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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

FOR THE QUARTERLY PERIOD ENDED JUNE 30, 2018

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

FOR THE TRANSITION PERIOD FROM _____ TO _____

Commission file number: 001-36054

Sophiris Bio Inc.
(Exact name of registrant as specified in its charter)

British Columbia	**98-1008712**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
1258 Prospect Street, La Jolla, California	**92037**
(Address of Principal Executive Offices)	(Zip Code)

858-777-1760
(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 registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

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

As of August 10, 2018, the registrant had 30,111,153 common shares (no par value) outstanding.

SOPHIRIS BIO INC.
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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

Sophiris Bio Inc.
Condensed Consolidated Balance Sheets
(In thousands, except share amounts)
(Unaudited)

	June 30, 2018	December 31, 2017
Assets:		
Current assets:		
Cash and cash equivalents	$ 13,941	$ 16,087
Securities available-for-sale	4,587	9,757
Prepaid expenses and other current assets	1,055	1,012
Total current assets	19,583	26,856
Property and equipment, net	3	2
Other long-term assets	—	19
Total assets	$ 19,586	$ 26,877
Liabilities and shareholders' (deficit) equity:		
Current liabilities:		
Accounts payable	$ 1,271	$ 832
Accrued expenses	2,662	1,499
Current portion of promissory note	1,548	372
Total current liabilities	5,481	2,703
Long-term promissory note	5,362	6,435
Warrant liability	10,099	10,089
Total liabilities	20,942	19,227
Commitments and contingencies		
Shareholders' (deficit) equity:		
Common shares, unlimited authorized shares, no par value; 30,111,153 shares issued and outstanding at June 30, 2018 and December 31, 2017	131,247	131,247
Contributed surplus	26,274	25,854
Accumulated other comprehensive gain	97	97
Accumulated deficit	(158,974)	(149,548)
Total shareholders' (deficit) equity	(1,356)	7,650
Total liabilities and shareholders' (deficit) equity	$ 19,586	$ 26,877

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

Sophiris Bio Inc.
Condensed Consolidated Statements of Operations and Comprehensive Income (Loss)
(In thousands, except per share amounts)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Operating expenses:				
Research and development	$ 3,591	$ 1,387	$ 6,920	$ 2,595
General and administrative	1,096	1,367	2,340	2,736
Total operating expenses	4,687	2,754	9,260	5,331
Other income (expense):				
Interest expense	(172)	—	(341)	—
Interest income	91	53	178	103
Gain (loss) on revaluation of warrant liability	(1,365)	3,320	(10)	3,234
Other income (expense), net	36	(9)	7	(16)
Total other income (expense)	(1,410)	3,364	(166)	3,321
Net income (loss)	$ (6,097)	$ 610	$ (9,426)	$ (2,010)
Basic income (loss) per share	$ (0.20)	$ 0.02	$ (0.31)	$ (0.07)
Diluted income (loss) per share	$ (0.20)	$ 0.02	$ (0.31)	$ (0.07)
Weighted average number of outstanding shares – basic	30,111	30,111	30,111	30,111
Weighted average number of outstanding shares – diluted	30,111	30,515	30,111	30,111
Other comprehensive income (loss):				
Unrealized income (loss) on securities available-for-sale	2	(1)	—	(14)
Total other comprehensive income (loss)	$ (6,095)	$ 609	$ (9,426)	$ (2,024)

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

Sophiris Bio Inc.
Condensed Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Six Months Ended June 30,	
	2018	**2017**
Cash flows used in operating activities		
Net loss	$ (9,426)	$ (2,010)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	421	867
Accretion of debt discount	75	—
Amortization of promissory note issuance costs	29	—
Depreciation of property and equipment	1	3
Amortization of premium/discount on securities available-for-sale	(35)	92
Change in fair value warrant liability	10	(3,234)
Foreign exchange transaction loss	2	4
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	(24)	(24)
Accounts payable	436	41
Accrued expenses	1,162	(608)
Net cash used in operating activities	(7,349)	(4,869)
Cash flows provided by (used in) investing activities		
Purchases of property and equipment	(3)	(1)
Maturities of securities available-for-sale	7,287	4,291
Purchases of securities available-for-sale	(2,081)	(5,400)
Net cash provided by (used in) investing activities	5,203	(1,110)
Cash flows provided by financing activities		
Proceeds from exercise of stock options	—	2
Net cash provided by financing activities	—	2
Effect of exchange rate changes on cash and cash equivalents	—	1
Net decrease in cash and cash equivalents	(2,146)	(5,976)
Cash and cash equivalents at beginning of period	16,087	12,800
Cash and cash equivalents at end of period	$ 13,941	$ 6,824
Supplemental disclosures of non-cash investing and financing activities:		
Change in the fair value of stock-based compensation liability recorded to contributed surplus	$ —	$ (57)

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

Sophiris Bio Inc.
Notes to the Condensed Consolidated Financial Statements
(Unaudited)

1. Nature of the business

Company

Sophiris Bio Inc., or the Company, or Sophiris, is a clinical-stage biopharmaceutical company focused on innovative products for the treatment of urological diseases. The Company is governed by the British Columbia Business Corporations Act. The Company's operations were initially located in Vancouver, British Columbia until April 2011, when its core activities and headquarters relocated from Vancouver, British Columbia to San Diego, California.

The condensed consolidated financial statements include the accounts of Sophiris Bio Inc. and its wholly-owned subsidiaries, Sophiris Bio Corp. and Sophiris Bio Holding Corp., both of which are incorporated in the State of Delaware.

Liquidity

The condensed consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the settlement of liabilities in the normal course of business. At June 30, 2018 the Company had cash, cash equivalents and securities available-for-sale of $18.5 million. The Company expects that its cash, cash equivalents and securities available-for-sale will be sufficient to fund its operations through June 2019, as a result, substantial doubt exists over our ability to continue as a going concern from one year from the date of the issuance of our condensed consolidated financial statements.

We are currently evaluating options to further advance the clinical development of topsalysin. We will require significant additional funding to advance topsalysin in clinical development. We could use dilutive funding options such as an equity financing and non-dilutive funding options such as a partnering arrangement or royalty agreement to fund future clinical development of topsalysin. At this point in time we do not plan on pursuing new clinical trials, including a Phase 3 in localized prostate cancer or a second Phase 3 trial in BPH unless we obtain additional financing. There can be no assurance that such funding will be available on acceptable terms or at all.

If the Company is unable to raise additional capital to fund its development program efforts beyond its ongoing clinical trial in sufficient amounts or on terms acceptable to it, the Company may have to significantly delay, scale back or discontinue the development and commercialization of topsalysin.

2. Summary of significant accounting policies

Basis of consolidation

The condensed consolidated financial statements include the accounts of the Company, Sophiris Bio Corp. and Sophiris Bio Holding Corp. All intercompany balances and transactions have been eliminated for purposes of consolidation.

Basis of presentation

The accompanying unaudited condensed consolidated financial statements have been prepared in conformity with generally accepted accounting principles in the United States, or GAAP, for the interim financial information and the rules and regulations of the Securities and Exchange Commission, or SEC, related to quarterly reports on Form 10-Q. Accordingly, they do not include all of the information and disclosures required by GAAP for annual audited financial statements and should be read in conjunction with the Company's audited consolidated financial statements and notes thereto included in the Company's Annual Report on Form 10-K, or Annual Report, filed with the SEC on March 21, 2018. The accompanying year-end condensed balance sheet data was derived from the audited consolidated financial statements, but does not include all disclosures required by GAAP. In the opinion of management, these condensed consolidated financial statements include all adjustments (consisting of normal recurring adjustments) necessary for a fair statement of the financial position, results of operations and cash flows for the periods presented. The results of operations for the interim periods shown in this report are not necessarily indicative of the results that may be expected for any future period, including the full year.

During the six months ended June 30, 2018, there have been no changes to our significant accounting policies as described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, except as described below.

Revenue recognition

Effective January 1, 2018, the Company adopted Accounting Standards Update, or ASU, No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, and the related amendments that were issued by the Financial Accounting Standards Board, or FASB. Topic 606 establishes principles for reporting useful information to users of financial statements about the nature, amount, timing and uncertainty of revenue and cash flows arising from the entity's contracts with customers.

The Company may enter into product development agreements with collaborative partners for the research and development of products for the treatment of urological diseases. The terms of the agreements may include nonrefundable signing and licensing fees, development and sales-based milestone payments and royalties on any product sales derived from collaborations. To the extent that the collaborative partner is deemed to be a customer, a party that has contracted with a company to obtain goods and services that are an output of the company's ordinary activities in exchange for consideration, the Company will account for the product development agreement in accordance with Topic 606. The Company will only recognize revenue if a contract meets the following parameters: the parties have approved the contract, each party's rights to goods and services to be transferred can be identified, the payment terms are defined, the contract has commercial substance and it is probable the Company will collect substantially all of the consideration. Once it is determined that a contract exists, the Company will evaluate the performance obligations within the product development agreement. Performance obligations will be analyzed to determine whether the performance obligations are distinct or whether they must be accounted for as a single unit of multiple related distinct goods and services.

The Company will then perform an analysis to determine the total transaction price that the Company expects to receive from satisfying the performance obligations in the agreement. To the extent that the agreement includes variable consideration, amounts which can vary depending on the occurrence or nonoccurrence of a future event, the amount included in the total transaction price may be limited to the amount which is probable that a significant reversal will not occur when the uncertainty associated with the variable consideration is subsequently resolved. Development milestones associated with the successful outcome of a clinical trial or regulatory approval are highly susceptible to factors outside the influence of the Company and therefore any revenue associated with these milestones are not recognized as revenue until the occurrence of the event assuming its related performance obligation has been completed. Sales-based royalty revenue and sales-based milestone payments will be recognized when the later of the following events occurs: the subsequent sale occurs or the performance obligation to which some or all of the sales-based royalty or sales-based milestone payment has been allocated has been satisfied.

The calculated transaction price will then be allocated to the separate performance obligations based upon the relative standalone selling price of the performance obligations. If standalone selling price cannot be determined, a residual approach may be used to estimate the standalone selling price when the selling price for a good or service is highly variable or uncertain.

For each performance obligation, the Company must determine the period over which the performance obligations will be satisfied, and revenue recognized. Revenue will be recognized over time if the Company satisfies the performance obligation over a period of time whereas revenue will be recognized at a point in time if the performance obligation is satisfied at a specific point in time.

Revenue related to the transfer of an intellectual property license will be recognized either upon the transfer of the license or over a period of time depending upon whether or not the transfer of the intellectual property license is a distinct performance obligation, or the transfer of the intellectual property license is not distinct from other goods and services included in the agreement. Other factors which may impact the Company's timing for revenue recognition related to the transfer of the license will be a determination of whether the license is a right to use the Company's intellectual property as it exists at the point in time the license is granted or whether the license provides access to the Company's intellectual property as it exists throughout the license period.

Recent accounting pronouncements

In February 2016, the FASB issued ASU No. 2016-02, "*Leases (Topic 842).*" This guidance requires lessees to recognize a lease liability and a right-of-use asset with the exception of short-term leases. In addition, lessees are required to classify leases as either operating or finance based on current criteria of whether or not the lease is effectively a financed purchase by the lessee. The new standard is effective for the annual reporting period beginning after December 15, 2018 and early adoption is permitted. Although the Company is in the process of evaluating the impact of this guidance on its consolidated financial statements and related disclosures, the Company expects that its operating lease will be subject to the new standard and recognized as operating lease liability and right-of-use asset upon adoption.

In August 2016, the FASB issued ASU 2016-15, *"Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments,"* addressing eight specific cash flow issues in an effort to reduce diversity in practice. The Company adopted this standard in the first quarter of 2018, and the adoption did not have an impact on our condensed consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *"Compensation-Stock Compensation (Topic 718); Scope of Modification Accounting,"* or ASU 2017-09. The new standard provides guidance about which changes to the terms or conditions of a share-based payment award require and entity to apply modification accounting in Topic 718. The Company adopted this standard in the first quarter of 2018, and the adoption did not have an impact on our condensed consolidated financial statements.

3. Net income (loss) per common share

Basic net income (loss) per share is calculated by dividing the net income (loss) attributable to common shareholders by the weighted-average number of common shares outstanding during the period, without consideration for common shares equivalents. Diluted net income (loss) per share is computed by dividing the net income (loss) attributable to common shareholders by the weighted-average number of common share equivalents outstanding for the period determined using the treasury-stock method.

The following table sets forth the computation of basic and diluted EPS (in thousands, except per share data):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Basic net income (loss) per share				
Net income (loss) allocated to common stockholders	$ (6,097)	$ 610	$ (9,426)	$ (2,010)
Weighted average common shares outstanding-basic	30,111	30,111	30,111	30,111
Net income (loss) per share-basic	$ (0.20)	$ 0.02	$ (0.31)	$ (0.07)
Diluted net income (loss) per share				
Net income (loss) allocated to common stockholders-diluted	$ (6,097)	$ 603	$ (9,426)	$ (2,010)
Weighted average common shares outstanding-basic	30,111	30,111	30,111	30,111
Dilutive securities	—	404	—	—
Weighted average common shares outstanding-dilutive	30,111	30,515	30,111	30,111
Net income (loss) per share-diluted	$ (0.20)	$ 0.02	$ (0.31)	$ (0.07)

The following diluted securities were excluded from the calculation of the denominator for diluted net income per common share for the three and six months ended June 30, 2018 and 2017 due to their antidilutive effects (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Options to purchase common shares	2,940	2,497	2,940	2,888
Common share purchase warrants	5,825	5,712	5,825	5,725

4. Securities Available-for-Sale

Securities available-for-sale consisted of the following as of June 30, 2018 (in thousands):

	June 30, 2018			
	Amortized Cost	Unrealized Gain	Unrealized Loss	Estimated Fair Value
Commercial paper	$ 2,093	$ —	$ —	$ 2,093
U.S. government sponsored enterprise securities	2,496	—	(2)	2,494
	$ 4,589	$ —	$ (2)	$ 4,587

As of June 30, 2018, all of the Company's securities available-for-sale have a maturity date of less than one year.

Securities available-for-sale consisted of the following as of December 31, 2017 (in thousands):

	December 31, 2017			
	Amortized Cost	Unrealized Gain	Unrealized Loss	Estimated Fair Value
Commercial paper	$ 3,590	$ —	$ —	$ 3,590
U.S. government sponsored enterprise securities	4,985	—	(2)	4,983
Corporate debt securities	1,184	—	—	1,184
	$ 9,759	$ —	$ (2)	$ 9,757

As of December 31, 2017, all of the Company's securities available-for-sale have a maturity date of less than one year.

5. Fair value measurement and financial instruments

As of June 30, 2018, the Company had $18.0 million of securities consisting of money market funds, commercial paper, and U.S. government sponsored enterprise securities with maturities that range from three days to five months with an overall average time to maturity of approximately one month. The Company has the ability to liquidate these investments without restriction. The Company determines fair value for securities with Level 1 inputs through quoted market prices. The Company determines fair value for securities with Level 2 inputs through broker or dealer quotations or alternative pricing sources with reasonable levels of price transparency. The Company's Level 2 securities have been initially valued at the transaction price and subsequently valued, at the end of each reporting period, typically utilizing third party pricing services or other observable market data. The pricing services utilize industry standard valuation models, including both income and market based approaches and observable market inputs to determine value. These observable market inputs include reportable trades, benchmark yields, credit spreads, broker/dealer quotes, bids, offers, and other industry and economic events. The Company's Level 3 inputs are unobservable inputs based on the Company's assessment that market participants would use in pricing the instruments.

The following table presents the Company's assets and liabilities that are measured at fair value on a recurring basis for the periods presented (in thousands):

	June 30, 2018	Level 1	Level 2	Level 3
Assets:				
Money market funds	$ 471	$ 471	$ —	$ —
Commercial paper	15,029	—	15,029	—
U.S. government sponsored enterprise securities	2,494	—	2,494	—
Total assets	$ 17,994	$ 471	$ 17,523	$ —
Liabilities:				
Warrant liability	$ 10,099	$ —	$ —	$ 10,099
Total liabilities	$ 10,099	$ —	$ —	$ 10,099

	December 31, 2017	Level 1	Level 2	Level 3
Assets:				
Money market funds	$ 34	$ 34	$ —	$ —
Commercial paper	19,020	—	19,020	—
U.S. government sponsored enterprise securities	4,983	—	4,983	—
Corporate debt securities	1,184	—	1,184	—
Total assets	$ 25,221	$ 34	$ 25,187	$ —
Liabilities:				
Warrant liability	$ 10,089	$ —	$ —	$ 10,089
Total liabilities	$ 10,089	$ —	$ —	$ 10,089

Warrant liability

In connection with the offering completed on May 11, 2016, the Company issued 1,785,714 warrants to purchase its common shares. These warrants may require the Company to pay the warrant holder cash under certain provisions of the warrant and therefore the Company is accounting for these warrants as a liability. As a result of these warrants being classified as a liability, the Company is required to calculate their fair value at each reporting date. The fair value of these warrants is calculated utilizing a Black-Scholes pricing model. The Company calculated the initial fair value of these warrants on May 11, 2016, the date the warrants were issued. As of June 30, 2018, only 10,000 warrants remain outstanding from the May 11, 2016 offering for which the fair value was remeasured as of June 30, 2018. The following inputs were utilized in the Black-Scholes pricing model:

	June 30, 2018	December 31, 2017
Stock price	$ 2.81	$ 2.27
Exercise price	$ 1.40	$ 1.40
Risk-free interest rate	2.60%	2.01%
Volatility	117.59%	143.57%
Dividend yield	0.00%	0.00%
Expected life in years	2.86	3.36
Calculated fair value per warrant	$ 2.22	$ 1.95

In connection with the offering completed on August 26, 2016, the Company issued 5,606,250 warrants to purchase its common shares. These warrants may require the Company to pay the warrant holder cash under certain provisions of the warrant and therefore the Company is accounting for these warrants as a liability. As a result of these warrants being classified as a liability, the Company is required to calculate the fair value of these warrants at each reporting date. The fair value of these warrants is calculated utilizing a Black-Scholes pricing model. The Company calculated the initial fair value of these warrants on August 26, 2016, the date the warrants were issued. As of June 30, 2018, 5.6 million warrants remain outstanding for which the fair value was remeasured. The following inputs were utilized in the Black-Scholes pricing model:

	June 30, 2018	December 31, 2017
Stock price	$ 2.81	$ 2.27
Exercise price	$ 4.00	$ 4.00
Risk-free interest rate	2.62%	2.04%
Volatility	112.83%	145.36%
Dividend yield	0.00%	0.00%
Expected life in years	3.16	3.65
Calculated fair value per warrant	$ 1.80	$ 1.80

The following table presents a reconciliation of the warrant liability measured at fair value using unobservable inputs (Level 3) (in thousands):

	Warrant Liability
Liabilities:	
Balance at January 1, 2018	$ 10,089
Change in the fair value of warrant liability	10
Balance at June 30, 2018	$ 10,099

The Company recognizes transfers into and out of levels within the fair value hierarchy at the end of the reporting period in which the actual event or change in circumstances that caused the transfer occurs. There were no transfers of assets or liabilities between the fair value measurement classifications.

6. Prepaid expenses

Prepaid expenses as of June 30, 2018 and December 31, 2017 consisted of the following (in thousands):

	June 30, 2018	December 31, 2017
Prepaid insurance	$ 46	$ 233
Prepaid research and development expenses	907	709
Other prepaid expenses	102	70
Prepaid expenses and other current assets	$ 1,055	$ 1,012

As of June 30, 2018 and December 31, 2017, prepaid research and development expenses includes $0.9 million and $0.7 million, respectively for prepaid and upfront fees paid to the Company's clinical research organization assisting with the Company's clinical trials and to a third-party manufacturing vendors for the development of topsalysin. The prepayments and upfront fees will be relieved in future periods based upon work completed.

7. Accrued expenses

Accrued expenses as of June 30, 2018 and December 31, 2017 consisted of the following (in thousands):

	June 30, 2018	December 31, 2017
Accrued personnel related costs	$ 376	$ 904
Accrued interest	39	41
Accrued research and development expenses	1,936	273
Accrued audit and tax services	247	246
Other accrued expenses	64	35
Accrued expenses	$ 2,662	$ 1,499

8. Promissory notes

On September 8, 2017, the Company entered into a Loan and Security Agreement with Silicon Valley Bank. Under the terms of the agreement, the Company has the ability to request term loan advances in two tranches. The first tranche of $7.0 million was effective on the date of the agreement and the second tranche is available to the Company in a single advance not to exceed $3.0 million if the Company has either (a) received net proceeds of $20.0 million from the sale of common shares prior to December 31, 2018 or (b) obtained positive Phase 2b data in a clinical trial of topsalysin for treatment of localized cancer prior to December 31, 2018.

The principal borrowed under the first tranche of $7.0 million bears fixed interest of 6.75% per annum. The Company has the option to prepay the outstanding balance of the loan in full, subject to a prepayment fee of 1% to 3% depending upon when the prepayment occurs. Upon the final repayment of the loan on the maturity date of September 1, 2021, by prepayment, or upon acceleration, the Company shall pay Silicon Valley Bank an additional fee of 5% of the principal amount of $7.0 million. This additional fee is recorded as a debt discount and is being recognized as interest expense over the life of the loan utilizing the effective interest method. The repayment terms are interest only payments through September 2018 followed by 36 equal monthly payments of principal and interest.

Pursuant to the first tranche of the loan, the Company issued warrants to Silicon Valley Bank to purchase an aggregate of up to 99,526 of the Company's common shares at an exercise price of $2.11 per share. The warrants will expire seven years from the date of the grant. The fair value of $0.2 million for this equity component was derived using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate – 1.9%, volatility – 113.9%, dividend yield – 0% and expected life in years – 7. The $7.0 million proceeds were allocated to equity and the debt based on their relative fair values. As of September 30, 2017, the aggregate fair value of the debt, based on level 3 inputs, was approximately $7.0 million. The equity component was recognized as a debt discount and will be amortized to interest expense over the life of the debt. Interest on the loan, consisting of the stated interest rate, final payment fee and amortization of the discount, is being recognized under the effective interest method.

The third party issuance costs incurred related to the loan of $0.1 million are being amortized under the effective interest method over the life of the loan and have been recorded as a reduction to the loan balance.

In connection with the loan, the Company granted to Silicon Valley Bank a security interest in all of the Company's personal property now owned or hereafter acquired, excluding intellectual property and certain other assets.

The Company is not subject to any financial covenants under the loan. As of June 30, 2018, the Company was in compliance with all covenants under the loan. The loan agreement contains customary affirmative and negative covenants, indemnification provisions and events of default. The affirmative covenants include, among others, covenants requiring us to maintain our legal existence and governmental approvals, deliver certain financial reports and maintain certain intellectual property rights. The negative covenants include, among others, restrictions on transferring or licensing our assets, changing our business, incurring additional indebtedness, engaging in mergers or acquisitions, paying dividends or making other distributions, and creating other liens on our assets, in each case subject to customary exceptions. If we default under the loan, Silicon Valley Bank may accelerate all of our repayment obligations and take control of our pledged assets. Silicon Valley Bank could declare a default under the loan upon the occurrence of any event that Silicon Valley Bank interprets as a material adverse change as defined under the loan agreement, thereby requiring us to repay the loan immediately.

As of June 30, 2018, the future contractual principal and final fee payments on our debt obligations are as follows (in thousands):

2018	$	584
2019		2,333
2020		2,333
2021		2,100
Total	$	7,350

The following table shows actual interest expense, amortization of the debt discount and amortization of the issuance costs that was charged to interest expense (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Simple interest	$ 119	$ —	$ 237	$ —
Accretion of debt discount	38	—	75	—
Amortization of promissory note issuance costs	15	—	29	—
Total	$ 172	$ —	$ 341	$ —

The Company calculated the fair value of the secured promissory notes as $6.8 million (Level 3) as of June 30, 2018. The fair value of long-term debt is based on the net present value of calculated interest and principal payments, using an interest rate of 6.75%, which takes into consideration the financial position of the Company and the recent interest rate environment for new debt issuances for comparable companies. The fair value of this equity component was derived using the Black-Scholes valuation model. The Company calculated the promissory notes' fair value by allocating to equity and the debt based on their respective fair values.

9. Revenue for license agreement

In April 2010, the Company entered into an exclusive license agreement for the development and commercialization of topsalysin (and other products covered by the licensed patent). The agreement with Kissei Pharmaceuticals Co., Ltd., a Japanese pharmaceutical company, or Kissei, covers the development and commercialization of topsalysin in Japan for the treatment of the symptoms of BPH, prostate cancer, prostatitis or other diseases of the prostate.

Pursuant to the agreement in 2010, the Company received an upfront license payment of $3.0 million. In addition to the upfront license payment, the Company was entitled to receive up to $72.0 million of non-refundable development and sales-based milestone payments as follows: a total of $17.0 million for the BPH indication, of which $5.0 million relates to the completion of certain development activities, $7.0 million relates to the completion of regulatory approvals in Japan and $5.0 million relates to the achievement of certain product sale goals in Japan; a total of $21.0 million for the prostate cancer indication, of which $7.0 million relates to the completion of certain development activities in Japan, $7.0 million relates to the completion of regulatory approvals in Japan and $7.0 million relates to the achievement of certain product sale goals in Japan; and a total of $21.0 million for prostatitis or other diseases of the prostate, of which $7.0 million relates to the completion of certain development activities in Japan, $7.0 million relates to the completion of regulatory approvals in Japan and $7.0 million relates to the achievement of certain product sale goals in Japan. An additional $13.0 million of aggregate milestone payments are not indication specific, of which $5.0 million relates to the completion of regulatory approvals and $8.0 million relates to the achievement of certain product sale goals in Japan. The Company may also receive a drug supply fee, assuming the Company supplies material to Kissei and royalty payments in the 20-29% range as a percentage of future net sales of licensed products sold under the agreement.

Accounting for the Kissei Agreement prior to the Adoption of ASC Topic 606:

The Company recognized the entire $3.0 million upfront license payment as revenue in 2010. During the year ended December 31, 2013, the Company recorded as revenue a $5.0 million non-refundable milestone payment due from Kissei upon the achievement of certain development activities. No other amounts related to this agreement have been recorded as revenue.

Accounting for the Kissei Agreement after the Adoption of Topic 606:

Effective January 1, 2018, the Company adopted ASU, No. 2014-09, "*Revenue from Contracts with Customers (Topic 606)*" and the related amendments that were issued by the FASB. Upon adoption of this standard, we utilized the modified retrospective adoption method, meaning that any identified cumulative effect of applying the new guidance would be recognized as an adjustment to the opening retained earnings balance.

The Company has reviewed its agreement with Kissei and determined that Kissei met the definition of a customer as defined in Topic 606. In addition, the Company confirmed that the agreement has been approved by all parties, each party's rights to goods or services to be transferred can be identified, the payment terms are defined, the contract has commercial substance and it is probable that the Company will collect substantially all of the consideration when due.

The Company determined that the license provided to Kissei represents a right to use functional intellectual property. This determination is based upon Kissei's ability to use the license as soon as it was granted and that the Company has no further obligations, as outlined in the agreement, to improve or change the licensed intellectual property. In addition, the licensed intellectual property is not expected to substantially change during the licensed period. With that being said, the agreement includes a provision whereby any improvements to the licensed intellectual property will be granted to the other party through an exclusive, fully paid, perpetual license. As this performance obligation was completed upon the transfer of the license, and given there are no additional performance obligations under the terms of the agreement, there is no impact upon adoption on the $3.0 million upfront license recognized as revenue in 2010.

As outlined above the agreement also includes development and sales-based milestone payments and sales-based royalties. Upon the signing of the agreement, the development based milestone payments would have been considered variable consideration under Topic 606 as the payment of these milestones was contingent upon actions of Kissei or other third parties or were based upon the successful outcome of clinical trials or other development activities performed by the Company. Variable consideration is subject to a constraint which limits the amount of variable consideration which can be included in the transaction price to the amount which is probable to not be reversed when the uncertainty associated with the variable consideration is subsequently resolved. At each future reporting date the Company reassesses the constraint applied to each unrecognized development based milestone. To the extent that an uncertainty is no longer identified the Company may recognize all or a portion of a development based milestone assuming no other factors relating to the ultimate payment of the development milestone are identified. The recognition of revenue for the $5.0 million development milestone payment upon the achievement of certain development activities during the year ended December 31, 2013 would be appropriate under Topic 606 and therefore there is no impact upon adoption on the $5.0 million development milestone payment recognized as revenue in 2013.

Topic 606 includes an exception for the recognition of revenue relating to licenses of intellectual property with sales- or usage-based royalties whereby sales-based milestone payments and sales-based royalties will not be recognized as revenue until the later of the following events occur: the subsequent sale occurs or the performance obligation to which some or all of the sales based royalty has been allocated has been satisfied. Accordingly, there is no impact upon adoption as no revenue has historically been recorded related to these items.

Based on the above, the Company's adoption of Topic 606 did not have an impact on the Company's historical financial statements and therefore no adjustments were required to the Company's financial statements as a result of the adoption of Topic 606.

10. Stock-based compensation plan

The Company's Amended and Restated 2011 Stock Option plan, or the Plan, provides for the granting of options for the purchase of common shares of the Company at the fair value of the Company's common shares on the date of the option grant. Options are granted to employees, directors and non-employees. The board of directors or a committee appointed by the board of directors administers the Plan and has discretion as to the number, vesting period and expiry date of each option award. Historically the Company granted options with an exercise price denominated in Canadian dollars prior to the Company's U.S. IPO. Following the Company's U.S. IPO the Company has granted options with an exercise price denominated in U.S. dollars.

As of June 30, 2018, the Company has 71,000 common shares which were available for issuance under the Plan.

The Company recognized stock-based compensation expense as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Research and development	$ 47	$ 130	$ 105	$ 255
General and administrative	143	335	316	612
Total	$ 190	$ 465	$ 421	$ 867

As of June 30, 2018 there was $0.6 million of total unrecognized compensation expense related to non-vested stock awards, which is expected to be recognize over a weighted average period of eleven months.

The following table summarizes stock option activity, including options issued to employees, directors and non-employees (in thousands, except per share):

	Options Outstanding	Weighted Average Exercise Price
Outstanding at January 1, 2018	2,931	$ 3.10
Options granted	80	2.91
Options expired	(71)	13.16
Outstanding at June 30, 2018	2,940	$ 2.85

The total amount of options expired for the six months ended June 30, 2018 were options with exercise prices denominated in Canadian dollars. The Canadian dollar amounts have been converted to U.S. dollars for purposes of the weighted average exercise price calculation using the grant date exchange rate for the Canadian dollar denominated options.

The fair values of options granted during the six months ended June 30, 2018 and 2017 were estimated at the date of grant using the following weighted-average assumptions:

	Six Months Ended June 30,	
	2018	**2017**
Expected life of the option term (years)	4.7	4.1
Risk-free interest rate	2.67%	1.61%
Dividend rate	0%	0%
Volatility	126.2%	144.8%

11. Commitments and contingencies

Purchase commitments

The Company is required to schedule certain manufacturing activities in advance. If the Company cancels any of these scheduled activities without proper notice the Company could be required to pay penalties of 50% to 100% of the cost of the originally scheduled activity. The Company estimates that the cost of these penalties would be approximately $1.7 million at June 30, 2018 if the Company cancels the scheduled activities.

All amounts recorded under these manufacturing contracts, including scheduled manufacturing activities and other activities, included as a component of research and development expense was $1.8 million and $0.1 million for the three months ended June 30, 2018 and 2017, respectively and $3.6 million and $0.1 million for the six months ended June 30, 2018 and 2017, respectively.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis in conjunction with our unaudited condensed consolidated financial statements and notes included elsewhere in this Quarterly Report on Form 10-Q, or this Quarterly Report and the audited consolidated financial statements and notes as of and for the year ended December 31, 2017 included with our Annual Report on Form 10-K filed with the Securities and Exchange Commission, or the SEC, on March 21, 2018. Operating results are not necessarily indicative of results that may occur in future periods.

This discussion and analysis contains forward-looking statements that involve a number of risks, uncertainties and assumptions. Actual events or results may differ materially from our expectations. Important factors that could cause actual results to differ materially from those stated or implied by our forward-looking statements include, but are not limited to, those set forth in "Item 1A. Risk Factors" in Part II of this Quarterly Report on Form 10-Q. All forward-looking statements included in this Quarterly Report on Form 10-Q are based on information available to us as of the time we file this Quarterly Report on Form 10-Q and, except as required by law, we undertake no obligation to update publicly or revise any forward-looking statements.

All dollar amounts are expressed in U.S. dollars unless otherwise noted. All amounts that are expressed on an as-converted from Canadian dollar to U.S. dollar basis are calculated using the conversion rate as of June 30, 2018 unless otherwise noted.

Overview

We are a clinical-stage biopharmaceutical company focused on developing innovative products for the treatment of urological diseases. We are headquartered in San Diego, California and our common shares trade on The NASDAQ Capital Market. We are currently developing topsalysin (PRX302) as a treatment for clinically significant low to intermediate risk localized prostate cancer and as a treatment for the lower urinary tract symptoms of benign prostatic hyperplasia, or BPH, commonly referred to as an enlarged prostate. Topsalysin, a first-in-class, pore-forming protein, is a highly ablative agent that is selective and targeted in that it is only activated by enzymatically active prostate specific antigen, or PSA, which is found in high concentrations around prostate tumor cells and in the transition zone of the prostate. In 2004, we licensed exclusive rights to topsalysin from UVIC Industry Partnerships Inc., or UVIC, and The Johns Hopkins University, or Johns Hopkins, for the treatment of prostate cancer and in 2009, we licensed exclusive rights to topsalysin from UVIC and Johns Hopkins for the treatment of the symptoms of BPH. In April 2010, we entered into an exclusive license agreement with Kissei Pharmaceuticals Co., Ltd., or Kissei, pursuant to which we granted Kissei the right to develop and commercialize topsalysin in Japan for the treatment of the symptoms of BPH, prostate cancer, prostatitis or other diseases of the prostate.

Topsalysin, a genetically modified recombinant protein, is delivered via ultrasound-guided injection directly into the prostate. This membrane-disrupting protein is selectively activated by enzymatically active PSA which is only present in the prostate, leading to localized cell death and tissue disruption without damage to neighboring tissue and nerves. This method of administration limits the circulation of the drug in the body, and we believe that this limited systemic exposure to the drug, together with how the drug is activated in the prostate, greatly diminishes the risk of side effects. We believe that the highly targeted mechanism by which topsalysin selectively destroys prostate tissue in BPH makes topsalysin a potential focal treatment for clinically significant localized prostate cancer.

On June 25, 2018, we announced top-line interim safety and biopsy data following a single administration of topsalysin from our ongoing open-label, Phase 2b clinical trial to confirm the dose and optimize the delivery of topsalysin for the treatment of clinically significant low to intermediate risk localized prostate cancer. In the Phase 2b clinical trial, 38 patients with pre-identified, localized prostate cancer received a single administration of topsalysin at eight clinical trial sites in the United Kingdom and United States. Six months after administration, patients received a follow-up targeted biopsy of the treated lesion. At the time of the announcement, six-month follow-up biopsies have been undertaken and evaluated from 35 of 38 patients treated with a single dose of topsalysin. Two of the remaining patients received six-month biopsies following their first administration of topsalysin. We expect to report updated data following receipt of the results of these biopsies.

The primary objective of this trial is to evaluate the safety and tolerability of a single, and if applicable, a second administration of topsalysin, when used to focally ablate a histologically-proven, clinically significant lesion in patients with localized prostate cancer.

To date, a single administration of topsalysin continues to appear safe and well tolerated by patients with no new safety signals. No hypersensitivity reactions or other serious systemic reactions to study medication were observed after a single administration. Safety analysis to date of all 38 patients receiving a single administration of topsalysin indicate the following adverse events occurred in more than one patient and were considered related to topsalysin: dysuria (3 patients), urinary retention (3 patients), nocturia (2 patients), micturition urgency (2 patients) and strangury (2 patients). All adverse events were considered mild and typically resolved within the same day. One event of micturition urgency was considered severe and resolved the same day and one event of urinary retention was considered moderate and the event was considered resolved after the patient underwent a transurethral resection of the prostate.

In May 2018, an independent data monitoring committee, or IDMC, met to review the safety data from all 38 patients administered a single dose of topsalysin as well the safety data available on the first seven patients who received a second administration of topsalysin. At that time, the IDMC unanimously recommended the clinical trial continue without changes to the protocol. To date, over 450 patients have received a single administration of topsalysin at various doses.

A secondary objective of the trial is to evaluate the efficacy of a single administration of topsalysin and, if applicable, a second administration of topsalysin to selectively target and focally ablate a pre-identified lesion.

A single administration of topsalysin continues to demonstrate an ability to ablate targeted prostate cancer cells. Based on the six-month biopsy results for 35 patients, 29% of patients (10/35) demonstrated a clinical response, defined in this trial as no detectable tumor on targeted biopsy of the treated lesion or a sufficient reduction to deem the lesion clinically-insignificant (cancer lesion of Gleason Score 6 (pattern 3+3) and a maximum cancer core length, or MCCL, of less than 6 millimeters). This compares favorably to 17% of patients (3/18) moving to clinically insignificant disease in the previously completed Phase 2a localized prostate cancer clinical trial. Of the 10 clinical responders in the Phase 2b trial, six patients experienced a complete ablation with no histological evidence of the targeted tumor remaining. (A Gleason pattern is a grading system utilized to describe how aggressive a prostate tumor is and how likely it is to spread. Generally, there are five recognized Gleason histological patterns and a higher Gleason pattern indicates a more aggressive tumor).

Additionally, the Phase 2b single administration follow-up biopsy data showed that:

- 37% of patients (13/35) experienced a partial response, defined as a reduction in MCCL and/or Gleason pattern, but the targeted lesion was still deemed clinically-significant based on the targeted biopsy.
- 34% (12/35) of patients did not respond to treatment defined as no change in the targeted lesion or an increase in MCCL and/or Gleason pattern

The Phase 2b prostate cancer clinical trial represents the first trial designed to allow qualified patients to receive a second administration of topsalysin six months after initial treatment with a targeted biopsy to occur 24 weeks following the second administration. To be eligible to receive a second administration, patients could not have experienced a clinically-significant adverse event attributable to either topsalysin or the dosing procedure from the first administration and have demonstrated evidence of a response to treatment with topsalysin, either through a reduction in lesion size, Gleason pattern, or MCCL. The objective of re-administering topsalysin is to determine if additional clinical benefit is observed six months after the second administration.

Eleven patients elected to receive a second administration of topsalysin. We were recently notified that a patient death occurred on the same day as their second administration. As a precaution no additional patients will receive a second administration of topsalysin. The event is under active review. The other patients who received a second dose of topsalysin will continue to be monitored per the trial's protocol and six month follow-up biopsy and safety data are expected to be available late in the fourth quarter of 2018.

We believe the safety and biopsy data from the first administration of topsalysin supports moving forward into potential registration studies. We have begun planning for a Phase 3 clinical trial for topsalysin for the treatment of clinically significant low to intermediate risk localized prostate cancer and initiation of this clinical trial is subject to receiving additional financing.

We will continue to evaluate whether future clinical development will include an option to administer a second dose as we receive more information about the patient death and additional information from the 10 patients who received a second dose.

We previously completed a single-center, open-label Phase 2a proof of concept clinical trial of topsalysin for the treatment of localized low to intermediate risk prostate cancer. The primary objective of the trial was to assess the safety and tolerability of topsalysin when used to selectively target and focally ablate a clinically significant tumor. The potential efficacy was evidenced by histological changes, indicating tumor ablation at six months following treatment.

A total of 18 patients with localized low to intermediate risk prostate cancer were enrolled in the Phase 2a proof of concept clinical trial. The one-time administration of topsalysin was well tolerated with no serious adverse events and no new safety signals being reported. Topsalysin demonstrated an ability to ablate tumor cells in more than 60% of patients (11/18 patients) six months after treatment in a patient population with pre-identified, clinically significant prostate cancer.

All 18 patients enrolled completed the clinical trial. Biopsy data at six months following treatment showed that:

- Two patients experienced complete ablation of their targeted tumor with no evidence of any tumor remaining at six months;

- Nine patients experienced a partial response, defined as either a reduction in the maximum cancer core length or a reduction in Gleason pattern; and

- Seven patients had no response to treatment.

We have also completed the first of two Phase 3 clinical trials that we believe would be required to obtain marketing approval for topsalysin for the treatment of the symptoms of BPH. In October 2013, we initiated our first Phase 3 clinical trial, which we refer to as the "PLUS-1" trial, of topsalysin for the treatment of the lower urinary tract symptoms of BPH. The Phase 3 "PLUS-1" trial was an international, multicenter, randomized, double-blind, and vehicle-controlled trial to assess the efficacy and safety of a single intraprostatic administration of topsalysin (0.6 µg/g prostate) for the treatment of the lower urinary symptoms of BPH. Patients were randomized on a 1:1 ratio to either topsalysin or vehicle-only injection, and then monitored for one year. A total of 479 patients with moderate to severe BPH were enrolled and randomized by September 2014. On November 10, 2015, we announced final results from this trial. Topsalysin demonstrated a statistically significant improvement in International Prostate Symptom Score, or IPSS, total score from baseline over 12 months compared to the vehicle-only control group (7.60 vs. 6.58 point overall improvement; $p = 0.043$), the primary endpoint of the trial. IPSS is a patient recorded, composite assessment that takes into account factors such as ability to empty the bladder, frequency of urination, intermittency of urination, urgency of urination, weak strength of urine stream, straining while urinating, and having to urinate multiple times at night after going to bed. Topsalysin continues to demonstrate a favorable safety profile, with no evidence of any treatment related sexual or cardiovascular side effects.

Beyond our on-going Phase 2b clinical trial for the treatment of localized prostate cancer, we are not planning on pursuing additional clinical trials, including a potential registration study for clinically significant localized prostate cancer or a second Phase 3 trial in BPH, unless we obtain additional funding or secure a development partner to fund such new clinical trials. There can be no assurance that such funding or a development partner will be available on acceptable terms or at all. Further, we cannot currently estimate when the clinical development required to seek the regulatory approvals needed to commercialize topsalysin for the treatment of clinically significant localized prostate cancer or the treatment of the symptoms of BPH will be completed.

Financial Operations Overview

Revenues

Our cumulative revenues to date consist of a $3.0 million up-front payment received from Kissei in 2010 and a $5.0 million non-refundable milestone payment for our achievement of certain development activities in 2013. We have no products approved for sale, and we have not generated any revenues from product sales.

Other than potential development milestones from Kissei, we do not expect to receive any revenues from topsalysin until we obtain regulatory approval and commercialize such product or until we potentially enter into additional collaborative agreements with third parties for the development and commercialization of topsalysin, which additional agreements will not likely occur until we complete the development of topsalysin. If our development efforts for topsalysin, or the efforts or Kissei or any future collaborator, result in clinical success and regulatory approval or collaboration agreements with other third parties, we may generate revenues from topsalysin. However, we may never generate revenues from topsalysin as we or any collaborator may never succeed in obtaining regulatory approval or commercializing this product.

Research and Development Expenses

Research and development expenses can be driven by a number of factors including: (a) the scope of clinical development and research programs pursued; (b) the type and size of clinical trials undertaken; (c) the number of clinical trials that are active during a particular period of time; (d) the rate of patient enrollment; (e) regulatory activities to support the clinical programs; and (f) Chemistry, Manufacturing and Controls, or CMC, activities associated with process development, scale-up and manufacture of drugs used in clinical trials; and such expenses are ultimately a function of decisions made to continue the development and testing of a product candidate based on supporting safety and efficacy results from clinical trial.

The majority of our operating expenses to date have been incurred in research and development activities related to topsalysin. Research and development expenses include:

- external research and development expenses incurred under agreements with clinical research organizations, or CROs, and investigative sites and clinical trial costs, as well as payments to consultants;

- employee related expenses, including salaries, benefits, travel and stock-based compensation expense;

- third-party manufacturing expenses; and

- facilities, depreciation and other allocated expenses.

We expense research and development costs as incurred. We account for nonrefundable advance payments for goods and services that will be used in future research and development activities as expenses when the service has been performed or when the goods have been consumed.

We expect to incur significant manufacturing costs in 2018 as we have initiated the manufacturing of drug substance, we are completing reformulation of drug product, and we are in the process of negotiating a development services and clinical supply agreement with Vetter Pharma International, GmbH, or Vetter, for manufacture of the reformulated drug product for Phase 3 clinical trials and will be responsible for the costs of technology transfer under this agreement.

At this time, due to the risks inherent in the clinical trial process and given the stage of our product development program, we are unable to estimate with any certainty the costs we will incur in the continued development of topsalysin for potential approval and commercialization in two indications. Clinical development timelines, the probability of success and development costs can differ materially from expectations. However, we do expect our research and development expenses to continue for the foreseeable future as we advance topsalysin through clinical development. The process of conducting clinical trials necessary to obtain regulatory approval is costly and time consuming. Any failure by us or delay in completing clinical trials, or in obtaining regulatory approvals, could lead to increased research and development expense and, in turn, have a material adverse effect on our results of operations.

Essentially all of our research and development expenses related to topsalysin during the three and six months ended June 30, 2018 and 2017. We recognized research and development expenses as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Clinical research and development	$ 1,320	$ 879	$ 2,423	$ 1,707
Manufacturing	2,224	378	4,392	633
Stock-based compensation expense	47	130	105	255
	$ 3,591	$ 1,387	$ 6,920	$ 2,595

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and related benefits, including stock-based compensation. Other general and administrative expenses include allocated facility-related costs not otherwise included in research and development expenses, travel expenses, market research expenses and professional fees for auditing, tax, investor relations and legal services. We expect general and administrative expenses to remain fairly consistent over the next year but if we were to move our drug candidate towards commercialization in future periods we do expect that general and administrative expenses would increase.

Interest Expense

Interest expense represents interest payable, amortization of our debt discount and issuance costs on our outstanding promissory notes.

Interest Income

We earn interest income from interest-bearing cash and investment accounts.

Gain (Loss) on Revaluation of Warrant Liability

In connection with the offerings completed in 2016, we issued warrants to purchase our common shares. These warrants may require us to pay the warrant holder cash under certain provisions of the warrant and therefore we account for these warrants as a liability. As a result of these warrants being classified as a liability, we are required to calculate the fair value of these warrants at each reporting date. The fair value of these warrants is calculated utilizing a Black-Scholes pricing model. We calculated the initial fair value of these warrants at the date the warrants were issued. At each reporting date, we are required to remeasure the fair value of the warrant liability and any corresponding increase or decrease to the warrant liability is recorded as a gain (loss) on revaluation of warrant liability. In addition, if a warrant holder exercises warrants, we are required to revalue the fair value of the underlying warrants on the date of exercise and reclassify the change in the fair value from the warrant liability to contributed surplus.

Certain inputs utilized in our Black-Scholes pricing model may fluctuate in future periods based upon factors which are outside of our control. A significant change in one or more of these inputs used in the calculation of the fair value may cause a significant change to the fair value of our warrant liability which could also result in material non-cash gain or loss being reported in our consolidated statement of operations and comprehensive loss.

Other Income (Expense), Net

Other income (expense), net consists primarily of foreign exchange gains and losses and on occasion income or expense of an unusual nature. Foreign exchange gains and losses result from the settlement of foreign currency transactions and from the remeasurement of monetary assets and liabilities denominated in currencies other than our functional currency.

Critical Accounting Policies and Significant Judgments and Estimates

The preparation of our financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities, and the revenues and expenses incurred during the reported periods. We believe that the estimates, assumptions and judgments involved in the accounting policies described in Management's Discussion and Analysis of Financial Condition and Results of Operations in Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2017 have the greatest potential impact on our financial statements, so we consider them to be our critical accounting policies and estimates. With the exception of the change to our revenue recognition critical accounting policy noted below as a result of the adoption of Accounting Standards Update, or ASU, No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* and the related amendments as of January 1, 2018, there were no material changes to our critical accounting policies and estimates during the six months ended June 30, 2018.

Revenue Recognition

Effective January 1, 2018, we adopted ASU, No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* and the related amendments that were issued by the Financial Accounting Standards Board, or FASB. Topic 606 establishes principles for reporting useful information to users of financial statements about the nature, amount, timing and uncertainty of revenue and cash flows arising from the entity's contracts with customers.

We may enter into product development agreements with collaborative partners for the research and development of products for the treatment of urological diseases. The terms of the agreements may include nonrefundable signing and licensing fees, development and sales-based milestone payments and royalties on any product sales derived from collaborations. To the extent that the collaborative partner is deemed to be a customer, a party that has contracted with a company to obtain goods and services that are an output of the company's ordinary activities in exchange for consideration, we will account for the product development agreement in accordance with Topic 606. We will only recognize revenue if a contract meets the following parameters: the parties have approved the contract, each party's rights to goods and services to be transferred can be identified, the payment terms are defined, the contract has commercial substance and it is probable we will collect substantially all of the consideration. Once it is determined that a contract exists, we will evaluate the performance obligations within the product development agreement. Performance obligations will be analyzed to determine whether the performance obligations are distinct or whether they must be accounted for as a single unit of multiple related distinct goods and services.

We will then perform an analysis to determine the total transaction price that we expect to receive from satisfying the performance obligations in the agreement. To the extent that the agreement includes variable consideration, amounts which can vary depending on the occurrence or nonoccurrence of a future event, the amount included in the total transaction price may be limited to the amount which is probable that a significant reversal will not occur when the uncertainty associated with the variable consideration is subsequently resolved. Development milestones associated with the successful outcome of a clinical trial or regulatory approval are highly susceptible to factors outside the influence of us and therefore any revenue associated with these milestones are not recognized as revenue until the occurrence of the event assuming its related performance obligation has been completed. Sales-based royalty revenue and sales-based milestone payments will be recognized when the later of the following events occurs: the subsequent sale occurs or the performance obligation to which some or all of the sales-based royalty or sales-based milestone payment has been allocated has been satisfied.

The calculated transaction price will then be allocated to the separate performance obligations based upon the relative standalone selling price of the performance obligations. If standalone selling price cannot be determined a residual approach may be used to estimate the standalone selling price when the selling price for a good or service is highly variable or uncertain.

For each performance obligation, we must determine the period over which the performance obligations will be satisfied, and revenue recognized. Revenue will be recognized over time if we satisfy the performance obligation over a period of time whereas revenue will be recognized at a point in time if the performance obligation is satisfied at a specific point in time.

Revenue related to the transfer of an intellectual property license will be recognized either upon the transfer of the license or over a period of time depending upon whether or not the transfer of the intellectual property license is a distinct performance obligation, or the transfer of the intellectual property license is not distinct from other goods and services included in the agreement. Other factors which may impact our timing for revenue recognition related to the transfer of the license will be a determination of whether the license is a right to use our intellectual property as it exists at the point in time the license is granted or whether the license provides access to our intellectual property as it exists throughout the license period.

Results Of Operations

Comparison of the three months ended June 30, 2018 and 2017

The following table summarizes the results of our operations for the three months ended June 30, 2018 and 2017, together with the changes in those items in dollars (in thousands):

	Three Months Ended June 30,		Change
	2018	2017	2018 vs. 2017
Research and development expenses	3,591	1,387	2,204
General and administrative expenses	1,096	1,367	(271)
Interest expense	(172)	—	(172)
Interest income	91	53	38
Gain (loss) on revaluation of warrant liability	(1,365)	3,320	(4,685)
Other income (expense)	36	(9)	45

Research and development expenses. Research and development expenses were $3.6 million in the three months ended June 30, 2018 compared to $1.4 million in the three months ended June 30, 2017. The increase in research and development costs is attributable to the following:

- a $1.8 million increase in the costs associated with manufacturing activities for topsalysin as we move forward with our manufacturing plans to provide sufficient drug substance for a potential Phase 3 registration study in localized prostate cancer and also a potential second Phase 3 for the treatment of the symptoms of BPH;

- a $0.4 million increase in clinical costs associated with our Phase 2b clinical trial of topsalysin for the treatment of localized prostate cancer which was initiated in March 2017; and

- a $0.1 million increase in consulting and travel costs associated with our manufacturing and regulatory activities.

Research and development expenses included non-cash stock-based compensation expenses of $47,000 for the three months ended June 30, 2018 as compared to $0.1 million for the three months ended June 30, 2017.

General and administrative expenses. General and administrative expenses were $1.1 million in the three months ended June 30, 2018 compared to $1.4 million for the three months ended June 30, 2017. The decrease from the three months ended June 30, 2017 as compared to the three months ended June 30, 2018 is primarily due decreases in non-cash stock-based compensation expense and consulting services.

Interest expense. Interest expense was $0.2 million in the three months ended June 30, 2018. Interest expense is related to our Silicon Valley Bank Loan and Security Agreement.

Interest income. Interest income of $91,000 was for the three months ended June 30, 2018 compared to $53,000 in the three months ended June 30, 2017. The increase is due to the increase in the average balances of the interest-bearing cash and investment accounts from period to period.

Gain (loss) on revaluation of warrant liability. Loss on revaluation of the warrant liability was $1.4 million for the three months ended June 30, 2018 as compared to a gain of $3.3 million for the three months ended June 30, 2017. The non-cash gain (loss) is associated with the change in the fair value of our warrant liability, which is calculated using a Black-Scholes pricing model.

Other income (expense). Other income was $36,000 for the three months ended June 30, 2018 compared to other expense of $9,000 for the three months ended June 30, 2017. This change was due to a decrease in foreign exchange losses associated with foreign currency transactions.

Comparison of the six months ended June 30, 2018 and 2017

The following table summarizes the results of our operations for the six months ended June 30, 2018 and 2017, together with the changes in those items in dollars (in thousands):

	Six Months Ended June 30,		Change
	2018	2017	2018 vs. 2017
Research and development expenses	6,920	2,595	4,325
General and administrative expenses	2,340	2,736	(396)
Interest expense	(341)	—	(341)
Interest income	178	103	75
Gain (loss) on revaluation of warrant liability	(10)	3,234	(3,244)
Other income (expense)	7	(16)	23

Research and development expenses. Research and development expenses were $6.9 million for the six months ended June 30, 2018 compared to $2.6 million for the six months ended June 30, 2017. The increase in research and development costs is attributable to the following:

- a $3.6 million increase in the costs associated with manufacturing activities for topsalysin as we move forward with our manufacturing plans to provide sufficient drug substance for a potential Phase 3 registration study in localized prostate cancer and also a potential second Phase 3 for the treatment of the symptoms of BPH;
- a $0.5 million increase in clinical costs associated with our Phase 2b clinical trial of topsalysin for the treatment of localized prostate cancer which was initiated in March 2017; and
- a $0.2 million increase in consulting and travel costs associated with our manufacturing and regulatory activities.

These increases are partially offset by decreases of $0.1 million for non-cash stock-based compensation expenses.

General and administrative expenses. General and administrative expenses were $2.3 million for the six months ended June 30, 2018 compared to $2.7 million for the six months ended June 30, 2017. The decrease from the six months ended June 30, 2017 as compared to the six months ended June 30, 2018 is primarily due to decreases in non-cash stock-based compensation expense and consulting services

Interest expense. Interest expense was $0.3 million for the six months ended June 30, 2018. Interest expense is related to our Silicon Valley Bank Loan and Security Agreement.

Interest income. Interest income was $0.2 million for the six months ended June 30, 2018 compared to $0.1 million for the six months ended June 30, 2017. The increase is due to the increase in the average balances of the interest-bearing cash and investment accounts from period to period.

Gain (loss) on revaluation of warrant liability. Loss on revaluation of the warrant liability was $10,000 for the six months ended June 30, 2018 as compared to a gain of $3.2 million for the six months ended June 30, 2017. The non-cash gain (loss) is associated with the change in the fair value of our warrant liability which is calculated using a Black-Scholes pricing model.

Other income (expense). Other income was $7,000 for the six months ended June 30, 2018 compared to other expense of $16,000 for the six months ended June 30, 2017. This change was primarily due to a decrease in foreign exchange losses associated with foreign currency transactions.

Liquidity and Capital Resources

Overview

Since our inception, our operations have been primarily financed through public and private equity sales, debt financings and payments from Kissei. Since inception, we have devoted our resources to funding and conducting research and development programs, including discovery research, preclinical studies and clinical trial activities.

At June 30, 2018 we had cash, cash equivalents and securities available-for-sale of $18.5 million and working capital of $14.1 million. We expect that our cash, cash equivalents and securities available-for-sale will be sufficient to fund our operations through June 2019, as a result, substantial doubt exists over our ability to continue as a going concern from one year from the date of the issuance of our condensed consolidated financial statements.

We are currently evaluating options to further advance the clinical development of topsalysin. We will require significant additional funding to advance topsalysin in clinical development. We could use dilutive funding options such as an equity financing and non-dilutive funding options such as a partnering arrangement or royalty agreement to fund future clinical development of topsalysin. At this point in time we do not plan on pursuing new clinical trials, including a Phase 3 in localized prostate cancer or a second Phase 3 trial in BPH unless we obtain additional financing. There can be no assurance that such funding will be available on acceptable terms or at all.

If we are unable to raise additional capital to fund our development program efforts beyond our ongoing clinical trial in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development and commercialization of topsalysin.

Future Operations

We have devoted substantial resources to developing topsalysin, protecting and enhancing our intellectual property and providing general and administrative support for these activities. We have not generated any revenue from product sales and, to date, have funded our operations primarily through public and private equity security sales, debt financings and payments from Kissei.

We will require significant additional capital to fund our operations and complete development of topsalysin and there is no assurance that we will obtain additional capital.

Our future capital requirements will depend on, and could increase significantly as a result of many factors, including:

- progress in, and the costs of, our clinical trials, including our second Phase 2 clinical trial for localized prostate cancer and an additional Phase 3 clinical trial for BPH, preclinical studies and other research and development activities for topsalysin;
- the costs and timing of regulatory approvals;
- our ability to maintain our strategic license with Kissei and its ability to achieve applicable milestones and establish and maintain additional strategic collaborations, including licensing and other arrangements;
- the costs involved in filing, prosecuting, enforcing and defending patent claims and other intellectual property rights;
- the costs of obtaining and securing manufacturing supply for clinical or commercial production of product candidates; and
- the costs of establishing, or contracting for, sales and marketing capabilities if we obtain regulatory approvals to market topsalysin.

Until we can generate significant continuing revenues, we expect to satisfy our future cash needs through private and public sales of our securities, debt financings, by establishing additional strategic collaborations for topsalysin or from exercise of outstanding common share purchase warrants and stock options.

Cash Flows

The following table shows a summary of our cash flows for the six months ended June 30, 2018 and 2017 (in thousands):

	Six Months Ended June 30,	
	2018	**2017**
Net cash provided by (used in):		
Operating activities	$ (7,349)	$ (4,869)
Investing activities	5,203	(1,110)
Financing activities	—	2
Effect of exchange rate changes on cash and cash equivalents	—	1
Net decrease in cash and cash equivalents	$ (2,146)	$ (5,976)

Operating Activities

Net cash used in operating activities increased to $7.3 million for the six months ended June 30, 2018 compared to $4.9 million for the six months ended June 30, 2017. The increase in net cash used in operating activities of $2.5 million was primarily due to the increase in our net loss from period to period offset by the decrease in funds used for the payment of accounts payable and accrued expenses in the six months ending June 30, 2018. The increase in net loss is due to the increase in costs associated with manufacturing activities for topsalysin and the non-cash loss recorded for the revaluation of our warrant liability.

Investing Activities

Net cash provided by investing activities was $5.2 million for the six months ended June 30, 2018, compared to $1.1 million net cash used in investing activities for the six months ended June 30, 2017. The net cash provided by investing activities during the six months ended June 30, 2018 represents the proceeds from the maturity of securities classified as available-for-sale as compared to the usage of cash to purchase securities classified as available-for-sale during the six months ended June 30, 2017.

Financing Activities

Net cash provided by financing activities was $2,000 for the six months ended June 30, 2017, which were comprised of proceeds from the exercise of stock options.

Contractual Obligations and Commitments

Our contractual obligations represent future cash commitments and liabilities under agreements with third parties and exclude contingent liabilities for which we cannot reasonably predict future payments. Accordingly, the table below excludes contractual obligations relating to milestone and royalty payments due to third parties, all of which are contingent upon certain future events. The following is a summary of our contractual obligations as of June 30, 2018 (in thousands):

	Payments Due by Period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Operating lease obligation relating to facility[1]	$ 119	$ 119	$ —	$ —	$ —
Principal, interest payable and additional fee under promissory notes [2]	8,209	2,189	5,080	940	—
Purchase commitments[3]	1,739	1,739	—	—	—
Total	$ 10,067	$ 4,047	$ 5,080	$ 940	$ —

(1) We currently lease an office facility comprising our headquarters in San Diego, California under a non-cancelable lease. The lease, as amended, expires in May 2019 and the minimum rent is $9,517 per month, subject to annual cost of living increases, plus our pro rata share of certain operating costs and other expenses.

(2) In September 2017, we entered into a Loan and Security Agreement with SVB. The principal borrowed under the first tranche of $7.0 million bears fixed interest of 6.75% per annum. We have the option to prepay the outstanding balance of the loan in full, subject to a prepayment fee of 1% to 3% depending upon when the prepayment occurs. Upon the final repayment of the loan on the maturity date of September 1, 2021, by prepayment, or upon acceleration, we are required to pay SVB an additional fee of $0.3 million. This amount is reflected in the able above. The repayment terms are interest only payments through September 2018 followed by 36 equal monthly payments of principal and interest

(3) This amount represents purchase commitments pursuant to our manufacturing and supply agreement with Boehringer Ingelheim RCV GmbH & Co KG, or BI and Vetter Pharma International, GmbH, or Vetter. We are required to schedule our manufacturing activities with BI and Vetter in advance. If we cancel any of these scheduled activities without proper notice we could be required to pay penalties from 50% to 100% of the cost of the originally scheduled activity. As such we have included the activities scheduled as of June 30, 2018 which, if cancelled, could result in us incurring penalties for cancellation.

Off-balance Sheet Arrangements

We do not have any off-balance sheet arrangements (as defined by applicable SEC regulations) that are reasonably likely to have a current or future material effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources.

Recent accounting pronouncements

In February 2016, the FASB issued ASU, No. 2016-02, "*Leases (Topic 842).*" This guidance requires lessees to recognize a lease liability and a right-of-use asset with the exception of short-term leases. In addition, lessees are required to classify leases as either operating or finance based on current criteria of whether or not the lease is effectively a financed purchase by the lessee. The new standard is effective for the annual reporting period beginning after December 15, 2018 and early adoption is permitted. Although we are in the process of evaluating the impact of this guidance on its consolidated financial statements and related disclosures, we expect that our operating lease will be subject to the new standard and recognized as operating lease liability and right-of-use asset upon adoption.

In August 2016, the FASB issued ASU 2016-15, *"Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments,"* addressing eight specific cash flow issues in an effort to reduce diversity in practice. We adopted this standard in the first quarter of 2018, and the adoption did not have an impact on our condensed consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *"Compensation-Stock Compensation (Topic 718); Scope of Modification Accounting,"* or ASU 2017-09. The new standard provides guidance about which changes to the terms or conditions of a share-based payment award require and entity to apply modification accounting in Topic 718. We adopted this standard in the first quarter of 2018, and the adoption did not have an impact on our condensed consolidated financial statements.

Item 3. Qualitative and Quantitative Disclosures About Market Risk

Under SEC rules and regulations, as a smaller reporting company, we are not required to provide the information required by this item.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e)under the Securities Exchange Act of 1934, as amended, or the Exchange Act, that are designed to ensure that information required to be disclosed in our periodic and current reports that we file with the SEC 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. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable and not absolute assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, control may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

As of June 30, 2018, we carried out an evaluation, under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures under the Exchange Act. Based on this evaluation, our chief executive officer and chief financial officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of June 30, 2018.

Changes in Internal Control Over Financial Reporting

An evaluation was also performed under the supervision and with the participation of our management, including our chief executive officer and our principal financial officer, of any change in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. That evaluation did not identify any change in our internal control over financial reporting that occurred during our latest fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1A. Risk Factors

You should consider carefully the following risk factors, together with all of the other information included or incorporated in this Quarterly Report, before making your decision whether to purchase or sell shares of our common stock. Each of these risk factors, either alone or taken together, could adversely affect our business, operating results, growth prospects and financial condition, as well as adversely affect the value of an investment in our common shares. If that were to happen, the trading price of our common stock could decline. There may be additional risks that we do not presently know of or that we currently believe are immaterial which could also impair our business and financial position. We have marked with an asterisk (*) those risk factors that reflect changes from the risk factors included in our Annual Report on Form 10-K filed with the SEC on March 21, 2018.

Risks Related to Our Business and Industry

****We will require significant funding to complete the development and commercialization of topsalysin and we may be unable to raise capital when needed, which would force us to delay, reduce or eliminate our development program or commercialization efforts or cease operations.***

Our operations have consumed substantial amounts of cash since inception. Since inception, we have raised approximately $146 million from the sale of equity securities in private placements and public offerings, $28 million from the issuance of debt securities, and $11 million from the exercise of common share purchase warrants. We will need to continue to spend substantial amounts to continue clinical development of topsalysin. We have an ongoing Phase 2b clinical trial to confirm the dose and optimize the delivery of topsalysin for the treatment of patients with clinically significant localized prostate cancer. We will require significant additional funding to advance topsalysin in clinical development outside of this Phase 2b clinical trial. At this point in time we are planning for a Phase 3 clinical trial of topsalysin for the treatment of patients with clinically significant localized prostate cancer subject to obtaining additional financing. We believe the safety and biopsy data from the first administration of topsalysin in our ongoing Phase 2b clinical trial support moving into a potential Phase 3 clinical trial. We will continue to evaluate whether future clinical development will include an option to administer a second dose of topsalysin as we receive more information about the patient death and additional information from the 10 patients who received a second dose in our Phase 2b clinical trial. We will be able to evaluate the inclusion of a second dose of topsalysin in future clinical trials after we receive six month biopsy data from the second administration. We are not planning on pursuing other clinical trials, including a second Phase 3 trial for the treatment of patients with benign prostatic hyperplasia, or BPH, unless we secure a development partner to fund such new clinical trials or obtain financing in excess of the financing required for our prostate cancer development program, which is our development priority. There can be no assurance that such funding or a development partner will be available on acceptable terms or at all.

We expect that our existing cash, cash equivalents and securities available-for-sale, together with interest thereon, will be sufficient to fund our operations through June 2019, assuming we do not conduct any clinical trials other than our ongoing Phase 2b clinical trial for the treatment of clinically significant localized prostate cancer. However, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. Any clinical development efforts, including our on-going Phase 2b clinical trial and our ongoing operations will require significant funding.

We expect to finance future cash needs through public or private equity offerings, debt financings or strategic partnerships and alliances or licensing arrangements. We cannot be certain that additional funding will be available on acceptable terms, or at all. Subject to limited exceptions, our Loan and Security Agreement with Silicon Valley Bank, or SVB, prohibits us from incurring indebtedness without the prior written consent of SVB. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us we will need to significantly delay, scale back or discontinue the development or commercialization of topsalysin and we may be unable to continue as a going concern. If we are unable to continue as a going concern, we may have to liquidate our assets and may receive less than the value at which those assets are carried on our consolidated financial statements, and it is likely that investors will lose all or a part of their investment. Future reports from our independent registered public accounting firm may also contain statements expressing substantial doubt about our ability to continue as a going concern. If we seek additional financing to fund our business activities in the future and there remains substantial doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding on commercially reasonable terms or at all.

We also could be required to:

- seek collaborators for one or more of our current or future product candidates on terms that are less favorable than might otherwise be available;

- relinquish or license on unfavorable terms our rights to technologies or product candidates that we otherwise would seek to develop or commercialize ourselves; or

- seek a third party to acquire us or our assets.

Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common shares to decline.

We are a development stage company with no approved products and no revenue from commercialization of any products.

We have not completed the development of any product candidates and, accordingly, have not begun to commercialize, or generate any product revenues from any product candidate. Topsalysin requires significant additional clinical testing and investment prior to seeking marketing approval for either the treatment of localized prostate cancer or the treatment of the symptoms of BPH. On November 10, 2015, we announced final results from our Phase 3 "PLUS-1" study of topsalysin as a treatment for lower urinary tract symptoms of BPH. However, in order to seek regulatory approval for the treatment of the symptoms of BPH, we would be required to conduct a second Phase 3 clinical trial in this indication. At this point in time we have no immediate plans to conduct a second Phase 3 trial in BPH.

We have fully enrolled a Phase 2b clinical trial to confirm the dose and optimize the delivery of topsalysin for the treatment of clinically significant localized prostate cancer, which is being conducted across eight clinical trial sites in the United Kingdom and United States. On June 25, 2018, we announced top-line interim safety and biopsy data following a single administration of topsalysin from our ongoing Phase 2b clinical trial. Separately, we also announced that we were recently notified that a patient death occurred on the same day as their second administration of topsalysin. We are currently investigating the cause of the patient death and as a precaution, we have decided that no additional patients will receive a second administration of topsalysin. Eleven patients elected to receive a second dose of topsalysin. We expect to have final safety and biopsy data on these patients in the fourth quarter of 2018.

We are planning a Phase 3 clinical trial of topsalysin for the treatment of patients with clinically significant localized prostate cancer. We will continue to evaluate whether future clinical development will include an option to administer a second dose as we receive more information about the patient death and the safety and biopsy data from the patients who elected to receive a second dose. There have been limited development efforts for a targeted focal therapeutic for patients with clinically significant localized prostate cancer and, therefore, there is significant uncertainty regarding the Phase 3 clinical trial design, including primary endpoint(s), that will be required by the US Food and Drug Administration, or FDA, or any foreign regulatory authority. We have had and will continue to have informal discussions with foreign regulatory authorities in Europe where there is more regulatory experience with targeted focal therapy for patients with localized prostate cancer, in order to help inform future clinical trial design. While we believe that we may be able to seek regulatory approval for topsalysin for the treatment of clinically significant localized prostate cancer with one successful Phase 3 clinical trial, we have not discussed late-stage clinical development in this indication with the FDA. The regulatory authorities may ultimately disagree with our assessment of the design, scope and number of clinical trials or other studies before we can submit for regulatory approval. To mitigate these uncertainties, we plan to conduct formal discussions with the FDA and the European Medicines Agency, or EMA. The outcome of these discussions may change our assessment of required clinical trials and our development plans. Any delay in the finalization of the design of a Phase 3 clinical study would delay our development of topsalysin for the treatment of localized prostate cancer.

A commitment of substantial resources by us and potential partners will be required to conduct additional clinical trials for topsalysin to meet applicable regulatory standards, obtain required regulatory approvals, and to successfully commercialize this product candidate for the treatment in either indication. Topsalysin is not expected to be commercially available for either indication for several years, if at all, and any projected timelines for commercialization are subject to a number of factors that are outside our control. There is no assurance that we will be able to commercialize topsalysin within the time periods we expect or that our clinical trials will support the regulatory approvals needed to commercialize topsalysin at all.

We are highly dependent on the success of our sole product candidate, topsalysin, and we may not be able to successfully obtain regulatory or marketing approval for, or successfully commercialize, this product candidate.

To date, we have expended significant time, resources and effort on the development of topsalysin for the treatment of clinically significant localized prostate cancer and for the treatment of lower urinary tract symptoms of BPH, including conducting preclinical and clinical trials. We have no product candidates in our clinical development pipeline other than topsalysin, which we are developing for those two potential indications. Our ability to generate product revenues and to achieve commercial success in the near term will initially depend almost entirely on our ability to successfully raise capital to fund our topsalysin program and to develop, obtain regulatory approval for and then successfully commercialize topsalysin for either of these indications in the United States and the European Economic Area, or EEA. Before we can market and sell topsalysin in the United States or foreign jurisdictions for any indication, we will need to commence and complete additional clinical trials, manage clinical, preclinical, and manufacturing activities, obtain necessary regulatory approvals from the FDA in the United States and from similar foreign regulatory agencies in other jurisdictions, obtain manufacturing supply, build a commercial organization or enter into a marketing collaboration with a third party, and in some jurisdictions, obtain reimbursement authorization, among other things. We cannot assure you that we will be able to successfully complete the necessary clinical trials and/or obtain regulatory approvals and sufficient commercial manufacturing supply for topsalysin in either indication. If we do not receive regulatory approvals, our business, prospects, financial condition and results of operations will be adversely affected. Even if we obtain the regulatory approvals to market and sell topsalysin, we may never generate significant revenues from any commercial sales of topsalysin for several reasons, including because the market for topsalysin may be smaller than we anticipate, topsalysin may not be adopted by physicians and payors or because topsalysin may not be as efficacious or safe as other treatment options. If we fail to successfully commercialize topsalysin, we may be unable to generate sufficient revenues to sustain and grow our business and our business, prospects, financial condition and results of operations will be adversely affected.

Topsalysin may cause undesirable side effects or have other properties that may delay or prevent its regulatory approval or commercialization or limit its commercial potential.

Undesirable side effects caused by topsalysin could cause us or regulatory authorities to interrupt, delay, suspend or terminate clinical trials and could result in a more restrictive label or the delay or denial of marketing approval by the FDA or other regulatory authorities. This, in turn, could limit or prevent us from commercializing topsalysin and generating revenues from its sale. The most common adverse events observed in patients who received topsalysin in our initial Phase 3 clinical trial for the treatment of lower urinary tract symptoms of BPH that were potentially attributable to topsalysin included painful urination, the presence of red blood cells in urine, frequent urination and urinary urgency, fever, and perineal pain. Each of the foregoing adverse events occurred in greater than 5% of the topsalysin population. Further, the incidence of serious AEs, or SAEs, was similar in patients treated with topsalysin and vehicle. There were two SAEs assessed by the investigator as at least possibly related to treatment for topsalysin and one such SAE for vehicle. The topsalysin-related SAEs were moderate events of "acute non-infectious prostatitis" and "fever following prostate procedure" not unexpected manifestations of the intraprostatic cellular destruction and resultant inflammation integral to the topsalysin mechanism of action. The vehicle-related SAE was a mild event of "urinary tract infection." Although the SAEs were moderate and not unexpected, they may not be fully indicative of the adverse events that would be encountered in commercial use or in larger trials. The adverse events which occurred in our Phase 2a localized prostate cancer trial were similar in nature to the adverse events noted in our BPH program and no SAEs were reported. On June 25, 2018, we announced interim safety and tolerability results of a single administration from our on-going Phase 2b localized prostate cancer trial. A single administration of topsalysin continues to appear safe and well tolerated by patients. No hypersensitivity reactions or other serious systemic reactions to study medication were observed after a single administration. Adverse events considered related to topsalysin and occurring in more than one patient were: dysuria (3 patients), urinary retention (3 patients), nocturia (2 patients), micturition urgency (2 patients) and strangury (2 patients). All adverse events were considered mild and typically resolved within the same day. One event of micturition urgency was considered severe and resolved the same day and one event of urinary retention was considered moderate and the event was considered resolved after the patient underwent a transurethral resection of the prostate. On June 25, 2018, we were notified that a patient death occurred on the same day as their second administration of topsalysin in the Phase 2b clinical trial. We are currently investigating the cause of the patient death and evaluating whether the option to provide a second dose of topsalysin will be included in any subsequent clinical trial.

Results from our future clinical trials could reveal a high and unacceptable severity and prevalence of these or other side effects. In such an event, our trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval of topsalysin for its targeted indication. Further, such side effects could affect patient recruitment or the ability of enrolled patients to complete a trial or result in potential product liability claims. Any of these occurrences may have a material and adverse impact on our business, prospects, financial condition and results of operations.

In addition, if topsalysin receives marketing approval for the treatment of the symptoms of BPH or localized prostate cancer, or both, and we or others later identify undesirable side effects caused by topsalysin, a number of significant negative consequences could result, including:

- regulatory authorities may withdraw their approval of topsalysin;
- regulatory authorities may require that we demonstrate a larger clinical benefit by conducting additional clinical trials for approval to offset the risk;
- regulatory authorities may require the addition of labeling statements or warnings that could diminish the usage of the product or otherwise limit the commercial success of topsalysin;
- we may be required to change the way topsalysin is administered;
- we may choose to recall, withdraw or discontinue sale of topsalysin;

- we could be sued and held liable for harm caused to patients;
- we may not be able to enter into collaboration agreements on acceptable terms and execute on our business model; and
- our reputation may suffer.

Any one or a combination of these events could prevent us from achieving or maintaining market acceptance of the affected product or could substantially increase the costs and expenses of commercializing topsalysin, which in turn could delay or prevent us from generating any revenues from the sale of the product, which could significantly harm our business, prospects, financial condition and results of operations.

The clinical trial protocol and design for our completed and any additional future Phase 3 clinical trials of topsalysin may not be sufficient to allow us to submit a BLA to the FDA in the indication of lower urinary tract symptoms of BPH or demonstrate safety or efficacy at the level required by the FDA for product approval.

Our initial Phase 3 clinical trial for the treatment of lower urinary tract symptoms of BPH and any additional Phase 3 clinical trial of topsalysin in this indication use the International Prostate Symptom Score, or IPSS, outcome measure evaluated at total change from baseline over 52 weeks as the primary endpoint. Secondary endpoints include Qmax (maximum urine flow) change from baseline (maximum urine flow) over 52 weeks. The IPSS outcome measure, which is a validated primary efficacy endpoint used to assess the treatment benefit in BPH clinical trials, is a patient recorded, composite assessment that takes into account factors such as ability to empty the bladder, frequency of urination, intermittency of urination and the urgency of urination. The IPSS outcome measure is subjective in nature and requires patients in the trial to accurately and retroactively assess numerous symptoms. The subjective nature of the IPSS outcome measure may make efficacy more difficult to demonstrate than for clinical trials for therapies that can show objective measures of efficacy.

We have not requested a special protocol assessment, or SPA, which drug development companies sometimes use to obtain an agreement with the FDA concerning the design and size of a clinical trial intended to form the primary basis of an effectiveness claim. Without the concurrence of the FDA on an SPA or otherwise, we cannot be certain that the design, conduct and data analysis approach for our initial Phase 3 clinical trial and any future Phase 3 clinical trials has or will generate data sufficient to establish the effectiveness of topsalysin for treatment of BPH symptoms to the FDA's satisfaction, and therefore allow us to submit or receive approval of a Biologics License Application, or BLA for topsalysin in this indication. Specifically, the FDA has not agreed upon the amount of IPSS treatment effect that must be demonstrated in our Phase 3 clinical trials of topsalysin in order for it to grant marketing approval in this indication. Historically, oral medications for the treatment of BPH have shown approximately a 2 point improvement in IPSS between active and control, which was not seen in our PLUS-1 clinical trial. If the FDA requires us, or we otherwise determine, to amend our protocols, change our clinical trial designs, increase enrollment targets or conduct additional clinical trials, our ability to obtain regulatory approval in this indication could be delayed and we could be required to make significant additional expenditures related to clinical development. Further, even if we achieve positive results on the endpoints for a clinical trial, the FDA may disagree with our interpretation of the data and deem the results insufficient to demonstrate efficacy at the level required by the FDA for product approval. It is possible that we may make modifications to the clinical trial protocols or designs of our future clinical trials that delay enrollment or completion of such clinical trials and could delay regulatory approval of topsalysin for the treatment of symptoms of BPH.

Our clinical trials may fail to adequately demonstrate safety and efficacy of topsalysin for either indication being pursued which would prevent or delay regulatory approval and commercialization.

Clinical development is expensive, takes many years to complete and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process and topsalysin is subject to the risks of failure inherent in drug development. Success in early clinical trials does not mean that later clinical trials will be successful because product candidates in later-stage clinical trials may fail to demonstrate sufficient safety or efficacy despite having progressed through initial clinical testing, even at statistically significant levels. We will be required to demonstrate through well-controlled clinical trials of topsalysin that our product candidate is safe and effective for use in its target indication before we can obtain regulatory approvals for its commercial sale. Companies frequently suffer significant setbacks in late-stage clinical trials, even after earlier clinical trials have shown promising results. Any future clinical trials of topsalysin may not be successful for a variety of reasons, including faults in the clinical trial designs, the failure to enroll a sufficient number of patients, undesirable side effects and other safety concerns and the inability to demonstrate sufficient efficacy. If topsalysin fails to demonstrate sufficient safety or efficacy, we would experience potentially significant delays in, or be required to abandon our development of, topsalysin, which would have a material and adverse impact on our business, prospects, financial condition and results of operations.

****We rely on third parties to manufacture topsalysin and we intend to rely on third parties to manufacture commercial supplies of topsalysin, if and when it is approved. The development and commercialization of topsalysin could be stopped or delayed if any such third party fails to provide us with sufficient quantities of topsalysin or the diluent or fails to do so at acceptable quality levels or prices or fails to maintain or achieve satisfactory regulatory compliance.***

We do not currently have, nor do we plan to acquire the infrastructure or capability internally to manufacture our clinical drug supplies for use in the conduct of our clinical trials, and we lack the resources and the capability to manufacture topsalysin on a commercial scale. Instead, we rely on our third-party manufacturing partners. Although we have entered into agreements for the manufacture of clinical supplies of topsalysin, our third party manufacturing partners may not perform as agreed, may be unable to comply with cGMP requirements and with FDA, state and foreign regulatory requirements or may terminate their agreements with us. We do not control the manufacturing processes of our third party manufacturers and we are completely dependent on our third party manufacturers for the production of topsalysin in accordance with cGMPs, which include, among other things, quality control, quality assurance and the maintenance of records and documentation.

We have entered into an agreement with Boehringer Ingelheim RCV GmbH & Co KG, or BI, to manufacture topsalysin drug substance. We have completed scale-up up to the commercial batch size for topsalysin drug substance, but the finalization of the commercial fill finish process for the production of drug product is still underway. In addition, we are in the process of reformulating topsalysin drug product. Reformulation could result in significant delays in the manufacturing of clinical supplies for future clinical trials and the commencement of future clinical trials. We are incurring significant costs to ensure that the new drug product formulation is comparable with our previous drug product formulation. There is no guarantee that the new drug product formulation will obtain the same clinical results as our old drug formulation.

We have scheduled with BI the manufacture of additional drug substance that we need for future clinical trial supplies. We have not had drug substance manufactured for us since 2013 so there is no guarantee that the manufacturing will be completed when expected. We have selected Vetter Pharma International GmBH to work on the completion of the specifications for commercial fill finish process for the production of reformulated topsalysin drug product and to supply drug product and we are currently in the process of finalizing a ten-year contract. We have incurred significant costs in connection with the reformulation of our drug product and we will continue to incur significant costs in connection with the technology transfer and manufacturer of clinical drug supplies. Our purchase orders under our manufacturing contracts either cannot be cancelled or can only be cancelled with the payment of financial penalties. If we are not able to complete our scheduled manufacturing of drug substance, the reformulation of drug product, or technology transfer for the production of finished drug product when expected, we could experience significant delays in the commencement of our planned Phase 3 clinical trial for the treatment of clinically significant prostate cancer.

BI currently procures an ingredient used in the current diluent formulation for use with topsalysin drug product from a multinational industrial biotech company which is a single source supplier, on a purchase order basis. If our single source provider is unable to or decides to no longer supply BI or us with an ingredient for the diluent, we could experience delays in obtaining product for clinical trials until we procured another source or until we reformulate the product and we may be required to contract with another source in order to assure adequate commercial supply. Our reformulated drug product does not use this single source provider ingredient in the diluent formulation.

If our third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the applicable regulatory authorities' strict regulatory requirements, or pass regulatory inspection, they will not be able to secure or maintain regulatory approval for the manufacturing facilities. In addition, we have no control over the ability of any third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or any other applicable regulatory authorities do not approve these facilities for the manufacture of our products or if they withdraw any such approval in the future, or if our suppliers or third-party manufacturers decide they no longer want to supply our biologic or manufacture our products, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our products.

The facilities used by our third-party manufacturers to manufacture topsalysin and any other potential product candidates that we may develop in the future must be approved by the applicable regulatory authorities, including the FDA, pursuant to inspections that will be conducted after we submit our BLA to the FDA. Further, manufacturers are subject to ongoing periodic unannounced inspection by the FDA and other governmental authorities to ensure strict compliance with government regulations. Currently, our contract manufacturers are located outside the United States and the FDA has recently increased the number of foreign drug manufacturers which it inspects. As a result, these third-party manufacturers may be subject to increased scrutiny.

Topsalysin is manufactured by starting with cells which are stored in a cell bank. We have one master cell bank and multiple working cell banks and believe we would have adequate backup should any cell bank be lost in a catastrophic event. However, it is possible that we could lose multiple cell banks and have our manufacturing severely impacted by the need to replace the cell banks. Also, if we were to experience an unexpected loss of topsalysin supply, we could experience delays in our future clinical trials as our third party manufacturers would need to manufacture additional topsalysin and would need sufficient lead time to schedule a manufacturing slot. This is due to the fact that, given its nature, topsalysin cannot be manufactured in a facility at the same time as other biologics.

The manufacture of biopharmaceutical products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. We and our contract manufacturers must comply with cGMP regulations and guidelines. Manufacturers of biopharmaceutical products often encounter difficulties in production, particularly in scaling up and validating initial production and contamination. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, operator error, shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if microbial, viral or other contaminations are discovered in our products or in the manufacturing facilities in which our products are made, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. We cannot assure you that any stability or other issues relating to the manufacture of any of our products will not occur in the future. Additionally, our manufacturer may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. If our manufacturer were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to provide any product candidates to patients in clinical trials would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

Any adverse developments affecting clinical or commercial manufacturing of our products may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls, the need to reformulate our product or other interruptions in the supply of our products. We may also have to take inventory write-offs and incur other charges and expenses for products that fail to meet specifications, undertake costly remediation efforts or seek more costly manufacturing alternatives. Accordingly, failures or difficulties faced at any level of our supply chain could materially adversely affect our business and delay or impede the development and commercialization of any of our products or product candidates and could have a material adverse effect on our business, prospects, financial condition and results of operations.

We may seek a partner for the continued development and commercialization of topsalysin. If we seek a partner and are unable to find a partner or such partnership is unsuccessful, we may be unable to commercialize topsalysin.

We may seek a third-party partner for financial and scientific resources for the further clinical development and commercialization of topsalysin. There is no assurance that we will be able to find such a partner and, if we do, we may have to relinquish a significant portion of the future economic value of topsalysin to such partner. Also, a partner will likely significantly limit our control over the course of clinical development of topsalysin. Our ability to recognize revenue from a successful partnering arrangement of the sort we are contemplating may be impaired by several factors, including:

- a partner may shift its priorities and resources away from topsalysin due to many reasons, including a change in business strategy, a merger, acquisition, sale or downsizing of its company or business unit;
- successfully identifying a new partner and negotiating an agreement could be more difficult or the terms less advantageous because we have already established a partnership for Japan;
- a partner may have the ability to unilaterally cease development of topsalysin;
- a partner may change the success criteria for topsalysin as a treatment for the symptoms of BPH or as a treatment for clinically significant localized prostate cancer thereby delaying or ceasing clinical development of topsalysin;
- a partner could develop a product that competes, either directly or indirectly, with topsalysin;
- a partner with commercialization obligations may not commit sufficient financial or human resources to the marketing, distribution or sale of topsalysin;
- a dispute could arise between us and a partner concerning the research, development or commercialization of topsalysin which could delay or terminate development and, possibly, result in costly litigation or arbitration which may divert management attention and resources; and
- a partner may use our proprietary information or intellectual property in such a way as to invite litigation from a third party or fail to maintain or prosecute intellectual property rights such that our rights are jeopardized.

In addition, any adverse developments that occur during any clinical trials conducted by or under the supervision of a partner may affect our ability to obtain regulatory approval or commercialize topsalysin.

Further, if a partnership terminates an agreement with us or is otherwise unsuccessful, we may need to seek out and establish an alternative partnership. This may not be possible, or we may not be able to do so on terms which are acceptable to us, in which case, it may be necessary for us to cease the development of topsalysin or conduct the remaining clinical development on our own and with our own funds.

Any of these events would have a material adverse effect on our results of operations and financial condition.

Topsalysin is subject to extensive regulation, and we may not obtain regulatory approvals for topsalysin.

The clinical development, manufacturing, labeling, packaging, storage, tracking, recordkeeping, advertising, promotion, export, import, marketing and distribution and other possible activities relating to our product candidate are, and for any other biologic or drug candidate that we may develop will be, subject to extensive regulation by the FDA in the United States and other regulatory agencies in foreign jurisdictions. Topsalysin is subject to regulation in the United States as a biologic. Biologics require the submission of a BLA, and we are not permitted to market topsalysin in the United States until we obtain approval from the FDA of a BLA. To market topsalysin in the EEA, which includes the 28 member states of the European Union plus Norway, Liechtenstein and Iceland, we must submit a Marketing Authorization Application, or MAA, to the EMA, for approval under the EMA's centralized procedure, which if the marketing authorization is granted, will enable us to market the product throughout the entire territory of the EEA. A BLA or MAA must be supported by extensive clinical and preclinical data, as well as extensive information regarding chemistry, manufacturing and controls, or CMC, sufficient to demonstrate the safety and effectiveness of the applicable product candidate to the satisfaction of FDA and EMA, respectively.

Regulatory approval of a BLA or an MAA is not guaranteed, and the approval process is expensive and will take several years. The FDA and foreign regulatory entities also have substantial discretion in the approval process. The number and types of preclinical studies and clinical trials that will be required for BLA or MAA approval varies depending on the product candidate, the disease or the condition that the product candidate is designed to target and the regulations applicable to any particular product candidate. Despite the time and expense associated with preclinical studies and clinical trials, failure can occur at any stage, and we could encounter problems that cause us to repeat or perform additional preclinical studies or clinical trials or generate additional CMC data. The FDA, EMA and similar foreign authorities could delay, limit or deny approval of a product candidate for many reasons, including because they:

- may not deem our product candidate to be adequately safe and effective;
- may not find the data from our preclinical studies and clinical trials or CMC data to be sufficient to support a claim of safety and efficacy;
- may not approve the manufacturing processes or facilities associated with our product candidate;
- may conclude that we have not sufficiently demonstrated long-term stability of the formulation of the drug product for which we are seeking marketing approval;
- may change approval policies (including with respect to our product candidate's class of biologics) or adopt new regulations; or
- may not accept a submission due to, among other reasons, the content or formatting of the submission.

Obtaining approval of a BLA is a lengthy, expensive and uncertain process. As part of the U.S. Prescription Drug User Fee Act, the FDA has a goal to review and act on a percentage of all submissions in a given time frame. The general review goal for a BLA is 12 months from the submission date for a standard application and eight months from the submission date for a priority review application. The FDA's review goals are subject to change, and it is unknown whether the review of a BLA for topsalysin will be completed within the FDA's target timelines or will be delayed. Moreover, the duration of the FDA's review may depend on the number and types of other BLAs that are submitted to the FDA around the same time period or are pending. Generally, public concern regarding the safety of drug products could delay or limit our ability to obtain regulatory approval, result in the inclusion of unfavorable information in our labeling, or require us to undertake other activities that may entail additional costs.

We have not submitted an application for approval or obtained FDA approval for any product. This lack of experience may impede our ability to obtain FDA approval in a timely manner, if at all, for topsalysin. In addition, failure to comply with FDA and other applicable U.S. and foreign regulatory requirements, either before or after product approval, may subject us to administrative or judicially imposed sanctions, including warning letters, civil and criminal penalties, injunctions, withdrawal of approved products, product seizure or detention, product recalls, total or partial suspension of production, and refusal to approve pending BLAs or supplements to approved BLAs.

Even if we believe that data collected from our preclinical studies and clinical trials of our product candidate are promising, our data may not be sufficient to support marketing approval by the FDA or any foreign regulatory authority, or regulatory interpretation of these data and procedures may be unfavorable. In addition, the FDA's regulatory review of BLAs for product candidates intended for widespread use by a large proportion of the general population is becoming increasingly focused on safety, which may lead to increased scrutiny of the safety data we submit in any BLA for topsalysin. Even if approved, a product candidate may not be approved for all indications requested and such approval may be subject to limitations on the indicated uses for which the biologic may be marketed, restricted distribution methods or other limitations. Our business and reputation may be harmed by any failure or significant delay in obtaining regulatory approval for the sale of our product candidate. We cannot predict when or whether regulatory approval will be obtained for any product candidate we develop.

To market any biologics outside of the United States, we and current or future collaborators must comply with numerous and varying regulatory and compliance related requirements of other countries. Approval procedures vary among countries and can involve additional product testing and additional administrative review periods, including obtaining reimbursement and pricing approval in select markets. The time required to obtain approval in other countries might differ from that required to obtain FDA approval. The regulatory approval process in other countries may include all of the risks associated with FDA approval as well as additional, presently unanticipated, risks. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may negatively impact the regulatory process in others, including the risk that our product candidates may not be approved for all indications requested and that such approval may be subject to limitations on the indicated uses for which the drug may be marketed.

Delays in the commencement or completion of clinical testing could significantly impact our product development costs and will delay our ability to pursue regulatory approval and, in turn, our ability to generate any product revenues.

Although we have completed the first of two required Phase 3 clinical trials of topsalysin for the treatment of the symptoms of BPH and completed a Phase 2a proof of concept clinical trial for the treatment of localized low to intermediate risk prostate cancer, and have an ongoing Phase 2b trial for the treatment of clinically significant localized prostate cancer, we do not know whether or when we will be able to fund any additional clinical trials for either the treatment of clinically significant localized prostate cancer or the treatment of the symptoms of BPH, or if any future trials will be completed on time, or at all.

Further, the commencement or completion of clinical trials can be delayed for a variety of reasons, including delays in or related to:

- raising sufficient capital or securing a development partner to fund future clinical trials, including a Phase 3 clinical trial of topsalysin for the focal treatment of clinically significant localized prostate cancer and a second Phase 3 clinical trial for the treatment of the symptoms of BPH;
- obtaining regulatory approval, or feedback on trial design necessary, to commence a clinical trial;
- identifying, recruiting and training suitable clinical investigators;
- identifying, recruiting and enrolling suitable patients to participate in a clinical trial;
- catastrophic loss of drug product due to shipping delays or delays in customs in connection with delivery of drug product to foreign countries for use in clinical trials;
- reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- completing the reformulation of topsalysin drug substance and drug product;
- achieving commercial-scale manufacturing of topsalysin;
- validating a commercial fill finish process for topsalysin drug product and obtaining sufficient quantities of topsalysin for use in any future Phase 3 clinical trials;
- having patients complete a trial or return for post-treatment follow-up;
- adding new clinical trial sites;
- failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols;
- failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions;
- unforeseen safety issues or any determination that a clinical trial presents unacceptable health risks;
- obtaining institutional review board, or IRB, approval to conduct a clinical trial at a prospective site; and
- retaining patients who have initiated a clinical trial but may withdraw due to adverse side effects from the therapy, insufficient efficacy, fatigue with the clinical trial process or personal issues.

Any delays in the commencement or completion of our clinical trials will delay our timeline to obtain regulatory approval for our product candidate. In addition, many of the factors that cause, or lead to, a delay in the commencement of clinical trials may also ultimately lead to the denial of regulatory approval for a product candidate. We do not expect to commence enrollment of our second required Phase 3 clinical trial for the treatment of the lower urinary tract symptoms of BPH until we have raised the additional capital required to fund such second Phase 3 clinical trial.

We may face competition to enroll localized prostate cancer and BPH patients in our future clinical trials from other clinical trials for other sponsors including potential competitors. Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors including the size and nature of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial, the design of the clinical trial, competing clinical trials and clinicians' and patients' perceptions as to the potential advantages of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating. Delays in enrollment in any future clinical trials of topsalysin would result in delays in our ability to pursue regulatory approval of topsalysin.

Changes in regulatory requirements and guidance also may occur and we may need to amend clinical trial protocols to reflect these changes. Amendments may require us to resubmit our clinical trial protocols to IRBs for re-examination, which may impact the costs, timing and successful completion of a clinical trial. If we experience delays in the completion of, or if we must terminate, any clinical trial of topsalysin, our ability to obtain regulatory approval for that product candidate will be delayed and the commercial prospects, if any, for the product candidate may be harmed. If we ultimately commercialize topsalysin, other therapies for the same indications may have been introduced to the market during the period we have been delayed and such therapies may have established a competitive advantage over our product candidates.

We have relied upon and expect to rely upon multiple CROs to conduct and oversee our ongoing and any future clinical trials for topsalysin. If any of our CROs does not meet our deadlines or otherwise conduct the trials as required or if any CRO experiences regulatory compliance issues we may not be able to obtain regulatory approval for or commercialize our product candidate when expected or at all.

We have used multiple CROs for our clinical trials of topsalysin and expect to rely upon CROs for any future clinical trials. We also rely upon medical institutions, clinical investigators and contract laboratories to conduct our trials in accordance with our clinical protocols and in accordance with applicable legal and regulatory requirements. These third parties play a significant role in the conduct of these trials and the subsequent collection and analysis of data from the clinical trials. There is no guarantee that any such third party will devote adequate time and resources to our clinical trial. If any of our CROs or any other third parties upon which we rely for administration and conduct of our clinical trials do not successfully carry out their contractual duties or obligations or fail to meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or if they otherwise perform in a substandard manner, our clinical trials may be extended, delayed, suspended or terminated, and we may not be able to complete development of and ultimately obtain approval for and successfully commercialize topsalysin. We will rely heavily on these third parties for the execution of our future clinical trials and will control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on CROs does not relieve us of our regulatory responsibilities.

We and our CROs are required to comply with current Good Clinical Practice, or GCP, which are regulations and guidelines enforced by the FDA, the competent authorities of the Member States of the EEA and comparable foreign regulatory authorities for products in clinical development. Regulatory authorities enforce these GCP regulations through periodic inspections of clinical trial sponsors, principal investigators and clinical trial sites. If we or any of our CROs fail to comply with applicable GCP regulations, the clinical data generated in our clinical trials may be deemed unreliable and our submission of marketing applications may be delayed or the FDA may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that, upon inspection, the FDA will determine that any of our clinical trials comply or complied with applicable GCP regulations. In addition, our clinical trials must be conducted with product produced under the current Good Manufacturing Practice, or cGMP, regulations enforced by the FDA, and our clinical trials require a large number of test subjects. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of our CROs violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Switching or adding CROs can involve substantial cost and require extensive management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays may occur, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationship with our CROs, there can be no assurance that we will not encounter such challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, prospects, financial condition or results of operations.

Any adverse developments that occur during any clinical trials conducted by Kissei may affect our ability to obtain regulatory approval or commercialize topsalysin.

Kissei retains the rights to develop and commercialize topsalysin in Japan for the treatment of the symptoms of BPH, prostate cancer, prostatitis or other diseases of the prostate. If serious adverse events occur during any other clinical trials Kissei decides to conduct with respect to topsalysin, the FDA and other regulatory authorities may delay, limit or deny approval of topsalysin or require us to conduct additional clinical trials as a condition to marketing approval, which would increase our costs. If we receive FDA approval for topsalysin and a new and serious safety issue is identified in connection with clinical trials conducted by Kissei, the FDA and other regulatory authorities may withdraw their approval of the product or otherwise restrict our ability to market and sell our product. In addition, treating physicians may be less willing to administer our product due to concerns over such adverse events, which would limit our ability to commercialize topsalysin. Kissei is not currently conducting any clinical trials with topsalysin for the treatment of BPH, prostate cancer, prostatitis or other diseases of the prostate.

We face significant competition from other pharmaceutical and biotechnology companies and from minimally invasive surgical therapies and surgical alternatives, and our operating results will suffer if we fail to compete effectively.

The biotechnology and pharmaceutical industries are intensely competitive. We have competitors both in the United States and international markets, including major multinational pharmaceutical companies, biotechnology companies and universities and other research institutions. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff, experienced marketing and manufacturing organizations and well-established sales forces. Additional mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors may succeed in developing, acquiring or licensing on an exclusive basis, products that are more effective, easier to administer and/or less costly than topsalysin.

We expect that topsalysin will compete with the current treatment options for the treatment of clinically significant localized prostate cancer, which include surgical options such as laparoscopic and radical prostatectomy or radiation. In addition, there are other focal targeted therapies which are gaining traction that are currently in clinical development or have been recently approved which include: brachytherapy, cryotherapy, high focused ultrasound, cyber knife, radio frequency ablation, laser ablation, and TOOKAD, a vascular –targeted photodynamic therapy recently approved by the EMA. In addition, in January 2018, Nymox Pharmaceuticals announced top-line five year clinical trial biopsy data from the intraprostatic administration of their investigational therapy NX-1207 (fexapotide triflutate) in patients with low grade localized (T1c) prostate cancer.

We expect that topsalysin will compete with the current treatment options for the symptoms of BPH, which include oral drug therapy and surgery. Oral drug therapies include (a) alpha-blockers, such as tamsulosin (marketed under various trade names by numerous companies, including as Flomax® by Astellas Pharma), alfuzosin (marketed in the United States by Sanofi as Uroxatral®), doxazosin (marketed by Pfizer as Cardura® and Cardura® XL) and silodosin (marketed by Watson Pharmaceuticals as Rapaflo® in the United States), (b) 5-alpha reductase inhibitors, such as dutasteride (marketed by GlaxoSmithKline plc as Avodart®) and finasteride (marketed by Merck & Co., Inc. as Proscar®), (c) combinations of a-blockers and 5-alpha reductase inhibitors such as tamsulosin and dutasteride (marketed by GSK as Jalyn®) and (d) tadalafil (marketed as Cialis® by Eli Lilly), a PDE5 inhibitor which obtained FDA approval for the treatment of the symptoms of BPH in October 2011. Several minimally invasive surgical therapies, or MIST, are available, including transurethral microwave thermotherapy, or TUMT, transurethral needle ablation, or TUNA, photo-selective vaporization of prostate, holmium laser enucleation of the prostate, transurethral electrovaporization of the prostate, interstitial laser coagulation, and the UroLift® system (marketed by NeoTract, Inc.), which is an implant delivered into the body via a small needle and designed to hold prostate tissue out of the way of the blocked urethra. Currently, the most commonly used MIST procedures are laser ablations of the prostate, TUMT, and TUNA. Surgery for BPH treatment is usually considered in patients who fail drug therapy as a result of side effects or inadequate relief of symptoms, have refractory urinary retention, or have recurrent urinary tract infections. Alternatively, surgery may be the initial treatment in patients with severe urinary symptoms. Surgical procedures for BPH include transurethral resection of the prostate, as well as other procedures such as transurethral incision of the prostate and transurethral vaporization of the prostate. In May 2017, Nymox Pharmaceuticals announced that it had filed for marketing authorization for Fexapotide Triflutate for the treatment of the symptoms of BPH in five European countries, the Netherlands, the United Kingdom, Germany, France and Spain. In December 2017, Procept BioRobotics received FDA clearance for its AquaBeam System, a waterjet ablation therapy for endoscopic resection of prostate tissue. In addition, there are other treatments that are currently in clinical development for the treatment of the symptoms of BPH. Light Sciences Oncology Inc.'s talaporfin sodium is currently in Phase 2 clinical trials.

The availability and price of our competitors' products and procedures could limit the demand, and the price we are able to charge, for topsalysin. Further, our lack of data on long term disease progression 5 to 10 years following administration of topsalysin in order to demonstrate that our product is comparable to more radical therapies such as prostatectomy and/or radiation could limit demand for topsalysin for focal treatment of prostate cancer. We will not successfully execute on our business objectives if the market acceptance of topsalysin is inhibited by price competition, if physicians are reluctant to switch from existing products or procedures to topsalysin or if physicians switch to other new products or surgeries or choose to reserve topsalysin for use in limited patient populations. In addition, established pharmaceutical companies may invest heavily to accelerate discovery and development of novel compounds or to in-license and develop novel compounds that could make topsalysin obsolete.

Any new product that competes with an approved product must demonstrate compelling advantages in efficacy, convenience, tolerability and safety in order to be approved and overcome price competition and to be commercially successful. Accordingly, our competitors may succeed in obtaining patent protection, obtaining FDA approval or discovering, developing and commercializing products before we do, which would have a material adverse impact on our business. The inability to compete with existing products or subsequently introduced products would have a material adverse impact on our business, prospects, financial condition and results of operations.

Even if we obtain and maintain approval for topsalysin from the FDA in either indication, we may never obtain approval for topsalysin outside of the United States, which would limit our market opportunities and adversely affect our business.

Sales of topsalysin outside of the United States will be subject to foreign regulatory requirements governing clinical trials and marketing approval. Even if the FDA grants marketing approval for a product candidate, comparable regulatory authorities of foreign countries must also approve the manufacturing and marketing of the product candidates in those countries. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical studies or clinical trials. In many countries outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that country. In some cases, the price that we intend to charge for our products is also subject to approval. We may decide to submit an MAA to the EMA for approval in the EEA. As with the FDA, obtaining approval of an MAA from the EMA is a similarly lengthy and expensive process and the EMA has its own procedures for approval of product candidates. Even if a product is approved, the FDA or the EMA, as the case may be, may limit the indications for which the product may be marketed, require extensive warnings on the product labeling or require expensive and time-consuming clinical trials or reporting as conditions of approval. Regulatory authorities in countries outside of the United States and the EEA also have requirements for approval of drug candidates with which we must comply prior to marketing in those countries. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. Further, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries and regulatory approval in one country does not ensure approval in any other country, while a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory approval process in others. Also, regulatory approval for any of our product candidates may be withdrawn. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of topsalysin will be harmed and our business will be adversely affected.

We will be, with respect to any product candidate for which we obtain FDA approval, subject to ongoing FDA obligations and continued regulatory review, which may result in significant additional expense.

Any regulatory approvals that we obtain for our product candidate may also be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including post-marketing studies and clinical trials and surveillance to monitor the safety and efficacy of the product candidate. In addition, if the FDA or a comparable foreign regulatory authority, like the EMA, approves a product candidate, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export, tracking and recordkeeping for the product will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs for marketed drugs and drugs used in clinical trials and GCPs for any clinical trials that we conduct post-approval. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market, or voluntary or mandatory product recalls;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or our strategic partners, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; and
- injunctions, the imposition of civil or criminal penalties, or exclusions.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability, which would have a material adverse effect on our business, prospects, financial condition and results of operations.

Moreover, the federal Drug Supply Chain Security Act, imposes obligations on manufacturers of pharmaceutical products, among others, related to product tracking and tracing. Among the requirements of this new federal legislation, manufacturers will be required to provide certain information regarding the drug product to individuals and entities to which product ownership is transferred, label drug product with a product identifier, and keep certain records regarding the drug product. Further, manufacturers have drug product investigation, quarantine, disposition, and notification responsibilities related to counterfeit, diverted, stolen, and intentionally adulterated products, as well as products that are the subject of fraudulent transactions or which are otherwise unfit for distribution such that they would be reasonably likely to result in serious health consequences or death.

If we fail to comply with health care laws, we could face substantial penalties and our business, operations and financial condition could be adversely affected.

Even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, certain federal and state healthcare laws and regulations, including those pertaining to fraud and abuse and patients' rights, are and will be applicable to our business. We could be subject to healthcare regulation by both the federal government and the states in which we conduct our business. The federal and state health care laws and regulations that may affect our ability to operate include, without limitation: anti-kickback statutes, false claims statutes patient data privacy and security laws, and physician sunshine laws and regulations, many of which may become more applicable if our product candidates are approved and we begin commercialization. If our operations are found to be in violation of any of these laws or regulations, we may be subject to penalties, including administrative, civil and criminal penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in federal healthcare programs, and additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, as well as contractual damages, reputational harm, diminished profits and future earnings, and the curtailment or restructuring of our operations. Any such penalties could adversely affect our ability to operate our business and our financial results. Any action against us for violation of these laws and regulations, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. Moreover, achieving and sustaining compliance with these laws and regulations may prove costly.

****We will need to increase the size of our organization and the scope of our outside vendor relationships, and we may experience difficulties in managing growth.***

As of June 30, 2018, we had six full-time employees. In addition, we had engaged five part-time individual consultants to assist us with managing vendors and CROs, project management and regulatory compliance. We will need to expand our managerial, operational, financial and other resources in order to manage our future operations and clinical trials, continue our research and development activities, and commercialize our product candidate. Our management and scientific personnel, systems and facilities currently in place may not be adequate to support our future growth. Our need to effectively manage our operations, growth and various projects requires that we:

- manage our clinical trials effectively;
- manage our internal development efforts effectively while carrying out our contractual obligations to licensors, contractors and other third parties;
- continue to improve our operational, financial and management controls and reporting systems and procedures;
- attract and retain sufficient numbers of talented employees; and
- manage our regulatory compliance oversight and infrastructure.

To date, we have utilized the services of third-party vendors to perform tasks including clinical trial management, statistics and analysis, regulatory affairs, formulation development and other drug development functions. Our growth strategy may also entail expanding our group of contractors or consultants to implement these tasks going forward. Because we rely on numerous consultants, effectively outsourcing many key functions of our business, we will need to be able to effectively manage these consultants to ensure that they successfully carry out their contractual obligations and meet expected deadlines. However, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval for our product candidate or otherwise advance our business. There can be no assurance that we will be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all. If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may be unable to successfully implement the tasks necessary to further develop and commercialize our product candidate and, accordingly, may not achieve our research, development and commercialization goals.

Our limited operating history makes evaluating our business and future prospects difficult.

Our predecessor, Protox Pharmaceuticals Inc., was incorporated in January 2002. We were formed in May 2003 under the predecessor to the British Columbia Business Corporations Act, or the BCBCA, by the amalgamation of Stratos Biotechnologies Inc., Nucleus BioScience Inc. and Brightwave Ventures Inc. under the name SNB Capital Corp. In July 2004, we acquired all the shares of Protox Pharmaceuticals Inc. in a plan of arrangement under the BCBCA and changed its name to Protox Therapeutics Inc. In 2011, we formed a wholly-owned U.S. subsidiary incorporated in Delaware, Protox Therapeutics Corp. In 2012, we changed our name to Sophiris Bio Inc. and changed the name of our subsidiary to Sophiris Bio Corp. In 2012, Sophiris Bio Corp. formed a wholly-owned subsidiary incorporated in Delaware, Sophiris Bio Holding Corp. We face considerable risks and difficulties as a company with limited operating history, particularly as a consolidated entity with an operating subsidiary that also has a limited operating history. If we do not successfully address these risks, our business, prospects, operating results and financial condition will be materially and adversely harmed. Our limited operating history makes it particularly difficult for us to predict our future operating results and appropriately budget for our expenses. In the event that actual results differ from our estimates or we adjust our estimates in future periods, our operating results and financial position could be materially affected. We have limited experience as a consolidated operating entity and have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the pharmaceutical or biotechnology areas.

The terms of our Loan and Security Agreement with Silicon Valley Bank require us to meet certain operating covenants and place restrictions on our operating and financial flexibility. If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

In September 2017, we entered into a $10 million Loan and Security Agreement with SVB. This loan is secured by a lien covering all of our assets, excluding intellectual property, and we also pledged as collateral all of our equity interests in Sophiris Bio Corp. and Sophiris Bio Holding Corp.

While any amounts are outstanding under the Loan and Security Agreement, we are subject to a number of affirmative and restrictive covenants, including covenants regarding dispositions of property, business combinations or acquisitions, incurrence of additional indebtedness and transactions with affiliates, among other customary covenants. We are also restricted from paying dividends or making other distributions or payments on our capital stock, subject to limited exceptions. Upon the occurrence of an event of default by us under the Loan and Security Agreement, SVB will have customary acceleration, collection and foreclosure remedies.

Further, if we are liquidated, SVB's right to repayment would be senior to the rights of the holders of our common shares to receive any proceeds from the liquidation. SVB could declare a default under the loan upon the occurrence of any event that SVB interprets as a material adverse change as defined under the loan agreement, thereby requiring us to repay the loan immediately or to attempt to reverse the declaration of default through negotiation or litigation. Any declaration by SVB of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline. If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility.

Our ability to generate revenues from topsalysin will be subject to attaining significant market acceptance among physicians, patients and healthcare payors.

Topsalysin, if approved in either indication for which we are currently pursuing development or any other indication, may not attain market acceptance among physicians, patients, healthcare payors or the medical community. We believe that the degree of market acceptance and our ability to generate revenues from topsalysin will depend on a number of factors, including:

- timing of market introduction of our products as well as competitive procedures or drugs;
- efficacy and safety of topsalysin and the availability of data to demonstrate long-term efficacy;
- the clinical indication(s) for which topsalysin is approved;
- continued projected growth of the urological disease markets, including incidence of localized prostate cancer with tumors amenable to focal therapy, and incidence of BPH;
- continued adoption and improvement of imaging and diagnostic tools, including MRI-guided biopsies and molecular tests, to assess and identify candidates for focal treatment of localized prostate cancer;

- acceptance by patients, primary care specialists and key specialists, including urologists and oncologists for localized prostate cancer and urologists for BPH;
- potential or perceived advantages or disadvantages of topsalysin over alternative treatments, for prostate cancer and BPH including cost of treatment and relative convenience and ease of administration, the amount of time for a patient to notice the effects of the treatment and length of sustained benefits from treatment;
- strength of sales, marketing and distribution support;
- the price of topsalysin, both in absolute terms and relative to alternative treatments;
- the effect of current and future healthcare laws;
- availability of coverage and adequate reimbursement and pricing from government and other third-party payors for MRI-guided biopsies and other diagnostic tools and for topsalysin procedures; and
- product labeling or product insert requirements of the FDA or other regulatory authorities.

If topsalysin is approved in either or both indications but fails to attain market acceptance by physicians, patients, health care payors, or the medical community, we may not be able to generate significant revenue to achieve or sustain profitability, which would have a material adverse effect on our business, prospects, financial condition and results of operations.

Coverage and reimbursement may not be available, or may be available at only limited levels, for topsalysin, which could make it difficult for us to sell topsalysin profitably.

Market acceptance and sales of topsalysin will depend in large part on global reimbursement policies and may be affected by future healthcare reform measures, both in the United States and other key international markets. Patients who are prescribed medicine for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Patients are unlikely to use our products unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our products. Therefore, successful commercialization of our product will depend in part on the availability of governmental and third-party payor reimbursement for the cost of topsalysin and/or payment to the physician for administering topsalysin. In the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be obtained. One third-party payor's decision to cover a particular medical product or service does not assure that other payors will also provide coverage for the medical product or service, or to provide coverage at an adequate reimbursement rate. As a result, the coverage determination process will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that adequate coverage and reimbursement will be obtained. Further, a third-party payor's decision to provide coverage for a medical product or service does not imply that an adequate reimbursement rate will be approved. The market for our product candidates will depend significantly on access to third-party payors' formularies or lists of treatments for which third-party payors provide coverage and reimbursement.

Third-party payors establish coverage and reimbursement policies for new products, including product candidates like topsalysin. In particular, in the United States, private health insurers and other third-party payors often provide reimbursement for treatments based on the level at which the government (through the Medicare or Medicaid programs) provides reimbursement for such treatments. In the United States, the EEA and other significant or potentially significant markets for our product candidate, government authorities and third-party payors are increasingly attempting to limit or regulate the price of medical products and services, particularly for new and innovative products and therapies, which has resulted in lower average selling prices. Further, the increased emphasis on managed healthcare in the United States and on country and regional pricing and reimbursement controls in Canada and the EEA will put additional pressure on product pricing, coverage, reimbursement and utilization, which may adversely affect our product sales and results of operations. These pressures can arise from policies and practices of managed care groups, judicial decisions and governmental laws and regulations related to Medicare, Medicaid and healthcare reform, coverage and reimbursement policies and pricing in general. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the PPACA, became law in the United States. PPACA substantially changes the way healthcare is financed by both governmental and private insurers and significantly affects the pharmaceutical industry. Among the provisions of the PPACA of greatest importance to the pharmaceutical industry are the following: (i) an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs; (ii) an increase in the rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for branded and generic drugs, respectively; (iii) a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts to negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; (iv) extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations; (v) expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals with income at or below 133% of the Federal Poverty Level, thereby potentially increasing manufacturers' Medicaid rebate liability; (vi) expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program; (vii) expansion of health care fraud and abuse laws, including the federal civil False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance; and (viii) a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

Since its enactment there have been judicial and Congressional challenges to other aspects of the PPACA, as well as recent efforts by the Trump administration to repeal or replace certain aspects of the PPACA. Since January 2017, President Trump has signed two Executive Orders designed to delay the implementation of certain provisions of the PPACA or otherwise circumvent some of the requirements for health insurance mandated by the PPACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the PPACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the PPACA have been signed into law. The Tax Cuts and Jobs Act of 2017 includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the PPACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain PPACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the PPACA, effective January 1, 2019, to increase from 50 percent to 70 percent the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D and to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". Congress may consider other legislation to replace elements of the PPACA. We continue to evaluate the potential effect of the possible repeal and replacement of the PPACA may have on our business.

In addition, other legislative changes have been proposed and adopted in the United States since the PPACA. For example, through the process created by the Budget Control Act of 2011, there are automatic reductions of Medicare payments to providers up to 2% per fiscal year, which went into effect in April 2013 and, following passage of the BBA, will remain in effect through 2027 unless additional Congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to several providers. Further, recently there has been heightened governmental scrutiny in the United States over the manner in which drug manufacturers set prices for their marketed products, in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed federal legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. We expect that additional federal and state healthcare reform measures will be adopted in the future, any of which could result in reduced demand for our products or other adverse effects on our business.

In the EEA, the success of topsalysin, if approved, will depend largely on obtaining and maintaining government reimbursement, because in many European countries patients are unlikely to use therapies that are not reimbursed by the government. Negotiating prices with governmental authorities can delay commercialization by 12 months or more. Reimbursement policies may adversely affect our ability to sell our products on a profitable basis. In many international markets, governments control the prices of prescription pharmaceuticals, including through the implementation of reference pricing, price cuts, rebates, revenue-related taxes and profit control, and expect prices of prescription pharmaceuticals to decline over the life of the product or as volumes increase. Recently, many countries in the EEA have increased the amount of discounts required on pharmaceutical products and other therapies, and we expect these discounts to continue as countries attempt to manage healthcare expenditures, especially in light of current economic conditions. As a result of these pricing practices, it may become difficult to achieve profitability or expected rates of growth in revenue or results of operations. Any shortfalls in revenue could adversely affect our business, prospects, financial condition and results of operations.

Certain countries have a very difficult reimbursement environment and we may not obtain reimbursement or pricing approval, if required, in all countries where we expect to market a product, or we may obtain reimbursement approval at a level that would make marketing a product in certain countries not viable.

We expect to experience pricing pressures in connection with the sale of topsalysin, if approved, and any other products that we may develop, due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative proposals. If we fail to successfully secure and maintain adequate coverage and reimbursement for our products or are significantly delayed in doing so, we will have difficulty achieving market acceptance of our products and expected revenue and profitability which would have a material adverse effect on our business, prospects, financial condition and results of operations.

Our business and operations would suffer in the event of system failures.

Despite the implementation of security measures, our internal computer systems and those of our current and any future CROs and other contractors and consultants and collaborators are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we have not experienced any such material system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Likewise, we rely on third parties to manufacture topsalysin and conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our product candidate could be delayed.

Business interruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations could be subject to earthquakes, power shortages, telecommunications failures, systems failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions. The occurrence of any of these business interruptions could seriously harm our business and financial condition and increase our costs and expenses. A majority of our management operates in our principal executive offices located in San Diego, California. If our San Diego offices were affected by a natural or man-made disaster, particularly those that are characteristic of the region, such as wildfires and earthquakes, or other business interruption, our ability to manage our domestic and foreign operations could be impaired, which could materially and adversely affect our results of operations and financial condition. We currently rely, and intend to rely in the future, on our third-party manufacturers to produce our supply of topsalysin. Our ability to obtain supplies topsalysin could be disrupted, and our results of operations and financial condition could be materially and adversely affected if the operations of these third party manufacturers were affected by a man-made or natural disaster or other business interruption. The ultimate impact of such events on us, our significant suppliers and our general infrastructure is unknown.

Our business involves the use of hazardous materials, and we and our third-party manufacturers must comply with environmental laws and regulations, which can be expensive and restrict how we do business.

Our third-party manufacturers' activities involve the controlled storage, use and disposal of hazardous materials owned by us, including the components of topsalysin and other hazardous compounds. Specifically, the cleavage of the PSA-sensitive activation sequence of topsalysin in the manufacturing process could potentially lead to the release of the C-terminal inhibitory peptide resulting in the formation of active aerolysin, a pore-forming hemolytic toxin. We and our manufacturers are subject to federal, state and local as well as foreign laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous materials. Although we believe that the safety procedures utilized by our third-party manufacturers for handling and disposing of these materials comply with the standards prescribed by these laws and regulations, we cannot eliminate the risk of accidental contamination or injury from these materials. Our third-party manufacturers, do not manufacture topsalysin in its facility at the same time as it manufactures other biologics due to the toxic nature of aerolysin. In the event of an accident, state, federal or foreign authorities may curtail the use of these materials and interrupt our business operations. We do not currently maintain hazardous materials insurance coverage. If we are subject to any liability as a result of our third-party manufacturers' activities involving hazardous materials, our business and financial condition may be adversely affected. In the future we may seek to establish longer term third-party manufacturing arrangements, pursuant to which we would seek to obtain contractual indemnification protection from such third-party manufacturers potentially limiting this liability exposure.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our products.

We face an inherent risk of product liability as a result of the clinical testing and, if approved, the commercialization of topsalysin. For example, we may be sued if any product we develop allegedly causes injury or is found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state or foreign consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidate. Even a successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product or product candidates that we may develop;

- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to clinical trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize our products or product candidates; and
- a decline in our share price.

Our inability to obtain and retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop. We currently carry product liability insurance covering our clinical studies and commercial product sales in the amount of $10 million in the aggregate.

Although we maintain such insurance, any claim that may be brought against us could result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. If we determine that it is prudent to increase our product liability coverage due to the commercial launch of any product, we may be unable to obtain such increased coverage on acceptable terms or at all. Our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We will have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts.

If we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceuticals industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management and scientific and medical personnel, including our Chief Executive Officer and President, Randall E. Woods and our Chief Operating Officer and Head of Research and Development, Allison Hulme Ph.D. and multiple outside consultants. In order to retain valuable employees at our company, in addition to salary and cash incentives, we provide incentive stock options that vest over time. The value to employees of stock options that vest over time will be significantly affected by movements in our share price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies.

Our scientific team in particular has expertise in many different aspects of drug development and may be difficult to retain or replace. We conduct our operations at our facilities in San Diego, California and this region is headquarters to many other biopharmaceutical companies and many academic and research institutions and therefore we face increased competition for personnel in this location. Competition for skilled personnel in our market is very intense and competition for experienced scientists may limit our ability to hire and retain highly qualified personnel on acceptable terms.

In addition, we have scientific and clinical advisors who assist us in formulating our product development and clinical strategies. These advisors are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us, or may have arrangements with other companies to assist in the development of products that may compete with ours.

Despite our efforts to retain valuable employees, members of our management and scientific and development teams may terminate their employment with us on short notice. Although we have written employment arrangements with all of our employees, these employment arrangements provide for at-will employment, which means that our employees can leave our employment at any time, with or without notice. The loss of the services of any of our executive officers or other key employees and our inability to find suitable replacements could potentially harm our business, financial condition and prospects. We do not maintain "key man" insurance policies on the lives of these individuals or the lives of any of our other employees.

Our employees, independent contractors, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other illegal activity by our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by these parties could include intentional, reckless and/or negligent conduct that fails to: comply with the laws of the FDA and other similar regulatory bodies; provide true, complete and accurate information to the FDA and other similar regulatory bodies; comply with manufacturing standards we have established; comply with federal and state healthcare fraud and abuse and health regulatory laws and other similar foreign fraudulent misconduct laws; or report financial information or data accurately or disclose unauthorized activities to us. These laws may impact, among other things, our activities with principal investigators and research subjects, as well as our sales, marketing and education programs. In particular, the promotion, sales, and marketing of health care items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, structuring and commission(s), certain customer incentive programs and other business arrangements generally. Misconduct could also involve the improper use or disclosure of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. Additionally, we are subject to state and foreign equivalents of each of the healthcare laws described above, some of which may be broader in scope and may apply regardless of the payor.

We have adopted a Code of Business Conduct and Ethics, but it is not always possible to identify and deter misconduct, and the precautions we take to detect and prevent inappropriate conduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws. Efforts to ensure that our business arrangements will comply with applicable healthcare laws may involve substantial costs. It is possible that governmental and enforcement authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgement, individual imprisonment, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell any products we may develop, we may not be able to effectively market and sell our products and generate product revenue.

We are developing topsalysin for large patient populations served by urologists and oncologists as well as general practice physicians, which number in the tens of thousands in the United States. Traditional pharmaceutical companies employ groups of sales representatives numbering in the thousands to call on this large of a number of physicians. We do not currently have an organization for the sale, marketing or distribution of topsalysin and we must build this organization or make arrangements with third parties to perform these functions in order to commercialize topsalysin and any future products. We intend to establish (either internally or through a contract sales force) a sales force to sell topsalysin, if approved, in the United States, although any partnership that we establish for the development of topsalysin will likely provide U.S. commercialization rights or co-commercialization rights to the partner for this indication. We plan to partner with third parties to commercialize topsalysin outside the United States. The establishment and development of our own sales force or the establishment of a contract sales force to market any products we may develop in the United States will be expensive and time consuming and could delay any product launch, and we cannot be certain that we would be able to successfully develop this capacity. If we are unable to establish our sales and marketing capability or any other non-technical capabilities necessary to commercialize any products we may develop, we will need to contract with third parties to market and sell such products in the United States. We currently possess limited resources and may not be successful in establishing our own internal sales force or in establishing arrangements with third parties on acceptable terms, if at all.

Risks Related to our Financial Position and Capital Requirements

We have incurred significant operating losses since our inception and anticipate that we will continue to incur losses for the foreseeable future.

We have a limited operating history and we have financed our operations primarily through equity and debt financings and have incurred significant operating losses since our inception. We had a net loss of $8.6 million, $11.2 million, and $14.2 million during the years ended December 31, 2017, 2016 and 2015, respectively. As of December 31, 2017, we had an accumulated deficit of $149.5 million. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our shareholders' (deficit) equity and working capital. Our losses have resulted principally from costs incurred in our research activities for topsalysin. We anticipate that our operating losses will substantially increase over the next several years as we continue development of topsalysin, including the conduct of any future clinical trials for the treatment of clinical significant localized prostate cancer and the symptoms of BPH. In addition, if we obtain regulatory approval of topsalysin in either indication, we may incur significant sales and marketing expenses and outsourced manufacturing expenses, as well as continued development expenses. Because of the numerous risks and uncertainties associated with developing pharmaceutical products, we are unable to predict the extent of any future losses or whether or when we will become profitable.

We have not generated any product revenue and may never become profitable.

Our ability to become profitable depends upon our ability to develop and commercialize topsalysin. To date, other than the upfront payment we received from Kissei and the $5.0 million milestone payment we received in April 2013 from Kissei for the achievement of development milestones, we have not generated any revenue from topsalysin and we do not know when, or if, we will generate any future revenue. Our ability to generate future revenue depends on a number of factors, including:

- successfully completing the clinical development topsalysin in one or both indications;
- obtaining U.S. and/or foreign regulatory approvals for topsalysin in one or both indications;
- manufacturing commercial quantities of topsalysin at acceptable costs levels if regulatory approvals are received;
- achieving broad market acceptance of topsalysin in the medical community and with third-party payors and patients; and
- creating an internal commercial infrastructure or identifying and entering into one or more strategic collaborations to effectively market and sell topsalysin.

We may never be able to successfully develop or commercialize topsalysin in either indication. Even if we do obtain regulatory approval to commercialize topsalysin, which we do not expect to occur for several years, we may never generate product sales and may never achieve or sustain profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the market price of our common shares and could impair our ability to raise capital, expand our business, diversify our product offerings or continue our operations.

Raising additional capital may cause dilution to our existing shareholders, restrict our operations or require us to relinquish intellectual property rights to our product candidates.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our existing shareholders will be diluted, and the terms may include liquidation or other preferences that adversely affect the rights of our shareholders. Debt financings may be coupled with an equity component, such as warrants to purchase shares, which could also result in dilution of our existing shareholders' ownership. The incurrence of indebtedness would result in increased fixed payment obligations and could also result in certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional funds through strategic partnerships and alliances and licensing arrangements with third parties, we may have to relinquish valuable rights to our product candidates, or grant licenses on terms that are not favorable to us.

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition.

On December 22, 2017, the president of the United States signed into law new legislation that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the newly enacted federal tax law.

Fluctuations in foreign currency exchange rates could result in changes in our reported revenues and earnings.

We currently incur expenses denominated in foreign currencies for multiple vendors. This includes our manufacturing and supply agreement with BI for the manufacture of topsalysin, for which payments are denominated in foreign currency. In addition, we are utilizing several clinical vendors which are located in various countries outside of the United States. These clinical vendors invoice us in the local currency of the vendor. We do not engage in foreign currency hedging arrangements for our accounts payable, and, consequently, foreign currency fluctuations may adversely affect our earnings. During the six months ended June 30, 2018 and 2017, 50.5% and 15.0% respectively, of our operating expenses were denominated in currencies other than the U.S. dollar. Going forward we anticipate that our sales and expenses, if any, will be denominated in the local currency of the country in which they occur. We may decide to manage this risk by hedging our foreign currency exposure, principally through derivative contracts. Even if we decide to enter into such hedging transactions, we cannot be sure that such hedges will be effective or that the costs of such hedges will not exceed their benefits. Fluctuations in the rate of exchange between the U.S. dollar and foreign currencies, primarily the euro, could result in material amounts of cash being required to settle the hedge transactions or could adversely affect our financial results.

Risks Related to our Intellectual Property

If we are unable to obtain or protect intellectual property rights related to our product candidates, we may not be able to compete effectively in our market.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our product candidates. The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover the products in Canada, the United States or in other foreign countries. If this were to occur, early generic competition could be expected against product candidates in development. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found, which can invalidate a patent or prevent a patent from issuing based on a pending patent application. Even if patents do successfully issue, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed or invalidated.

Composition-of-matter patents on the biological or chemical active pharmaceutical ingredient are generally considered to be the strongest form of intellectual property protection for pharmaceutical products, as such patents provide protection without regard to any method of use. We cannot be certain that the claims in our patent applications covering composition-of-matter of topsalysin will be considered patentable by the U.S. Patent and Trademark Office, or U.S. PTO, and courts in the United States or by the patent offices and courts in foreign countries. Method-of-use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products off-label. Although off-label prescriptions may infringe or contribute to the infringement of method-of-use patents, the practice is common and such infringement is difficult to prevent or prosecute. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing around our claims. If the patent applications we hold with respect to topsalysin fail to issue or if their breadth or strength of protection is threatened, it could dissuade companies from collaborating with us to develop them, and threaten our ability to commercialize, our products. We cannot offer any assurances about which, if any, patents will issue or whether any issued patents will be found not invalid and not unenforceable or will go unthreatened by third parties. Further, if we encounter delays in regulatory approvals, the period of time during which we could market topsalysin under patent protection could be reduced. Since patent applications in the United States and most other countries are confidential for a period of time after filing, and some remain so until issued, we cannot be certain that we were the first to file any patent application related to topsalysin. Furthermore, if third parties have filed such patent applications, an interference proceeding in the United States can be provoked by a third party or instituted by us to determine who was the first to invent any of the subject matter covered by the patent claims of our applications.

In addition to the protection afforded by patents, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our drug discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. Although we expect all of our employees to assign their inventions to us, and all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, we cannot provide any assurances that all such agreements have been duly executed or that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques.

The Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law in September 2011 and includes a number of significant changes to U.S. patent law. These include changes in the way patent applications will be prosecuted and may also affect patent litigation. The U.S. PTO is currently developing regulations and procedures to administer the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act will not become effective until one year or 18 months after its enactment. Accordingly, it is not clear what, if any, impact the Leahy-Smith Act will have on the cost of prosecuting our patent applications, our ability to obtain patents based on our patent applications and our ability to enforce or defend our issued patents. An inability to obtain, enforce and defend patents covering our proprietary technologies would materially and adversely affect our business prospects and financial condition. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States and Canada. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent material disclosure of the non-patented intellectual property related to our technologies to third parties, and there is no guarantee that we will have any such enforceable trade secret protection, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

Third party claims of intellectual property infringement may prevent or delay our development and commercialization efforts.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation, both within and outside the United States, involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, oppositions and inter party reexamination proceedings before the U.S. PTO. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we, and our collaborators, are developing product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may be subject to claims of infringement of the patent rights of third parties.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of topsalysin. Because patent applications can take many years to issue, there may be currently pending patent applications, which may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. We are aware of at least one third-party patent that may be relevant to our product candidates. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of any of our product candidates, any molecules formed during the manufacturing process or any final product itself, the holders of any such patents may be able to block our ability to commercialize such product candidate unless we obtained a license under the applicable patents, or until such patents expire. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or methods of use, including combination therapy, the holders of any such patent may be able to block our ability to develop and commercialize the applicable product candidate unless we obtained a license or until such patent expires. In either case, such a license may not be available on commercially reasonable terms or at all. Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates, and we have done so from time to time. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize one or more of our product candidates, which could harm our business significantly. We cannot provide any assurances that third-party patents do not exist which might be enforced against our products, resulting in either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties.

If we fail to comply with our obligations in the agreements under which we license rights to technology from third parties, we could lose license rights that are important to our business.

We are a party to a number of technology license agreements that are essential to our business and expect to enter into additional license agreements in the future. For example, we have exclusive licenses to topsalysin from UVIC Industry Partnerships Inc. and The Johns Hopkins University. The agreements governing these exclusive licenses include provisions that permit the licensors to terminate the license agreements in a number of situations, including if we grant a security interest on the licensed technology. These licensors might claim that filings made by Oxford Finance LLC, or Oxford, with the U.S. PTO or foreign jurisdictions in 2011 in connection with our Loan and Security Agreement imposed a security interest on the applicable technology. However, no claims from these licensors have been made to date regarding violations of these license agreements as a result of these filings and these filings were released when we repaid the outstanding balance under the Oxford Loan and Security Agreement in full in 2016. Furthermore, if any such claims are made in the future, we believe that such claims would not have merit and we would vigorously defend and reject such claims. If we fail to comply with our obligations under our license agreements, or we are insolvent or subject to a bankruptcy proceeding, the applicable licensor may have the right to terminate such license agreement, in which event we would not be able to market products covered by such license agreement, including topsalysin. We may also be subjected to litigation or other potential disputes under our license agreements if we fail to comply with our obligations under those agreements. The loss of our rights to technology that we have licensed under certain agreements would have a material adverse effect on our business.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours or our licensors is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our patent applications at risk of not issuing.

Interference proceedings provoked by third parties or brought by us may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our collaborators or licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our defense of litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common shares.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees on any issued patent are due to be paid to the U.S. PTO and foreign patent agencies in several stages over the lifetime of the patent. The U.S. PTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we or our licensors fail to maintain the patents and patent applications covering our product candidates, our competitors might be able to enter the market, which would have a material adverse effect on our business.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of our employees' former employers or other third parties. We may also be subject to claims that former employers or other third parties have an ownership interest in our patents. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries, including China, do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our product candidates and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Risks Related to Ownership of Our Common Shares

U.S. holders of our shares may suffer adverse tax consequences if we are characterized as a passive foreign investment company after 2012.

Generally, if for any taxable year 75% or more of our gross income is passive income, or at least 50% of the average quarterly value of our assets (which may be determined in part by the market value of our ordinary shares, which is subject to change) are held for the production of, or produce, passive income, we would be characterized as a passive foreign investment company, or PFIC, for United States federal income tax purposes. Based on the composition of our gross income and gross assets and the nature of our business, we expect that we were a PFIC for the taxable years ending December 31, 2012 through 2016 and that we will likely be a PFIC for the taxable year ending December 31, 2017. In 2018 and for future years, our status as a passive foreign investment company will also depend on whether we are a "controlled foreign corporation" for U.S. federal income tax purposes, how quickly we utilize the cash proceeds from our IPO in our business and other factors. If we are a PFIC for the taxable year ending December 31, 2017 or any subsequent year, U.S. holders of our shares may suffer adverse tax consequences. Gains realized by non-corporate U.S. holders on the sale of our ordinary shares would be taxed as ordinary income, rather than as capital gain, and the preferential tax rate applicable to dividends received on our ordinary shares would be lost. Interest charges would also be added to taxes on gains and dividends realized by all U.S. holders.

A U.S. holder may avoid these adverse tax consequences by timely making a qualified electing fund election. For each year that we would meet the PFIC gross income or asset test, an electing U.S. holder would be required to include in gross income its pro rata share of our net ordinary income and net capital gains, if any. A U.S. holder may make a qualified electing fund election only if we commit to provide U.S. holders with their pro rata share of our net ordinary income and net capital gains. Because we intend to provide this information, a U.S. holder should be eligible to make a qualified electing fund election.

A U.S. holder may also mitigate the adverse tax consequences of being a PFIC by timely making a mark-to-market election. Generally, for each year that we would meet the PFIC gross income or asset test, an electing U.S. holder would include in gross income the increase in the value of its shares during each of its taxable years and deduct from gross income the decrease in the value of such shares during each of its taxable years. A mark-to-market election may be made and maintained only if our shares are regularly traded on a qualified exchange. While we anticipate that these requirements will be satisfied following our IPO, whether our shares are regularly traded on a qualified exchange is an annual determination based on facts that, in part, are beyond our control. Accordingly, we can provide no assurances that a U.S. holder will be eligible to make a mark-to-market election. You should consult your own tax advisor as to the specific tax consequences to you in the event we are characterized as a PFIC for the taxable year ending December 31, 2017 or any subsequent year.

****The financial reporting obligations of being a public company require significant company resources and management attention.***

We are subject to the public company reporting obligations under the Exchange Act and the rules and regulations regarding corporate governance practices, including those under the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, and the listing requirements of The NASDAQ Capital Market. As a result, we have incurred, and will continue to incur, significant legal, accounting and other expenses that we did not incur as a private company, particularly after we are no longer an "emerging growth company" as defined in the JOBS Act. We expect that we will be an emerging growth company until December 31, 2018, although circumstances could cause us to lose that status earlier. Further, the need to establish the corporate infrastructure demanded of a public company may divert management's attention from implementing our growth strategy. We have made, and will continue to make, changes to our corporate governance standards, disclosure controls and financial reporting and accounting systems to meet our reporting obligations. Any changes that we make to comply with these obligations may not be sufficient to allow us to satisfy our obligations as a public company on a timely basis, or at all, which could subject us to delisting of our common shares, fines, sanctions and other regulatory action and potentially civil litigation. In addition, we incur significant legal, accounting, reporting and other expenses in order to maintain a listing on The NASDAQ Capital Market. These expenses relate to, among other things, the obligation to present financial information according to U.S. GAAP in the United States. We are also required to comply with certain disclosure and filing requirements under applicable securities laws in Canada as a reporting issuer in certain provinces.

The price of our common shares is likely to be highly volatile, and you could lose all or part of your investment.

The trading price of our common shares has been volatile and is likely to continue to be volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the other risk factors discussed in this section, these factors include:

- the outcome of our pursuit of strategic alternatives, including whether we raise any additional capital to fund our ongoing operations;
- the results of our completed and future clinical trials of topsalysin or changes in the development status of topsalysin;
- any adverse development or perceived adverse development with respect to our submission of a BLA to the FDA for topsalysin;
- unanticipated serious safety concerns related to the use of topsalysin;
- adverse regulatory decisions, including failure to receive regulatory approval for topsalysin;
- our decision to initiate a clinical trial, not to initiate a clinical trial or to terminate an existing clinical trial;
- our ability to obtain resources for us and our clinical trial programs on our desired schedule;
- inability to obtain adequate commercial supply for any approved product or inability to do so at acceptable prices;
- developments concerning our commercial partners, including but not limited to, those with manufacturers;
- competition from existing technologies and products or new technologies and products that may emerge;
- announcements of significant acquisitions, strategic partnerships, joint ventures, new products, capital commitments or other events by us or our competitors;
- the inability to establish collaborations or termination of a collaboration;
- actual or anticipated variations in our quarterly operating results;
- failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- our cash position;
- announcement or expectation of additional financing efforts;
- issuances of debt or equity securities;
- our inability to successfully enter new markets or develop additional product candidates;
- actual or anticipated fluctuations in our competitors' operating results or changes in their growth rate;
- sales of our common shares by us, or our shareholders in the future;
- trading volume of our common shares on The NASDAQ Capital Market and price;
- market conditions in our industry;
- overall performance of the equity markets and general political and economic conditions;

- introduction of new products or services by us or our competitors;
- additions or departures of key management, scientific or other personnel;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities or industry analysts;
- changes in the market valuation of similar companies;
- disputes or other developments related to intellectual property and other proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies and product candidates;
- changes in laws or regulations and policies applicable to product candidates, including but not limited to clinical trial requirements for approvals;
- changes in accounting practices;
- significant lawsuits, including patent or shareholder litigation; and
- other events or factors, many of which are beyond our control.

Furthermore, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common shares.

Future sales and issuances of our common shares or rights to purchase common shares by us, including pursuant to our equity incentive plan, could result in additional dilution of the percentage ownership of our shareholders and could cause our share price to fall.

We expect that significant additional capital will be needed in the future to continue our planned operations, including commercialization efforts, expanded research and development activities and costs associated with operating as a public company. To the extent we raise additional capital by issuing equity or convertible securities, our shareholders may experience substantial dilution. We may sell common shares, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common shares, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing shareholders, and new investors could gain rights superior to our existing shareholders.

Pursuant to our equity incentive plan, our management is authorized to grant options to our employees, directors and consultants. The number of shares available for future grant under our plan is equal to 10% of all shares of our issued and outstanding common shares at any time. Currently, the number of shares available for issuance under our equity incentive plan automatically increases when we issue additional common shares. If our board of directors elects to grant additional options each year our shareholders may experience additional dilution, which could cause our share price to fall.

We are at risk of securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biotechnology and biochemical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

We do not intend to pay dividends on our common shares so any returns will be limited to the value of our shares.

We have never declared or paid any cash dividend on our common shares. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Our Loan and Security Agreement with SVB also contains a negative covenant which prohibits us from paying dividends without the prior written consent of SVB. Any return to shareholders will therefore be limited to the increase, if any, of our share price.

We are an "emerging growth company," and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common shares less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We expect that we will be an emerging growth company until December 31, 2018, although circumstances could cause us to lose that status earlier. Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company" which would allow us to take advantage of many of the same exemptions from disclosure requirements including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict if investors will find our common shares less attractive because we may rely on these exemptions. If some investors find our common shares less attractive as a result, there may be a less active trading market for our common shares and our share price may be more volatile.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Our charter documents, certain related party contracts and certain Canadian legislation could delay or deter a change of control, limit attempts by our shareholders to replace or remove our current management and limit the market price of our common shares.

Our authorized preferred shares are available for issuance from time to time at the discretion of our board of directors, without shareholder approval. Our articles grant our board of directors the authority, subject to the BCBCA, to determine the special rights and restrictions granted to or imposed on any unissued series of preferred shares, and those rights may be superior to those of our common shares.

In addition, provisions in the BCBCA and in our articles, may have the effect of delaying or preventing changes in our management, including provisions that:

- prohibit cumulative voting in the election of directors; and
- require the approval of our board of directors or the holders of a supermajority of our outstanding share capital to amend our articles and our notice of articles.

These provisions may frustrate or prevent any attempts by our shareholders to replace or remove our current management by making it more difficult for shareholders to replace members of our board of directors, which is responsible for appointing the members of our management. Any of the foregoing could prevent or delay a change of control and may deprive or limit strategic opportunities to our shareholders to sell their shares.

Risks Related To Being A Canadian Entity

We are governed by the corporate laws in British Columbia, Canada which in some cases have a different effect on shareholders than the corporate laws in Delaware, United States.

The material differences between the BCBCA as compared to the Delaware General Corporation Law, or the DGCL, which may be of most interest to shareholders include the following: (i) for material corporate transactions (such as mergers and amalgamations, other extraordinary corporate transactions, amendments to our articles) the BCBCA generally requires two-thirds majority vote by shareholders, whereas DGCL generally only requires a majority vote of shareholders for similar material corporate transactions; (ii) the quorum for shareholders meetings is not prescribed under the BCBCA and is only two persons representing 5% of the issued shares under our articles, whereas under DGCL, quorum requires a minimum of one-third of the shares entitled to vote to be present and companies' certificates of incorporation frequently require a higher percentage to be present; (iii) under the BCBCA a holder of 5% or more of our common shares can requisition a special meeting at which any matters that can be voted on at our annual meeting can be considered, whereas the DGCL does not give this right; (iv) our articles require two-thirds majority vote by shareholders to pass a resolution for one or more directors to be removed, whereas DGCL only requires the affirmative vote of a majority of the shareholders; however, many public company charters limit removal of directors to a removal for cause; and (v) our articles may be amended by resolution of our directors to alter our authorized share structure, including to (a) consolidate or subdivide any of our shares and (b) create additional classes or series of shares, whereas under DGCL, a majority vote by shareholders is generally required to amend a corporation's certificate of incorporation and a separate class vote may be required to authorize alterations to a corporation's authorized share structure. We cannot predict if investors will find our common shares less attractive because of these material differences. If some investors find our common shares less attractive as a result, there may be a less active trading market for our common shares and our share price may be more volatile.

Item 6. Exhibits

The following exhibits are filed as part of, or incorporated by reference into, this report:

Exhibit number	Description of Exhibit	Incorporated by Reference or Attached Hereto
3.1	Certificate of Amalgamation of the Registrant, dated January 1, 2005.	Incorporated by reference to the Registrant's Form S-1 (SEC File No. 333-186724) filed on February 15, 2013.
3.2	Notice of Articles of the Registrant.	Incorporated by reference to the Quarterly Report on Form 10-Q filed on August 10, 2017.
3.3	Articles of the Registrant.	Incorporated by reference to the Registrant's Form S-1 (SEC File No. 333-186724) filed on February 15, 2013.
4.1	Form of Common Share Certificate.	Incorporated by reference to the Amendment No. 4 to the Registrant's Form S-1/A (SEC File No. 333-186724) filed on July 15, 2013.
4.2	Common Share Purchase Warrant Issued to Oxford Finance LLC.	Incorporated by reference to the Registrant's Form S-1 (SEC File No. 333-186724) filed on February 15, 2013.
4.3	Common Share Purchase Warrant Issued to Oxford Finance LLC.	Incorporated by reference to the Registrant's Form S-1 (SEC File No. 333-186724) filed on February 15, 2013.
4.4	Omnibus Amendment to Warrants to Purchase Common Shares dated February 14, 2014 by and between the Company and Oxford Finance LLC.	Incorporated by reference to the Current Report on Form 8-K filed on February 18, 2014.
4.5	Common Share Purchase Warrant Issued to Oxford Finance LLC dated June 30, 2014.	Incorporated by reference to the Quarterly Report on Form 10-Q filed on August 7, 2014.
4.6	Common Share Purchase Warrant Issued to Oxford Finance LLC dated June 30, 2014.	Incorporated by reference to the Quarterly Report on Form 10-Q filed on August 7, 2014.
4.7	Form of Common Share Purchase Warrant Issued in connection with the Company's May 2016 Financing.	Incorporated by reference to the Current Report on Form 8-K filed on May 11, 2016.
4.8	Form of Common Share Purchase Warrant Issued in connection with the Company's August 2016 Financing.	Incorporated by reference to the Current Report on Form 8-K filed on August 23, 2016.
4.9	Common Share Purchase Warrant Issued to Silicon Valley Bank, dated September 8, 2017.	Incorporated by reference to the Quarterly Report on Form 10-Q filed on November 9, 2017.
31.1	Certification of Chief Executive Officer pursuant to Rules 13a-14 and 15d-14 promulgated pursuant to the Securities Exchange Act of 1934, as amended.	Attached hereto
31.2	Certification of Chief Financial Officer pursuant to Rules 13a-14 and 15d-14 promulgated pursuant to the Securities Exchange Act of 1934, as amended.	Attached hereto
32.1	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Attached hereto
32.2	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Attached hereto

101.INS**	XBRL Instance Document	Attached hereto
101.SCH**	XBRL Taxonomy Extension Schema Document	Attached hereto
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	Attached hereto
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	Attached hereto
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document	Attached hereto
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document	Attached hereto

** In accordance with Rule 406T of Regulation S-T, the XBRL related information in Exhibit 101 to this Annual Report on Form 10-K is deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act, is deemed not filed for purposes of Section 18 of the Exchange Act, and otherwise is not subject to liability under these sections.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on the 14th day of August 2018.

SOPHIRIS BIO INC.

By: /s/ Randall E. Woods
Randall E. Woods
Chief Executive Officer and President

By: /s/ Peter T. Slover
Peter T. Slover
Chief Financial Officer

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Randall E. Woods, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Sophiris Bio 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.

/s/ Randall E. Woods
Randall E. Woods
President & Chief Executive Officer

Date: August 14, 2018

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Peter T. Slover, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Sophiris Bio 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.

/s/ Peter T. Slover
Peter T. Slover
Chief Financial Officer

Date: August 14, 2018

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 on Form 10-Q of Sophiris Bio Inc. (the Company) for the quarter ended June 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Randall E. Woods, President and Chief Executive Officer 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 my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, 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.

/s/ Randall E. Woods
Randall E. Woods
President & Chief Executive Officer

Date: August 14, 2018

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

Exhibit 32.2

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 on Form 10-Q of Sophiris Bio Inc. (the Company) for the quarter ended June 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Peter T. Slover, Chief Financial Officer 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 my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, 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.

/s/ Peter T. Slover
Peter T. Slover
Chief Financial Officer

Date: August 14, 2018

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.