

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT UNDER  
THE SECURITIES ACT OF 1933

**XENETIC BIOSCIENCES, INC.**

(Exact name of registrant as specified in its charter)

**Nevada**  
(State or other jurisdiction  
of incorporation or organization)

**45-2952962**  
(I.R.S. Employer Identification Number)

**40 Speen Street, Suite 102**  
**Framingham, Massachusetts 01701**  
**(781) 778-7720**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**James F. Parslow**  
**Chief Financial Officer**  
**Xenetic Biosciences, Inc.**  
**40 Speen Street, Suite 102**  
**Framingham, Massachusetts 01701**  
**(781) 778-7720**

(Name, address including zip code, and telephone number, including area code, of agent for service)

**With a copy to:**

**Danielle C. Price, Esq.**  
**Holland & Knight LLP**  
**701 Brickell Ave., Suite 3300**  
**Miami, Florida 33131**  
**(305) 349-2259**

**Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement, as determined by the selling stockholder.**

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

**CALCULATION OF REGISTRATION FEE**

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share(2)	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock	950,000	\$ 3.50	\$ 3,325,000	\$ 362.76
Common Stock underlying the Series A Warrant	4,629,630	\$ 3.50	\$ 16,203,705	\$ 1,767.82
Common Stock underlying the Series B Warrant	3,679,630	\$ 3.50	\$ 12,878,610.50	\$ 1,405.06
Total	9,259,260		\$ 32,407,315.50	\$ 3,535.64

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), the shares of Common Stock offered hereby also include an indeterminate number of additional shares of Common Stock as may from time to time become issuable by reason of stock splits, stock dividends, recapitalizations or other similar transactions.

(2) With respect to the shares of Common Stock offered by the selling stockholder named herein, estimated at \$3.50 per share, the average of the high and low prices as reported on the Nasdaq Capital Market on August 6, 2021, for the purpose of calculating the registration fee in accordance with Rule 457(c) under the Securities Act.

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

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The information in this prospectus is not complete and may be changed. The selling stockholder may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

**SUBJECT TO COMPLETION, DATED AUGUST 13, 2021**

**PRELIMINARY PROSPECTUS**

**XENETIC BIOSCIENCES, INC.**

**950,000 Shares of Common Stock  
4,629,630 Shares of Common Stock underlying the Series A Warrants  
3,679,630 Shares of Common Stock underlying the Series B Warrants**

This prospectus relates to the resale or other disposition from time to time of up to (i) 950,000 shares of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), issued to the selling stockholder in connection with a securities purchase agreement dated July 26, 2021 (the “SPA”) , (ii) 4,629,630 shares of Common Stock underlying outstanding warrants issued to the selling stockholder in connection with the SPA with an exercise price of \$3.30 per share (the “Series A Warrants”), and (iii) 3,679,630 shares of Common Stock underlying outstanding warrants issued to the selling stockholder in connection with the SPA, with an exercise price of \$0.001 per share (the “Series B Warrants” and together with the Series A Warrants, the “Warrants”). For information concerning the selling stockholder and the manner in which it may offer and sell shares of our Common Stock, see “Selling Stockholder” and “Plan of Distribution” in this prospectus.

The selling stockholder may, from time to time, sell, transfer, or otherwise dispose of any or all of their securities from time to time on any stock exchange, market, or trading facility on which the securities are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. See “Plan of Distribution” which begins on page 12.

We are not offering any shares of our Common Stock for sale under this prospectus. We will not receive any of the proceeds from the sale of Common Stock by the selling stockholder. However, we will generate proceeds in the event of a cash exercise of the Warrants by the selling stockholder. All expenses of registration incurred in connection with this offering are being borne by us. All selling and other expenses incurred by the selling stockholder will be borne by the selling stockholder.

Our Common Stock is listed for trading on the Nasdaq Capital Market under the symbol “XBIO.” On August 12, 2021, the last reported sale price of our Common Stock as reported on the Nasdaq Capital Market was \$3.65 per share.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus and any amendments or supplements carefully before you make your investment decision.

**Investing in our securities involves risks. See “Risk Factors” on page 4, 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.**

The date of this prospectus is \_\_\_\_\_, 2021

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## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process for the delayed or continuous offering and sale of securities pursuant to Rule 415 under the Securities Act. Under the shelf process, the selling stockholder may, from time to time, sell the offered securities described in this prospectus in one or more offerings. Additionally, under the shelf process, in certain circumstances, we may provide a prospectus supplement that will contain specific information about the terms of a particular offering by the selling stockholder. We may also provide a prospectus supplement to add information to, or update or change information contained in, this prospectus.

This prospectus does not contain all of the information set forth in the registration statement, portions of which we have omitted as permitted by the rules and regulations of the SEC. Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete. You should refer to the copy of each contract or document filed as an exhibit to the registration statement for a complete description.

You should rely only on the information contained in or incorporated by reference into this prospectus and any applicable prospectus supplements. Such documents contain important information you should consider when making your investment decision. We have not authorized anyone to provide you with different or additional information. The selling stockholder is offering to sell and seeking offers to buy shares of our Common Stock only in jurisdictions in which offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or any sale of Common Stock.

Unless the context otherwise requires, all references to “Xenetic,” “XBIO,” the “Company,” “we,” “us,” and “our” refer to Xenetic Biosciences, Inc. and our consolidated subsidiaries.

## PROSPECTUS SUMMARY

*This summary does not contain all of the information that is important to you. You should read the entire prospectus carefully, including the “Risk Factors” section and the consolidated financial statements and related notes included in this prospectus or incorporated by reference into this prospectus, before making an investment decision.*

### Overview

We are a biopharmaceutical company focused on progressing XCART™, a personalized CAR T platform technology engineered to target patient - and tumor - specific neoantigens. We are initially advancing cell-based therapeutics targeting the unique B-cell receptor on the surface of an individual patient’s malignant tumor cells, for the treatment of B-cell lymphomas. XCART has the potential to fuel a robust pipeline of the therapeutic assets targeting high-value oncology indications. The XCART technology, developed by the Scripps Research Institute (“Scripps Research”) in collaboration with the Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, is believed to have the potential to significantly enhance the safety and efficacy of cell therapy for B-cell lymphomas by generating patient-and tumor-specific CAR T cells. We are currently advancing XCART preclinical efforts through strategic collaborations, including with Scripps Research and PJSC Pharmsynthez.

Additionally, we are leveraging our proprietary drug delivery platform, PolyXen®, by partnering with biotechnology and pharmaceutical companies. PolyXen is an enabling platform technology which can be applied to protein or peptide therapeutics. It employs the natural polymer polysialic acid to prolong a drug’s circulating half-life and potentially improve other pharmacological properties.

We incorporate our patented and proprietary technologies into a number of drug candidates currently under development with biotechnology and pharmaceutical industry collaborators to create what we believe will be the next-generation biologic drugs with improved pharmacological properties over existing therapeutics. Our drug candidates have resulted from our research activities or that of our collaborators and are in the development stage. As a result, we continue to commit a significant amount of our resources to our research and development activities and anticipate continuing to do so for the near future. To date, none of our drug candidates have received regulatory marketing authorization in the United States (“U.S.”) by the Food and Drug Administration nor in any other territories by any applicable agencies. We are receiving ongoing royalties pursuant to a license of our PolyXen technology to an industry partner.

We also have oncology therapeutic investigational drug candidate XBIO-101™ (sodium cridanimid) for the treatment of progesterin resistant endometrial cancer. We commenced a Phase 2 trial under an Investigational New Drug filing in 2017, for the potential treatment of progesterone receptor negative endometrial cancer in conjunction with progesterone therapy, with the first patient dosed in October 2017. We closed patient enrollment in the trial in March 2019 as a result of slower than expected progress on the trial resulting from patient enrollment and retention challenges and have suspended further development of XBIO-101. We currently have no plans to continue development of XBIO-101.

Although we hold a broad patent portfolio, the focus of our internal development efforts during 2021 has been on advancing the development of our XCART platform technology.

### Corporate Information

We were incorporated under the laws of the State of Nevada in August 2011. Our corporate headquarters and operation facilities are located at 40 Speen Street, Suite 102,

Framingham, Massachusetts 01701. Our telephone number is (781) 778-7720. We maintain a website at [www.xeneticbio.com](http://www.xeneticbio.com). Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K and amendments to those reports are available, free of charge, on or through our website as soon as practicable after we electronically file such forms, or furnish them to, the SEC. The SEC maintains an Internet website located at [www.sec.gov](http://www.sec.gov) that contains the information we file or furnish electronically with the SEC.

### THE OFFERING

Common Stock outstanding prior to the offering:	9,703,845 shares
Common Stock to be issued upon exercise of the Series A Warrants:	4,629,630 shares
Common Stock to be issued upon exercise of the Series B Warrants:	3,679,630 shares
Common Stock to be offered by the selling stockholder:	9,259,260 shares (including 4,629,630 shares underlying the Series A Warrants and 3,679,630 shares underlying the Series B Warrants)
Common Stock outstanding immediately following the offering:	18,013,105 shares (including 4,629,630 shares underlying the Series A Warrants and 3,679,630 shares underlying the Series B Warrant) <sup>[1]</sup>
Use of proceeds:	We will not receive any proceeds from the sale of the shares of Common Stock by the selling stockholder but will receive proceeds from the exercise of the Series A Warrants and the Series B Warrants if the Series A Warrants and the Series B Warrants are exercised, which proceeds will be used for general working capital purposes. See "Use of Proceeds."
Risk Factors:	See "Risk Factors" beginning on page 4 of this prospectus for a discussion of factors you should carefully consider before deciding to invest in shares of our Common Stock.
The Nasdaq Capital Market Symbol for our Common Stock:	XBIO

<sup>[1]</sup> The number of shares of our Common Stock outstanding immediately after this offering excludes an aggregate of approximately 1.8 million shares of Common Stock underlying outstanding Series A Preferred and Series B Preferred Stock and outstanding restricted stock units, shares of Common Stock issuable upon the exercise of outstanding warrants and outstanding options, and shares of Common Stock issuable in connection with the Common Stock awards.

### RISK FACTORS

*Investing in our securities involves significant risks. Before making an investment decision, you should consider carefully 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 documents which are incorporated by reference into this prospectus.*

*If any of these risks were to occur, our business, affairs, prospects, assets, financial condition, results of operations and cash flow could be materially and adversely affected. If this occurs, the market or trading price of our securities could decline, and you could lose all or part of your investment. In addition, please read "Cautionary Statement Regarding Forward-Looking Statements" in this prospectus, where we describe additional uncertainties associated with our business and the forward-looking statements included or incorporated by reference into this prospectus.*

### CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the other documents we have filed with the SEC that are incorporated by reference herein contain forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 27A of the Securities Act of 1933, as amended. All statements contained in this prospectus other than statements of historical fact, including statements regarding our future results of operations and financial position, our business strategy and plans, future revenues, projected costs, prospects and our objectives for future operations, are forward-looking statements. These forward-looking statements include, but are not limited to, statements concerning our plans to develop our proposed drug candidates; our expectations regarding clinical trials; the nature, timing and extent of collaboration arrangements; the expected results pursuant to collaboration arrangements including the receipts of future payments that may arise pursuant to collaboration arrangements; the outcome of our plans to obtain regulatory approval of our drug candidates; the outcome of our plans for the commercialization of our drug candidates; the development of the XCART™ Chimeric Antigen Receptor ("CAR") T technology; our plans to apply the XCART technology to advance cell-based

therapeutics by targeting the unique B cell receptor on the surface of an individual patient's malignant tumor cells for the treatment of B-cell lymphomas; our beliefs regarding the expected results of the XCART technology, including its potential to significantly enhance the safety and efficacy of cell therapy for B-cell lymphomas by generating patient- and tumor-specific CAR T cells; and our anticipation that our primary focus will now be on advancing the XCART technology through regulatory approval and commercialization technology.

In some cases, these statements may be identified by terminology such as "may," "will," "would," "could," "should," "expect," "plan," "anticipate," "believe," "estimate," "seek," "approximately," "intend," "predict," "potential," "projects," or "continue," or the negative of such terms and other comparable terminology. Although we believe that the expectations reflected in the forward-looking statements contained herein are reasonable, we cannot guarantee future results, the levels of activity, performance or achievements. These statements involve known and unknown risks and uncertainties that may cause our or our industry's results, levels of activity, performance or achievements to be materially different from those expressed or implied by forward-looking statements.

This prospectus should be read together with our financial statements and related notes thereto incorporated by reference in this prospectus. The forward-looking statements made herein are based on our current expectations, involve a number of risks and uncertainties and should not be considered as guarantees of future performance.

You should carefully consider these risks before you make an investment decision with respect to our securities, along with the following factors that could cause actual results to differ materially from our forward-looking statements:

- failure to realize the anticipated potential of the XCART or PolyXen technology;
- our ability to implement our business strategy;
- the failure of the holder to exercise the warrants;
- our use of proceeds from the private placement and warrant exercise;
- our need to raise additional working capital in the future for the purpose of further developing our XCART technology and to continue as a going concern;
- our ability to finance our business;
- our ability to successfully execute, manage and integrate key acquisitions and mergers, including integration of the acquisition of the XCART technology;
- product development and commercialization risks, including our ability to successfully develop the XCART technology;
- the impact of adverse safety outcomes and clinical trial results for CAR-T cell therapies;
- our ability to secure and maintain a manufacturer for the XCART technology;

- our ability to successfully commercialize our current and future drug candidates;
- our ability to achieve milestone and other payments associated with our current and future co-development collaborations and strategic arrangements;
- the impact of new technologies on our drug candidates and our competition;
- changes in laws or regulations of governmental agencies;
- interruptions or cancellation of existing contracts;
- impact of competitive products and pricing;
- product demand and market acceptance and risks;
- the presence of competitors with greater financial resources;
- continued availability of supplies or materials used in manufacturing at the current prices;
- the ability of management to execute plans and motivate personnel in the execution of those plans;
- our ability to attract and retain key personnel;
- adverse publicity related to our products or the Company itself;
- adverse claims relating to our intellectual property;
- the adoption of new, or changes in, accounting principles;
- the costs inherent with complying with statutes and regulations applicable to public reporting companies, such as the Sarbanes-Oxley Act of 2002;
- other new lines of business that we may enter in the future;
- general economic and business conditions, as well as inflationary trends;
- the impact of natural disasters or public health emergencies, such as the COVID-19 global pandemic (including any new variant strains of the underlying virus), on our financial condition and results of operations; and
- other risk factors as detailed from time to time in our reports filed with the SEC, including our annual report on Form 10-K, periodic quarterly reports on Form 10-Q, current reports on Form 8-K and other documents filed with the SEC.

These factors are not necessarily all of the important factors that could cause actual results to differ materially from those expressed in the forward-looking statements in this prospectus. Other unknown or unpredictable factors also could have material adverse effects on our future results, including, but not limited to, those discussed in the

section titled “Risk Factors.” The forward-looking statements in this prospectus are made only as of the date of this prospectus, and we do not undertake any obligation to publicly update any forward-looking statements to reflect subsequent events or circumstances. We intend that all forward-looking statements be subject to the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995.

## DESCRIPTION OF PRIVATE PLACEMENT OF COMMON STOCK AND WARRANTS

On July 28, 2021, we completed a private placement pursuant to the SPA, in which we issued (i) 950,000 shares of Common Stock, par value \$0.001 per share, (ii) Series A Warrants to purchase an aggregate of 4,629,630 shares of Common Stock, with an exercise price of \$3.30 per share which expire three and one half years from the earlier of (a) the six month anniversary of the initial exercise date and (b) the date that the registration statement registering all of the warrant shares underlying the Series A Warrants is declared effective, and (iii) Series B pre-funded warrants to purchase up to 3,679,630 shares of Common Stock, with an exercise price of \$0.001 per share with no expiration, at a purchase price of \$2.70 per one Share and one Series A Warrant and \$2.699 per one Series B Warrant and one Series A Warrant.

We received aggregate gross proceeds from the private placement of approximately \$12.5 million, before deducting placement agent fees and offering expenses, and excluding the exercise of any Warrants. The potential gross proceeds from the exercise of the Warrants, if fully exercised on a cash basis, will be approximately \$15.3 million.

### Series A Warrants and Series B Warrants

The material terms and provisions of the Warrants are summarized below. This summary is subject to and qualified in its entirety by the form of Series A Warrant and form of Series B Warrant, which are filed as exhibits hereto.

*Exercisability.* The holder may exercise the Series A Warrants until three and one half years from the earlier of (a) the six month anniversary of the initial exercise date and (b) the date that the registration statement registering all of the warrant shares underlying the Series A Warrants is declared effective. The holder may exercise the Series B Warrants at any time. There is no expiration date for the Series B Warrants. As further described under “Selling Stockholder,” notwithstanding the foregoing, the holder will be prohibited from exercising such Warrants into shares of our Common Stock if, as a result of such exercise, the holder, together with its affiliates, would own more than a specific percentage of the total number of shares of our Common Stock then issued and outstanding. The Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise (except in the case of a cashless exercise as discussed below).

*Exercise Price.* The exercise price of the Series A Warrant is \$3.30 per share of Common Stock and the exercise price of each Series B Warrant is \$2.70 per share of Common Stock, of which \$2.699 per share was paid by the selling stockholder at closing. The exercise price of the Warrants is subject to appropriate adjustment in the event of stock dividends, subdivisions, stock splits, stock combinations, reclassifications or reorganizations affecting our Common Stock.

*Payment of Exercise Price.* The warrant holders have the option to provide payment of the exercise price of the shares being acquired upon exercise of the Warrants (i) by wire transfer or cashier’s check, or, in certain circumstances as described below (ii) by cashless exercise.

*Cashless Exercise.* If at any time there is no effective registration statement registering the resale of the warrant shares, in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise the net number of shares of Common Stock determined according to a formula set forth in the Warrants.

*Transferability.* Subject to applicable laws and the restrictions on transfer set forth in the SPA and respective Warrant, the Warrants may be transferred at the option of the holder upon surrender of the Warrants to the Company, together with the appropriate instruments of transfer.

*Change of Control Transactions.* If, at any time while the Series A Warrant or Series B Warrant is outstanding, there is a Change of Control, which generally includes a merger or consolidation resulting in the sale of 50% or more of the outstanding shares of Common Stock of the Company, the sale of all of the assets of the Company, or other change of control transaction, then the holder has the right thereafter to receive, upon exercise of the Series A Warrant or Series B Warrant, for each warrant share that would have been issuable upon such exercise immediately prior to the occurrence of such transaction, at the option of the holder, the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration receivable as a result of such transaction by a holder of the number of shares of Common Stock for which the Series A Warrant or Series B Warrant is exercisable immediately prior to such transaction.

*Events of Failure.* In the event that we fail to cause the transfer agent to timely deliver shares of Common Stock to any holder, we are required to make whole any holder who purchases shares of Common Stock to deliver in satisfaction of a sale by such holder of shares of Common Stock issuable upon an exercise of the Warrants that the holder anticipated receiving from us.

*Rights as a Stockholder.* Except for the right to participate in certain dividends and distributions and as otherwise provided in the Warrants or by virtue of a holder’s ownership of our Common Stock, the holders of the Warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, until they exercise their Warrants.

*Waivers and Amendments.* Any term of the Warrants may be amended or waived with our written consent and the written consent of the holder of such Warrant.

*No Fractional Shares.* No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the Warrants. As to any fraction of a share which the holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price or round up to the next whole share.

## USE OF PROCEEDS

The selling stockholder will receive all of the net proceeds from sales of the Common Stock pursuant to this prospectus. However, in the case of Series A Warrants and Series B Warrants issued to the selling stockholder pursuant to the SPA, upon any exercise of the Series A Warrants and Series B Warrants for cash, the selling stockholder would pay us an exercise price of \$3.30 and \$0.001 per share of Common Stock, respectively, subject to any adjustment pursuant to the terms of the Series A Warrants and

### SELLING STOCKHOLDER

Pursuant to the SPA, we agreed to file the registration statement of which this prospectus is a part to cover the resale of the shares of our Common Stock and the shares underlying the Warrants, and to keep such registration statement effective until the earlier of (i) the date on which the securities may be resold by the Selling Stockholder without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information requirement under Rule 144 under the Securities Act or any other rule of similar effect or (ii) the date on which all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The shares issuable upon exercise of the Warrants will become eligible for sale by the selling stockholder under this prospectus only when the Warrants are exercised. We cannot predict when or whether any of the selling stockholder will exercise their Warrants.

The Common Stock being offered by the selling stockholder is Common Stock that was previously issued to the selling stockholder, and issuable to the selling stockholder, upon exercise of the Warrants. For additional information regarding the issuances of those shares of Common Stock and Warrants, see “Description of Private Placement of Shares of Common Stock and Warrants” above. We are registering the shares of Common Stock in order to permit the selling stockholder to offer the shares for resale from time to time. Except for the ownership of the shares of Common Stock and the Warrants, the selling stockholder has not had any material relationship with us within the past three years.

This prospectus covers the sale or other disposition by the selling stockholder of up to the total number of shares of Common Stock that was issued to the selling stockholder pursuant to the SPA, plus the total number of shares of Common Stock issuable upon exercise of the Warrants issued to the selling stockholder, determined as if the outstanding Warrants were exercised in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the exercise of the Warrants. Throughout this prospectus, when we refer to the shares of our Common Stock being registered on behalf of the selling stockholder, we are referring to the shares of our Common Stock and the shares underlying the Warrants issued to the selling stockholder pursuant to the SPA, and when we refer to the Selling Stockholder in this prospectus, we are referring to the purchaser under the SPA and, as applicable, its permitted transferees or other successors-in-interest that may be identified in a supplement to this prospectus or, if required, a post-effective amendment to the registration statement of which this prospectus is a part.

The selling stockholder may sell some, all or none of its shares. We do not know how long the selling stockholder will hold the shares before selling them, and we currently have no agreements, arrangements or understandings with the selling stockholder regarding the sale or other disposition of any of the shares. The shares of our Common Stock covered hereby may be offered from time to time by the selling stockholder.

The table below lists the selling stockholder and other information regarding the beneficial ownership of the shares of Common Stock by the selling stockholder. The second column lists the number of shares of Common Stock beneficially owned by the selling stockholder, based on its ownership of the shares of Common Stock and Warrants, as of August 12, 2021, assuming exercise of the Warrants held by the selling stockholder on that date, without regard to any limitations on exercises. The third column lists the shares of Common Stock being offered by this prospectus by the selling stockholder and represents all of the shares of our Common Stock that a selling stockholder may offer and sell from time to time under this prospectus. The fourth column assumes the sale of all of the shares offered by the selling stockholder pursuant to this prospectus.

Under the terms of the Warrants, the stockholder may not exercise the Warrants to the extent such exercise would cause such selling stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of Common Stock which would exceed 4.99% of our then outstanding Common Stock following such exercise, excluding for purposes of such determination shares of Common Stock issuable upon exercise of such Warrants which have not been exercised. The number of shares in the second and fourth columns do not reflect this limitation. The selling stockholder may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

Name and Address	Shares of Common Stock Owned Before the Offering	Shares of Common Stock to be Offered for the Selling Stockholder's Account	Shares of Common Stock Owned by the Selling Stockholder after the Offering	Percent of Common Stock Owned by the Selling Stockholder after the Offering
Armistice Capital Master Fund Ltd.	9,259,260 <sup>(1)</sup>	9,259,260	□	□%

(1) The shares are directly held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”), and may be deemed to be indirectly beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. Armistice Capital and Steven Boyd disclaim beneficial ownership of the securities except to the extent of their respective pecuniary interests therein. The shares include 4,629,630 shares of Common Stock issuable upon exercise of the Series A Warrants and 3,679,630 shares of Common Stock issuable upon exercise of the Series B Warrants, both of which are subject to certain beneficial ownership limitations. The address of the Master Fund is c/o Armistice Capital, LLC, 510 Madison Ave, 7th Floor, New York, NY 10022.

### PLAN OF DISTRIBUTION

The Selling Stockholder and any of its pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the principal Trading Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. The Selling Stockholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker dealer solicits purchasers;

- block trades in which the broker dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker dealer as principal and resale by the broker dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker dealers that agree with the Selling Stockholder to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Stockholder may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

Broker dealers engaged by the Selling Stockholder may arrange for other brokers dealers to participate in sales. Broker dealers may receive commissions or discounts from the Selling Stockholder (or, if any broker dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the Selling Stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholder may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholder may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

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The Selling Stockholder and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Stockholder against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the Common Stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholder will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the Common Stock by the Selling Stockholder or any other person. We will make copies of this prospectus available to the Selling Stockholder and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

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## LEGAL MATTERS

The validity of the issuance of the securities offered hereby will be passed upon for us by Westward Law, LLC, Las Vegas, Nevada.

## EXPERTS

The financial statements of Xenetic Biosciences, Inc. as of December 31, 2020 and 2019, and for each of the years in the two- year period ended December 31, 2020, incorporated by reference in this prospectus have been so incorporated in reliance on the report of Marcum LLP, independent registered public accounting firm, incorporated herein by reference, and upon the authority of said firm as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We are currently subject to the information requirements of the Exchange Act and in accordance therewith file periodic reports, proxy statements and other information with the Securities and Exchange Commission. Our SEC filings are available to you on the SEC’s website at <http://www.sec.gov>. We have filed with the SEC a registration statement on Form S-3 under the Securities Act for the shares of Common Stock being offered by the selling stockholder. This prospectus does not contain all of the information in the registration statement and the exhibits and schedules that were filed with the registration statement. For further information with respect to us and our Common Stock, we refer you to the registration statement and the exhibits that were filed with the registration statement. Anyone may obtain the registration statement and its exhibits and schedules from the SEC as described above.



## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information into this prospectus, which means that we can disclose important information about us by referring to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus. This prospectus incorporates by reference the documents and reports listed below other than portions of these documents that are furnished under Item 2.02 or Item 7.01 of a Current Report on Form 8-K:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, filed with the SEC on March 16, 2021, as amended by the Form 10-K/A, filed with the SEC on April 28, 2021;
- Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, filed with the SEC on May 11, 2021;
- Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2021 filed with the SEC on August 12, 2021;
- The Current Reports on Form 8-K filed on July 16, 2021 and July 28, 2021; and
- The description of our Common Stock included in our Registration Statement on Form 8-A, filed on November 1, 2016.

In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, shall be deemed to be incorporated by reference in this prospectus and to be a part hereof from the date of filing of such documents. In addition, all reports and other documents filed by us pursuant to the Exchange Act after the date of the initial registration statement and prior to effectiveness of the registration statement shall be deemed to be incorporated by reference into this prospectus. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein or in any subsequently filed document that also is or is deemed to be incorporated by reference herein, as the case may be, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

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We will provide, without charge, to any person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon oral or written request of such person, a copy of any or all of the documents that have been incorporated by reference in this prospectus but not delivered with the prospectus, including any exhibits to such documents that are specifically incorporated by reference in those documents.

Please make your request by writing or telephoning us at the following address or telephone number:

Xenetic Biosciences, Inc.  
40 Speen Street, Suite 102  
Framingham, Massachusetts 01701  
Telephone: (781) 778-7720  
Attn: Corporate Secretary

The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. Copies of these filings are available, without charge, on the SEC’s website at <http://www.sec.gov>. Our website address is <https://www.xeneticbio.com/>.

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## PART II

### INFORMATION NOT REQUIRED IN THE PROSPECTUS

#### Item 14. Other Expenses of Issuance and Distribution

The following table sets forth an estimate of the fees and expenses relating to the issuance and distribution of the securities being registered hereby, other than underwriting discounts and commissions, all of which shall be borne by the Registrant. All of such fees and expenses, except for the SEC registration fee, are estimated:

SEC registration fee	\$	3,535.64
Legal fees and expenses	\$	50,000.00
Accounting fees and expenses	\$	7,500.00
Miscellaneous fees and expenses	\$	10,000.00
Total	\$	71,035.64

#### Item 15. Indemnification of Officers and Directors.

Nevada law provides that a Nevada corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed proceeding, except an action by or in the right of the corporation, by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or other enterprise, against expenses, including attorneys’ fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with the proceeding, if such person:

- is not liable for breach of his or her fiduciary duties to the corporation; or
- acted in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful.

In addition, a Nevada corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or other enterprise against expenses, including amounts paid in settlement and attorneys’ fees actually and reasonably incurred by such person in connection with the defense or settlement of the action, if he or she:

- is not liable for breach of his or her fiduciary duties to the corporation; or
- acted in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the corporation.

Under Nevada law, indemnification may not be made for any claim as to which such a person has been adjudged by a court of competent jurisdiction, after exhaustion of all appeals therefrom, to be liable to the corporation or for amounts paid in settlement to the corporation, unless and only to the extent that a court of competent jurisdiction determines that in view of all the circumstances of the case, the person is fairly and reasonably entitled to indemnity for such expenses as the court deems proper.

To the extent that a director, officer, employee or agent of a corporation has been successful on the merits or otherwise in defense of any non-derivative proceeding or any derivative proceeding, or in defense of any claim, issue or matter therein, the corporation shall indemnify such person against expenses, including attorneys' fees, actually and reasonably incurred in connection with the defense.

Further, Nevada law permits a Nevada corporation to purchase and maintain insurance or to make other financial arrangements on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or other enterprise for any liability asserted against him or her and liability and expenses incurred by him or her in his or her capacity as a director, officer, employee or agent, or arising out of his or her status as such, whether or not the corporation has the authority to indemnify such person against such liability and expenses.

Under our charter and bylaws, we are obligated to indemnify any director, officer, employee or agent of the company to the fullest extent permitted by the NRS, as described above. We have entered into separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our charter and bylaws. These agreements, among other things, require us to indemnify our directors and executive officers who have met the standards of conduct that make it permissible under the NRS for us to indemnify the claimant for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by such person in any action or proceeding arising out of their services as one of our directors, officers, employees or agents, or any of our subsidiaries or any other company or enterprise to which the person provides services at our request. We believe that these charter and bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors.

In addition, indemnification is required to continue as to a person who has ceased to be a director or officer and inures to the benefit of his or her heirs, executors and administrators. Subject to the exceptions detailed below, we may indemnify a person seeking indemnification in connection with a proceeding (or part thereof) initiated by the person seeking indemnification only if the proceeding (or part thereof) was authorized by our board of directors. We may indemnify any employee or agent of us to an extent greater than required by law only if and to the extent that our directors, in their discretion, may determine.

If we do not pay a claim for indemnification within 60 days after a written claim has been received by us or pay an advancement of expenses under our bylaws in full within 20 days after a written claim has been received by us, the claimant may bring suit against us to recover the unpaid amount of the claim and, if successful in whole or in part, the claimant also will be entitled to be paid the expense of prosecuting such claim to the fullest extent permitted by applicable law. In any such action, we would have the burden of proving that the claimant is not entitled to the requested indemnification or advancement of expenses.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

## Item 16. Exhibits.

EXHIBIT NUMBER	DESCRIPTION
3.1	<a href="#">Articles of Incorporation</a> (Incorporated by reference to Exhibit 3.1 to the Company's Registration Statement on Form S-1, filed on November 21, 2011).
3.2	<a href="#">Certificate of Amendment to Articles of Incorporation</a> (Incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on February 12, 2013).
3.3	<a href="#">Certificate of Amendment to Articles of Incorporation</a> (Incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on February 27, 2013).
3.4	<a href="#">Certificate of Amendment to Articles of Incorporation</a> (Incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q, filed on January 10, 2014).
3.5	<a href="#">Certificate of Change Pursuant to NRS 78.209</a> (Incorporated by reference to Exhibit 3.2 to the Company's Quarterly Report on Form 10-Q, filed on January 10, 2014).
3.6	<a href="#">Certificate of Amendment to Articles of Incorporation</a> (Incorporated by reference to Exhibit 3.1 in the Company's Current Report on Form 8-K, filed on September 30, 2015).
3.7	<a href="#">Amended and Restated Bylaws</a> (Incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on February 27, 2017).
4.1	<a href="#">Form of Common Stock Certificate</a> (Incorporated by reference to Exhibit 4.1 to Amendment No. 3 to the Company's Registration Statement on Form S-1, filed on July 14, 2016)
4.2	<a href="#">Form of Series A Warrant</a> (Incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed on July 28, 2021).
4.3	<a href="#">Form of Series B Warrant</a> (Incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K, filed on July 28, 2021).
4.4	<a href="#">Form of Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series A Preferred Stock</a> (Incorporated by reference to Exhibit 3.9 in the Company's Registration Statement on Form S-1/A, filed on October 27, 2016).
4.5	<a href="#">Second Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series B Preferred Stock</a> (Incorporated by reference to Exhibit A to the Company's Information Statement on Schedule 14C filed on May 2, 2017).
5.1	<a href="#">Opinion of Westward Law, LLC*</a>
10.1	<a href="#">Form of Securities Purchase Agreement</a> (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed on July 28, 2021).
10.2	<a href="#">Form of Registration Rights Agreement</a> (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed on July 28, 2021).
10.3	<a href="#">Engagement Letter, by and between Xenetic Biosciences, Inc. and H.C. Wainwright &amp; Co., LLC, dated as of July 25, 2021</a> (Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K, filed on July 28, 2021).
23.1	<a href="#">Consent of Marcum LLP*</a>
23.2	<a href="#">Consent of Westward Law, LLC</a> (included in Exhibit 5.1)*
24.1	<a href="#">Power of Attorney</a> (included on signature page)*
*	Filed herewith.

## Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
  - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

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- (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

*provided, however,* that the undertakings set forth in paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in this registration statement or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
  - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
  - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however,* that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
  - (i) any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
  - (ii) any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
  - (iii) the portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
  - (iv) any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

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- (6) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

### SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement on Form S-3 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Framingham, Commonwealth of Massachusetts, on the August 13, 2021.

#### XENETIC BIOSCIENCES, INC.

By: /s/ Jeffrey F. Eisenberg  
 Name: Jeffrey F. Eisenberg  
 Title: Chief Executive Officer

### POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Jeffrey F. Eisenberg and James F. Parslow and each of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Jeffrey F. Eisenberg</u> Jeffrey F. Eisenberg	Chief Executive Officer (Principal Executive Officer)	August 13, 2021
<u>/s/ James Parslow</u> James Parslow	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	August 13, 2021
<u>/s/ Grigory Borisenko</u> Grigory Borisenko	Director	August 13, 2021
<u>/s/ James Callaway</u> James Callaway	Director	August 13, 2021
<u>/s/ Firdaus Jal Dastoor</u> Firdaus Jal Dastoor	Director	August 13, 2021
<u>/s/ Roger Kornberg</u> Roger Kornberg	Director	August 13, 2021
<u>/s/ Adam Logal</u> Adam Logal	Director	August 13, 2021
<u>/s/ Alexey Vinogradov</u> Alexey Vinogradov	Director	August 13, 2021

## WESTWARD LAW, LLC

3273 E. Warm Springs  
Las Vegas, NV 89120  
Telephone: 702-595-8005  
Email: keavery@westwardlaw.com

August 13, 2021

Xenetic Biosciences, Inc.  
40 Speen Street, Suite 102  
Framingham, Massachusetts 01701

*Re: Xenetic Biosciences, Inc., Registration Statement on Form S-3*

Ladies and Gentlemen:

We have acted as Nevada corporate counsel for Xenetic Biosciences, Inc., a Nevada corporation (the “Company”), in connection with the filing with the Securities and Exchange Commission (the “Commission”) of the Registration Statement on Form S-3 (the “Registration Statement”), pursuant to which the Company is registering under the Securities Act of 1933, as amended (the “Act”) the resale of 950,000 shares (the “Shares”) of common stock of the Company, par value \$0.001 per share (the “Common Stock”) held by the Selling Stockholder; 4,629,630 shares of Common Stock (the “Series A Warrant Shares”) issuable upon exercise of the Series A Warrants (the “Series A Warrants”); and 3,679,630 shares of Common Stock (the “Series B Warrant Shares” and together with the Series A Warrant Shares, the “Warrant Shares”) issuable upon exercise of the Series B Warrants (the “Series B Warrants” and together with the Series A Warrants, the “Warrants”). The Shares and Warrants were sold pursuant to that certain Securities Purchase Agreement by and between the Company and the Purchaser.

This opinion is being rendered in connection with the filing of the Registration Statement.

In connection with this opinion, we have examined originals or copies, certified or otherwise identified to our satisfaction, of such documents, corporate records, certificates of public officials, officer’s certificates and such other instruments, obtained for this opinion as well as prior opinions, as we have deemed necessary or advisable for the purpose of rendering this opinion. In rendering the opinions set forth below, we have assumed the genuineness of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as duplicates or certified or conformed copies, the truth of representations made by officers of the Company and the authenticity of the originals of all documents.

As to matters of fact material to this opinion, we have relied to the extent we deemed reasonably appropriate upon current and past representations or certificates of officers or directors of the Company we have received, without independently verifying the accuracy of such documents, records and instruments.

Our opinion herein is expressed solely with respect to the corporate laws of the State of Nevada. Our opinion is based on these laws as in effect on the date hereof. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any other federal or state securities law, rule or regulation.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that, as of the date hereof: (i) the Shares are duly and validly issued, fully paid and non-assessable, and (ii) the Warrant Shares have been duly authorized and reserved for issuance pursuant to the terms of the Warrants and, when issued and delivered upon the exercise of the Warrants and against payment of the consideration set forth therein, will be duly and validly issued, fully paid and non-assessable.

We hereby consent to your filing this opinion as an exhibit to the Company’s Registration Statement referenced above, and further consent to the reference of our name under the caption “Legal Matters” in the Prospectus, which is a part of the Registration Statement. In giving this consent, we believe but do not hereby guarantee or admit that we are “experts” within the meaning of such term as used in Section 11 of the Securities Act or the rules and regulations promulgated thereunder by the Commission with respect to any part of the Registration Statement or related Prospectus, nor do we guarantee or admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations promulgated thereunder by the Commission.

Very truly yours,

/s/ WESTWARD LAW, LLC

**INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT**

We consent to the incorporation by reference in this Registration Statement of Xenetic Biosciences, Inc. on Form S-3 (the "Registration Statement") of our report dated March 16, 2021, with respect to our audits of the consolidated financial statements of Xenetic Biosciences, Inc. as of December 31, 2020 and 2019 and for each of the two years in the period ended December 31, 2020 appearing in the Annual Report on Form 10-K of Xenetic Biosciences, Inc. for the year ended December 31, 2020. We also consent to the reference of our firm under the heading "Experts" in the Prospectus, which is part of this Registration Statement.

/s/ Marcum LLP  
Boston, MA  
August 13, 2021