

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Form 10-K/A
Amendment No. 2

(Mark One) ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.
For the fiscal year ended December 31, 2015

TRANSITION REPORTS PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.
For the transition period from _____ to _____

Commission File Number: 333-178082

XENETIC BIOSCIENCES, INC.
(Exact name of registrant as specified in its charter)

Nevada
(State or other jurisdiction of
incorporation or organization)

45-2952962
(IRS Employer
Identification No.)

99 Hayden Ave, Suite 230
Lexington, Massachusetts 02421
(Address of principal executive offices and zip code)

781-778-7720
(Registrant's telephone number, including area code)

Title of Each Class
None

Name of Each Exchange
on Which Registered
None

Securities registered pursuant to Section 12(b) of the Act:
None

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well known seasoned issuer, as defined in Rule 405 of the Securities Act: Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act: Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days: Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files): Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K: Yes No

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

Large accelerated filer Accelerated filer
Non-accelerated filer Smaller reporting company
(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Exchange Act Rule 12b-2): Yes No

The approximate aggregate market value of voting common stock held by non-affiliates of the registrant, based upon the last sale price of the registrant's common stock on the last business day of the registrant's most recently completed second fiscal quarter June 30, 2015 (based upon the shares of common stock at the closing sale price of the registrant's common stock listed as reported on the OTC Bulletin Board), was approximately \$9,500,000.

As of April 29, 2016 the number of outstanding shares of the registrant's common stock was 297,790,240.

DOCUMENTS INCORPORATED BY REFERENCE
None.

EXPLANATORY NOTE

The Registrant is filing this Amendment No. 2 on Form 10-K/A (“Form 10-K/A #2”) to its Annual Report on Form 10-K for the fiscal year ended December 31, 2015 (“Form 10-K”) in order to:

Amend and replace in its entirety the **REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**, Ernst & Young LLP, Reading, United Kingdom, dated April 15, 2015. This 10-K/A #2 is required in order to clarify that Ernst & Young LLP, as predecessor auditor, was not engaged to audit, review, or apply any procedures to the adjustments to retrospectively apply the change in par value described in Note 11. Those adjustments were audited by the successor auditor; and

Amend and replace in their entirety the following disclosures included in ITEM 7 – MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS of Form 10-K under the heading RESULTS OF OPERATIONS: 1) the table that sets forth the R&D costs incurred by the Company, by category of expense, for the year ended December 31, 2014 under the caption “Research and Development”, 2) the narrative descriptions of period over period changes in results of operations under the captions “Research and Development by Category of Expense” under *Outside Services and Contract Research Organization Costs* and *Share-based Expense*; and 3) the cash flows narrative under the caption “Cash Flows Used in Operating Activities”. The changes are being made in order to reclassify an \$811,196 expense representing the fair value of common stock issued in exchange for an intellectual property assignment to the Company made during 2014 and to amend Cash flows used in operating activities for the year ended December 31, 2014 from approximately \$12.3 million to approximately \$12.7 million.

Except as described above and as previously filed with Amendment No. 1 on Form 10-K/A filed on April 29, 2016, there have been no other changes to the Annual Report filed on Form 10-K filed with the SEC on March 30, 2016. This Form 10-K/A #2 does not purport to reflect any information or events subsequent to the filing thereof. As such, this Form 10-K/A #2 speaks only as of the date the Form 10-K was filed, and the Registrant has not undertaken herein to amend, supplement or update any information contained in the Form 10-K to give effect to any subsequent events. Accordingly, this Form 10-K/A #2 should be read in conjunction with the Form 10-K.

PART II

ITEM 7 – MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Research and Development

The Company engages in independent research and development (“R&D”) in connection with its various technologies. Overall, corporate R&D expenses for the year ended December 31, 2015 decreased by approximately \$2.89 million, or 45.7% to \$3.43 million from \$6.32 million in 2014. The table below sets forth the R&D costs incurred by the Company, by category of expense, for the years ended December 31, 2015 and 2014:

Category of Expense	Year ended December 31,	
	2015	2014
Outside services and Contract Research Organizations	\$ 1,794,523	\$ 4,296,795
Share-based expense	886,805	952,829
Salaries and wages	491,623	729,082
Rents	89,354	78,076
Lab consumables	23,711	26,280
Other	148,000	240,834
Total research and development expense	\$ 3,434,016	\$ 6,323,896

Research and Development by Category of Expense

Outside Services and Contract Research Organization Costs

The significant decrease in outside services and contract research organization costs of \$2,502,272, or 58.2% for the year ended December 31, 2015 is primarily due to the planned deferral of IND-enabling preclinical work conducted in connection with the OncoHist™ program due to working capital constraints. The costs of conducting the ongoing ErepoXen™ human clinical trials were relatively unchanged as the trials proceeded as planned, with costs of approximately \$1.07 million and \$1.12 million in 2015 and 2014, respectively.

Share-based Expense

Share-based expense decreased \$66,024 or 6.9% to \$886,805 for the year ended December 31, 2015 from \$952,829 for the prior year. The fluctuation is primarily due to the normal expensing of the fair value of stock option awards and warrants granted to R&D personnel in September 2015 and December 2014. The December 2014 warrant grants did not have a significant impact on the 2014 share-based payments expense but resulted in a \$706,500 expense for the year ended December 31, 2015. The 2014 share-based expense includes \$811,196 for the fair value of common stock issued in exchange for an intellectual property assignment to the company made during 2014 compared to \$0 for the comparable period in 2015.

Cash Flows Used in Operating Activities

Cash flows used in operating activities for the year ended December 31, 2015 totaled approximately \$5.3 million. The \$5.3 million includes net operating cash uses of approximately \$1.78 million in consulting, legal and other professional service fees, approximately \$1.54 million in salaries and wages, including scientific staff, approximately \$1.25 million in program-specific clinical development costs and approximately \$232,000 in rent and utilities expenses.

Cash flows used in operating activities for the year ended December 31, 2014 totaled approximately \$12.7 million. The \$12.7 million includes net operating cash uses of approximately \$7.00 million in consulting, legal and other professional service fees, approximately \$3.01 million in salaries and wages, including scientific staff, and approximately \$1.80 million in program-specific clinical development costs.

ITEM 8 – FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders of Xenetic Biosciences, Inc.

We have audited, before the effects of the adjustments to retrospectively apply the change in par value described in Note 11, the consolidated balance sheet of Xenetic Biosciences, Inc. (the “Company”) as of December 31, 2014, and the related consolidated statements of comprehensive loss, changes in stockholders’ equity, and cash flows for the year then ended (the 2014 financial statements before the effects of the adjustments discussed in Note 11 are not presented herein). Our audit also includes the financial statement schedule. The 2014 financial statements and schedule are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company’s internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provide a reasonable basis for our opinion.

In our opinion, the 2014 financial statements, before the effects of the adjustments to retrospectively apply the change in par value described in Note 11, present fairly, in all material respects, the consolidated financial position of Xenetic Biosciences, Inc. as of December 31, 2014, and the consolidated results of its operations and its cash flows for the year then ended in conformity with US generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As disclosed in Note 1 to the Financial Statements, the Company’s recurring losses from operations and its requirement to raise funds to continue operations beyond April 2015, raise substantial doubt about its ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 1. The 2014 consolidated financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

We were not engaged to audit, review, or apply any procedures to the adjustments to retrospectively apply the change in par value described in Note 11 and, accordingly, we do not express an opinion or any other form of assurance about whether such adjustments are appropriate and have been properly applied. Those adjustments were audited by the successor auditor.

/s/ Ernst & Young LLP

Reading, United Kingdom

April 15, 2015

PART IV

ITEM 15 – EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

- (b) **Exhibits:** The attached list of exhibits in the “Exhibit Index” immediately preceding the exhibits to this Form 10-K/A is incorporated herein by reference in response to this item.

EXHIBIT INDEX

EXHIBIT

NUMBER DESCRIPTION

- 31.1* Certification of Michael Scott Maguire, Principal Executive Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
- 31.2* Certification of Michael Scott Maguire, Principal Financial Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 32.1** Certifications of Michael Scott Maguire, Chief Executive Officer and Chief Financial Officer, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

(1) Incorporated by reference to Amendment No. 1 to the Annual Report on Form 10-K filed April 30, 2015

* Filed herewith

** Furnished herewith

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Michael Scott Maguire, certify that:

1. I have reviewed this Amendment No. 2 on Form 10-K/A to Annual Report on Form 10-K of Xenetic Biosciences, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: May 6, 2016

By: /s/ Michael Scott Maguire
Michael Scott Maguire
Principal Executive Officer, President and Director

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Michael Scott Maguire, certify that:

1. I have reviewed this Amendment No. 2 on Form 10-K/A to Annual Report on Form 10-K of Xenetic Biosciences, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: May 6, 2016

By: /s/ Michael Scott Maguire
Michael Scott Maguire
Principal Financial Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Amendment No. 2 on Form 10-K/A to Annual Report of Xenetic Biosciences, Inc. (the "Company") on Form 10K for the fiscal year ended December 31, 2015, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, the undersigned officers of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of our knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: May 6, 2016

By: /s/ Michael Scott Maguire
Michael Scott Maguire
Chief Executive Officer, President and Chief Financial Officer