UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**
For the quarterly period ended March 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	**45-2952962**
(State or other jurisdiction of incorporation or organization)	**(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)

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 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 (Do not check if a smaller reporting company)	☐	Smaller reporting company	☒

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

As of May 15, 2015 the number of outstanding shares of the registrant's common stock was 149,985,476.

XENETIC BIOSCIENCES, INC
FORM 10-Q
QUARTERLY PERIOD ENDED MARCH 31, 2015

PART 1 – FINANCIAL INFORMATION

ITEM 1 – FINANCIAL STATEMENTS

XENETIC BIOSCIENCES, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS

	March 31, 2015	December 31, 2014
ASSETS		
Current assets:		
Cash	$ 936,588	$ 2,507,401
Restricted cash	66,000	66,000
Other receivables	81,090	115,775
Prepaid expenses and other	87,697	88,237
Total current assets	1,171,375	2,777,413
Property and equipment, net	89,703	119,449
Goodwill	3,303,234	3,465,157
Indefinite-lived intangible assets	9,299,022	9,754,857
Other assets	178,141	199,270
Total assets	$ 14,041,475	$ 16,316,146
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,360,126	$ 852,760
Accrued expenses	935,034	1,409,691
Other current liabilities	154,432	41,472
Loans due to related parties	395,000	395,000
Total current liabilities	2,844,592	2,698,923
Deferred tax liability	2,936,167	3,080,097
Other liabilities	52,153	56,383
Total liabilities	5,832,912	5,835,403
Commitments and contingent liabilities	–	–
Stockholders' equity:		
Common stock, $0.01 par value; 215,456,000 shares authorized as of March 31, 2015 and December 31, 2014; 149,985,476 shares issued as of March 31, 2015 and December 31, 2014; 139,297,282 shares outstanding as of March 31, 2015 and December 31, 2014	1,499,855	1,499,855
Additional paid in capital	89,458,048	89,310,820
Accumulated deficit	(78,055,657)	(75,624,428)
Accumulated other comprehensive income	587,497	575,676
Treasury stock	(5,281,180)	(5,281,180)
Total stockholders' equity	8,208,563	10,480,743
Total liabilities and stockholders' equity	$ 14,041,475	$ 16,316,146

The accompanying notes are an integral part of these condensed consolidated financial statements.

XENETIC BIOSCIENCES, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(unaudited)

	THREE MONTHS ENDED MARCH 31,	
	2015	**2014**
Revenue	$ –	$ –
Cost of revenue	–	–
Gross profit	–	–
Operating costs and expenses:		
Research and development	1,035,083	564,890
General and administrative	935,226	2,394,205
	1,970,309	2,959,095
Loss from operations	(1,970,309)	(2,959,095)
Other income (expense):		
Loss on disposal of subsidiaries	–	(1,069,675)
Other income (expense)	(459,968)	(34,421)
Interest income	174	1,044
Interest expense	(1,126)	(884)
	(460,920)	(1,103,936)
Loss before income taxes	$ (2,431,229)	$ (4,063,031)
Income tax	–	–
Net loss	$ (2,431,229)	$ (4,063,031)
Other comprehensive income (loss)		
Foreign currency translation adjustment	11,821	125,884
Total comprehensive loss	$ (2,419,408)	$ (3,937,147)
Net loss per share of common stock, basic and diluted	$ (0.02)	$ (0.03)
Weighted-average shares of common stock outstanding, basic and diluted	139,297,282	136,052,498

The accompanying notes are an integral part of these condensed consolidated financial statements.

XENETIC BIOSCIENCES, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)

	THREE MONTHS ENDED MARCH 31,	
	2015	**2014**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net Loss	$ (2,431,229)	$ (4,063,031)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	163,289	15,989
Share-based compensation	147,228	388,925
Loss on disposal of subsidiaries	–	1,069,675
Fee paid on disposal of subsidiaries	–	(430,000)
Foreign currency translation	–	(6,114)
Changes in operating assets and liabilities:		
Accounts receivables, prepayments and other receivables	(97,346)	(258,576)
Accounts payable, accrued expenses and other liabilities	181,782	(840,825)
Net cash used in operating activities	(2,036,276)	(4,123,957)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	–	(16,992)
Disposition of property and equipment	6,245	5,503
Cash acquired from Acquisition	–	43,502
Cash transferred in connection with Hive Out Agreement	–	(43,502)
Net cash used in investing activities	6,245	(11,489)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from issuance of common stock	–	10,000,000
Proceeds from exercise of stock options	–	101,933
Payments on loan from related party	–	–
Net cash provided by financing activities	–	10,101,933
Effect of exchange rate change on cash and cash equivalents	459,218	51,851
Net decrease in cash and cash equivalents, excluding restricted cash	(1,570,813)	6,018,338
Cash and cash equivalents at beginning of period	2,507,401	4,839,486
Cash and cash equivalents at end of period	$ 936,588	$ 10,857,824
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash paid for interest	$ 1,126	$ –
Cash paid for income taxes	$ –	$ –
SUPPLEMENTAL SCHEDULE OF NON-CASH INVESTING AND FINANCING ACTIVITIES:		
Equity consideration transferred in the Acquisition	$ –	$ 3,750,000
Repurchase and cancellation of common stock in disposal of subsidiaries	$ –	$ (3,750,000)

The accompanying notes are an integral part of these condensed consolidated financial statements.

XENETIC BIOSCIENCES, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(unaudited)

1. The Company

Background

Xenetic Biosciences, Inc. (the "Company"), incorporated in the state of Nevada and based in Lexington, Massachusetts, is a clinical stage biopharmaceutical company that is focused on the discovery, development and planned commercialization of a new generation of human drug therapies for the treatment of a variety of conditions including anemia, refractory Acute Myeloid Leukemia, Cystic Fibrosis and certain cancers based upon its proprietary and patented drug delivery platform systems and drug development collaborations with major third party pharmaceutical companies around the world.

The Company's drug delivery platform systems include PolyXen® for creating next generation biologic drugs by extending the efficacy, safety and half-life of existing biologic drugs, OncoHist™ for the development of novel oncology drug therapies focused on orphan indications in humans and ImuXen® for the development of vaccines that can simultaneously deliver multiple active pharmaceutical ingredients. The Company is also developing a broad pipeline of drug candidates for next generation biologics and novel oncology therapeutics in a number of orphan disease indications.

With the Company's relocation to the United States from the United Kingdom, the Company, having historically been a research organization, is now focused on employing United States based drug development expertise leveraging off its 147 issued patents and 90 patent applications to develop a proprietary drug pipeline of next generation products. All the rights over the Company's patents and licenses are controlled in the United Kingdom.

Going Concern

We have historically relied upon equity financing to fund our operations. Since 2005 we have raised approximately $47 million in equity financing, including $10 million from the sale of shares to Baxter in January 2014, while recording revenues of approximately $10 million during that same period. Approximately 90% of that revenue is from a single customer, Baxter, in connection with milestone receipts and fees for services. We expect the majority of our funding through equity or equity linked instruments to continue as a trend for the foreseeable future.

For the quarter ended March 31, 2015, our working capital decreased due to our net loss of $2.4 million and cash used in operating activities of $2.0 million which sum includes approximately $631,000 in program-specific clinical development costs, $445,000 in legal and professional consultants, $379,000 in salaries and wages, including scientific staff, $99,000 in accounting and tax consultants and approximately $446,000 from all other research development and general and administrative costs.

At March 31, 2015 and December 31, 2014 we had a working capital deficit of $1.7 million and working capital of $78,000, respectively. As of March 31, 2015, we had $0.9 million in cash and $2.8 million in total current liabilities. As of December 31, 2014, we had cash and current liabilities of $2.5 million and $2.7 million, respectively. Included in the working capital deficit at March 31, 2015 is a trade payable in the amount of approximately $431,000 that is being disputed by the Company and a loan from related parties in the amount of $395,000 that is subject to alternative payment arrangements. We expect that the loan from related parties will be settled only at such time as an adequate sized capital raise is concluded. The loan is classified as current on our condensed consolidated balance sheet as of March 31, 2015 and there is no certainty that the amount due will not be called prior to an equity raise.

Pursuant to arrangements previously disclosed concerning the appointment of investment bankers retained for the purpose of assisting the Company in seeking finance from various parties, whether by way of the issuance of equity or debt instruments, non-binding indications of interest have been received to provide additional working capital in an amount of up to $3,200,000 net of expenses.

Although there can be no assurance on either the timing or extent of such outcome, the Company expects to receive funding from the sale of such securities (of such type and in such form as may be agreed between the parties) within approximately 10 business days of the filing of this Quarterly Report on Form 10-Q (the "10-Q").

Even following the sale of the securities referred to above, the Company will be required to raise additional working capital of approximately $5,000,000 before the end of October 2015 in order to meet its financial obligations through March 31, 2016 under its base business plan. To this end, management has received non-binding indications of interest to complete a second, and similarly structured debt offering according to the Company's working capital needs, such later offering being likely to be made sometime in Q3 or Q4 2015. Although we have received indications of interest, no investor is obligated to provide additional financing to the Company and there is no certainty that we will receive such financing based on the contemplated terms or otherwise.

While the Company believes that the working capital to be received from the sale of the securities referred to above will allow the Company to continue its base business activities and to meet its financial obligations for approximately five months from now, it remains confident of raising such further working capital as may be necessary to secure its financial position and to continue to fund its operations through to the proposed completion of a registered equity raise and planned up-list to a National Exchange within the next 12 months.

Dependent upon the amount of working capital the Company is able to raise in the upcoming five months we may be able to fund activities beyond our current "base business plan". If we successfully generate funding in excess of our basic requirements, our priorities will be: (i) to accelerate existing drug development programs; and (ii) to pursue additional indications based upon our existing patented and proprietary technologies.

The only significant cash receipts that we expect may fall due under our current collaborations would be from Baxter. Due to the uncertainties and risks inherent in the clinical development process, we are unable to predict precisely when those receipts may occur, if ever. We do not expect any significant receipts to become due before 2016, however there can be no assurance that future receipts will ever become due because they are contingent on positive outcomes from Baxter's clinical development efforts in connection with the Factor VIII drug candidate.

We are in the early stages of seeking out-license arrangements for our ErepoXen ® technology but do not expect any new income to be generated from such outlicensing before Q1 2016 at the earliest. Due to the uncertainties inherent in the clinical research process and unknown future market conditions, there can be no assurance our ErepoXen® technology will lead to any future income.

Baxter currently holds a share warrant entitling them to subscribe for approximately 4.59 million new shares of common stock in the Company at a price of $0.4660 per share. These warrants are due to expire in June 2016. We do not expect Baxter to exercise these warrants at the prevailing average price of the stock of the Company as quoted on the OTCQB, and in any event, not before June 2016.

Although we are optimistic about our ability to raise additional working capital, there can be no assurance that we will be successful in our efforts to raise additional working capital by way of a bridge financing, or on any future equity transaction or, even if the Company is successful, that the Company will be able to do so on commercially reasonable terms. Further, due to the uncertainties inherent in the clinical research process and unknown future market conditions, there can be no assurance that either the Company's ErepoXen® candidate will lead to any future fees or that Baxter itself will be successful in initiating human clinical trials in the estimated timeframe or that the underlying product will meet the clinical milestones necessary to trigger any payment to the Company under the terms of its license agreement with them.

While the interim financial statements have been prepared on a going concern basis, if the Company does not successfully conclude the follow on financing described above, there is no assurance that the Company would be able to continue planned operations and these conditions raise substantial doubt about its ability to continue as a going concern. Under such circumstances, the Company would have to further reduce the planned scale of, or possibly suspend, all of its pre-clinical development initiatives and clinical trials delivered by external consultants.

2. Summary of Significant Accounting Policies

Preparation of Interim Financial Statements

The accompanying condensed consolidated financial statements were prepared by the Company pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC") and, in the opinion of management, include all normal and recurring adjustments necessary to present fairly the results of the interim periods shown. Certain information and footnote disclosures normally included in financial statements prepared in accordance with US GAAP have been condensed or omitted pursuant to such SEC rules and regulations. Management believes that the disclosures made are adequate to make the information presented not misleading. The results for the interim periods are not necessarily indicative of results for the full year. The condensed consolidated financial statements contained herein should be read in conjunction with the consolidated financial statements and notes thereto included in the Company's 2014 Annual Report on Form 10-K.

Certain research and development, general and administrative and other expense classifications for the three months ended March 31, 2014 presented on the condensed consolidated statement of comprehensive loss have been reclassified to conform to the presentation for the current period.

Principles of Consolidation

The financial statements of the Company include the accounts of Xenetic Biosciences (UK) Limited ("Xenetic UK"), formerly Xenetic Biosciences plc, and its wholly owned subsidiaries; Lipoxen Technologies Limited, Xenetic Bioscience, Incorporated, and SymbioTec GmbH ("SymbioTec"). All material intercompany balances and transactions have been eliminated on consolidation.

Recent Accounting Pronouncements

In August 2014, the Financial Accounting Standard Board (FASB) issued ASU 2014-15, *Presentation of Financial Statements – Going Concern* (Subtopic 205-40) ("ASU 2014-15"). ASU 2014-15 defines management's responsibility to evaluate whether there is substantial doubt about an organization's ability to continue as a going concern and provides guidance on the related footnote disclosures. This guidance is effective for annual reporting periods beginning after December 15, 2016, and interim periods within annual periods beginning after December 15, 2016. Early application is permitted. The Company is currently evaluating the impact of this new standard.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606) ("ASU 2014-09"). ASU 2014-09 supersedes the revenue recognition requirements in ASC Topic 605, *Revenue Recognition*, and most industry-specific guidance. The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. This guidance is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period, under either full or modified retrospective approach. Early application is not permitted. The Company is currently evaluating the impact of this new standard on its revenue recognition policy.

The Company has considered other recent accounting pronouncements and concluded that they are either not applicable to the business, or that no material effect is expected on the consolidated financial statements as a result of future adoption.

3. Acquisitions

On January 23, 2014, the Company completed the Acquisition transaction with Xenetic UK and resulted in the Company acquiring all of the issued and outstanding common stock of Xenetic UK. The Acquisition was accounted for as a reverse acquisition under the acquisition method of accounting per ASC 805, with Xenetic UK treated as the accounting acquirer and the Company treated as the "acquired" company for financial reporting purposes. This was determined based on the following facts: (i) after the reverse merger, former shareholders of Xenetic UK held a majority of the voting interest of the combined company; (ii) former Board of Directors of Xenetic UK possess majority control of the Board of Directors of the combined company; and (iii) members of the management of Xenetic UK are responsible for the management of the combined company. As such, the financial statements of Xenetic UK are treated as the historical financial statements of the combined company. The fair value of the consideration transferred in the reverse merger was $3.75 million. As of December 31, 2014, the Company finalized the purchase accounting for the Acquisition.

Following the Acquisition, an Agreement of Conveyance, Transfer and Assignment of Subsidiaries and Assumption of Obligations (the "Hive Out Agreement") was executed, whereupon 10,000,000 outstanding shares of common stock held by Oxbridge Technology Partners SA ("Oxbridge") were returned to the Company and recorded as treasury shares and were subsequently canceled. In exchange, Oxbridge acquired all issued and outstanding shares of both of the Company's former operating subsidiaries, Shift It Media Co. and General Aircraft, Inc. (the "Disposed Subsidiaries"), including all assets and liabilities connected with the businesses transferred. In addition, the Company disposed of the associated goodwill. The Hive Out Agreement also required a payment to Oxbridge of $430,000, which was paid by the Company shortly after the Acquisition. As a result of the divestiture of the Disposed Subsidiaries, the Company recorded a loss on disposal of subsidiaries of $1,069,675 during the three months ended March 31, 2014.

Prior to the Acquisition, the Company changed its name from General Sales and Leasing, Inc. to Xenetic Biosciences, Inc. As used in these condensed consolidated financial statements, unless otherwise indicated, all references herein to "Xenetic", the "Company", "we" or "us" refer to Xenetic Biosciences, Inc. and its wholly owned subsidiaries.

4. Significant Strategic Drug Development Collaborations

The Company has entered into various research, development, license and supply agreements with Baxter Healthcare SA ("Baxter SA") and Baxter Healthcare Corporation (together referred to as "Baxter"), SynBio LLC ("SynBio"), Serum Institute of India ("Serum Institute") and OJSC Pharmsynthez ("Pharmsynthez"). The Company and its collaborative partners continue to engage in research and development activities with no resultant commercial products through March 31, 2015. No amounts were recognized as revenue related to these agreements during the three months ended March 31, 2015 or 2014.

5. Property and Equipment, net

Property and equipment, net consists of the following:

	March 31, 2015	December 31, 2014
Laboratory equipment	$ 254,150	$ 254,150
Office and computer equipment	35,190	189,459
Leasehold improvements	26,841	92,354
Furniture and fixtures	20,263	50,150
Property and equipment – at cost	336,444	586,113
Less accumulated depreciation	(246,741)	(466,664)
Property and equipment – net	$ 89,703	$ 119,449

Depreciation expense was $22,912 and $15,989 for the three months ended March 31, 2015 and 2014, respectively.

6. Goodwill and Indefinite-Lived Intangible Assets

Goodwill

A reconciliation of the change in the carrying value of goodwill is as follows:

Balance as of January 1, 2014	$ 3,665,199
Acquired from acquisitions	4,129,248
Disposed with Hive Out Agreement	(4,129,248)
Foreign currency translation	(200,042)
Balance as of December 31, 2014	3,465,157
Foreign currency translation	(161,923)
Balance as of March 31, 2015	$ 3,303,234

The goodwill acquired from the Acquisition was disposed of in connection with the Hive Out Agreement. See Footnote 3, *Acquisitions*, for further discussion on the Acquisition and the Hive Out Agreement.

Indefinite-Lived Intangible Assets

The Company's acquired indefinite-lived intangible asset, OncoHist™, is IPR&D relating to the Company's business combination with SymbioTec. As of October 1, 2014, the date of the Company's annual impairment review, the fair value of the Company's indefinite-lived intangible asset balance was $14.61 million. The carrying value of OncoHist™ was $9.30 million and $9.75 million as of March 31, 2015 and December 31, 2014, respectively. No impairment was recorded during the three months ended March 31, 2015 and 2014.

7. Income Taxes

During the three months ended March 31, 2015 and 2014, there was not a provision for income taxes as the Company incurred losses during both periods. Deferred tax assets and liabilities reflect the net tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The Company records a valuation allowance against its deferred tax assets as the Company believes it is more likely than not the deferred tax assets will not be realized. The valuation allowance against deferred tax assets was approximately $14.6 million and $13.8 million as of March 31, 2015 and December 31, 2014, respectively.

As of March 31, 2015 and December 31, 2014, the Company did not record any unrecognized tax positions. During 2014, the Company had recorded an unrecognized tax position due to a claim for research and development tax credits. A full valuation allowance had been provided against the Company's research and development credits. In 2014, the Company determined that it is unable to obtain and compile the necessary information to support and defend the recoverability of the research and development tax credits, resulting in the write-off of the previously fully reserved balance.

8. Stockholders' Equity

On January 30, 2014, the Company announced the amendment of the licensing agreement with Baxter in which certain financial and timing aspects of the agreement were modified. As a result, the Company is entitled to receive certain amounts in development, regulatory and sales milestone payments as well as increased royalties on potential net sales. In addition, Baxter SA made a direct equity investment of $10 million in cash in exchange for 10,695,187 shares of the Company's common stock.

On December 31, 2014, 3,244,784 shares of new common stock were granted to FDS Pharma ASS ("FDS") in consideration for the performance of services and termination of a prior collaboration agreement between Lipoxen and FDS. FDS is a related party of SynBio, an affiliate of the Company.

9. Share-Based Compensation

Total share-based compensation related to stock options, common stock awards, warrants and JSOP awards was $147,228 and $388,925 during the three months ended March 31, 2015 and 2014, respectively.

Share-based compensation expense is classified in the condensed consolidated statements of comprehensive loss as follows:

	Three Months Ended March 31,	
	2015	2014
Research and development expenses	$ 99,145	$ 15,420
Administrative expenses	48,083	373,505
	$ 147,228	$ 388,925

Employee Stock Options

During the three months ended March 31, 2015 and 2014, no employees were granted stock options to purchase shares of common stock. During the three months ended March 31, 2014, a named executive of the Company exercised 1,984,080 stock options. Cash received from stock option exercise was $101,933. There were no other employee stock option exercises during the three months ended March 31, 2015 or 2014. The Company recognized $63,634 and $13,073 of compensation expense related to employee stock options during the three months ended March 31, 2015 and 2014, respectively.

Non-Employee Stock Options

No non-employee stock options were granted during the three months ended March 31, 2015 or 2014 and no non-employee stock options were exercised during the three months ended March 31, 2015 or 2014. The Company recognized $4,438 and $5,447 of compensation expense related to non-employee stock options during the three months ended March 31, 2015 and 2014, respectively.

Common Stock Awards

During the three months ended March 31, 2015 and 2014, the Company granted 104,957 and 36,905 common stock awards, respectively, based on the value of the services provided and the average stock price during each respective quarter. As all services were rendered in each respective quarter, $25,500 of compensation expense related to common stock awards was recognized during each of the three month periods ended March 31, 2015 and 2014, respectively. All common stock awards were authorized but not issued as of March 31, 2015.

Warrants

In connection with the Company's collaboration agreements, the Company issued warrants to purchase 10,425,000 shares of common stock to its collaborative partners on December 31, 2014. A warrant to purchase 1,600,000 shares of common stock was also issued to a non-employee director for consulting services provided to the Company on December 31, 2014. These warrants were fair valued at issuance date using the Black-Scholes option pricing model. The warrants are subject to re-measurement at each reporting period until the measurement date is reached. Expense is recognized on a straight-line basis over the expected service period or at the date of issuance, if there is not a service period. No warrants to purchase common stock were issued during the three months ended March 31, 2015.

Joint Share Ownership Plan

In 2010 and 2012, the Company issued 1,701,913 and 8,986,281 JSOP awards, respectively, to two senior executives under the JSOP. During 2011, the 2010 JSOP awards fully vested under the terms of the JSOP due to a significant change in beneficial ownership of the Company and the related compensation charges were fully recorded during periods prior to 2014 related to this accelerated vesting. During the first quarter of 2014, the 2012 JSOP awards fully vested under the terms of the JSOP due the achievement of specific share price hurdles and the related compensation charges were fully recorded during the first quarter of 2014 related to this accelerated vesting. As of March 31, 2015, all JSOP awards were fully vested.

The total fair value of the 2012 JSOP awards was $853,889 at the date of issuance. The Company recognized zero and $344,905 of compensation costs during the three months ended March 31, 2015 and 2014, respectively, related to the 2012 JSOP awards.

10. Commitments

In August 2013, the Company entered into an agreement to lease office and laboratory space in Lexington, Massachusetts under an operating lease with a commencement date of January 1, 2014 and a termination date of January 31, 2019. With the execution of this lease, the Company is required to maintain a $66,000 letter of credit as a security deposit. In connection with the Lexington lease, the Company recorded $112,934 and $120,299 as prepaid rent as of March 31, 2015 and December 31, 2014, respectively, with $83,473 and $90,838 recorded as a non-current asset, respectively. The Company also incurred a liability of $89,074 with respect to the Company's contribution to the landlord's leasehold improvements, of which $69,075 and $73,117 is outstanding as of March 31, 2015 and December 31, 2014, respectively, with $52,153 and $56,383 recorded as a non-current liability, respectively. This liability is repayable as additional rent expense over the term of the lease and bears interest at 6%. The Company also leased office space in London, UK during 2014, however the lease was terminated in March 2015 in accordance with the terms of the lease.

11. Related Party Transactions

In May 2011, the Company received a short term unsecured loan facility of up to $1.7 million from SynBio, an affiliate party, of which $395,000 is outstanding as of March 31, 2015 and December 31, 2014. The loan had an interest rate of 8.04% as of the date of grant, with interest payable upon repayment of the loan, which was to be seven months after the closing date of the loan. During 2012 the loan matured and it was agreed by both parties that the loan can be called due with full repayment of the outstanding principle including accrued interest upon future agreement by both parties. It was also agreed at this point that as of July 1, 2012, no further interest on the outstanding loan balance will be accrued. The loan is recorded in current liabilities as of March 31, 2015 and December 31, 2014. The loan does not bear interest at the prevailing market rate for instruments with similar characteristics.

The Company has entered into various research, development, license and supply agreements with Baxter, SynBio, Serum Institute and Pharmsynthez. Baxter is a related party of the Company, with a share ownership of approximately 8.7% and 8.9% as of March 31, 2015 and 2014, respectively. SynBio is an affiliate of the Company, with a share ownership of approximately 41.6% and 40.3% as of March 31, 2015 and 2014, respectively. Serum Institute is a related party of the Company, with a share ownership of approximately 9.2% and 9.4% as of March 31, 2015 and 2014, respectively. Pharmsynthez is a related party of SynBio, which is an affiliate of the Company. In addition, one of the Company’s directors is also a director of SynBio and Pharmsynthez.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains both historical and forward-looking statements. The forward-looking statements in this quarterly report are not based on historical facts, but rather reflect the current expectations of our management concerning future results and events. These forward-looking statements include, but are not limited to, statements concerning our plans to continue the development of our proposed drug candidates; our expectations regarding the nature, timing and extent of clinical trials and proposed clinical trials; our expectations regarding the timing for proposed submissions of regulatory filings, including but not limited to any Investigational New Drug ("IND") filing or any new drug application ("NDA"); 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.

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.

The Management's Discussion and Analysis of Financial Condition and Results of Operations (the "MD&A") should be read together with our financial statements and related notes included elsewhere in this quarterly report. This quarterly report, including the MD&A, contains trend analysis and other forward-looking statements. Any statements in this quarterly report that are not statements of historical facts are forward-looking statements. These 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.

The single most pressing factor that could cause actual results to differ materially and adversely is our need to raise additional working capital for the purpose of further developing our various drug candidates.

Other factors that could cause actual results to differ materially include without limitation:

- our ability to finance our business;
- 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;
- product development and commercialization risks;
- 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;
- adverse publicity related to our products or the Company itself;
- adverse claims relating to our Intellectual Property ("IP");
- the adoption of new, or changes in, accounting principles;
- the costs inherent with complying with new statutes and regulations applicable to public reporting companies, such as the Sarbanes-Oxley Act of 2002; and
- other new lines of business that the Company may enter in the future

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 quarterly report. Other unknown or unpredictable factors also could have material adverse effects on our future results. The forward-looking statements in this quarterly report are made only as of the date of this quarterly report, and we do not have any obligation to publicly update any forward-looking statements to reflect subsequent events or circumstances. Please also refer to Part I, Item 1A – Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2014.

ITEM 2 – MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

BUSINESS OVERVIEW

Management's discussion and analysis of our financial condition and results of operations ("MD&A") should be read in conjunction with the condensed consolidated financial statements and related footnotes.

The Company, carrying on business in a single operating segment, is a clinical stage biopharmaceutical company that is focused on the research and development of certain pharmaceutical products for use in humans that incorporate the use of its patented and proprietary platform technologies that we believe will enable the creation of novel and next generation drug therapies primarily for orphan indications.

We hold over 147 US and international patents issued, more than 90 patents pending and other proprietary rights to three distinct platform technologies that are designed to treat a variety of indications with potential use advantages over competing products.

Significant Transactions and Developments

Acquisition

On January 23, 2014, the Company consummated an acquisition pursuant to a written plan of reorganization, in which we merged with Xenetic Biosciences (UK) Limited (formerly Xenetic Biosciences plc) ("Xenetic UK"), a company incorporated in England and Wales under the Companies Act of 1985, such that Xenetic UK became a wholly owned subsidiary of the Company (the "Acquisition"). Upon completion of the Acquisition, we acquired all issued and outstanding shares of capital stock of Xenetic UK. As a result, 132,545,504 shares of our common stock were newly issued and, immediately following the Acquisition, there were 136,045,504 shares of common stock issued and outstanding. At that time, because former Xenetic UK shareholders owned approximately 97% of the combined company on a fully diluted basis and all members of the combined company's executive management were from Xenetic UK, Xenetic UK was deemed to be the acquiring company for accounting purposes and the transaction was accounted for as a reverse acquisition in accordance with accounting principles generally accepted in the United States ("US GAAP").

Prior to the Acquisition, the Company changed its name from General Sales and Leasing, Inc. to Xenetic Biosciences, Inc. As used in these consolidated financial statements, unless otherwise indicated, all references herein to "Xenetic", the "Company", "we" or "us" refer to Xenetic Biosciences, Inc. and its wholly owned subsidiaries.

Stock Purchase Agreement

On January 29, 2014 the Company entered into a stock purchase agreement (the "Purchase Agreement") with Baxter Healthcare SA ("Baxter SA"), pursuant to which the Company sold to Baxter SA 10,695,187 shares of the Company's common stock, par value $0.01 per share, (the "Shares") for $10 million (the "Purchase Price") at a price of $0.935 per share yielding a market cap of approximately $140 million.

The Shares were sold in a private placement and were not registered under the Securities Act, or the securities laws of any state, and were offered and sold in reliance on the exemption from registration afforded by Section 4(a)(2) and Regulation D (Rule 506) under the Securities Act and corresponding provisions of state securities laws, which exempt transactions by an issuer not involving any public offering. Baxter SA is an "Accredited Investor" as such term is defined in Regulation D promulgated under the Securities Act. For a further discussion of the Purchase Agreement please refer to Item 5 - Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities – Recent Sales of Unregistered Securities in our Annual Report filed on Form 10-K for the year ended December 31, 2014.

Board of Directors

On April 16, 2015, Mark Leuchtenberger, Chairman of the Board, resigned from the Board of Directors. The Chairman of the Board position remains vacant at the time of filing this Quarterly Report on Form 10-Q. There are no known disagreements between the Company and Mr. Leuchtenberger.

Technology Overview

The Company is currently in various stages of development with respect to its three core patented and proprietary technologies, these being, PolyXen® (for biologics), OncoHist™ (as a broad spectrum oncology therapy), and ImuXen® (for vaccines).

The Company's three core technologies are summarized as follows:

PolyXen®	An enabling technology that utilizes Polysialic Acid ("PSA"), a biopolymer, consisting of a chain of sialic acids which is a natural constituent of the human body. PSA is designed to extend the half-life in circulation in the human body for a variety of existing drug molecules and, thereby, to create potentially superior next generation drug candidates.
OncoHist™	A novel therapeutic platform that utilizes the properties of the human histone H1.3 ("H1.3") for the development of drug candidates for the treatment of a broad range of cancer indications. OncoHist™, unlike many competing oncology therapies, is based on a molecule occurring naturally in the human body, in the cell nucleus, and is therefore expected to be less toxic and immunogenetic than other oncology therapies.
ImuXen®	A novel liposomal co-entrapment encapsulation technology designed to create new vaccines and improve the use and efficacy of certain existing vaccines for use in the human body. The technology is based on the co-entrapment of the nominated antigen(s) in a liposomal vesicle, a design that is intended to maximize both cell and immune system mediated responses.

All of the Company's current drug candidates are in the development stage and none has yet received regulatory approval for marketing in the US by the US Food and Drug Administration (the "FDA") or by any other applicable agencies in other countries.

Our Business Strategy

The Company intends to advance the clinical development of its drug candidates through a combination of conducting its own in-house research and through the use of the outside services of contract manufacturing and research organizations. The OncoHist™ drug candidate for AML has been granted orphan drug designation by the FDA and European Medicines Agency ("EMA"). The Company expects to seek further orphan drug designations relating to this novel potential cancer therapeutic over the next twelve months, working in concert with the Dana Farber Cancer Institute. The advancement of its drug candidates is dependent, in part, on several important co-development collaborations and strategic arrangements. Together with its collaborative partners, Baxter SA and Baxter Healthcare Corporation (together referred to as "Baxter"), a shareholder in the Company, SynBio LLC ("SynBio"), a Russian pharmaceutical company and significant shareholder in the Company, OJSC ("Open Joint Stock Company") Pharmsynthez ("Pharmsynthez"), a Russian pharmaceutical company and related party to SynBio and Serum Institute of India Limited ("Serum Institute"), one of India's largest biotech companies and a shareholder in the Company, the Company is focused on developing its pipeline of next generation bio-therapeutics and novel orphan drugs in oncology based on the Company's PolyXen®, OncoHist™ and ImuXen® technology platforms.

As part of the Company's strategy, it out-licensed the rights to twelve drug candidates for research, development and commercialization within certain defined territories including the Russian Federation and Commonwealth of Independent States ("CIS"), with respect to SynBio and Pharmsynthez, and India, with respect to Serum Institute. SynBio, Pharmsynthez and Serum Institute are responsible for funding the research, development and commercialization of each drug candidate in those territories at their own expense. The out-license agreements contain provisions that allow the Company access to all underlying research materials and to receive royalties related to any of these drug candidates that may be approved and marketed in those territories. The Company utilizes its access to that data to determine which of those twelve drug candidates it believes are worthwhile to pursue for research, development and commercialization in the US and elsewhere.

The Company's strategy is to develop its orphan drug candidates through to regulatory approval. The Company then plans to commercialize those orphan drug candidates. Non-orphan drug candidates vested in its pipeline via its collaborations include ErepoXen®; polysialylated oxyntomodulin, for diabetes and obesity; and a Multiple Sclerosis vaccine candidate, MyeloXen™. The Company intends to develop these candidates to a stage that will enable it to seek profitable out-licensing arrangements with major pharmaceutical companies for further development and eventual commercialization, in exchange for milestone payments and royalties from product sales. Its collaborative out-licensing agreements relating to the platforms are an integral part of its early-stage strategy.

Even with regard to its strategy of current and planned future co-development collaborations and out-licensing, the Company must raise additional capital in order to develop its drug candidates to the point of commercialization. The Company's management will regularly make evaluations in concert with the Company's Board of Directors as to when to seek additional capital through various financing structures for the purpose of pursuing its business strategy. Although the Company is optimistic, there can be no assurance that it will be successful in raising additional working capital in the future. If not successful, the Company's business could be adversely affected.

Our Technologies

PolyXen®

PolyXen® is a platform technology based on the concept of polysialylation. PSA is a polymer chain composed of sialic acids linked together. Sialic acid is found on the external membrane of a number of cell types in the body. In addition, it is a natural component expressed on the external membrane on a number of bacterial types. The chain of sialic acid molecules can be anywhere from 4 to over 200 individual sialic acid molecules in length. The Company uses the linear form of PSA called colominic acid. It is a natural, hydrophilic polymer isolated from a bacterial strain of E. coli K1. This natural glycan is negatively charged, non-toxic and is biodegradable. The PSA chain is extensively purified from large-scale bacterial cultures under Current Good Manufacturing Practices conditions, modified to specified sizes and then attached to defined sites on the therapeutic. Both the site of attachment and the length of the PSA chain can enhance the properties of the therapeutic.

The major effect of PSA addition to a therapeutic is to change the apparent hydrodynamic radius of the molecule. This physical alteration then changes a number of the biological characteristics of the therapeutic. The most noticeable, and perhaps the most relevant, is an extension of the lifetime of the therapeutic in blood circulation. This is due to the increase in the size of the drug which results in a decrease in the clearance rate of the molecule in the kidney by glomerular filtration. In addition, studies have shown changes in other biological characteristics such as protease sensitivity and temperature sensitivity. An added benefit is that the conjugated molecules are less viscous in solution than comparable other technologies, providing the potential for easier injections and fewer injection site reactions. Furthermore, we believe that adding PSA to an existing marketed drug may allow for patent extension, thereby potentially creating a patent-protected next generation candidate.

The current standard for certain biologic delivery agents is Polyethylene Glycol ("PEG") which is attached similarly to therapeutics. The mode of action between PSA and PEG is similar, increasing the apparent size of the molecule and thereby increasing the circulating time of the drug in the blood. PEGylation is a proven technology that can offer advantages in terms of pharmacokinetics and pharmacodynamics for therapeutics over non-modified, first generation molecules. There are a number of PEG-modified molecules on the market, in clinical trials and under development. However, PEGylation is considered to have limitations, such as non-biodegradability and, at high doses, may thereby result in intra-cellular accumulation, potentially leading to vacuole formation in the cells. In contrast, because PSA is a chain of sialic acids, which are natural constituents of the human body, it is biodegradable into individual sialic acid units. In addition, PEG in many cases has been shown to be immunogenic when coupled to proteins and can activate the complement system. PEG has also demonstrated limitations on a few select molecules. PSA has to date been shown to be non-immunogenic. We believe PSA may provide the advantages of PEG without many of its disadvantages, offering a potential advance over PEG molecules.

OncoHist™

OncoHist™ is based on research covered under our patent portfolio related to novel functions of histones. Histone H1 has strong anti-proliferative properties against cancer cells of different histological origin. This has been demonstrated extensively for hematologic malignancies, such as leukemias, lymphomas, and myelomas, and also for tumors from other tissues. Susceptibility of cells to the cytotoxic effect of histones is determined by the ability of histone H1 to selectively destabilize the tumor cell membrane, which results in cell death.

A novel form of the molecule was developed by the Company and a patent filed for the protection of the new chemical entity, N-bis-met-histone 1.3 (OncoHist™) in use against cancer, providing patent protection at least until 2027. The activity of the new molecule was tested on 58 tumor cell lines derived from various tissues. Hematopoietic tumor cell lines were found to be among the most sensitive cell lines. The mechanism of action appears to be novel, involving the binding of OncoHist™ to the cell membrane, which is completely different than that of other therapeutic agents on the market for hematopoietic cancers. Confirmatory work on this mode of action with more detailed analyses is being completed by Dana-Farber Cancer Institute ("Dana-Farber"). Hematopoietic tumor lines resistant to current chemotherapeutic agents have shown sensitivity to OncoHist™.

OncoHist™'s potency and potential to inhibit growth of cells from various histological origins were confirmed through in-vitro testing against the US National Cancer Institute 60 ("NCI-60"). OncoHist™ was awarded orphan drug designation (Orphan Medicinal Product Designation ("OMPD")) for treatment of AML by the European Commission in December 2007 and by the FDA in October 2008. OncoHist™ was awarded an additional OMPD status for Acute Lymphocytic Leukemia ("ALL") by the EMA.

A Phase I-II trial to evaluate the safety and tolerability of OncoHist™ was conducted in 2008 at Saarland University, in Germany with 22 AML patients. Tolerability and safety results were favorable with indications of the drug being immunologically safe. Clinical effects were noted in seven patients with three partial remissions. Most notably, two patients who had received two treatment cycles each experienced stabilization of their disease for 7 and 17 months.

A clinical safety trial with a planned 120 AML patients was in progress and being performed by SynBio in clinical centers in the Russian Federation. The aim of this trial was to examine the potential benefits of OncoHist™ in combination with standard HAM chemotherapy: high dose cytarabine with mitoxantrone. During execution of the SynBio AML trial the Russian Ministry of Health issued changes in their standard of care for treating AML patients. High dose cytarabine chemotherapy was determined to offer no benefits in terms of efficacy as compared to lower dose therapy and was discontinued. The study was stopped and the study report is now in progress.

Based upon our analysis of data from the preliminary AML trial performed by SynBio in the Russian Federation, and data developed in Germany at Saarland University, the Company has undertaken pre-clinical development and IND-enabling animal studies in the US in support of a planned phase I/II(a) IND filing with the FDA in the first half of 2016. Xenetic has had a pre-IND meeting with the FDA to discuss the OncoHist AML program. The FDA comments will be addressed by time of IND submission. A Phase I/II Non-Hodgkin's Lymphoma ("NHL") safety trial has been completed in Russia. As an integral part of the Company's strategy, we intend to await later stage clinical data on NHL to determine whether to progress this candidate into US FDA trials.

Other Technologies

ImuXen®

ImuXen® is a patented platform technology based on the concept of simultaneous delivery of multiple Active Pharmaceutical Ingredients ("APIs") as antigens within the same liposome. The liposomes are composed of lipids that encapsulate an aqueous core. The APIs can be trapped in the core, be associated with the lipids, or both. Proteins, peptides, nucleic acids, polysaccharides and live or inactivated infectious agents can all be used as an API with the same liposome. Both the size and the lipid composition can be controlled which affects the biological properties of the liposome. Manufacturing involves the passive entrapment of the vaccine APIs by freeze drying commercially available liposomes with the antigens of interest.

Having multiple APIs formulated with the same liposome allows simultaneous delivery of the antigens to the same antigen-presenting cell. This may allow a more efficient immune response to all the agents presented. In addition, it is possible that multiple vaccines can be delivered with a single injection. Relevant pre-clinical studies have indicated a reduction in the dose required, a reduction in the number of doses required and a faster immune response time. This efficient immune response also may allow for use of antigens that traditionally give a poor antibody response.

This technology is not currently the focus of clinical development for the Company. However through a license agreement with Pharmsynthez, there is a novel Multiple Sclerosis vaccine that is in clinical development in Russia.

A Phase I/II clinical trial to treat Relapsing Remitting Multiple Sclerosis and Secondary Progressive Multiple Sclerosis is in progress by Synbio in the Russian Federation. Peptides corresponding to antigenic sections of basic myelin protein were encapsulated within liposomes to be used as the therapeutic agent (MyeloXen™). Administration of MyeloXen™ to patients has occurred and follow-up monitoring is in progress. As an integral part of the Company's strategy, we await later stage clinical data on MyeloXen™ to determine whether to progress this candidate into FDA trials and eventual out-licensing.

Critical Accounting Estimates

The preparation of our financial statements in conformity with US GAAP requires management to make estimates, judgments and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amount of expenses during the reporting period. On an ongoing basis, we evaluate management's estimates that are based on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. The result of these evaluations forms the basis for making judgments about the carrying values of assets and liabilities and the reported amount of expenses that are not readily apparent from other sources. Because future events and their effects cannot be determined with certainty, actual results could differ from our assumptions and estimates, and such differences could be material.

There has been no material change to our critical accounting estimates since those critical accounting estimates described in our Annual Report on Form 10-K filed on April 15, 2015.

RESULTS OF OPERATIONS

The comparison of our historical results of operations for the fiscal quarter ended March 31, 2015 to the fiscal quarter ended March 31, 2014 is as follows:

Description	Quarter Ended March 31, 2015	Quarter Ended March 31, 2014	Increase (Decrease)	Percentage Change
Revenue	$ –	$ –	$ –	–
Cost of revenue	–	–	–	–
Gross profit	–	–	–	–
Operating costs and expenses:				
Research and development	1,035,083	564,890	470,193	83.2
General and administrative	935,226	2,394,205	(1,458,979)	60.9
Loss from operations	(1,970,309)	(2,959,095)	988,786	33.4
Other income (expense):				
Loss on disposal of subsidiaries	–	(1,069,675)	1,069,675	100.0
Other expense	(459,968)	(34,421)	(425,547)	1,236.3
Interest income	174	1,044	(870)	83.3
Interest expense	(1,126)	(884)	(242)	27.4
	(460,920)	(1,103,936)	643,016	58.2
Loss before income taxes	(2,431,229)	(4,063,031)	1,631,802	40.2
Income tax	–	–	–	–
Net loss	$ (2,431,229)	$ (4,063,031)	$ 1,631,802	40.2

Revenue

The Company recorded no revenues for the quarters ended March 31, 2015 and March 31, 2014.

Cost of Revenue

The Company incurred no cost of revenue for the quarters ended March 31, 2015 and March 31, 2014.

Research and Development

The Company engages in independent research and development ("R&D") in connection with its various technologies.

The total R&D spend by subsidiary location for the quarters ended March 31, 2015 and 2014 is set forth in the table below:

	Quarter ended,	
Subsidiary Location	March 31, 2015	March 31, 2014
United States	$ 571,925	$ 186,025
United Kingdom	463,158	378,289
Germany	–	576
Total research and development expense	$ 1,035,083	$ 564,890

Overall, corporate R&D expenses for the quarter ended March 31, 2015 increased by approximately $470,000, or 83% to $1,035,083 from $564,890 in the comparable quarter in 2014. The table below sets forth the R&D costs incurred by the Company, by category of expense, for the quarters ended March 31, 2015 and 2014:

	Quarter ended,	
Category of Expense	**March 31, 2015**	**March 31, 2014**
Outside services and Contract Research Organizations	$ 714,128	$ 346,497
Salaries and wages	141,541	148,931
Share-based compensation expense	99,145	15,422
Rent	23,117	8,806
Lab consumables	16,231	898
Other	40,921	44,336
Total research and development expense	$ 1,035,083	$ 564,890

Research and Development by Subsidiary Location

The increase in R&D expenses in the US during the three months ended March 31, 2015 was primarily due to costs associated with IND enabling preclinical work for the OncoHist™ program that were initiated during the three months ended March 31, 2014. The UK expenses are attributed primarily to the ongoing ErepoXen® human clinical trials being conducted in Australia.

During 2014, the process of transitioning our R&D laboratory facilities to the US was completed, leading to a reduction in non-program specific related costs incurred in the UK, with a corresponding increase in such costs incurred in the US. The continued increase in US-based R&D expenses in 2015 were expected as the new Lexington, MA facility increased its operational activity.

Research and Development by Category of Expense

Outside Services and CRO Costs

The increase in outside services and CRO costs of approximately 106% for the three months ended March 31, 2015 over the comparable period in 2014 is primarily due to the IND enabling preclinical work conducted in connection with the OncoHist™ program, which was initiated during the three months ended March 31, 2014. The costs of conducting the ongoing ErepoXen® human clinical trials in Australia were relatively static, with costs of approximately $0.36 million and $0.29 million during the three months ended March 31, 2015 and 2014, respectively.

Salaries and Wages

In aggregate, salaries and wages reflect a decrease of approximately 5%, which is related to the reduction in UK based research personnel during the three months ended March 31, 2014 as a result of the closing of the UK lab facility in late 2013, without a corresponding proportionate increase in US-based research personnel during the three months ended March 31, 2015.

Share-based Compensation

Share-based compensation expenses increased approximately 543% for the three months ended March 31, 2015 over the comparable period in 2014. The fluctuation is due to the normal expensing of stock option grants to research and development employees and warrants to collaborative partners on December 31, 2014, resulting in increased expenses during the three months ended March 31, 2015. There were not similar grants affecting operations for the three months ended March 31, 2014.

Rent

Rent expense increased approximately 163% for the three months ended March 31, 2015 over the comparable period in 2014. During each period, the Company operated one research and development facility, which shares its space with general and administrative employees. While the overall rent expense for this facility did not change during these periods, the expense allocated to research and development increased with the expansion of the research and development headcount subsequent to the first quarter of 2014 without a corresponding proportionate increase in the general and administrative headcount.

Lab Consumables

The increase in lab consumables expense is due to normal fluctuations in the amount of those supplies required for in-house research activities.

Other

The decrease in other expense results from the net aggregate change of all other miscellaneous R&D costs.

General and Administrative

General and administrative expenses decreased by approximately $1.46 million, or 60.9% for the quarter ended March 31, 2015 to $0.94 million from $2.39 million in comparable quarter in 2014. The most significant drivers of the change were related to a decrease of approximately $450,000 in legal and other professional consulting fees, $385,000 in accounting and tax professional fees and $333,000 in stock compensation. The current period decreases in legal and other professional consulting fees and accounting and tax professional fees are associated with the Company's strategic transition from a UK-based, London AIM quoted, organization, to a US-based, publicly traded company, which was completed during the first quarter of 2014. There were no costs associated with this strategic transition during the comparable quarter in 2015. Stock compensation expense during the three months ended 2014 included approximately $345,000 in charges related to the accelerated vesting of Joint Share Ownership Plan ("JSOP") awards. There were no charges associated with JSOP awards during the comparable quarter in 2015. Charges for salaries included in general and administrative expenses decreased approximately $187,000 for the quarter ended March 31, 2015 over the prior comparable quarter. This decrease is primarily due to the reduction in UK general and administrative headcount during 2014 without a proportionate increase in the US general and administrative headcount. There were no additions to the general and administrative headcount during the quarter ended March 31, 2015.

Loss on Disposal of Subsidiaries

The loss on disposal of subsidiaries in the amount of $1,069,675 for the three months ended March 31, 2014 arose in connection with the Hive Out Agreement. Pursuant to the Hive Out Agreement the Company received ten million outstanding shares of its common stock in exchange for 100% of the outstanding common stock of the subsidiaries and cash in the amount of $430,000. There was not a comparable transaction during the three months ended March 31, 2015. The Company does not currently intend to dispose of any other subsidiaries in the near future.

Other Expense

Other expense increased approximately $426,000, or 1,236% to $459,968 for the three months ended March 31, 2015 from $34,421 in the comparable quarter in 2014. This increase is primarily related to losses resulting from the high fluctuation of foreign currency exchange rates during the first quarter of 2015 as compared to the first quarter of 2014 due to the steady weakening of the British pound against the US dollar throughout 2014 and the first quarter of 2015.

Interest Income

Interest income decreased by $870, or approximately 83% to $174 for the quarter ended March 31, 2015 from $1,044 in the comparable quarter in 2014. The decrease is related to decreases in average cash balances maintained in interest bearing accounts.

Interest Expense

Interest expense increased by $242, or approximately 27% to $1,126 for the quarter ended March 31, 2015 from $884 in the comparable quarter in 2014. The interest expense is related to a financing arrangement with the landlord of the Company's office and lab lease in the US, which commenced in January 2014.

Liquidity and Capital Resources

We have historically relied upon equity financing to fund our operations. Since 2005 we have raised approximately $47 million in equity financing, including $10 million from the sale of shares to Baxter in January 2014, while recording revenues of approximately $10 million during that same period. Approximately 90% of that revenue is from a single customer, Baxter, in connection with milestone receipts and fees for services. We expect the majority of our funding through equity or equity linked instruments to continue as a trend for the foreseeable future.

For the quarter ended March 31, 2015, our working capital decreased due to our net loss of $2.4 million and cash used in operating activities of $2.0 million which sum includes approximately $631,000 in program-specific clinical development costs, $445,000 in legal and professional consultants, $379,000 in salaries and wages, including scientific staff, $99,000 in accounting and tax consultants and approximately $446,000 from all other research development and general and administrative costs.

At March 31, 2015 and December 31, 2014 we had a working capital deficit of $1.7 million and working capital of $78,000, respectively. As of March 31, 2015, we had $0.9 million in cash and $2.8 million in total current liabilities. As of December 31, 2014, we had cash and current liabilities of $2.5 million and $2.7 million, respectively. Included in the working capital deficit at March 31, 2015 is a trade payable in the amount of approximately $431,000 that is being disputed by the Company and a loan from related parties in the amount of $395,000 that is subject to alternative payment arrangements. We expect that the loan from related parties will be settled only at such time as an adequate sized capital raise is concluded. The loan is classified as current on our condensed consolidated balance sheet as of March 31, 2015 and there is no certainty that the amount due will not be called prior to an equity raise.

Pursuant to arrangements previously disclosed concerning the appointment of investment bankers retained for the purpose of assisting the Company in seeking finance from various parties, whether by way of the issuance of equity or debt instruments, non-binding indications of interest have been received to provide additional working capital in an amount of up to $3,200,000 net of expenses.

Although there can be no assurance on either the timing or extent of such outcome, the Company expects to receive funding from the sale of such securities (of such type and in such form as may be agreed between the parties) within approximately 10 business days of the filing of this Quarterly Report on Form 10-Q (the "10-Q").

Even following the sale of the securities referred to above, the Company will be required to raise additional working capital of approximately $5,000,000 before the end of October 2015 in order to meet its financial obligations through March 31, 2016 under its base business plan. To this end, management has received non-binding indications of interest to complete a second, and similarly structured debt offering according to the Company's working capital needs, such later offering being likely to be made sometime in Q3 or Q4 2015. Although we have received indications of interest, no investor is obligated to provide additional financing to the Company and there is no certainty that we will receive such financing based on the contemplated terms or otherwise.

While the Company believes that the working capital to be received from the sale of the securities referred to above will allow the Company to continue its base business activities and to meet its financial obligations for approximately five months from now, it remains confident of raising such further working capital as may be necessary to secure its financial position and to continue to fund its operations through to the proposed completion of a registered equity raise and planned up-list to a National Exchange within the next 12 months.

Dependent upon the amount of working capital the Company is able to raise in the upcoming five months we may be able to fund activities beyond our current "base business plan". If we successfully generate funding in excess of our basic requirements, our priorities will be: (i) to accelerate existing drug development programs; and (ii) to pursue additional indications based upon our existing patented and proprietary technologies.

The only significant cash receipts that we expect may fall due under our current collaborations would be from Baxter. Due to the uncertainties and risks inherent in the clinical development process, we are unable to predict precisely when those receipts may occur, if ever. We do not expect any significant receipts to become due before 2016, however there can be no assurance that future receipts will ever become due because they are contingent on positive outcomes from Baxter's clinical development efforts in connection with the Factor VIII drug candidate.

We are in the early stages of seeking out-license arrangements for our ErepoXen ® technology but do not expect any new income to be generated from such outlicensing before Q1 2016 at the earliest. Due to the uncertainties inherent in the clinical research process and unknown future market conditions, there can be no assurance our ErepoXen® technology will lead to any future income.

Baxter currently holds a share warrant entitling them to subscribe for approximately 4.59 million new shares of common stock in the Company at a price of $0.4660 per share. These warrants are due to expire in June 2016. We do not expect Baxter to exercise these warrants at the prevailing average price of the stock of the Company as quoted on the OTCQB, and in any event, not before June 2016.

Although we are optimistic about our ability to raise additional working capital, there can be no assurance that we will be successful in our efforts to raise additional working capital by way of a bridge financing, or on any future equity transaction or, even if the Company is successful, that the Company will be able to do so on commercially reasonable terms. Further, due to the uncertainties inherent in the clinical research process and unknown future market conditions, there can be no assurance that either the Company's ErepoXen® candidate will lead to any future fees or that Baxter itself will be successful in initiating human clinical trials in the estimated timeframe or that the underlying product will meet the clinical milestones necessary to trigger any payment to the Company under the terms of its license agreement with them.

While the interim financial statements have been prepared on a going concern basis, if the Company does not successfully conclude the follow on financing described above, there is no assurance that the Company would be able to continue planned operations and these conditions raise substantial doubt about its ability to continue as a going concern. Under such circumstances, the Company would have to further reduce the planned scale of, or possibly suspend, all of its pre-clinical development initiatives and clinical trials delivered by external consultants.

Cash Flows Used in Operating Activities

Cash flows used in operating activities for the quarter ended March 31, 2015 totaled approximately $2.04 million, which includes a net loss of approximately $2.43 million, partially offset by $0.31 million in non-cash charges and approximately $0.08 million in net increases in current assets, accounts payable and accrued expenses. The $2.04 million includes approximately $631,000 in program-specific clinical development costs, $445,000 in legal and professional consultants, $379,000 in salaries and wages, including scientific staff, and $99,000 in accounting and tax consultants.

Cash flows used in operating activities for the quarter ended March 31, 2014 totaled approximately $4.12 million, which includes a net loss of approximately $4.06 million, partially offset by $1.04 million in non-cash charges and reduced by approximately $1.10 million net increase in current assets and reductions in accounts payable and accrued expenses. The $4.12 million consists of approximately $263,000 in program-specific clinical development costs, $847,000 in legal and professional consultants, $489,000 in salaries and wages, including scientific staff, and $484,000 in accounting and tax consultants.

Cash Flows from Investing Activities

For the quarters ended March 31, 2015 and 2014, there were no significant cash sources or uses from investing activities.

Cash Flow from Financing Activities

For the quarter ended March 31, 2015, there were no significant cash sources or uses from financing activities. For the quarter ended March 31, 2014 we raised $10 million in financing activities from the sale of approximately 10.7 million shares of common stock to Baxter SA. We also raised approximately $102,000 from proceeds in connection with the exercise of approximately 1.98 million stock options by our Chief Executive Officer in January 2014.

Off Balance Sheet Arrangements

The Company has no off balance sheet financing arrangements. The Company has one facility lease obligation and written employment agreements with three key employees as of March 31, 2015.

Recent Accounting Pronouncements

In August 2014, the Financial Accounting Standard Board (the "FASB") issued ASU 2014-15, *Presentation of Financial Statements – Going Concern* (Subtopic 205-40) ("ASU 2014-15"). ASU 2014-15 defines management's responsibility to evaluate whether there is substantial doubt about an organization's ability to continue as a going concern and provides guidance on the related footnote disclosures. This guidance is effective for annual reporting periods beginning after December 15, 2016, and interim periods within annual periods beginning after December 15, 2016. Early application is permitted. We are currently evaluating the impact of this new standard.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606) ("ASU 2014-09"). ASU 2014-09 supersedes the revenue recognition requirements in ASC Topic 605, *Revenue Recognition*, and most industry-specific guidance. The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. This guidance is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period, under either full or modified retrospective approach. Early application is not permitted. We are currently evaluating the impact of this new standard on its revenue recognition policy.

We have considered other recent accounting pronouncements and determined that they are either not applicable to our business or that no material effect is expected on the consolidated financial statements as a result of future adoption.

Available Information

Our website address is www.xeneticbio.com. The information in, or that can be accessed through, our website is not part of this Quarterly Report on Form 10-Q. 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 U.S. Securities and Exchange Commission (the "SEC"). The public may read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operations of the Public Reference Room can be obtained by calling 1-800-SEC-0330. The SEC maintains an internet site that contains reports, proxy and information statements and other information regarding our filings at www.sec.gov.

ITEM 3 – QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are not required to provide the information required by this Item because we are a smaller reporting company.

ITEM 4 – CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15(e) or 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as of the end of the period covered by this Quarterly Report on Form 10-Q.

Based on this evaluation our management, including our Chief Executive Officer and Chief Financial Officer concluded that, as of the end of the period covered by this Quarterly Report on Form 10-Q, our disclosure controls and procedures are designed at a reasonable assurance level and are effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

ITEM 1 – LEGAL PROCEEDINGS

We are not currently subject to any material legal proceedings, nor, to our knowledge, is any material legal proceeding threatened against us. From time to time, we may be a party to certain legal proceedings, incidental to the normal course of our business. While the outcome of these legal proceedings cannot be predicted with certainty, we do not expect that these proceedings will have a material effect upon our financial condition or results of operations.

ITEM 1A – RISK FACTORS

There were no material changes to the risk factors described in Part 1, Item 1A – Risk Factors of our Annual Report on Form 10-K for the year ended December 31, 2014 (except to the extent additional factual information disclosed elsewhere in this Quarterly Report on Form 10-Q relates to such risk factors (including, without limitation, the matters discussed in Part 1, Item 2 – Management's Discussion and Analysis of Financial Condition and Results of Operations)).

ITEM 2 – UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

ITEM 3 – DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4 – MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5 – OTHER INFORMATION

None.

ITEM 6 – EXHIBITS

The attached list of exhibits in the "Exhibit Index" immediately preceding the exhibits to this Quarterly Report on Form 10-Q is incorporated herein by reference to this item.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

XENETIC BIOSCIENCES, INC.

May 20, 2015 By: /S/ MICHAEL SCOTT MAGUIRE

Michael Scott Maguire
Chief Executive Officer and President

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 Colin W. Hill, 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 Colin William Hill, Chief Financial Officer, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101 *	XBRL (eXtensible Business Reporting Language). The following materials from Xenetic Biosciences, Inc.'s Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2015, formatted in XBRL: (i) the Condensed Consolidated Balance Sheets, (ii) the Condensed Consolidated Statements of Comprehensive Loss, (iii) the Condensed Consolidated Statements of Cash Flows, and (iv) Notes to Condensed Consolidated Financial Statements.

* Exhibit filed with this report

** Exhibit 32.1 is being furnished and shall not be deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section, nor shall such exhibit be deemed to be incorporated by reference in any registration statement or other document filed under the Securities Act of 1933, as amended or the Securities Exchange Act of 1934, as amended, except as otherwise stated in such filing

EXHIBIT 31.1

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 Quarterly Report on Form 10-Q 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 20, 2015

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

EXHIBIT 31.2

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, Colin William Hill, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q 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 20, 2015

By: /s/ Colin William Hill
Colin William Hill
Principal Financial Officer

EXHIBIT 32.1

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 Quarterly Report of Xenetic Biosciences, Inc. (the "Company") on Form 10-Q for the quarter ended March 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 20, 2015

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

By: /s/ Colin William Hill
Colin William Hill
Chief Financial Officer