026

Calculation of Filing Fee Tables

S-3

Cogent Biosciences, Inc.

Table 1: Newly Registered and Carry Forward Securities

☐ Not Applicable

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to be Paid	1 Equity	Common stock, par value \$0.001 per share	457(r)			400,000,000.00	\$ 0.0001381	\$ 55,240.00				
Fees Previously Paid												
Carry Forward Securities												
Carry Forward Securities												
Total Offering Amounts:						\$ 400,000,000.00		\$ 55,240.00				
Total Fees Previously Paid:								\$ 0.00				
Total Fee Offsets:								\$ 0.00				
Net Fee Due:								\$ 55,240.00				

Offering Note

¹ The registration fee is calculated in accordance with Rule 457(r) of the Securities Act and represents deferred payment of the registration fees in connection with the Registrant's registration statement on Form S-3ASR (Registration No. 333-291384) paid with the filing of this prospectus supplement.

Table 2: Fee Offset Claims and Sources

☒ Not Applicable

	Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
Rules 457(b) and 0-11(a)(2)											
Fee Offset Claims											
Fee Offset Sources											
Rule 457(p)											
Fee Offset Claims											
Fee Offset Sources											

Table 3: Combined Prospectuses

☒ Not Applicable

Security Type	Security Class Title	Amount of Securities Previously Registered	Maximum Aggregate Offering Price of Securities Previously Registered	Form Type	File Number	Initial Effective Date
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Narrative Disclosure

The maximum aggregate offering price of the securities to which the prospectus relates is \$400,000,000.00. The prospectus is a final prospectus for the related offering.