

As filed with the Securities and Exchange Commission on September 13, 2019

Registration No. 333-

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**

(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
40 Speen Street, Suite 102
Framingham, Massachusetts**

(781) 778-7720

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

With a copy to:

**Michael Francis, Esq.
Christina C. Russo, Esq.
Akerman LLP
350 East Las Olas Boulevard, Suite 1600
Fort Lauderdale, Florida 33301
(954) 463-2700**

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 stockholders.

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



Accelerated filer



Non-accelerated filer



Smaller reporting company



Emerging growth company



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	Proposed maximum offering price per unit ⁽¹⁾	Proposed maximum aggregate offering price ⁽¹⁾	Amount of registration fee
Common Stock, par value \$0.001 per share	235,415 shares	\$1.54	\$ 362,539.10	\$43.94
Common Stock, par value \$0.001 per share underlying the outstanding Consent Warrants	8,335 shares	\$1.54	\$ 12,835.90	\$1.56
Common Stock, par value \$0.001 per share underlying the outstanding Bridge Warrants	129,084 shares	\$1.54	\$ 198,789.36	\$24.09
Total	372,834 shares		\$ 574,164.36	\$69.59

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) of the Securities Act of 1933, as amended.

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 of 1933, as amended or until the registration statement shall become effective on such date as the Commission acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. The selling stockholders 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 is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS SUBJECT TO COMPLETION DATED SEPTEMBER 13, 2019

PRELIMINARY PROSPECTUS

Xenetic Biosciences, Inc.

235,415 Shares of Common Stock
8,335 Shares of Common Stock underlying the Consent Warrants
129,084 Shares of Common Stock underlying the Bridge Warrants

The selling stockholders may offer and sell from time to time (i) 235,415 shares of Xenetic Biosciences, Inc. (the “Company”) Common Stock (“Common Stock”), (ii) 8,335 shares of Common Stock underlying outstanding warrants issued to certain purchasers in connection with a consent agreement entered into in connection with the Company's reverse stock split on June 25, 2019 (the “Consent Warrants”), and (iii) 129,084 shares of Common Stock underlying outstanding warrants issued to certain purchasers in connection with a securities purchase agreement dated March 5, 2019 (the “Bridge Warrants”). For information concerning the selling stockholders and the manner in which they may offer and sell shares of our Common Stock, see “Selling Stockholders” and “Plan of Distribution” in this prospectus.

Our Common Stock is listed for trading on The NASDAQ Capital Market (“Nasdaq”) under the symbol “XBIO.” As of September 12, 2019, the last reported sale price of our Common Stock on Nasdaq was \$1.66.

Investing in the shares involves risks. See “Risk Factors,” beginning on page 3 and in any documents we file with the Securities and Exchange Commission that are incorporated by reference into this prospectus.

You should rely only on the information contained in this prospectus. We have not authorized any dealer, salesperson or other person to provide you with information concerning us, except for the information contained in this prospectus. The information contained in this prospectus is complete and accurate only as of the date on the front cover page of this prospectus, regardless of the time of delivery of this prospectus or the sale of any Common Stock. This prospectus is not an offer to sell these securities and we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

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 _____, 2019

TABLE OF CONTENTS

<u>ABOUT THIS PROSPECTUS</u>	Page
<u>PROSPECTUS SUMMARY</u>	ii
<u>THE OFFERING</u>	1
<u>RISK FACTORS</u>	2
<u>CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS</u>	3
<u>USE OF PROCEEDS</u>	4
<u>SELLING STOCKHOLDERS</u>	6
<u>PLAN OF DISTRIBUTION</u>	7
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	10
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	12
<u>LEGAL MATTERS</u>	13
<u>EXPERTS</u>	14
<u>SIGNATURES</u>	14
	II-4

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 offering and sale of securities pursuant to Rule 415 under the Securities Act of 1933, as amended (the “Securities Act”). Under the shelf process, the selling stockholders 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 one or more of the selling stockholders. 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 stockholders are 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 the discovery, research and development of next-generation biologic drugs and novel oncology therapeutics. We have an extensive patent portfolio of over 170 issued patents in the United States (“U.S.”) and worldwide, covering various aspects of our PolyXen™ platform technology and advanced polymer conjugate technologies, as well as our proprietary biologic drugs and novel oncology drug candidates. We believe our portfolio positions us well for strategic partnership and commercialization opportunities. Our objective is to leverage our portfolio to maximize opportunities to out-license assets from our portfolio in order to generate working capital to both build long-term stockholder value and provide us with the funding necessary for clinical development of our oncology drug candidates through to market launch.

On March 1, 2019, we entered into an agreement to acquire the novel CAR T cell platform technology, referred to herein as “XCART” (the “Transaction”), a proximity-based screening platform capable of identifying CAR constructs that can target patient-specific tumor neoantigens. The acquisition of the platform technology closed on July 19, 2019 and we plan to initially apply the XCART technology to develop cell-based therapeutics for the treatment of B-cell lymphomas. The XCART technology, developed by the Scripps Research Institute (the “Institute”) in collaboration with the Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, is believed to have the potential to significantly enhance safety and efficacy of cell therapy for B-cell lymphomas by generating patient- and tumor-specific CAR T cells.

The XCART technology platform was designed by its originators to utilize an established screening technique to identify peptide ligands that bind specifically to the unique B-cell receptor (“BCR”) on the surface of an individual patient’s malignant tumor cells. The peptide is then inserted into the antigen-binding domain of a CAR T, and a subsequent transduction/transfection process is used to engineer the patient’s T cells into a CAR T format which redirects the patient’s T cells to attack the tumor. Essentially, the XCART screening platform is the inverse of a typical CAR T screening protocol wherein libraries of highly specific antibody domains are screened against a given target. In the case of XCART screening, the target is itself an antibody domain, and hence highly specific by its nature. The XCART technology creates the possibility of personalized treatment of lymphomas utilizing a CAR with an antigen-binding domain that should only recognize, and only be recognized by, the unique BCR of a particular patient’s B-cell lymphoma. An expected result for XCART is limited off-tumor toxicities, such as B-cell aplasia. Our clinical development program will seek to confirm the early preclinical results, and to demonstrate a more attractive safety profile than existing therapies. We anticipate that our primary focus will now be on advancing this technology through regulatory approval and commercialization.

We also have oncology therapeutic investigational drug candidate XBIO-101 (sodium cridanimod) for the treatment of progesterin resistant endometrial cancer. We have exclusive rights to develop and commercialize XBIO-101 worldwide, except for specified countries in the Commonwealth of Independent States. XBIO-101 has been granted orphan drug designation by U.S. Food and Drug Administration for the potential treatment of progesterone receptor negative endometrial cancer in conjunction with progesterone therapy. We commenced a Phase II trial under an IND in 2017, with 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.

Additionally, our proprietary drug development platform, PolyXen, enables next-generation biological drugs by modifying their half-life and other pharmacological properties. PolyXen has been demonstrated in human clinical trials to confer prolonged half-life on biotherapeutics such as recombinant human erythropoietin and recombinant Factor VIII. We believe this technology may be applied to a variety of drug candidates to enhance the properties of the therapeutic, potentially providing advantages over competing products.

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, MA 01701. Our telephone number is (781) 778-7720. We maintain a website at 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 that contains the information we file or furnish electronically with the SEC.

THE OFFERING

Common Stock outstanding prior to the offering:	5,633,491 shares
Common Stock to be issued upon exercise of the Consent Warrants:	8,335 shares
Common Stock to be issued upon exercise of the Bridge Warrants:	129,084 shares
Common Stock to be offered by the selling stockholders:	372,834 shares (including 8,335 shares underlying the Consent Warrants and 129,084 shares underlying the Bridge Warrants)
Common Stock outstanding immediately following the offering:	5,770,910 shares (1)
Use of proceeds:	We will not receive any proceeds from the sale of the shares of Common Stock by the selling stockholders but will receive proceeds from the exercise of the Consent Warrants and the Bridge Warrants if the Consent Warrants and the Bridge Warrants are exercised, which proceeds will be used for working capital and other general corporate purposes. See “Use of Proceeds.”
Risk Factors:	See “Risk Factors” beginning on page 3 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

(1) The number of shares of our Common Stock outstanding immediately after this offering excludes an aggregate of approximately 1.7 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, outstanding pre-funded 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 contains various “forward-looking statements.” Forward-looking statements relate to expectations, beliefs, projections, future plans and strategies, anticipated events or trends and similar expressions concerning matters that are not historical facts. In some cases, these statements may be identified by terminology such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” 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. All forward-looking statements may be impacted by a number of risks and uncertainties. These forward-looking statements include statements concerning our plans to develop our proposed drug candidate; our expectations regarding the nature, timing and extent of clinical trials and proposed clinical trials including the timing of generating clinical data from these trials; our expectations regarding the timing for proposed submissions of regulatory filings, including any IND filing or any New Drug Application; 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; our plans to address certain markets, engage third party manufacturers and evaluate additional drug candidates for subsequent commercial development and the likelihood and extent of competition to our drug candidates; and the development of the CAR T technology.

The forward-looking statements in this prospectus are based on our beliefs, assumptions and expectations of our future performance, taking into account all information currently available to us. These beliefs, assumptions and expectations are subject to risks and uncertainties and can change as a result of many possible events or factors, not all of which are known to us. If a change occurs, our business, financial condition, liquidity and results of operations may vary materially from those expressed in our forward-looking statements. 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 vary from our forward-looking statements:

- our need to raise additional working capital in the very near term for the purpose of developing products and technologies 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 the acquisition of the CAR T technology;
- product development and commercialization risks, including our ability to successfully develop the CAR T technology;
- our ability to successfully commercialize our current and future drug candidates;
- our ability to achieve milestone and other payments associated with our 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 the Company may enter in the future; and
- other factors set forth in the Risk Factors section of our Annual Report on Form 10-K and in subsequent filings we make with the SEC.

We cannot guarantee future results, levels of activity, performance or achievements. You should not place undue reliance on forward-looking statements, which apply only as of the date of this prospectus. We do not intend and disclaim any duty or obligation to update or revise any industry information or forward-looking statements set forth in this Registration Statement to reflect new information, future events or otherwise, except as required under the United States federal securities laws.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares of Common Stock by the selling stockholders but will receive proceeds from the exercise of the Consent Warrants and the Bridge Warrants if the Consent Warrants and the Bridge Warrants are exercised, which proceeds will be used for working capital and other general corporate purposes.

SELLING STOCKHOLDERS

The following table provides information about the selling stockholders, listing how many shares of our Common Stock the selling stockholders own on the date of this prospectus, how many shares may be offered by this prospectus, and the number and percentage of outstanding shares the selling stockholders will own after the offering, assuming all shares covered by this prospectus are sold. The information concerning beneficial ownership has been provided by the selling stockholders. Information concerning the selling stockholders may change from time to time, and any changed information will be set forth if and when required in prospectus supplements or other appropriate forms permitted to be used by the SEC.

We do not know when or in what amounts the selling stockholders may offer shares for sale. The selling stockholders may choose not to sell any or all of the shares offered by this prospectus. Because the selling stockholders may offer all or some of the shares, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot accurately report the number of the shares that will be held by the selling stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, all of the shares covered by this prospectus will be sold by the selling stockholders.

The number of shares outstanding, and the percentage of beneficial ownership, post-offering are based on 5,770,910 shares of Common Stock outstanding as of the conclusion of the offering, calculated on the basis of (i) 5,633,491 shares of Common Stock outstanding as of September 11, 2019 prior to the offering and (ii) assuming the exercise and sale by the selling stockholders of (a) the 8,335 shares of Common Stock underlying the Consent Warrants and (b) 129,084 shares of Common Stock underlying the Bridge Warrants. For the purposes of the following table, the number of shares of Common Stock beneficially owned has been determined in accordance with Rule 13d-3 under the Securities Exchange Act of 1934 (the "Exchange Act"), and such information is not necessarily indicative of beneficial ownership for any other purpose. Under Rule 13d-3, beneficial ownership includes any shares as to which the selling stockholders have sole or shared voting power or investment power and also any shares which each selling shareholder, respectively, has the right to acquire within 60 days of the date of this prospectus through the exercise of any stock option, warrant or other rights.

Name of Selling Stockholder	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 to be Owned by the Selling Stockholder after the Offering
Empery Asset Master, LTD.	20,407 ⁽¹⁾	20,407 ⁽¹⁾	—	—
Empery Tax Efficient, LP	7,259 ⁽²⁾	7,259 ⁽²⁾	—	—
Empery Tax Efficient II, LP	126,419 ⁽³⁾	126,419 ⁽³⁾	—	—
OPKO Pharmaceuticals, LLC ⁽⁴⁾	197,580	164,062	33,518	*
The Scripps Research Institute	54,687	54,687	—	—

* Less than one percent.

- (1) The number of shares consists of (i) 2,207 shares of Common Stock held directly by the Selling Stockholder, (ii) 17,096 shares of Common Stock issuable upon exercise of the Bridge Warrants and (iii) 1,104 shares of Common Stock issuable upon exercise of the Consent Warrants. The Consent Warrants are initially exercisable on January 3, 2020 and the Bridge Warrants are currently exercisable. Empery Asset Management LP, the authorized agent of Empery Asset Master Ltd ("EAM"), has discretionary authority to vote and dispose of the shares held by EAM and may be deemed to be the beneficial owner of these shares. Martin Hoe and Ryan Lane, in their capacity as investment managers of Empery Asset Management LP, may also be deemed to have investment discretion and voting power over the shares held by EAM. EAM, Mr. Hoe and Mr. Lane each disclaim any beneficial ownership of these shares.

- (2) The number of shares consists of (i) 785 shares of Common Stock held directly by the Selling Stockholder, (ii) 6,081 shares of Common Stock issuable upon exercise of the Bridge Warrants and (iii) 393 shares of Common Stock issuable upon exercise of the Consent Warrants. The Consent Warrants are initially exercisable on January 3, 2020 and the Bridge Warrants are currently exercisable. Empery Asset Management LP, the authorized agent of Empery Tax Efficient, LP ("ETE"), has discretionary authority to vote and dispose of the shares held by ETE and may be deemed to be the beneficial owner of these shares. Martin Hoe and Ryan Lane, in their capacity as investment managers of Empery Asset Management LP, may also be deemed to have investment discretion and voting power over the shares held by ETE. ETE, Mr. Hoe and Mr. Lane each disclaim any beneficial ownership of these shares.
- (3) The number of shares consists of (i) 13,674 shares of Common Stock held directly by the Selling Stockholder, (ii) 105,907 shares of Common Stock issuable upon exercise of the Bridge Warrants and (iii) 6,838 shares of Common Stock issuable upon exercise of the Consent Warrants. The Consent Warrants are initially exercisable on January 3, 2020 and the Bridge Warrants are currently exercisable. Empery Asset Management LP, the authorized agent of Empery Tax Efficient II, LP ("ETE II"), has discretionary authority to vote and dispose of the shares held by ETE II and may be deemed to be the beneficial owner of these shares. Martin Hoe and Ryan Lane, in their capacity as investment managers of Empery Asset Management LP, may also be deemed to have investment discretion and voting power over the shares held by ETE II. ETE II, Mr. Hoe and Mr. Lane each disclaim any beneficial ownership of these shares.
- (4) OPKO Pharmaceuticals, LLC is a subsidiary of OPKO Health, Inc. ("OPKO Health"). OPKO Health has sole voting and dispositive power over the shares held by OPKO Pharmaceuticals, LLC and may be deemed to be the beneficial owner of these shares. OPKO Health's voting and dispositive control over the shares is by an investment committee. Excludes shares of Common Stock issuable upon the conversion of our Series B Preferred Stock and the exercise of outstanding warrants held by OPKO Health.

None of the selling stockholders has, or within the past three years has had, any position, office or material relationship with us or any of our predecessors or affiliates, except as follows:

- On March 1, 2019, the Company entered into an agreement to acquire the XCART platform technology. In connection with the Transaction, on March 1, 2019, we entered into a Share Purchase Agreement with Hesperix, S.A. ("Hesperix") pursuant to which the Company purchased all of the issued and outstanding shares of capital stock of Hesperix, as well as additional transaction documents. Concurrent with the Share Purchase Agreement, we also entered into an assignment agreement with OPKO Pharmaceuticals, LLC ("OPKO") pursuant to which the Company acquired and accepted all of OPKO's right, title and interest in an Intellectual Property License Agreement entered into between the Institute and OPKO related to the XCART technology. In total, we issued approximately 625,000 shares of our common stock in the Transaction, including approximately 406,250 shares issued to the shareholders of Hesperix and 218,749 shares of common stock issued in connection with the OPKO Assignment Agreement. Of the 218,749 shares issued in connection with the OPKO Assignment Agreement, OPKO received 164,062 shares and the Institute received 54,687 shares.
- OPKO is a wholly-owned subsidiary of OPKO Health. OPKO Health owns approximately 3.5% of the Company's issued and outstanding Common Stock as of September 11, 2019. OPKO Health's ownership of Company Common Stock does not include shares of Common Stock issuable upon the conversion of our Series B Preferred Stock and the exercise of outstanding warrants. Dr. Lerner, a co-inventor of the XCART platform technology and former shareholder of Hesperix, is employed by the Institute and is a director of OPKO Health. A director of the Company, Adam Logal, is the Senior Vice President and Chief Financial Officer of OPKO Health. OPKO Health also owns approximately 9% of the issued and outstanding stock of Pharmasynthez, the Company's largest and controlling stockholder with ownership of approximately 8% of the Company's issued and outstanding Common Stock.
- On March 5, 2019, the Company entered into a Securities Purchase Agreement with the EAM, ETE and ETE II (collectively, the "Purchasers"), pursuant to which the Company offered to the Purchasers, in a registered direct offering, an aggregate of (i) 86,667 shares (the "Shares") of Common Stock and (ii) pre-funded warrants to purchase 42,417 shares of Common Stock (the "Pre-Funded Warrants"). All of the Pre-Funded Warrants were exercised in June 2019. Aggregate gross proceeds to the Company were approximately \$3.1 million, before deducting fees to the placement agent and other estimated offering expenses payable by the Company. The Shares and Pre-Funded Warrants were offered by the Company pursuant to an effective shelf registration statement on Form S-3, which the Company originally filed with the Securities and Exchange Commission on September 27, 2018, and was declared effective on October 12, 2018 (File No. 333-227572).

- In a concurrent private placement, on March 5, 2019, the Company also sold to the Purchasers a warrant to purchase one share of the Common Stock for each Share and Pre-Funded Warrant purchased in the offering (the “Bridge Warrants”), representing Bridge Warrants to purchase up to 129,084 shares of the Common Stock. The Bridge Warrants were exercisable beginning on September 8, 2019 (the “Initial Exercise Date”) at an exercise price of \$27.00 per share and expire on the seven year anniversary of the Initial Exercise Date.
- In connection with the Company's reverse stock split, on June 24, 2019, the Company entered into a consent agreement with the Purchasers whose consent was required to effect the reverse stock split, which was effective June 25, 2019. In consideration of the Purchasers’ consent, the Company agreed to issue the Purchasers the Consent Warrants to purchase an aggregate of 8,335 shares of Company common stock. On July 16, 2019, in connection with a potential financing transaction, the Company entered into a second consent agreement (the “Consent Agreement”) with the Purchasers whose consent was sought in connection with the potential financing transaction. In consideration of the Purchasers’ consent, the Company (i) issued the Purchasers an aggregate of 16,666 shares of the Company’s Common Stock (the "Consent Shares") and (ii) adjusted the exercise price of the Consent Warrants. Pursuant to the Consent Agreement, the Company agreed to register the Consent Shares and the common stock underlying the Consent Warrants.

PLAN OF DISTRIBUTION

Selling Stockholders

We are registering the shares of Common Stock to permit the resale of these shares of Common Stock by the holders of the Common Stock from time to time after the date of this prospectus. We will not receive any of the proceeds from the sale by the selling stockholders of the shares of Common Stock but will receive proceeds from the exercise of the Consent Warrants and the Bridge Warrants if the Consent Warrants and the Bridge Warrants are exercised, which proceeds will be used for working capital and other general corporate purposes. We will bear all fees and expenses incident to our obligation to register the shares of Common Stock.

The selling stockholders, or their pledgees, donees, transferees, or any of their successors in interest selling shares received from a named selling stockholder as a gift, partnership distribution or other non-sale-related transfer after the date of this prospectus (all of whom may be selling stockholders), may sell the securities from time to time on any stock exchange or automated interdealer quotation system on which the securities are listed, in the over-the-counter market, in privately negotiated transactions or otherwise, at fixed prices that may be changed, at market prices prevailing at the time of sale, at prices related to prevailing market prices or at prices otherwise negotiated. The selling stockholders may sell the securities by one or more of the following methods, without limitation:

- (a) block trades in which the broker or dealer so engaged will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- (b) purchases by a broker or dealer as principal and resale by the broker or dealer for its own account pursuant to this prospectus;
- (c) an exchange distribution in accordance with the rules of any stock exchange on which the securities are listed;
- (d) ordinary brokerage transactions and transactions in which the broker solicits purchases;
- (e) privately negotiated transactions;
- (f) short sales;
- (g) through the writing of options on the securities, whether or not the options are listed on an option exchange;
- (h) through the distribution of the securities by any selling stockholder to its partners, members or stockholders;
- (i) one or more underwritten offerings on a firm commitment or best efforts basis;
- (j) any combination of any of these methods of sale; or
- (k) any other method permitted pursuant to applicable law.

The selling stockholders may also transfer the securities by gift. We do not know of any arrangements by the selling stockholders for the sale of any of the securities. The selling stockholders may engage brokers and dealers, and any brokers or dealers may arrange for other brokers or dealers to participate in effecting sales of the securities. These brokers, dealers or underwriters may act as principals, or as an agent of a selling stockholder. Broker-dealers may agree with a selling stockholder to sell a specified number of the securities at a stipulated price per security. If the broker-dealer is unable to sell securities acting as agent for a selling stockholder, it may purchase as principal any unsold securities at the stipulated price. Broker-dealers who acquire securities as principals may thereafter resell the securities from time to time in transactions in any stock exchange or automated interdealer quotation system on which the securities are then listed, at prices and on terms then prevailing at the time of sale, at prices related to the then-current market price or in negotiated transactions. Broker-dealers may use block transactions and sales to and through broker-dealers, including transactions of the nature described above. The selling stockholders may also sell the securities in accordance with Rule 144 under the Securities Act of 1933, as amended, rather than pursuant to this prospectus, regardless of whether the securities are covered by this prospectus.

From time to time, one or more of the selling stockholders may pledge, hypothecate or grant a security interest in some or all of the securities owned by them. The pledgees, secured parties or persons to whom the securities have been hypothecated will, upon foreclosure in the event of default, be deemed to be selling stockholders. The number of a selling stockholder's securities offered under this prospectus will decrease as and when it takes such actions. The plan of distribution for that selling stockholder's securities will otherwise remain unchanged. In addition, a selling stockholder may, from time to time, sell the securities short, and, in those instances, this prospectus may be delivered in connection with the short sales and the securities offered under this prospectus may be used to cover short sales.

To the extent required under the Securities Act of 1933, the aggregate amount of selling stockholders' securities being offered and the terms of the offering, the names of any agents, brokers, dealers or underwriters and any applicable commission with respect to a particular offer will be set forth in an accompanying prospectus supplement. Any underwriters, dealers, brokers or agents participating in the distribution of the securities may receive compensation in the form of underwriting discounts, concessions, commissions or fees from a selling stockholder and/or purchasers of selling stockholders' securities of securities, for whom they may act (which compensation as to a particular broker-dealer might be in excess of customary commissions).

The selling stockholders and any underwriters, brokers, dealers or agents that participate in the distribution of the securities may be deemed to be "underwriters" within the meaning of the Securities Act of 1933, and any discounts, concessions, commissions or fees received by them and any profit on the resale of the securities sold by them may be deemed to be underwriting discounts and commissions.

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:

- The Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2018, filed on March 29, 2019, as amended on [Form 10-K/A](#), filed with the SEC on April 30, 2019;
- Our Quarterly Report on [Form 10-Q](#) for the quarter ended March 31, 2019 filed with the SEC on May 13, 2019;
- Our Quarterly Report on [Form 10-Q](#) for the quarter ended June 30, 2019, filed with the SEC on August 14, 2019;
- The Current Reports on Form 8-K filed on [March 4, 2019](#), [March 5, 2019](#), [March 7, 2019](#), [May 13, 2019](#) (Form 8-K/A), [May 20, 2019](#) (Form 8-K/A), June 13, 2019, June 24, 2019, June 25, 2019, July 2, 2019, July 16, 2019, July 17, 2019, and July 22, 2019; 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.

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

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 will also be 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 stockholders. 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.

LEGAL MATTERS

The validity of the shares of Common Stock offered through this prospectus has been passed on by Westward Law, LLC, Las Vegas, Nevada.

EXPERTS

The financial statements of Xenetic Biosciences, Inc. as of December 31, 2018 and 2017, and for each of the years in the two-year period ended December 31, 2018, 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.

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

SEC registration fee	\$	69.59
Legal fees and expenses		20,000.00
Accounting fees and expenses		5,000.00
Miscellaneous expenses		5,000.00
Total	\$	<u>30,069.59</u>

All amounts are estimates, other than the SEC's registration fee.

We are paying all expenses of the offering listed above. No portion of these expenses will be borne by the selling stockholders. The selling stockholders, however, will pay all underwriting discounts and selling commissions, if any.

Item 15. Indemnification of Directors and Officers.

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	Exhibit Description
3.1	<u>Articles of Incorporation</u> (Incorporated by reference to Exhibit 3.1 in the Company's Registration Statement on Form S-1, filed on November 21, 2011).
3.2	<u>Certificate of Amendment to Articles of Incorporation</u> (Incorporated by reference to Exhibit 3.1 in the Company's Current Report on Form 8-K, filed on February 12, 2013).
3.3	<u>Certificate of Amendment to Articles of Incorporation</u> (Incorporated by reference to Exhibit 3.1 in the Company's Current Report on Form 8-K, filed on February 27, 2013).
3.4	<u>Certificate of Amendment to Articles of Incorporation</u> (Incorporated by reference to Exhibit 3.1 in the Company's Quarterly Report on Form 10-Q, filed on January 10, 2014).
3.5	<u>Certificate of Change Pursuant to NRS 78.209</u> (Incorporated by reference to Exhibit 3.2 in the Company's Quarterly Report on Form 10-Q, filed on January 10, 2014).
3.6	<u>Certificate of Amendment to Articles of Incorporation</u> (Incorporated by reference to Exhibit 3.1 in the Company's Current Report on Form 8-K, filed on September 30, 2015).
3.7	<u>Amended and Restated Bylaws</u> (Incorporated by reference to Exhibit 3.1 in the Company's Current Report on Form 8-K, filed on February 27, 2017).
3.8	<u>Form of Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series A Preferred Stock</u> (Incorporated by reference to Exhibit 3.9 in the Company's Registration Statement on Form S-1/A, filed on October 27, 2016).

3.9	Second Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series B Preferred Stock (Incorporated by reference to Exhibit A to the Company's Information Statement on Schedule 14C filed on May 2, 2017).
4.1	Form of Purchase Warrant (Incorporated by reference to Exhibit 4.2 in the Company's Current Report on Form 8-K, filed on March 7, 2019).
4.2	Form of Warrant (Incorporated by reference to Exhibit 4.1 in the Company's Current Report on Form 8-K, filed on June 25, 2019).
5.1	Opinion of Westward LLC*
10.1	Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed with the SEC on March 7, 2019).
10.2	OPKO Assignment Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed with the SEC on March 4, 2019).
10.3	First Amendment to OPKO Assignment Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed with the SEC on June 13, 2019).
10.4	Second Amendment to OPKO Assignment Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed with the SEC on June 24, 2019).
10.5	Third Amendment to OPKO Assignment Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed with the SEC on July 16, 2019).
10.6	Form of Securities Purchase Agreement (Incorporated by reference to Exhibit 10.1 in the Company's Current Report on Form 8-K, filed on March 7, 2019).
10.7	Consent Agreement (Incorporated by reference to Exhibit 10.1 in the Company's Current Report on Form 8-K, filed on June 25, 2019).
10.8	Consent Agreement (Incorporated by reference to Exhibit 10.1 in the Company's Current Report on Form 8-K, filed on July 16, 2019).
23.1	Consent of Marcum LLP*
23.2	Consent of Westward LLC (included with Exhibit 5.1)*
24.1	Power of Attorney (included with signature page on this Form S-3)*
*	Filed herewith

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

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

Provided, however, that:

paragraphs (a)(1)(i), (a)(1)(ii), and (a)(1)(iii) of this section do not apply if the registration statement is on Form S-3 or Form F-3 and 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 the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the 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, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. 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 first use, 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 date of first use.

(b) 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.

(c) 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 Securities and Exchange 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 and will be governed by the final adjudication of such issue.

Pursuant to the requirements of the Securities Act of 1933, 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 to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Framingham, Commonwealth of Massachusetts, on this 13th day of September, 2019.

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

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.

II-4

WESTWARD LAW, LLC

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

September 13, 2019

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 counsel for Xenetic Biosciences, Inc., a Nevada corporation (the "Company"), in connection with the filing with the Securities and Exchange Commission (the "Commission") of a Registration Statement on Form S-3 (such registration statement, as amended, is herein referred to as the "Registration Statement"), pursuant to which the Company is registering under the Securities Act of 1933, as amended (the "Act"), the resale of (i) 235,415 shares (the "Shares") of Xenetic Biosciences, Inc. (the "Company") Common Stock ("Common Stock"), (ii) 8,335 shares of Common Stock underlying outstanding warrants (the "Consent Warrant Shares") issued to certain purchasers in connection with a consent agreement entered into in connection with the Company's reverse stock split on June 25, 2019 (the "Consent Warrants"), and (iii) 129,084 shares of Common Stock underlying outstanding warrants (the "Bridge Warrant Shares," and together with the Consent Warrant Shares, the "Warrant Shares") issued to certain purchasers in connection with a securities purchase agreement dated March 5, 2019 (the "Bridge Warrants," and together with the Consent Warrants, the "Warrants"). This opinion is being rendered in connection with the filing of the Registration Statement. All capitalized terms used herein and not otherwise defined shall have the respective meanings given to them in the Registration Statement.

We, as your Nevada counsel, have examined originals or copies, certified or otherwise identified to our satisfaction, of: (i) the Registration Statement, (ii) the Articles of Incorporation of the Company, as amended, as currently in effect; (iii) the By-Laws of the Company, as amended, as currently in effect, (iv) the Consent Warrants, (v) the Bridge Warrants, and (vi) certain resolutions of the Board of Directors of the Company. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates of public officials, certificates of officers or other representatives of the Company and others, and such other documents, certificates and records as we have deemed necessary or appropriate as a basis for the opinion set forth herein.

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, and the authenticity of the originals of such latter documents.

As to matters of fact material to this opinion, we have relied to the extent we deemed reasonably appropriate upon representations or certificates of officers or directors of the Company (including those provided previously), without independently verifying the accuracy of such documents, records and instruments.

Based upon the foregoing and subject to the limitations set forth below, we are of the opinion that (i) the Shares are duly and validly issued, fully paid and non-assessable and (ii) the Warrant Shares, when issued and paid for in accordance with the terms of the Warrants, will be duly and validly issued, fully paid and non-assessable.

The opinion expressed herein is limited to the federal securities laws of the United States of America and the corporate laws of the State of Nevada and we express no opinion as to the effect on the matters covered of the laws of any other jurisdiction.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement referred to above and further consent to the reference to our name under the caption "Legal Matters" in the Prospectus, which is a part of the Registration Statement. In giving this consent, we believe and do not hereby 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 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 29, 2019, except for Note 2, as to which the date is July 1, 2019, which includes an explanatory paragraph as to the company's ability to continue as a going concern, with respect to our audits of the consolidated financial statements of Xenetic Biosciences, Inc. as of December 31, 2018 and 2017 and for each of the two years in the period ended December 31, 2018 appearing in the Annual Report on Form 10-K of Xenetic Biosciences, Inc. for the year ended December 31, 2018. 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
September 13, 2019