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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended March 31, 2019
OR

☐ **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 001-38709

Osmotica Pharmaceuticals plc

(Exact name of registrant as specified in its charter)

Ireland	**Not Applicable**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

400 Crossing Boulevard
Bridgewater, NJ 08807
(Address of principal executive offices)
(Zip Code)

(908) 809-1300
(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 X No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes X No ☐

Indicate by check mark whether the 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 X	Smaller reporting company X Emerging growth company X

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. X

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

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary Shares	OSMT	Nasdaq Global Select Market

There were 52,518,924 ordinary shares ($0.01 nominal value per share) outstanding as of May 9, 2019.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report, including the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," contains forward-looking statements. All statements other than statements of historical facts contained in this report, including statements regarding our future results of operations and financial position, business strategy and plans and our objectives for future operations, are forward-looking statements. The words "believe," "may," "will," "plan," "estimate," "continue," "anticipate," "intend," "expect" and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short- and long-term business operations and objectives and financial needs. Examples of forward-looking statements include, among others, statements we make regarding: our intentions, beliefs or current expectations concerning, among other things, future operations; future financial performance, trends and events, particularly relating to sales of current products and the development, approval and introduction of new products; FDA and other regulatory applications, approvals and actions; the continuation of historical trends; and the sufficiency of our cash balances and cash generated from operating and financing activities for future liquidity and capital resource needs.

We may not achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place significant reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Important factors that could cause actual results and events to differ materially from those indicated in the forward-looking statements include the following:

- if we are unable to successfully develop or commercialize new products, or do so on a timely or cost effective basis, our operating results will suffer;
- due to our dependence on a limited number of products, our business could be materially adversely affected if one or more of our key products do not perform as well as expected;
- failures of or delays in clinical trials could result in increased costs to us and could jeopardize or delay our ability to obtain regulatory approval and commence sales of new products;
- we are, and will continue to be in the future, a party to legal proceedings that could result in adverse outcomes;
- as of March 31, 2019, we had total outstanding debt of approximately $267.9 million (net of deferred financing costs), and we had unused commitments of $50.0 million under our senior secured credit facilities. Our substantial debt could adversely affect our liquidity and our ability to raise additional capital to fund operations and could limit our ability to pursue our growth strategy or react to changes in the economy or our industry;
- we face intense competition from both brand and generic companies, which could significantly limit our growth and materially adversely affect our financial results;
- a business interruption at our manufacturing facility, our warehouses or at facilities operated by third parties that we rely on could have a material adverse effect on our business;
- our profitability depends on our major customers, and if our relationships with them do not continue as expected, our business, prospects and results of operations could materially suffer;
- if we are unable to develop or maintain our sales capabilities, we may not be able to effectively market or sell our products;

- our competitors and other third parties may allege that we are infringing their intellectual property, forcing us to expend substantial resources in resulting litigation, and any unfavorable outcome of such litigation could have a material adverse effect on our business;

- our profitability depends on coverage and reimbursement by governmental authorities and other third-party payors and healthcare reform and other future legislation creates uncertainty and may lead to reductions in coverage or reimbursement levels;

- we are subject to extensive governmental regulation and we face significant uncertainties and potentially significant costs associated with our efforts to comply with applicable regulations;

- our products or product candidates may cause adverse side effects that could delay or prevent their regulatory approval, or result in significant negative consequences following regulatory approval;

- manufacturing or quality control problems may damage our reputation, require costly remedial activities or otherwise negatively impact our business; and

- other factors that are described in the "Risk Factors" section of our Annual Report of Form 10-K that was filed on March 28, 2019.

The forward-looking statements included in this report are made only as of the date hereof. You should not rely upon forward-looking statements as predictions of future events. We cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Except as required by applicable law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this report to conform these statements to actual results or to changes in our expectations.

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PART I – FINANCIAL INFORMATION

Item 1. Financial Statements.

OSMOTICA PHARMACEUTICALS PLC

CONDENSED CONSOLIDATED BALANCE SHEETS

	March 31, 2019 (Unaudited)	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 63,061,694	$ 70,834,496
Trade accounts receivable, net	56,886,524	56,423,866
Inventories, net	27,814,847	24,383,021
Prepaid expenses and other current assets	16,198,948	20,743,685
Total current assets	163,962,013	172,385,068
Property, plant and equipment, net	30,738,375	31,263,432
Operating lease assets	6,364,515	—
Intangibles, net	473,521,588	490,389,723
Goodwill	100,854,816	100,854,816
Other non-current assets	705,266	751,927
Total assets	$ 776,146,573	$ 795,644,966
Liabilities and Shareholders' Equity		
Current liabilities:		
Trade accounts payable	$ 20,590,796	$ 24,869,593
Accrued liabilities	72,478,973	87,236,940
Current portion of long-term debt, net of deferred financing costs	795,068	1,774,199
Current portion of obligation under finance leases	124,590	119,344
Current portion of lease liability	2,006,814	—
Income taxes payable - current portion	496,029	393,552
Total current liabilities	96,492,270	114,393,628
Long-term debt, net of non-current deferred financing costs	267,079,556	266,802,911
Long-term portion of obligation under finance leases	119,672	137,949
Long-term portion of lease liability	4,576,768	—
Income taxes payable - long term portion	1,803,512	1,803,512
Deferred taxes	24,837,107	26,237,841
Total liabilities	394,908,885	409,375,841
Commitments and contingencies (See Note 12)		
Shareholders' equity:		
Ordinary shares ($0.01 nominal value 400,000,000 shares authorized, 52,518,924 shares issued and outstanding at March 31, 2019 and December 31, 2018)	525,189	525,189
Preferred shares ($0.01 nominal value 40,000,000 shares authorized, no shares issued and outstanding)	—	—
Euro deferred shares (€1.00 nominal value 25,000 shares authorized, no shares issued and outstanding)	—	—
Additional paid in capital	491,118,654	489,949,791
Accumulated deficit	(108,559,972)	(102,359,672)
Accumulated other comprehensive loss	(1,846,183)	(1,846,183)
Total shareholders' equity	381,237,688	386,269,125
Total liabilities and shareholders' equity	$ 776,146,573	$ 795,644,966

See accompanying notes to unaudited condensed consolidated financial statements

OSMOTICA PHARMACEUTICALS PLC

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Unaudited)

	Three Months Ended March 31,	
	2019	2018
Net product sales	$ 56,399,942	$ 58,834,206
Royalty revenue	721,207	962,828
Licensing and contract revenue	5,197	3,816
Total revenues	57,126,346	59,800,850
Cost of goods sold (inclusive of amortization of intangibles)	29,203,281	33,561,666
Gross profit	27,923,065	26,239,184
Selling, general and administrative expenses	21,655,666	17,161,962
Research and development expenses	9,764,260	10,174,301
Total operating expenses	31,419,926	27,336,263
Operating loss	(3,496,861)	(1,097,079)
Interest expense and amortization of debt discount	4,500,618	4,843,039
Other non-operating income, net	(556,947)	(137,453)
Total other non-operating expense, net	3,943,671	4,705,586
Loss before income taxes	(7,440,532)	(5,802,665)
Income tax benefit	1,240,232	1,195,319
Net loss	$ (6,200,300)	$ (4,607,346)
Other comprehensive loss, net		
Change in foreign currency translation adjustments	—	(368,114)
Comprehensive loss	$ (6,200,300)	$ (4,975,460)
Loss per share attributable to shareholders		
Basic and Diluted	$ (0.12)	$ (0.11)
Weighted average shares basic and diluted		
Basic and Diluted	52,518,924	(a) 42,855,722

(a) Represents 1,000,367 weighted-average units multiplied by approximately 42.84 (rounded down to the nearest whole share), which was the ratio at which common units of Osmotica Holdings S.C.Sp. were converted to shares of Osmotica Pharmaceuticals plc immediately prior to the Company's initial public offering. See Note 1 for details.

See accompanying notes to unaudited condensed consolidated financial statements

OSMOTICA PHARMACEUTICALS PLC

CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE THREE MONTHS ENDED MARCH 31, 2019 AND MARCH 31, 2018
(Unaudited)

	Ordinary shares		Additional	Accumulated	Partners'	Accumulated other comprehensive	
	Shares	Amount	paid in capital	deficit	capital	loss	Total
Balance at December 31, 2017	—	$ —	$ —	$ —	$ 436,416,914	$ (633,146)	$ 435,783,768
Cumulative effect of change in accounting standard	—	—	—	—	1,047,477	—	1,047,477
Net loss	—	—	—	—	(4,607,346)	—	(4,607,346)
Change in foreign currency translation	—	—	—	—	—	(368,114)	(368,114)
Distributions	—	—	—	—	(2,026)	—	(2,026)
Balance at March 31, 2018	—	$ —	$ —	$ —	$ 432,855,019	$ (1,001,260)	$ 431,853,759

	Ordinary shares		Additional	Accumulated	Partners'	Accumulated other comprehensive	
	Shares	Amount	paid in capital	deficit	capital	loss	Total
Balance at December 31, 2018	52,518,924	$ 525,189	$ 489,949,791	$ (102,359,672)	$ —	$ (1,846,183)	$ 386,269,125
Net loss	—	—	—	(6,200,300)		—	(6,200,300)
Share compensation	—	—	1,168,863	—		—	1,168,863
Balance at March 31, 2019	52,518,924	$ 525,189	$ 491,118,654	$ (108,559,972)	$ —	$ (1,846,183)	$ 381,237,688

See accompanying notes to unaudited condensed consolidated financial statements

OSMOTICA PHARMACEUTICALS PLC

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Three Months Ended March 31,	
	2019	**2018**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$ (6,200,300)	$ (4,607,346)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	17,992,738	20,414,303
Share compensation	1,168,863	—
Deferred income tax benefit	(1,400,734)	(3,295,968)
Loss on sale of fixed assets	53,326	—
Bad debt provision	(84,295)	(99,801)
Amortization of deferred financing and loan origination fees	323,304	414,735
Change in operating assets and liabilities:		
Trade accounts receivable, net	(378,363)	(23,251,095)
Inventories, net	(3,431,826)	(6,604,271)
Prepaid expenses and other current assets	4,544,737	3,100,028
Other non-current assets	—	(271,868)
Trade accounts payable	(4,278,797)	32,182,528
Accrued and other current liabilities	(14,436,427)	(10,879,666)
Net cash (used in) provided by operating activities	(6,127,774)	7,101,579
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchase of property, plant and equipment	(634,585)	(1,436,771)
Net cash used in investing activities	(634,585)	(1,436,771)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Payments to affiliates	—	(2,026)
Payments on finance lease obligations	(31,315)	(27,064)
Repayment of insurance financing loan	(979,128)	—
Debt repayment	—	(2,046,685)
Net cash used in financing activities	(1,010,443)	(2,075,775)
Net change in cash and cash equivalents	(7,772,802)	3,589,033
Effect on cash of changes in exchange rate	—	(138,401)
Cash and cash equivalents, beginning of period	70,834,496	34,743,152
Cash and cash equivalents, end of period	$ 63,061,694	$ 38,193,784
Supplemental disclosure of cash and non-cash transactions:		
Cash paid for interest	$ 4,069,027	$ 4,813,017
Cash paid for taxes	$ 214,839	$ 94,116

See accompanying notes to unaudited condensed consolidated financial statements

OSMOTICA PHAMACEUTICALS PLC

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(UNAUDITED)

Note 1. Organization and Nature of Operations

Osmotica Pharmaceuticals plc (formerly known as Lilydale Limited and Osmotica Pharmaceuticals Limited) is an Irish public limited company. Osmotica Holdings S.C.Sp. acquired Osmotica Pharmaceuticals plc on April 30, 2018 for the purpose of facilitating an offering of ordinary shares in an initial public offering ("IPO"). On October 22, 2018, Osmotica Pharmaceuticals plc completed its IPO, in which it issued and allotted 7,647,500 ordinary shares at a public offering price of $7.00 per share. The number of shares issued in the IPO reflected the exercise in full of the underwriters' option to purchase 997,500 additional ordinary shares. In addition, the Company issued and allotted 2,014,285 ordinary shares at the public offering price in a private placement to investment funds affiliated with Avista Capital Partners, Altchem Limited and an entity controlled by the Company's Chief Financial Officer. The aggregate net proceeds from the IPO and the private placement were approximately $58.1 million after deducting underwriting discounts and commissions and estimated offering expenses.

Immediately prior to the IPO and prior to the commencement of trading of Osmotica Pharmaceuticals plc's ordinary shares on the Nasdaq Global Select Market, Osmotica Holdings S.C.Sp. undertook a series of restructuring transactions that resulted in Osmotica Pharmaceuticals plc being the direct parent of Osmotica Holdings S.C.Sp with each holder of common units of Osmotica Holdings S.C.Sp. receiving approximately 42.84 ordinary shares of Osmotica Pharmaceuticals plc in exchange for each such common unit. In addition, each holder of an option to purchase common units of Osmotica Holdings S.C.Sp. received an option to purchase the number of ordinary shares of Osmotica Pharmaceuticals plc determined by multiplying the number of units underlying such option by approximately 42.84 (rounded down to the nearest whole share) and dividing the exercise price per unit for such option by approximately 42.84 (rounded up to the nearest whole cent). These transactions are referred to as the "Reorganization".

Until the Reorganization, Osmotica Pharmaceuticals plc did not conduct any operations (other than activities incidental to its formation, the Reorganization and the pursuit of an initial public offering). Upon the completion of the Reorganization, the historical consolidated financial statements of Osmotica Holdings S.C.Sp. became the historical financial statements of Osmotica Pharmaceuticals plc. Accordingly, the accompanying unaudited condensed consolidated financial information as of and for the three months ended March 31, 2018 included herein reflect the financial information of Osmotica Holdings S.C.Sp.

Osmotica Holdings S.C.Sp.is a Luxembourg special limited partnership, formed on December 3, 2015. Osmotica Holdings US LLC, a subsidiary of Osmotica Holdings S.C.Sp. entered into a fifty-fifty partnership (the "Merger"), effective February 3, 2016, pursuant to a definitive agreement between Vertical/Trigen Holdings, LLC ("Vertical/Trigen") and members, and Osmotica Holdings Corp Limited and Subsidiaries. Osmotica Holdings S.C.Sp. and several other holding companies and partnerships were formed as a result of the Merger. Pursuant to the Merger, Vertical/Trigen was deemed to be the accounting acquirer. Osmotica is a fully integrated biopharmaceutical company focused on the development and commercialization of specialty products that target markets with underserved patient populations.

Unless otherwise indicated or required by the context, references throughout to "Osmotica," or the "Company," refer to (i) prior to the completion of the Reorganization, Osmotica Holdings S.C.Sp. and its consolidated subsidiaries, including, from and after April 30, 2018, Osmotica Pharmaceuticals plc, and (ii) following the completion of the Reorganization, Osmotica Pharmaceuticals plc and its consolidated subsidiaries, including Osmotica Holdings S.C.Sp.

Note 2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation—The accompanying unaudited condensed consolidated financial statements included herein have been prepared by the Company in accordance with accounting principles generally accepted in the United States of

OSMOTICA PHAMACEUTICALS PLC

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(UNAUDITED)

America ("GAAP") and under the rules and regulations of the United States Securities and Exchange Commission ("SEC") for interim reporting. In management's opinion, the interim financial data presented includes all adjustments (consisting solely of normal recurring items) necessary for fair presentation. All intercompany accounts and transactions have been eliminated. Certain information required by GAAP has been condensed or omitted in accordance with rules and regulations of the SEC. Operating results for the three months ended March 31, 2019, are not necessarily indicative of the results that may be expected for any future period or for the year ending December 31, 2019 or any period thereafter. The accompanying Condensed Consolidated Balance Sheet data as of December 31, 2018 was derived from the audited consolidated financial statements.

These unaudited condensed consolidated financial statements should be read in conjunction with the Company's audited consolidated financial statements and the notes thereto for the year ended December 31, 2018. Except for the lease accounting policy that was updated as a result of adopting Accounting Standards Update ("ASU") No. 2016-02, *Leases* (Accounting Standards Codification ("ASC") Topic 842), the Company's significant accounting policies have not changed substantially from those previously described in the notes to the consolidated financial statements for the year ended December 31, 2018 that are included in the Company's most recent Annual Report on Form 10-K.

Basic and Diluted Loss per Share—Basic and diluted net loss per share is determined by dividing net loss by the weighted average ordinary shares outstanding during the period. For all periods presented with a net loss, the shares underlying the ordinary share options have been excluded from the calculation because their effect would be anti-dilutive. Therefore, the weighted average shares outstanding used to calculate both basic and diluted loss per share are the same for periods with a net loss.

The following potentially dilutive securities have been excluded from the computation of diluted weighted average shares outstanding as they would be anti-dilutive as of March 31, 2019 and 2018:

	Three Months Ended March 31,	
	2019	2018
Restricted stock units	1,374,335	—
Options to purchase ordinary shares	3,187,872 (a)	3,028,440

(a) Represents 70,700 units multiplied by approximately 42.84 (rounded down to the nearest whole share), which was the ratio at which common units of Osmotica Holdings S.C.Sp. were converted to shares of Osmotica Pharmaceuticals plc immediately prior to the Company's initial public offering. See Note 1 for details.

Fair Value of Financial Instruments—The Company's financial instruments include cash and cash equivalents, accounts receivable, accounts payable and short and long-term debt. The fair values of cash and cash equivalents, accounts receivable, accounts payable and debt approximate book value because of the short maturity of these financial instruments.

The valuation hierarchy is composed of three levels. The classification within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement. The levels within the valuation hierarchy are described below:

Level 1 — Assets and liabilities with unadjusted, quoted prices listed on active market exchanges. Inputs to the fair value measurement are observable inputs, such as quoted prices in active markets for identical assets or liabilities.

OSMOTICA PHAMACEUTICALS PLC

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(UNAUDITED)

Level 2 — Inputs to the fair value measurement are determined using prices for recently traded assets and liabilities with similar underlying terms, as well as direct or indirect observable inputs, such as interest rates and yield curves that are observable at commonly quoted intervals.

Level 3 — Inputs to the fair value measurement are unobservable inputs, such as estimates, assumptions, and valuation techniques when little or no market data exists for the assets or liabilities.

Segment Reporting—The Company operates in one business segment which focuses on developing and commercializing pharmaceutical products that target markets with underserved patient populations. The Company's business offerings have similar economic and other characteristics, including the nature of products, manufacturing and acquiring processes, types of customers, distribution methods and regulatory environment. The chief operating decision maker ("CODM") reviews profit and loss information on a consolidated basis to assess performance and make overall operating decisions. The condensed consolidated financial statements reflect the financial results of the Company's one reportable operating segment. The Company has no significant revenues or tangible assets outside of the United States.

Recently Adopted Accounting Standards

The FASB issued ASU 2016-02, "*Leases (Topic 842)"* in February 2016 and subsequent ASUs in 2018 and 2019 (collectively referred to as "Topic 842") on the treatment of leases, which guidance is effective for annual reporting periods beginning after December 15, 2019 and early adoption is permitted. Under Topic 842, lessees will be required to recognize the following for all leases (with the exception of short-term leases) at the commencement date: 1) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis, and 2) a right-of-use asset, which is an asset that represents the lessee's right to use, or control the use of, a specified asset for the lease term. Entities are allowed to apply Topic 842 using a modified retrospective approach either (1) retrospectively to each reporting period presented in the financial statements with the cumulative effect adjustment recognized at the beginning of the earliest comparative period; or (2) retrospectively at the beginning of the period of adoption through a cumulative-effective adjustment. The modified retrospective approach includes a number of optional practical expedients that entities may elect to apply.

On January 1, 2019, the Company adopted Topic 842 using the modified retrospective basis with a cumulative-effect adjustment at the beginning of the period of adoption and therefore did not revise prior period information or disclosure. Further, the Company elected the package of practical expedients upon transition that allows the Company not to reassess the lease classification for expired and existing leases, whether initial direct costs qualify for capitalization for any expired or existing leases or whether any expired contracts are or contain leases. The adoption of ASU 2016-02 resulted in the recognition of operating leases and lease liabilities of approximately $6.2 million on the consolidated balance sheet as of January 1, 2019. The operating leases and lease liabilities primarily relate to real estate lease.

The impact of the adoption of Topic 842 on the accompanying condensed consolidated balance sheet as of January 1, 2019 was as follows (in thousands):

	December 31, 2018	Adoption adjustment	January 1, 2019
Operating lease assets	$ —	$ 6,245,147	$ 6,044,528
Deferred rent liability	200,619	(200,619)	—
Current portion of lease liability	—	1,709,138	1,709,138
Long-term portion of lease liability	—	4,536,009	4,536,009

OSMOTICA PHAMACEUTICALS PLC

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(UNAUDITED)

See additional lease disclosures in Note 11.

In February 2018, the FASB issued ASU 2018-02, *Income Statement — Reporting Comprehensive Income (Topic 220) — Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.* This standard allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act and requires certain disclosures about stranded tax effects. This standard will be effective for the Company for annual periods beginning after December 15, 2018 and should be applied either in the period of adoption or retrospectively. The Company adopted that standard effective January 1, 2019 and concluded there was no financial statement impact related to ASU 2018-02.

Recent Accounting Standards

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments,* which introduces a new methodology for accounting for credit losses on financial instruments, including available-for-sale debt securities. The guidance establishes a new "expected loss model" that requires entities to estimate current expected credit losses on financial instruments by using all practical and relevant information. Any expected credit losses are to be reflected as allowances rather than reductions in the amortized cost of available-for-sale debt securities. Early adoption is permitted for annual periods beginning after December 15, 2018, and interim periods therein. The Company is evaluating the impact of this new accounting standard and does not expect its impact to be material.

Note 3. Revenues

The Company's performance obligations are to provide its pharmaceutical products based upon purchase orders from distributors. The performance obligation is satisfied at a point in time, typically upon delivery, when the customer obtains control of the pharmaceutical product. The Company invoices its customers after the products have been delivered and invoice payments are generally due within 60 days of invoice date.

The following table disaggregates revenue from contracts with customers by pharmaceutical products:

	Three Months Ended March 31,	
Pharmaceutical Product	**2019**	**2018**
Venlafaxine ER	$ 21,607,089	$ 14,821,553
Methylphenidate ER	20,789,483	28,179,261
Lorzone	4,268,518	4,239,673
Divigel	5,496,660	4,949,547
OB Complete	1,930,516	2,350,992
Other	2,307,676	4,293,180
Net product sales	56,399,942	58,834,206
Royalty revenue	721,207	962,828
License and contract revenue	5,197	3,816
Total revenues	$ 57,126,346	$ 59,800,850

When the Company receives consideration from a customer, or such consideration is unconditionally due from a customer prior to the transfer of products to the customer under the terms of a contract, the Company records a contract liability. The Company classifies contract liabilities as deferred revenue. The Company had no deferred revenue as of March 31, 2019. Upon adoption of ASC Topic 606, the Company did not have any contract assets or liabilities. The

OSMOTICA PHAMACEUTICALS PLC

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(UNAUDITED)

Company has elected to apply the exemption under paragraph 606-10-50-14(a) related to remaining performance obligations as all open purchase orders are expected to be satisfied with a period of one year from the date of the purchase order.

Contract assets primarily relate to rights to consideration for goods or services transferred to the customer when the right is conditional on something other than the passage of time. Contract assets are transferred to accounts receivable when the rights become unconditional. The Company had no contract assets as of March 31, 2019. The Company has no costs to obtain or fulfill contracts meeting the capitalization criteria under ASC Topic 340, *Other Assets and Deferred Costs.*

Note 4. Accounts Receivable, Sales and Allowances

The nature of the Company's business inherently involves, in the ordinary course, significant amounts and substantial volumes of transactions and estimates relating to allowances for product returns, chargebacks, rebates, doubtful accounts and discounts given to customers. This is typical of the pharmaceutical industry and not necessarily specific to the Company. Depending on the product, the end-user customer, the specific terms of national supply contracts and the particular arrangements with the Company's wholesale customers, certain rebates, chargebacks and other credits are deducted from the Company's accounts receivable. The process of claiming these deductions depends on wholesalers reporting to the Company the amount of deductions that were earned under the terms of the respective agreement with the end-user customer (which in turn depends on the specific end-user customer, each having its own pricing arrangement, which entitles it to a particular deduction). This process can lead to partial payments against outstanding invoices as the wholesalers take the claimed deductions at the time of payment.

Accounts receivable result primarily from sales of pharmaceutical products, amounts due under revenue sharing, license and royalty arrangements, which inherently involves, in the ordinary course of business, estimates relating to allowances for product returns, chargebacks, rebates, doubtful accounts and discounts given to customers. Credit is extended based on the customer's financial condition, and, generally, collateral is not required. The Company ages its accounts receivable using the corresponding sale date of the transaction and considers accounts past due based on terms agreed upon in the transaction, which is generally 30 to 60 days for branded and generic sales, depending on the customer and the products purchased.

With the exception of the provision for doubtful accounts, which is reflected as part of selling, general and administrative expense, the provisions for the following customer reserves are reflected as a reduction of revenues in the accompanying Condensed Consolidated Statements of Operations and Comprehensive Loss.

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Trade accounts receivable, net consisted of the following:

	March 31, 2019	December 31, 2018
Gross trade accounts receivable		
Trade accounts receivable	$ 133,641,124	$ 146,419,682
Royalty accounts receivable	616,190	238,960
Other receivable	646,084	1,562,287
Less reserves for:		
Chargebacks	(26,591,362)	(38,861,232)
Commercial rebates	(47,305,063)	(49,231,445)
Discounts and allowances	(3,883,895)	(3,510,242)
Doubtful accounts	(236,554)	(194,144)
Total trade accounts receivable, net	$ 56,886,524	$ 56,423,866

The Company recorded the following adjustments to gross product sales:

	Three Months Ended March 31,	
	2019	2018
Gross product sales	$ 231,548,186	$ 217,078,496
Less provisions for:		
Chargebacks	(101,233,461)	(80,362,027)
Government rebates	(2,523,254)	(5,585,698)
Commercial rebates	(64,598,259)	(59,990,953)
Product returns	(1,026,339)	(5,847,314)
Discounts and allowances	(4,701,225)	(5,085,400)
Advertising and promotions	(1,065,706)	(1,372,898)
Net product sales	$ 56,399,942	$ 58,834,206

The activity in the Company's allowance for customer deductions against trade accounts receivable was as follows:

	Chargebacks	Commercial Rebates	Discounts and Allowances	Doubtful Accounts	Total
Balance at December 31, 2018	$ 38,861,232	$ 49,231,445	$ 3,510,242	$ 194,144	$ 91,797,063
Provision	101,233,461	64,598,259	4,701,225	(84,295)	170,448,650
Charges processed	(113,503,331)	(66,524,641)	(4,327,572)	126,705	(184,228,839)
Balance at March 31, 2019	$ 26,591,362	$ 47,305,063	$ 3,883,895	$ 236,554	$ 78,016,874

The activity in the Company's accrued liabilities for customer deductions by account was as follows:

	Product Returns	Government and Commercial Rebates	Total
Balance at December 31, 2018	$ 48,463,509	$ 9,980,876	$ 58,444,385
Provision	1,026,339	2,523,254	3,549,593
Charges processed	(3,781,493)	(4,784,874)	(8,566,367)
Balance at March 31, 2019	$ 45,708,355	$ 7,719,256	$ 53,427,611

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Provisions and utilizations of provisions activity in the current period which relate to the prior period revenues are not provided because to do so would be impracticable. The current systems and processes of the Company do not capture the chargeback and rebate settlements by the period in which the original sales transaction was recorded. The Company uses a combination of factors and applications to estimate the dollar amount of reserves for chargebacks and rebates at each month end. Variable consideration is included in the transaction price only to the extent a significant reversal in the amount of cumulative revenue recognized is not probable of occurring when the uncertainty associated with the variable consideration is subsequently resolved. The Company regularly monitors the reserves based on an analysis of the Company's product sales and most recent claims, wholesaler inventory, current pricing, and anticipated future pricing changes. If amounts are different from the estimate due to changes from estimated rates, accrual rate adjustments are considered prospectively when determining provisions in accordance with authoritative GAAP.

Note 5. Inventories

The components of inventories, net of allowances, were as follows:

	March 31, 2019	December 31, 2018
Finished goods	$ 15,791,471	$ 15,577,104
Work in process	739,501	1,138,906
Raw materials and supplies	11,283,875	7,667,011
	$ 27,814,847	$ 24,383,021

The Company maintains an allowance for excess and obsolete inventory, as well as inventory where its cost is in excess of its net realizable value. The activity in the allowance for excess, obsolete, and net realizable value inventory account was as follows:

	March 31, 2019	December 31, 2018
Balance at beginning of period	$ 1,561,082	$ 3,066,620
Provision	759,185	2,926,472
Charges processed	(824,087)	(4,432,010)
Balance at end of period	$ 1,496,180	$ 1,561,082

Note 6. Goodwill and Other Intangible Assets

The Company tests goodwill and indefinite-lived intangible assets for impairment annually as of October 1st, or more frequently whenever events or changes in circumstances indicate that the asset might be impaired. There were no events or changes in circumstances since December 31, 2018 for the Company to test for impairment of goodwill. The carrying value of goodwill was $100,854,816 as of March 31, 2019 and December 31, 2018.

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The following table sets forth the major categories of the Company's intangible assets and the weighted-average remaining amortization period for those assets that were not already fully amortized:

	March 31, 2019				
	Gross Carrying Amount	Accumulated Amortization	Impairment	Net Carrying Amount	Weighted Average Remaining Amortization Period (Years)
Distribution Rights	$ 98,433,377	$ (19,046,512)	$ —	$ 79,386,865	11.7
Product Rights	348,599,941	(124,192,008)	—	224,407,933	3.8
Tradenames	13,485,000	(2,505,762)	—	10,979,238	15.7
Developed Technology	125,460,333	(30,712,781)	—	94,747,552	12.3
IPR&D	64,000,000	—	—	64,000,000	Indefinite Lived
	$ 649,978,651	$ (176,457,063)	$ —	$ 473,521,588	

	December 31, 2018				
	Gross Carrying Amount	Accumulated Amortization	Impairment	Net Carrying Amount	Weighted Average Remaining Amortization Period (Years)
Distribution Rights	$ 98,433,377	$ (17,229,374)	$ —	$ 81,204,003	12.0
Product Rights	326,530,149	(109,056,754)	—	217,473,395	4.0
Tradenames	13,485,000	(2,329,284)	—	11,155,716	16.0
Developed Technology	138,133,333	(30,973,516)	(10,303,208)	96,856,609	12.6
IPR&D	91,300,000	—	(7,600,000)	83,700,000	Indefinite Lived
	$ 667,881,859	$ (159,588,928)	$ (17,903,208)	$ 490,389,723	

The gross carrying amount and accumulated amortization in the tables above are inclusive of $6,156,564 of accumulated amortization for assets that have been fully impaired in 2018.

Changes in the net carrying amount of intangible assets were as follows:

	Distribution Rights	Product Rights	Tradenames	Developed Technology	IPR&D	Total
December 31, 2018	$ 81,204,003	$ 217,473,395	$ 11,155,716	$ 96,856,609	$ 83,700,000	$ 490,389,723
Amortization	(1,817,138)	(12,765,462)	(176,478)	(2,109,057)	—	(16,868,135)
Reclassifications(A)		19,700,000			(19,700,000)	—
March 31, 2019	$ 79,386,865	$ 224,407,933	$ 10,979,238	$ 94,747,552	$ 64,000,000	$ 473,521,588

(A) IPR&D in the amount of $19.7 million related to Osmolex ER was reclassified to Product Rights at the time the product was launched. The amount will be amortized over the estimated useful life of five years which was determined to be the period in which the product rights are expected to contribute cash flow. The amount will be amortized on an straight line basis.

As part of the Company's goodwill and intangible asset impairment assessments, the Company estimates the fair values of the reporting unit and intangible assets using an income approach that utilizes a discounted cash flow model, or, where appropriate, a market approach. The discounted cash flow models are dependent upon the Company's estimates of

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future cash flows and other factors. These estimates of future cash flows involve assumptions concerning (i) future operating performance, including future sales, long-term growth rates, operating margins, variations in the amounts, allocation and timing of cash flows and the probability of achieving the estimated cash flows and (ii) future economic conditions. These assumptions are based on significant inputs not observable in the market and thus represent Level 3 measurements within the fair value hierarchy. The discount rates applied to the estimated cash flows for the Company's October 1, 2018 annual goodwill and indefinite-lived intangible assets impairment test ranged from 14.0% to 9.0%, respectively, depending on the overall risk associated with the particular assets and other market factors. The Company believes the discount rates and other inputs and assumptions are consistent with those that a market participant would use. Any impairment charges resulting from annual or interim goodwill and intangible asset impairment assessments are recorded to Impairment of intangible assets in the Condensed Consolidated Statements of Operations and Comprehensive Loss.

The Company recorded no impairment charges in intangibles for the three months ended March 31, 2019 and 2018.

Amortization expense of $16,868,135 and $19,372,673 for the three months ended March 31, 2019 and 2018, respectively, was recorded as cost of goods sold. The amortization expense of acquired intangible assets for each of the following five years and thereafter are expected to be as follows:

Years ending December 31	Amortization Expense
2019	$ 50,604,405
2020	63,628,441
2021	58,183,460
2022	51,294,844
2023	49,123,534
Thereafter	136,686,904
Total	$ 409,521,588

Note 7. Accrued Liabilities

Accrued liabilities consist of the following:

	March 31, 2019	December 31, 2018
Accrued product returns	$ 45,708,355	$ 48,463,509
Accrued royalties	1,820,224	3,597,957
Accrued compensation	4,145,962	8,672,913
Accrued government rebates	7,719,195	9,980,876
Accrued research and development	6,551,142	8,337,812
Accrued expenses and other liabilities	5,960,126	7,362,941
Customer coupons	573,969	719,578
Deferred revenue	—	101,354
Total	$ 72,478,973	$ 87,236,940

In the ordinary course of business, the Company enters into contractual agreements with wholesalers pursuant to which the wholesalers distribute sales of Company products to customers and provide sales data to the Company. In return the wholesalers charge the Company a fee for services and other customary rebates and chargebacks based on distribution sales of Company products through the wholesalers and downstream customers.

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Note 8. Financing Arrangements

The composition of the Company's debt and financing obligations is as follows:

	March 31, 2019	December 31, 2018
CIT Bank, N.A. Term Loan, net of deferred financing costs of $4,280,382 and $4,557,025 as of March 31, 2019 and December 31, 2018, respectively	$ 267,079,556	$ 266,802,911
Note payable — insurance financing	795,068	1,774,199
	267,874,624	268,577,110
Less: current portion	(795,068)	(1,774,199)
Long-term debt	$ 267,079,556	$ 266,802,911

Term Loan

As of March 31, 2019, the interest rate was 5.74% for the Company's Term A Loan and 6.74% for the Term B Loan. As of December 31, 2018, the interest rate was 6.09% for the Term A Loan and 6.59% for the Term B Loan. The Company was in compliance with all covenants of the Term Loan Agreement as of March 31, 2019.

Revolving Facility

As of March 31, 2019 there were no amounts drawn under the $50 million Revolving Facility with CIT Bank, N.A.

Note 9. Concentrations and Credit Risk

In the three months ended March 31, 2019 and 2018, a significant portion of the Company's gross product sales reported were through three customers, and a significant portion of the Company's accounts receivable as of March 31, 2019 and December 31, 2018 were due from these customers as well. The following table sets forth the percentage of the Company's gross sales and accounts receivable attributable to these customers for the periods indicated:

	Gross Product Sales	
	Three Months Ended March 31,	
	2019	2018
Amerisource Bergen	7 %	7 %
Cardinal Health	55 %	54 %
McKesson	36 %	33 %
Combined Total	98 %	94 %

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NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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	Gross Account Receivables	
	March 31, 2019	December 31, 2018
Amerisource Bergen	6 %	6 %
Cardinal Health	61 %	61 %
McKesson	30 %	29 %
Combined Total	97 %	96 %

Purchasing

For the three months ended March 31, 2019, one supplier accounted for more than 76% of the Company's purchases of raw materials for products that are manufactured by the Company. For the three months ended March 31, 2018, one supplier accounted for approximately 86% of the Company's purchases of raw materials for products that are manufactured by the Company.

The Company purchases various Active Pharmaceutical Ingredient, or API of finished products at contractual minimum levels through agreements with third parties. Individually, none of these agreements are material to the Company, therefore, the Company does not believe at this time that any of the purchase obligations represent levels above the normal course of business.

Note 10. Incentive Plans

The Company recognized share-based compensation expense of $1,168,863 and $0 million during the three months ended March 31, 2019 and 2018, respectively. As of March 31, 2019, the total remaining unrecognized compensation cost related to non-vested share-based compensation awards amounted to $14,054,288. During the three months ended on March 31, 2019 the Company granted 1,374,335 restricted stock units, all of which remained outstanding on March 31, 2019. As of March 31, 2019, the weighted average remaining requisite service period of the non-vested stock options was 1.9 years and for non-vested restricted stock units was 4.1 years

Note 11. Leases

The Company leases its New Jersey office and warehouse facilities under non-cancelable leases that expire in July 2022 and December 2023, respectively. On September 6, 2018, the Company entered into a sublease agreement that expires November 2023 to lease additional office space in its New Jersey location. The Company leases office and warehouse facilities in Tampa, Florida, under a non-cancelable lease that expires in October 2023. The Company leases its Argentina office and warehouse facilities under a lease that originally expired in December 31, 2014, but was amended to extend to December 31, 2020. The Company leases its Hungary office and warehouse facilities under a lease that expires on February 14, 2022. The Company also leases its North Carolina office, which lease has been renewed through July 31, 2020. Some of these leases contain options to renew, but for the majority of leases we have concluded that it was not reasonably certain that we would exercise the options to extend the lease or terminate the lease. In 2018, the Company began leasing vehicles under a canceable fleet lease that has successive one-year renewal terms. We evaluate the term of these leases and recognize the lease over the period which we believe is reasonable certain to exercise.

We assess whether an arrangement is a lease or contains a lease at inception. For arrangements considered leases or that contain a lease that is accounted for separetly, we determine the classification and initial measurement of the right-of-use asset and lease liability at the lease commencement date, which is the date that the underlying asset becomes available

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for use. The Company has elected to account for non-lease components associated with our leases and lease components as a single lease component.

The Company recognizes a right-of use asset, which represents the Company's right to use the underlying asset for the lease term, and a lease liability, which represents the present value of the Company's obligation to make payments arising over the lease term. The present value of the lease payments are calculated using either the implicit interest rate in the lease or an incremental borrowing rate.

Our lease assets and liabilities were classified as follows on our Condensed Consolidated Balance Sheet at March 31, 2019:

Leases	Classification	Balance at March 31, 2019
Assets		
Operating	Operating Lease Assets	$ 6,364,515
Finance	Property, plant and equipment, net	254,182
Total leased assets		$ 6,618,697
Liabilities		
Current		
Operating	Current portion of lease liability	$ 2,006,814
Finance	Current portion of obligations under finance leases	124,590
Non-current		
Operating	Long-term portion of lease liability	4,576,768
Finance	Long-term portion of obligations under finance leases	119,672
Total lease liabilities		$ 6,827,844

The Company recognizes lease expense on a straight-line basis over the lease term. The components of lease cost are as follows:

Lease Cost	Classification	Three months ended March 31, 2019
Operating lease cost	SG&A expenses	$ 465,554
	R&D expenses	42,427
	Cost of goods sold	91,207
Finance lease cost		
Amortization of leased assets	Depreciation and amortization	31,577
Interest on lease liabilities	Interest expense	1,146
Total lease cost		$ 631,911

Total rent expense charged to selling, general and administrative expenses was $465,554 and $157,313 for the three months ended March 31, 2019 and 2018, respectively. Total rent expense charged to research and development was $42,427 and $85,820 for the three months ended March 31, 2019 and 2018, respectively. The rent expense charged to

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cost of goods sold was $91,207 and $92,967 for the three months ended March 31, 2019 and 2018, respectively. The table below shows the future minimum rental payments, exclusive of taxes, insurance and other costs, under the leases as follows:

Years ending December 31	Operating Leases
2019	$ 1,710,996
2020	2,296,677
2021	1,801,411
2022	879,504
2023	490,515
Total lease payments	7,179,103
Less: interest	595,521
Present value of lease payments	$ 6,583,582

The Company has future minimum lease payments required under the finance leases of $248,831 less interest expense of $4,569 for total present value lease payments of $244,262 for the remainder of the year ended December 31, 2019 through December 31, 2021.

The weighted-average remaining lease term and the weighted-average discount rate of our leases were as follows:

Lease Term and Discount Rate	March 31, 2019
Weighted average remaining lease term (years)	
Operating leases	3.42
Finance leases	1.88
Weighted average discount rate	
Operating leases	5.15 %
Finance leases	1.73 %

Other Information	March 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 599,188
Operating cash flows from finance leases	1,146
Financing cash flows from finance leases	31,315

Amortization of assets held under the finance lease is included in depreciation expense as a component of selling, general and administrative expenses..

For the three months ended March 31, 2019, the Company recorded $815,619 of leases assets obtained in exchange for new operating lease liabilities and $18,284 of leased assets obtained in exchange for new finance lease liabilities.

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Note 12. Commitments and Contingencies

Contingent Milestone Payments

The Company has entered into strategic business agreements for the development and marketing of finished dosage form pharmaceutical products with various pharmaceutical development companies. Each strategic business agreement includes a future payment schedule for contingent milestone payments and in certain strategic business agreements, minimum royalty payments. The Company will be responsible for contingent milestone payments and minimum royalty payments to these strategic business partners based upon the occurrence of future events. Each strategic business agreement defines the triggering event of its future payment schedule, such as meeting product development progress timelines, successful product testing and validation, successful clinical studies, and various U.S. Food and Drug Administration and other regulatory approvals.

The following table lists the Company's enforceable and legally binding royalty obligations as of March 31, 2019:

	Royalty Obligations
Less than 1 year	$ 1,328,125
1 to 3 years	3,140,625
3 to 5 years	2,000,000
More than 5 years	1,833,333
Total	$ 8,302,083

The Company is engaged in various supply agreements with third parties which obligate the Company to purchase various API or finished products at contractual minimum levels. Except as detailed in the table below, none of these agreements are individually or in the aggregate material to the Company. Further, the Company does not believe at this time that any of the purchase obligations represent levels above that of normal business demands

The following table lists the Company's enforceable and legally binding purchase obligations as of March 31, 2019:

	Purchase Obligations
Less than 1 year	$ 4,000,000
1 to 3 years	—
3 to 5 years	—
Total	$ 4,000,000

Legal Proceedings

The Company is a party in legal proceedings and potential claims arising from time to time in the ordinary course of its business. The amount, if any, of ultimate liability with respect to such matters cannot be determined. Despite the inherent uncertainties of litigation, management of the Company believes that the ultimate disposition of such proceedings and exposures will not have a material adverse impact on the financial condition, results of operations, or cash flows of the Company. For the items disclosed below, at this time there is no loss that is probable or reasonably estimatable.

On February 16, 2018, the Company received FDA approval for its amantadine extended release tablets under the trade name OSMOLEX ER. On that same date the Company filed in the Federal District Court for the District of Delaware a Complaint for Declaratory Judgment of Noninfringement of certain patents owned by Adamas Pharmaceuticals, Inc. (Osmotica Pharmaceutical US LLC and Vertical Pharmaceuticals, LLC vs. Adamas Pharmaceuticals, Inc. and Adamas

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Pharma, LLC). Adamas was served with the Complaint on February 21, 2018. Adamas filed an answer on April 13, 2018 denying the allegations in the Complaint and reserving the ability to raise counterclaims as the litigation progresses. On September 20, 2018, Adamas filed an amended answer to the Company's Complaint for Declaratory Judgment of Noninfringement, with counterclaims alleging infringement of certain patents included in the Company's Complaint and requesting that the court grant Adamas damages, injunctive relief and attorneys' fees.

On April 30, 2019, Osmotica Pharmaceuticals plc was served with a complaint in an action entitled Leo Shumacher, et al., v. Osmotica Pharmaceuticals plc, et al., Superior Court of New Jersey, Somerset County No. SOM-L-000540-19. The complaint names Osmotica Pharmaceuticals plc, certain of its directors and officers and the underwriters of its initial public offering as defendants in a putative class action alleging violations of Sections 11 and 15 of the Securities Act of 1933 related to the disclosures contained in the registration statement and prospectus used for the Company's initial public offering of ordinary shares. The Company disputes the allegations in the complaint and intends to vigorously defend against the action. However, this litigation is still in an early stage and there is no assurance that we will be successful in our defense or that insurance will be available or adequate to fund any settlement or judgment or the litigation costs of the action, which could adversely affect the Company's results of operations and financial condition.

Note 13. Income Taxes

During the three months ended March 31, 2019, the Company recognized an income tax benefit of $1.2 million on $7.4 million of loss before income tax, compared to $1.2 million of income tax benefit on $5.8 million of loss before income tax during the comparable 2018 period.

Income taxes for the interim periods have been based on an estimated annual worldwide effective tax rate. During the three month period ended March 31, 2019, the annualized worldwide effective tax rate was 24% as compared to 23% in the three month period ended March 31, 2018. Income tax (expense) benefit differs from the statutory income tax rate primarily due to the occurrence of orphan drug and research development credits in addition to state and foreign taxes.

The Company assesses the realizability of the deferred tax assets at each balance sheet date based on actual and forecasted operating results in order to determine the proper amount, if any, required for a valuation allowance. As of March 31, 2019, and March 31, 2018, the Company maintained valuation allowances on deferred tax assets applicable to entities in foreign jurisdictions for which separate income tax returns are filed, where realization of the related deferred tax assets from future profitable operations is not reasonably assured.

The Company provides reserves for potential payments of income tax to various tax authorities or does not recognize income tax benefits related to uncertain tax positions and other issues. Tax benefits for uncertain tax positions are based on a determination of whether a tax benefit taken by the Company in its tax filings or positions is more likely than not to be realized, assuming that the matter in question will be decided based on its technical merits. The Company's policy is to record interest and penalties in the provision for income taxes.

During the first quarter of 2018, the Company filed requests to enter into Voluntary Disclosure Agreements ("VDA") with the States of New Jersey and Georgia related to prior and current period sales and use taxes. In July 2018, the Company entered into the VDA with both jurisdictions for immaterial tax liabilities.

Note 14. Related Parties

Prior to our IPO the Company paid quarterly advisory and monitoring fees to certain shareholders. The Company had accrued $0 and $83,818 as a liability, as of March 31, 2019 and December 31, 2018, respectively and had recognized an

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immaterial amount and $250,000 of related expense as of March 31, 2019 and 2018, respectively. Further, the Company leases its Argentina office and warehouse space facilities through a related party lease. The term of the operating lease is through December 31, 2020. For the three months ended March 31, 2019 and 2018, the Company incurred rent expense under this lease of $48,488 and $81,945, respectively.

On August 22, 2018, the Company entered into a Master Service Agreement with United Biosource, LLC or ("UBC"), an Avista Capital Partners portfolio company, for prescription processing and patient access services. In November 2018, the Company and UBC entered into a Statement of Work for services valued at approximately $2.4 million.

In 2016 the Company entered into a two-year consulting agreement with two Vertical/Trigen shareholders. The term of the agreement requires a compensation rate of $20,833 per month and is a component of the selling, general and administrative expenses. This agreement terminated in January 2018.

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

The statements in the discussion and analysis regarding industry outlook, our expectations regarding the performance of our business and the forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described in "Cautionary Note Regarding Forward-Looking Statements." Our actual results may differ materially from those contained in or implied by any forward-looking statements. This discussion and analysis is based upon the historical financial statements of Osmotica Pharmaceuticals plc and Osmotica Holdings S.C.Sp. Prior to the Reorganization (as defined in Note 1, Organization and Nature of Operations, to our consolidated financial statements included in this report), Osmotica Pharmaceuticals plc had no material assets and conducted no operations other than activities incidental to its formation, the Reorganization and our initial public offering. All references to years, unless otherwise noted, refer to our fiscal years, which end on December 31.

Overview

We are a fully integrated biopharmaceutical company focused on the development and commercialization of specialty products that target markets with underserved patient populations. In [the first quarter of] 2018, we generated total revenues across our existing portfolio of promoted specialty neurology and women's health products, as well as our non-promoted products, which are primarily complex formulations of generic drugs. In 2017, we received regulatory approval from the U.S. Food and Drug Administration, or the FDA, for M-72 (methylphenidate hydrochloride extended-release tablets, 72 mg) for the treatment of attention deficit hyperactivity disorder, or ADHD in patients aged 13 to 65, and in 2018, we received regulatory approval from the FDA for Osmolex ER (amantadine extended-release tablets) for the treatment of Parkinson's disease and drug-induced extrapyramidal reactions, which are involuntary muscle movements caused by certain medications, in adults. We launched M-72 in the second quarter of 2018 and completed the launch of Osmolex ER in January 2019. In addition, we have a late-stage development pipeline highlighted by two new drug application or NDAs, candidates in Phase III clinical trials: Ontinua ER (arbaclofen extended-release tablets) for muscle spasticity in multiple sclerosis patients and RVL-1201 (oxymetazoline hydrochloride ophthalmic solution, 0.1%) for the treatment of blepharoptosis, or droopy eyelid. Many of our products use our proprietary osmotic-release drug delivery system, Osmodex, which we believe offers advantages over alternative extended-release, or ER, technologies.

Our core competencies span drug development, manufacturing and commercialization. Our specialized neurology and women's health sales teams support the ongoing commercialization of our existing promoted product portfolio as well as the launch of new products. As of March 31, 2019, we actively promoted six products: Osmolex ER, M-72, Lorzone (chlorzoxazone scored tablets) and ConZip (tramadol hydrochloride extended-release capsules) in specialty neurology; and OB Complete, our family of prescription prenatal dietary supplements, and Divigel (estradiol gel, 0.1%) in women's health. As of March 31, 2019, we sold a portfolio consisting of approximately 37 non-promoted products, which has generated strong cash flow. The cash flow from these non-promoted products has contributed to our investments in research and development and business development activities. Certain of our key products, particularly those that incorporate our proprietary Osmodex drug delivery system, are or are expected to be manufactured in our Marietta, Georgia facility. Many of our existing products benefit from several potential barriers to entry, including intellectual property protection, formulation and manufacturing complexities, data exclusivity, as well as U.S. Drug Enforcement Administration, or DEA, regulation and quotas for API. Our non-promoted products compete in generic markets where barriers to entry are lower than markets in which certain of our promoted products compete. In particular, both methylphenidate ER tablets and venlafaxine ER tablets, or VERT have experienced, and are expected to continue to experience pricing erosion due to additional competition from other generic pharmaceutical companies. It is anticipated that this pricing erosion will result in lower net sales, revenue and profitability in the remainder of 2019 and subsequent years.

We are focused on progressing our pipeline, which is highlighted by two Phase III candidates under clinical development — arbaclofen ER and RVL-1201. We developed arbaclofen ER using our proprietary Osmodex drug delivery system and believe this formulation will provide an efficacious and safe treatment for spasticity in multiple sclerosis patients. We recently received topline data from our second Phase III clinical trial of arbaclofen in multiple sclerosis patients with spasticity. The study was a multicenter, randomized, double-blind placebo controlled study in which treatment groups received either placebo, 40 mg arbaclofen per day or 80 mg arbaclofen per day. The co-primary

endpoints were change from baseline in Total Numeric-transformed Ashworth Scale, or TNmAS, and Clinician Global Impression of Change, or CGIC, on day 84. Arbaclofen did not demonstrate superiority to placebo as measured by the CGIC; however, a statistically significant improvement in spasticity relative to placebo was demonstrated by the TNmAS for both doses of arbaclofen (p=0.0482 and 0.0118) for 40 mg and 80 mg per day, respectively. Upon preliminary review, it appears that CGIC failed to recognize the improvement demonstrated by the TNmAS. However, the CGIC values indicated both treatment groups improved from baseline. Further, it appears that there is a dose-response relationship between the two strengths with the 80 mg exhibiting a stronger signal of efficacy as assessed by the TNmAS scale. Though arbaclofen 80 mg per day had a higher discontinuation rate in the study, the safety and tolerability profile was in line with previously reported results, most notably a somnolence incidence of 9.5% and 14.5% for the 40-mg and 80-mg treatment arms, respectively, compared to 9.6% for the placebo treatment arm. Somnolence is one of the most frequently reported dose-limiting adverse events associated with baclofen treatment today. Based on the efficacy and safety exhibited for arbaclofen, the Company remains encouraged and plans to proceed with its clinical and regulatory strategy to file an NDA. At this time, however, it is unclear whether or not the Company will be required to conduct an additional clinical trial which may delay our submission past 2019. If we are required to conduct any such additional clinical trials, our development costs may increase, our regulatory approval process could be delayed or denied and we may not be able to commercialize and commence sales of arbaclofen ER in the time frame currently contemplated, if at all.

We acquired the rights to RVL-1201 in 2017 and are conducting a second Phase III clinical trial of RVL-1201 for the treatment of blepharoptosis, or droopy eyelid. If approved, RVL-1201 would be the first non-surgical treatment option approved by the FDA for droopy eyelid. We plan to invest selectively in expanding our product portfolio by leveraging both our proprietary Osmodex drug delivery system to develop differentiated products as well as our management team's operating experience to pursue external business development opportunities.

Financial Operations Overview

Segment Information

We currently operate in one business segment focused on the development and commercialization of pharmaceutical products that target markets with underserved patient populations. We are not organized by market and are managed and operated as one business. We also do not operate any separate lines of business or separate business entities with respect to our products. A single management team reports to our chief operating decision maker who comprehensively manages our entire business. Accordingly, we do not accumulate discrete financial information with respect to separate service lines and do not have separately reportable segments. See Note 2, *Basis of Presentation and Summary of Significant Accounting Policies* to our consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Components of Results of Operations

Revenues

Our revenues consist of product sales, royalty revenues and licensing and contract revenue.

Net product sales—Our revenues consist primarily of product sales of our promoted products, principally M-72, Lorzone, Divigel and the OB Complete family of prescription prenatal dietary supplements, and our non-promoted products, principally methylphenidate ER and VERT. We ship product to a customer pursuant to a purchase order, which in certain cases is pursuant to a master agreement with that customer, and we invoice the customer upon shipment. For these sales we recognize revenue when control has transferred to the customer, which is typically on delivery to the customer. The amount of revenue we recognize is equal to the selling price, adjusted for any variable consideration, which includes estimated chargebacks, commercial rebates, discounts and allowances at the time revenues are recognized.

Royalty revenue—For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes

revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all the royalty has been allocated has been satisfied (or partially satisfied).

Licensing and contract revenue—The Company has arrangements with commercial partners that allow for the purchase of product from the Company by the commercial partners for the purpose of sub-distribution. Licensing revenue is recognized when the performance obligation identified in the arrangement is completed. Variable considerations, such as returns on product sales, government program rebates, price adjustments and prompt pay discounts associated with licensing revenue, are generally the responsibility of our commercial partners.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of personnel expenses, including salaries and benefits for employees in executive, finance, accounting, business development, legal and human resource functions. General and administrative expenses also include corporate facility costs, including rent, utilities, legal fees related to corporate matters, share based compensation and fees for accounting and other consulting services. We expect to incur additional general and administrative expenses as a public company, including costs associated with the preparation of our SEC filings, increased legal and accounting costs, investor relations costs and, incremental director and officer liability insurance costs, as well as costs related to compliance with the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Research and Development

Costs for research and development are charged as incurred and include employee-related expenses (including salaries and benefits, share based compensation, travel and expenses incurred under agreements with contract research organizations, or CROs, contract manufacturing organizations and service providers that assist in conducting clinical and preclinical studies), costs associated with preclinical activities and development activities and costs associated with regulatory operations.

Costs for certain development activities, such as clinical studies, are recognized based on an evaluation of the progress to completion of specific tasks using data such as patient enrollment, clinical site activations or information provided to us by our vendors on their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the patterns of costs incurred, and are reflected in our condensed consolidated financial statements as prepaid expenses or accrued expenses as applicable.

Results of Operations

Comparison of Three Months Ended March 31, 2019 and 2018

Financial Operations Overview

The following table presents revenues and expenses for the three months ended March 31, 2019 and 2018 (dollars in thousands):

	Three Months Ended March 31,		
	2019	2018	% Change
Net product sales	$ 56,400	$ 58,834	(4)%
Royalty revenue	721	963	(25)%
Licensing and contract revenue	5	4	25 %
Total Revenue	57,126	59,801	(4)%
Cost of goods sold (inclusive of amortization of intangibles)	29,203	33,562	(13)%
Gross profit	27,923	26,239	6 %
Gross profit percentage	50 %	45 %	
Selling, general and administrative expenses	21,657	17,162	26 %
Research and development expenses	9,764	10,174	(4)%
Total operating expenses	31,420	27,336	15 %
Interest expense and amortization of debt discount	4,501	4,843	(7)%
Other non-operating (income) expenses, net	(557)	(137)	307 %
Total other non-operating expenses, net	3,944	4,706	(16)%
Loss before income taxes	(7,441)	(5,802)	28 %
Income tax benefit	1,240	1,195	4 %
Net loss	$ (6,201)	$ (4,608)	35 %

Revenue

The following table presents total revenues for the three months ended March 31, 2019 and 2018 (dollars in thousands):

	Three Months Ended March 31,		
	2019	2018	% Change
Venlafaxine ER (VERT)	$ 21,607	$ 14,822	46 %
Methylphenidate ER	20,789	28,179	(26)%
Lorzone	4,269	4,240	1 %
Divigel	5,497	4,950	11 %
OB Complete	1,931	2,351	(18)%
Other	2,307	4,292	(46)%
Net product sales	56,400	58,834	(4)%
Royalty revenue	721	963	(25)%
Licensing and contract revenue	5	4	25 %
Total revenues	$ 57,126	$ 59,801	(4)%

Total Revenues - Total revenues decreased by $2.7 million to $57.1 million for the three months ended March 31, 2019, as compared to $59.8 million for the three months ended March 31, 2018 primarily due to a decrease in net product sales.

Net Product Sales - Net product sales decreased by $2.4 million to $56.4 million for the three months ended March 31, 2019, as compared to $58.8 million for the three months ended March 31, 2018. Net sales of VERT increased 46% during the quarter reflecting higher net selling prices due to lower than estimated product returns as well as government rebates, partially offset by lower volumes. Net sales of methylphenidate ER (including M-72 which was launched in the second quarter of 2018) decreased 26% during the quarter due to additional competitors entering the market, resulting in lower net selling prices, partially offset by higher volumes. We expect that the additional competition for both

methylphenidate ER and VERT from these competitors, as well as, additional generic product approvals and launches in the future, if any, will continue to significantly affect our sales of these products during the remainder of 2019 and in future years.

Product sales of Lorzone were relatively flat for the three months ended March 31, 2019 compared to the prior year period, while sales of Divigel increased approximately 11% driven primarily by targeted promotional activities and strong patient access. Product sales of OB Complete decreased 18% during the quarter due to [lower realized net pricing]. Other non-promoted product sales decreased $2.0 million, or 46%, in the quarter primarily due to lower sales of a generic version of injectable ammunol.

Royalty Revenue - Royalty revenue decreased by $0.2 million for the three months ended March 31, 2019, compared to the prior year period, primarily due to lower licensed product sales by third parties.

Cost of Goods Sold and Gross Profit Percentage

The following table presents a breakdown of total cost of goods sold for the three months ended March 31, 2019 and 2018 (dollars in thousands):

	Three Months Ended March 31,		
	2019	2018	% Change
Amortization of intangible assets	$ 16,868	$ 19,228	(12)%
Depreciation expense	632	607	4 %
Royalty expense	1,827	3,339	(45)%
Other cost of goods sold	9,876	10,388	(5)%
Total cost of goods sold	$ 29,203	$ 33,562	(13)%

Cost of goods sold decreased $4.5 million in the three months ended March 31, 2019 to $29.2 million as compared to $33.6 million for the three months ended March 31, 2018. The decrease was primarily driven by a $2.4 million decrease in amortization of intangible assets largely due to lower amortization of methylphenidate ER, lower royalty expenses and lower product sales volumes during the quarter.

Gross profit percentage increased to 50% for the three months ended March 31, 2019 compared to 45% in the same period in 2018. Excluding amortization and depreciation, our gross profit percentage increased to 80% for the three months ended March 31, 2019 as compared with 77% for the three months ended March 31, 2018, largely driven by lower royalties on licensed products and product mix.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased $4.2 million during the three months ended March 31, 2019 to $21.4 million as compared to $17.2 million in the three months ended March 31, 2018. The increase in our selling, general and administrative expenses reflects additions to salesforce headcount and marketing costs associated with the launch Osmolex ER, together with share compensation expense and higher costs associated with being a public company.

Research and Development

Research and development expenses decreased by $0.4 million in the three months ended March 31, 2019 to $9.8 million as compared to $10.2 million in the three months ended March 31, 2018. The decrease reflects the completion of the Phase III clinical trial of arbaclofen ER during the quarter, partially offset by higher clinical trial costs related to RVL-1201, developmental batch expenses and share compensation expense.

The following table summarizes our research and development expenses incurred for the periods indicated (dollars in thousands):

	Three Months Ended March 31,		
	2019	2018	% Change
Osmolex ER	$ 323	$ 98	230 %
Arbaclofen ER	4,069	4,588	(11)%
RVL 1201	1,377	917	50 %
Other	3,995	4,571	(13)%
Total	$ 9,764	$ 10,174	(4)%

Interest Expense and Amortization of Debt Discount

Interest expense and amortization of debt discount decreased by $0.3 million in the three months ended March 31, 2019 to $4.5 million as compared to $4.8 million in the three months ended March 31, 2018. The decrease in borrowing costs reflects lower levels of borrowing following the prepayment of $50.0 million of debt in the fourth quarter of 2018.

Other Non-operating (Income) Expenses, net

Other non-operating (income) expense was $0.6 million and $0.1 million for the three months ended March 31, 2019 and 2018, respectively.

Income Tax Expense

During the three months ended March 31, 2019, the Company recognized income tax benefit of $1.2 million on $7.4 million of loss before income tax, compared to $1.2 million of income tax benefit on $5.8 million of loss before income tax during the comparable 2018 period.

Income taxes for the interim periods have been based on an estimated annualized worldwide effective tax rate. During the three month period ended March 31, 2019, the annualized worldwide effective tax rate was 24% as compared to 23% in the three month period ended March 31, 2018. Income tax (expense) benefit differs from the statutory income tax rate primarily due to the occurrence of orphan drug and research development credits in addition to state and foreign taxes.

The income tax expense was based on the applicable federal, state and foreign tax rates for those periods. For periods with income before provision for income taxes, favorable tax items result in a decrease in the effective tax rate, while unfavorable tax items result in an increase in the effective tax rate. For periods with a loss before benefit from income taxes, favorable tax items result in an increase in the effective tax rate, while unfavorable tax items result in a decrease in the effective tax rate.

Liquidity and Capital Resources

Our principal sources of liquidity are cash generated from operations and amounts available to be drawn under our Revolving Credit Facility, or Revolver. Our primary uses of cash are to fund operating expenses, product development costs, capital expenditures, debt service payments, as well as strategic business and product acquisitions.

As of March 31, 2019, we had cash and cash equivalents of $63.1 million and borrowing availability under the Revolver of $50.0 million. We also had $271.4 million aggregate principal amount borrowed under our term loans and $0.8 million under our note payable for insurance financing. During the three months ended March 31, 2019 we used $5.9 million of cash from operations, and during the three months ended March 31, 2018, we generated cash flows from operations of $7.1 million. We expect to generate positive cash flow from operations in the future through sales of our existing products; however, we expect our levels of cash flow generated to be lower due to price competition on methylphenidate ER and VERT.

As of March 31, 2019, the interest rate was 5.75% and 6.75% for our Term A Loan and Term B Loan, respectively. As of March 31, 2018, the interest rate was 5.63% and 6.13% for our Term A Loan and Term B Loan, respectively.

At March 31, 2019, there were no outstanding borrowings or outstanding letters of credit under the Revolver. Availability under the Revolver as of March 31, 2019 was $50.0 million.

On October 22, 2018, we completed our IPO, in which we issued and allotted 7,647,500 ordinary shares at a public offering price of $7.00 per share. The number of shares issued in the IPO reflected the exercise in full of the underwriters' option to purchase 997,500 additional ordinary shares. In addition, we issued and allotted 2,014,285 ordinary shares at the public offering price in a private placement to certain existing shareholders. The aggregate net proceeds of the IPO and the private placement were approximately $58.1 million after deducting underwriting discounts and commissions and offering expenses. Shortly after the IPO, we prepaid $50 million of our Term A loan and Term B loan.

We believe that our existing cash balances, cash we expect to generate from operations from our existing product portfolio, our near-term product launches and our product pipeline, as well as funds available under the Revolver, will be sufficient to fund our operations and to meet our existing obligations for at least the next 12 months.

The adequacy of our cash resources depends on many assumptions, including primarily our assumptions with respect to product sales and expenses, as well as other factors, such as successful development and launching of new products and strategic product or business acquisitions. Our assumptions may prove to be wrong or other factors may adversely affect our business, and as a result we could exhaust or significantly decrease our available cash resources, and we may not be able to generate sufficient cash to service our debt obligations which could, among other things, force us to raise additional funds or force us to reduce our expenses, either of which could have a material adverse effect on our business.

To continue to grow our business over the longer term, we plan to commit substantial resources to internal product development, clinical trials of product candidates, expansion of our commercial, manufacturing and other operations and product acquisitions and in-licensing. We have evaluated and expect to continue to evaluate a wide array of strategic transactions as part of our plan to acquire or in-license and develop additional products and product candidates to augment our internal development pipeline. Strategic transaction opportunities that we pursue could materially affect our liquidity and capital resources and may require us to incur additional indebtedness, seek equity capital or both. In addition, we may pursue development, acquisition or in-licensing of approved or development products in new or existing therapeutic areas or continue the expansion of our existing operations. Accordingly, we expect to continue to opportunistically seek access to additional capital to license or acquire additional products, product candidates or companies to expand our operations, or for general corporate purposes. Strategic transactions may require us to raise additional capital through one or more public or private debt or equity financings or could be structured as a collaboration or partnering arrangement. Any equity financing would be dilutive to our shareholders, and the consent of the lenders under our senior secured credit facilities could be required for certain financings.

Cash Flows

The following table provides information regarding our cash flows for the periods indicated (in thousands):

	Three Months Ended March 31,		
	2019	2018	Change
Net cash (used in) provided by operating activities	$ (6,128)	$ 7,102	$ (13,230)
Net cash used in investing activities	(635)	(1,437)	802
Net cash used in financing activities	(1,010)	(2,076)	1,066
Effect on cash of changes in exchange rate	—	(138)	138
Net (decrease) increase in cash and cash equivalents	$ (7,773)	$ 3,451	$ (11,224)

Net cash provided by (used in) operating activities

Cash flows from operating activities are primarily driven by earnings from operations (excluding the impact of non-cash items), the timing of cash receipts and disbursements related to accounts receivable and accounts payable and the timing of inventory transactions and changes in other working capital amounts. Net cash used by operating activities was $5.9 million for the three months ended March 31, 2019, and net cash provided by operating activities was $7.1 million for the three months ended March 31, 2018.

The decrease in cash provided by operating activities for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018, was due to changes in working capital, primarily as a result of lower levels of accounts payable and accrued expenses, and higher levels of inventories related to methylphenidate ER and VERT, offset by lower levels of prepaid assets.

Net cash used in investing activities

Our uses of cash in investing activities during the three months ended March 31, 2019 and 2018 reflected purchases of property, plant and equipment and were $0.6 million and $1.4 million, respectively. Purchases of property, plant and equipment in the three months ended March 31, 2018 included the costs of completion of the expansion construction project for our Marietta, Georgia manufacturing facility, and the purchase of other property, plant and equipment, which costs did not reoccur during the first quarter of 2019.

Net cash used in financing activities

Net cash used by financing activities of $1.0 million during the three months ended March 31, 2019 primarily related to repayments of insurance financing loans and leases of real property and office equipment.

Net cash used in financing activities of $2.1 million during the three months ended March 31, 2018 primarily related to debt repayments of borrowings under our term loans.

Contractual Obligations

There have been no material changes outside the ordinary course of our business in our contractual obligations during the three months ended March 31, 2019 from those as of December 31, 2018 as set forth in our filed Annual Report on Form 10-K.

Critical Accounting Estimates

The significant accounting policies and bases of presentation are described in Note 2, Basis of Presentation and *Summary of Significant Accounting Policies* to our condensed consolidated financial statements included elsewhere in this report.

Summary of Significant Accounting Policies. The preparation of our condensed consolidated financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, and expenses and the related disclosures in the notes thereto. Some of these estimates can be subjective and complex. Although we believe that our estimates and assumptions are reasonable, there may be other reasonable estimates or assumptions that differ significantly from ours. Further, our estimates and assumptions are based upon information available at the time they were made. Actual results could differ from those estimates.

In order to understand our condensed consolidated financial statements, it is important to understand our critical accounting estimates. We consider an accounting estimate to be critical if: (i) the accounting estimate requires us to make assumptions about matters that were highly uncertain at the time the accounting estimate was made and (ii) changes in the estimate that are reasonably likely to occur from period to period, or use of different estimates that we

reasonably could have used in the current period, would have a material impact on our financial condition, results of operations or cash flows. We believe the following accounting policies and estimates to be critical:

Revenue Recognition

Product Sales—Revenue is recognized at the point in time when our performance obligations with our customers have been satisfied. At contract inception, we determine if the contract is within the scope of ASC Topic 606 and then evaluates the contract using the following five steps: (1) identify the contract with the customer; (2) identify the performance obligations; (3) determine the transaction price; (4) allocate the transaction price to the performance obligations; and (5) recognize revenue at the point in time when the entity satisfies a performance obligation.

Revenue is recorded at the transaction price, which is the amount of consideration we expect to receive in exchange for transferring products to a customer. We considered the unit of account for each purchase order that contains more than one product. Because all products in a given purchase order are generally delivered at the same time and the method of revenue recognition is the same for each, there is no need to separate an individual order into separate performance obligations. In the event that we fulfilled an order only partially because a requested item is on backorder, the portion of the purchase order covering the item is generally cancelled, and the customer has the option to submit a new one for the backordered item. We determine the transaction price based on fixed consideration in our contractual agreements, which includes estimates of variable consideration, and the transaction price is allocated entirely to the performance obligation to provide pharmaceutical products. In determining the transaction price, a significant financing component does not exist since the timing from when we deliver product to when the customers pay for the product is less than one year and the customers do not pay for product in advance of the transfer of the product.

We record product sales net of any variable consideration, which includes estimated chargebacks, commercial rebates, discounts and allowances and doubtful accounts. We utilize the expected value method to estimate all elements of variable consideration included in the transaction. The variable consideration is recorded as a reduction of revenue at the time revenues are recognized. We will only recognize revenue to the extent that it is probable that a significant revenue reversal will not occur in a future period. These estimates may differ from actual consideration amount received and we will re-assess these estimates each reporting period to reflect known changes in factors.

Royalty Revenue—For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, we recognize revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all the royalty has been allocated has been satisfied (or partially satisfied).

Licensing and Contract Revenue— We have arrangements with commercial partners that allow for the purchase of product from us by the commercial partner for purposes of sub-distribution. We recognize revenue from an arrangement when control of such product is transferred to the commercial partner, which is typically upon delivery. In these situations the performance obligation is satisfied when product is delivered to our commercial partner. Licensing revenue is recognized in the period in which the product subject to the sublicensing arrangement is sold. Sales deductions, such as returns on product sales, government program rebates, price adjustments, and prompt pay discounts in regard to licensing revenue is generally the responsibility of our commercial partners and not recorded by us.

Freight—We record amounts billed to customers for shipping and handling as revenue, and record shipping and handling expenses related to product sales as cost of goods sold. We account for shipping and handling activities related to contracts with customers as costs to fulfill the promise to transfer the associated products. When shipping and handling costs are incurred after a customer obtains control of the products, we also have elected to account for these as costs to fulfill the promise and not as a separate performance obligation.

Sales Deductions

Product sales are recorded net of estimated chargebacks, commercial and governmental rebates, discounts, allowances, copay discounts, advertising and promotions and estimated product returns, or collectively, “sales deductions.”

Provision for estimated chargebacks, commercial rebates, discounts and allowances and doubtful accounts settled in sales credits at the time of sales are analyzed and adjusted, if necessary, monthly and recorded against gross trade accounts receivable. Estimated product returns, commercial and governmental rebates and customer coupons settled in cash are analyzed and adjusted, if necessary, monthly and recorded as a component of accrued expenses.

Calculating certain of these items involves estimates and judgments based on sales or invoice data, contractual terms, historical utilization rates, new information regarding changes in applicable regulations and guidelines that would impact the amount of the actual rebates, our expectations regarding future utilization rates and estimated customer inventory levels. Amounts accrued for sales deductions are adjusted when trends or significant events indicate that adjustment is appropriate and to reflect actual experience. The most significant items deducted from gross product sales where we exercise judgment are chargebacks, commercial and governmental rebates, product returns, discounts and allowances and advertising and promotions.

Where available, we have relied on information received from our wholesaler customers about the quantities of inventory held, including the information received pursuant to days of sales outstanding, which we have not independently verified. For other customers, we have estimated inventory held based on buying patterns. In addition, we have evaluated market conditions for products primarily through the analysis of wholesaler and other third party sell-through, as well as internally-generated information, to assess factors that could impact expected product demand at March 31, 2019. We believe that the estimated level of inventory held by our customers is within a reasonable range as compared to both: (i) historical amounts and (ii) expected demand for each respective product at March 31, 2019.

If the assumptions we use to calculate our allowances for sales deductions do not appropriately reflect future activity, our financial position, results of operations and cash flows could be materially impacted.

The following table presents the activity and ending balances for our product sales provisions for the three months ended March 31, 2019 (in thousands):

	Chargebacks	Commercial Rebates	Government and Commercial Rebates	Product Returns	Discounts and Allowances	Total
Balance at December 31, 2018	$ 38,861	$ 49,231	$ 9,981	$ 48,464	$ 3,511	$ 150,048
Provision	101,233	64,598	2,523	1,026	4,701	174,081
Charges processed	(113,503)	(66,524)	(4,785)	(3,782)	(4,328)	(192,922)
Balance March 31, 2019	$ 26,591	$ 47,305	$ 7,719	$ 45,708	$ 3,884	$ 131,207

Total items deducted from gross product sales were $174.1 million (excluding $1.0 million in provisions for advertising and promotion), or 75.2% as a percentage of gross product sales during the three months ended March 31, 2019.

Chargebacks—We enter into contractual agreements with certain third parties such as retailers, hospitals and group-purchasing organizations, or GPOs, to sell certain products at predetermined prices. Most of the parties have elected to have these contracts administered through wholesalers that buy the product from us and subsequently sell it to these third parties. When a wholesaler sells products to one of these third parties that are subject to a contractual price agreement, the difference between the price paid to us by the wholesaler and the price under the specific contract is charged back to us by the wholesaler. Utilizing this information, we estimate a chargeback percentage for each product and record an allowance for chargebacks as a reduction to gross sales when we record our sale of the products. We reduce the chargeback allowance when a chargeback request from a wholesaler is processed. Our provision for chargebacks is fully reserved for at the time when sales revenues are recognized.

We obtain product inventory reports from major wholesalers to aid in analyzing the reasonableness of the chargeback allowance and to monitor whether wholesaler inventory levels do not significantly exceed customer demand. We assess the reasonableness of our chargeback allowance by applying a product chargeback percentage that is based on a combination of historical activity and current price and mix expectations to the quantities of inventory on hand at the wholesalers according to wholesaler inventory reports. In addition, we estimate the percentage of gross sales that were generated through direct and indirect sales channels and the percentage of contract compared to non-contract revenue in

the period, as these each affect the estimated reserve calculation. In accordance with our accounting policy, we estimate the percentage amount of wholesaler inventory that will ultimately be sold to third parties that are subject to contractual price agreements based on a trend of such sales through wholesalers. We use this percentage estimate until historical trends indicate that a revision should be made. On an ongoing basis, we evaluate our actual chargeback rate experience, and new trends are factored into our estimates each quarter as market conditions change.

Events that could materially alter chargebacks include: changes in product pricing as a result of competitive market dynamics or negotiations with customers changes in demand for specific products due to external factors such as competitor supply position or consumer preferences, and customer shifts in buying patterns from direct to indirect through wholesalers, which could either individually or in aggregate increase or decrease the chargebacks depending on the direction and trend of the change(s).

Chargebacks were $101.2 million, or 43.7% as a percentage of gross product sales for the three months ended March 31, 2019. We expect that chargebacks will continue to significantly impact our reported net product sales.

Commercial Rebates—We maintain an allowance for commercial rebates that we have in place with certain customers. Commercial rebates vary by product and by volume purchased by each eligible customer. We track sales by product number for each eligible customer and then apply the applicable commercial rebate percentage, using both historical trends and actual experience to estimate our commercial rebates. We reduce gross sales and increase the commercial rebates allowance by the estimated rebate amount when we sell our products to eligible customers. We reduce the commercial rebate allowance when we process a customer request for a rebate. At each month end, we analyze the allowance for commercial rebates against actual rebates processed and make necessary adjustments as appropriate. Our provision for commercial rebates is fully reserved for at the time sales revenues are recognized.

The allowance for commercial rebates takes into consideration price adjustments which are credits issued to reflect increases or decreases in the invoice or contract prices of our products. In the case of a price decrease, a shelf-stock adjustment credit is given for product remaining in customer's inventories at the time of the price reduction. Contractual price protection results in a similar credit when the invoice or contract prices of our products increase, effectively allowing customers to purchase products at previous prices for a specified period of time. Amounts recorded for estimated shelf-stock adjustments and price protections are based upon specified terms with direct customers, estimated changes in market prices, and estimates of inventory held by customers. We regularly monitor these and other factors and evaluate the reserve as additional information becomes available.

We ensure that commercial rebates are reasonable through review of contractual obligations, review of historical trends and evaluation of recent activity. Furthermore, other events that could materially alter commercial rebates include: changes in product pricing as a result of competitive market dynamics or negotiations with customers changes in demand for specific products due to external factors, such as competitor supply position or consumer preferences, and customer shifts in buying patterns from direct to indirect through wholesalers, which could either individually or in aggregate increase or decrease the commercial rebates depending on the direction and velocity of the change(s).

Commercial rebates were $64.6 million, or 27.9% as a percentage of gross product sales for the three months ended March 31, 2019. We expect that commercial rebates will continue to significantly impact our reported net sales.

Government Program Rebates—Federal law requires that a pharmaceutical distributor, as a condition of having federal funds being made available to the states for the manufacturer's drugs under Medicaid and Medicare Part B, must enter into a rebate agreement to pay rebates to state Medicaid programs for the distributor's covered outpatient drugs that are dispensed to Medicaid beneficiaries and paid for by a state Medicaid program under a fee-for-service arrangement. CMS is responsible for administering the Medicaid rebate agreements between the federal government and pharmaceutical manufacturers. Rebates are also due on the utilization of Medicaid managed care organizations, or MMCOs. We also pay rebates to MCOs for the reimbursement of a portion of the sales price of prescriptions filled that are covered by the respective plans. The liability for Medicaid, Medicare and other government program rebates is settled in cash and is estimated based on historical and current rebate redemption and utilization rates contractually submitted by each state's program administrator and assumptions regarding future government program utilization for each product sold, and accordingly recorded as a reduction of product sales. Medicaid rebates are typically billed up to 180 days after the

product is shipped, but can be as much as 270 days after the quarter in which the product is dispensed to the Medicaid participant. In addition to the estimates mentioned above, our calculation also requires other estimates, such as estimates of sales mix, to determine which sales are subject to rebates and the amount of such rebates. Periodically, we adjust the Medicaid rebate provision based on actual claims paid. Due to the delay in billing, adjustments to actual claims paid may incorporate revisions of this provision for several periods. Because Medicaid pricing programs involve particularly difficult interpretations of complex statutes and regulatory guidance, our estimates could differ from actual experience.

Government program rebates were $2.5 million, or 1.1% as a percentage of gross product sales for the three months ended March 31, 2019.

Product Returns—Certain of our products are sold with the customer having the right to return the product within specified periods. Estimated return accruals are made at the time of sale based upon historical experience. Our return policy generally allows customers to receive credit for expired products within three months prior to expiration and within one year after expiration. Our provision for returns consists of our estimates for future product returns.

Historical factors such as one-time recall events as well as pending new developments such as comparable product approvals or significant pricing movement that may impact the expected level of returns are taken into account monthly to determine the appropriate accrued expense. As part of the evaluation of the liability required, we consider actual returns to date that are in process, the expected impact of any product recalls and the amount of wholesaler's inventory to assess the magnitude of unconsumed product that may result in product returns to us in the future. The product returns level can be impacted by factors such as overall market demand and market competition and availability for substitute products which can increase or decrease the pull through for sales of our products and ultimately impact the level of product returns. In determining our estimates for returns and allowances, we are required to make certain assumptions regarding the timing of the introduction of new products. In addition, we make certain assumptions with respect to the extent and pattern of decline associated with generic competition. To make these assessments, we utilize market data for similar products as analogs for our estimations. We use our best judgment to formulate these assumptions based on past experience and information available to us at the time. We continually reassess and make the appropriate changes to our estimates and assumptions as new information becomes available to us. Product returns are fully reserved for at the time when sales revenues are recognized.

Our estimate for returns may be impacted by a number of factors, but the principal factor relates to the level of inventory in the distribution channel. When we are aware of an increase in the level of inventory of our products in the distribution channel, we consider the reasons for the increase to determine whether we believe the increase is temporary or other-than-temporary. Increases in inventory levels assessed as temporary will not result in an adjustment to our provision for returns. Some of the factors that may be an indication that an increase in inventory levels will be temporary include:

- recently implemented or announced price increases for our products; and
- new product launches or expanded indications for our existing products.

Conversely, other-than-temporary increases in inventory levels may be an indication that future product returns could be higher than originally anticipated and, accordingly, we may need to adjust our provision for returns. Some of the factors that may be an indication that an increase in inventory levels will be other-than-temporary include:

- declining sales trends based on prescription demand;
- recent regulatory approvals to shorten the shelf life of our products, which could result in a period of higher returns;
- slow moving or obsolete product still in the distribution channel;
- introduction of new product(s) or generic competition;

- increasing price competition from generic competitors; and
- changes to the National Drug Codes, or NDCs, of our products, which could result in a period of higher returns related to product with the old NDC, as our customers generally permit only one NDC per product for identification and tracking within their inventory systems.

We ensure that product returns are reasonable through inspection of historical trends and evaluation of recent activity. Furthermore, other events that could materially alter product returns include: acquisitions and integration activities that consolidate dissimilar contract terms and could impact the return rate as typically we purchase smaller entities with less contracting power and integrate those product sales to our contracts; and consumer demand shifts by products, which could either increase or decrease the product returns depending on the product or products specifically demanded and ultimately returned.

Product returns were $1.0 million, or 0.4% as a percentage of gross product sales for the three months ended March 31, 2019.

Promotions and Co-Pay Discount Cards—From time to time we authorize various retailers to run in-store promotional sales of our products. We accrue an estimate of the dollar amount expected to be owed back to the retailer. Additionally, we provide consumer co-pay discount cards, administered through outside agents to provide discounted products when redeemed. Upon release of the cards into the market, we record an estimate of the dollar value of co-pay discounts expected to be utilized taking into consideration historical experience.

Advertising and promotions were $1.1 million, or 0.5% as a percentage of gross product sales for the three months ended March 31, 2019. Advertising and promotions as a percentage of gross product sales did not change materially in during the periods presented.

Discounts and allowances were $4.7 million, or 2.0% as a percentage of gross product sales for the three months ended March 31, 2019. Discounts and allowances as a percentage of gross product sales did not change materially during the periods presented.

Valuation of long-lived assets

As of March 31, 2019, our combined long-lived assets balance, including property, plant and equipment and finite-lived intangible assets, is $440.3 million.

Long-lived assets, other than goodwill and other indefinite-lived intangibles, are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable through the estimated undiscounted future cash flows derived from such assets. Factors that we consider in deciding when to perform an impairment review include significant changes in our forecasted projections for the asset or asset group for reasons including, but not limited to, significant under-performance of a product in relation to expectations, significant changes or planned changes in our use of the assets, significant negative industry or economic trends, and new or competing products that enter the marketplace. The impairment test is based on a comparison of the undiscounted cash flows expected to be generated from the use of the asset group.

Our long-lived intangible assets, which consist of distribution rights, product rights, tradenames and developed technology, are initially recorded at fair value upon acquisition. To the extent they are deemed to have finite lives, they are then amortized over their estimated useful lives using either the straight-line method or based on the expected pattern of cash flows. Factors giving rise to our initial estimate of useful lives are subject to change. Significant changes to any of these factors may result in a reduction in the useful life of the asset and an acceleration of related amortization expense, which could cause our operating income, net income and net income per share to decrease.

Recoverability of an asset that will continue to be used in our operations is measured by comparing the carrying amount of the asset to the forecasted undiscounted future cash flows related to the asset. In the event the carrying amount of the asset exceeds its undiscounted future cash flows and the carrying amount is not considered recoverable, impairment may

exist. If impairment is indicated, the asset is written down by the amount by which the carrying value of the asset exceeds the related fair value of the asset with the related impairment charge recognized within the statements of operations.

Goodwill and indefinite-lived intangible assets

Goodwill and indefinite-lived intangible assets are assessed for impairment on an annual basis as of October 1st of each year or more frequently if events or changes in circumstances indicate that the asset might be impaired.

Goodwill Impairment Assessment—We are organized in one reporting unit and evaluate goodwill for our company as a whole. Under the authoritative guidance issued by the Financial Accounting Standards Board, or FASB, we have the option to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform a quantitative goodwill impairment test. If we determine that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then the goodwill impairment test is performed. We perform our goodwill impairment tests by comparing the fair value and carrying amount of our reporting unit. Any goodwill impairment charges we recognize for our reporting unit are equal to the lesser of (i) the total goodwill allocated to that reporting unit and (ii) the amount by which that reporting unit's carrying amount exceeds its fair value.

The goodwill impairment test requires us to estimate the fair value of the reporting unit and to compare the fair value of the reporting unit with its carrying amount. If the carrying value exceeds its fair value, an impairment charge is recorded for the difference. If the carrying value recorded is less than the fair value calculated then no impairment loss is recognized. The fair value of our reporting unit is determined using an income approach that utilizes a discounted cash flow model or, where appropriate, the market approach, or a combination thereof. The discounted cash flow models are dependent upon our estimates of future cash flows and other factors. Our estimates of future cash flows are based on a comprehensive product by product forecast over a five-year period and involve assumptions concerning (i) future operating performance, including future sales, long-term growth rates, operating margins, variations in the amounts, allocation and timing of cash flows and the probability of achieving the estimated cash flows and (ii) future economic conditions, all which may differ from actual future cash flows.

Assumptions related to future operating performance are based on management's annual and ongoing budgeting, forecasting and planning processes and represent our best estimate of the future results of our operations as of a point in time. These estimates are subject to many assumptions, such as the economic environments in which we operate, demand for the products and competitor actions. Estimated future cash flows are discounted to present value using a market participant, weighted average cost of capital. The financial and credit market volatility directly impacts certain inputs and assumptions used to develop the weighted average cost of capital such as the risk-free interest rate, industry beta, debt interest rate and our market capital structure. These assumptions are based on significant inputs not observable in the market and thus represent Level 3 measurements within the fair value hierarchy. The use of different inputs and assumptions could increase or decrease our estimated discounted future cash flows, the resulting estimated fair values and the amounts of related goodwill impairments, if any.

IPR&D Intangible Asset Impairment Assessment—IPR&D, which are indefinite-lived intangible assets representing the value assigned to acquired Research and Development, or R&D, projects that principally represent rights to develop and sell a product that we have acquired which has not yet been completed or approved. These assets are subject to impairment testing until completion or abandonment of each project. The fair value of our indefinite-lived intangible assets is determined using an income approach that utilizes a discounted cash flow model and requires the development of significant estimates and assumptions involving the determination of estimated net cash flows for each year for each project or product (including net revenues, cost of sales, R&D costs, selling and marketing costs and other costs which may be allocated), the appropriate discount rate to select in order to measure the risk inherent in each future cash flow stream, the assessment of each asset's life cycle, the potential regulatory and commercial success risks, and competitive trends impacting each asset and related cash flow stream as well as other factors. The major risks and uncertainties associated with the timely and successful completion of the IPR&D projects include legal risk, market risk and regulatory risk. If applicable, upon abandonment of the IPR&D product, the assets are reduced to zero. Upon approval of the products in development for sale and placement into service, the associated IPR&D intangible assets are transferred

to Product Rights amortizing intangible assets. The useful life of an amortizing asset generally is determined by identifying the period in which substantially all of the cash flows are expected to be generated.

If the fair value of the IPR&D is less than its carrying amount, an impairment loss is recognized for the difference. Based on results of the impairment assessment performed, we did not recognize impairment charges to IPR&D as of March 31, 2018. Beginning in 2018, we have been evaluating the impairment of IPR&D assets quarterly. Based on the results of this evaluation we did not recognized impairment charges as of March 31, 2019.

Income Taxes

Income taxes are recorded under the asset and liability method of accounting. Under this method, deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled.

Deferred income tax assets are reduced, as is necessary, by a valuation allowance when we determine it is more-likely-than-not that some or all of the tax benefits will not be realizable in the future. Realization of the deferred tax assets is dependent on a variety of factors, some of which are subjective in nature, including the generation of future taxable income, the amount and timing of which are uncertain. In evaluating the ability to recover the deferred tax assets, we consider all available positive and negative evidence, including cumulative income in recent fiscal years, the forecast of future taxable income exclusive of certain reversing temporary differences and significant risks and uncertainties related to our business. In determining future taxable income, management is responsible for assumptions utilized including, but not limited to, the amount of U.S. federal, state and international pre-tax operating income, the reversal of certain temporary differences, carryforward periods available to us for tax reporting purposes, the implementation of feasible and prudent tax planning strategies and other relevant factors. These assumptions require significant judgment about the forecasts of future taxable income and are consistent with the plans and estimates that we are using to manage the underlying business. We assess the need for a valuation allowance each reporting period, and would record any material changes that may result from such assessment to income tax expense in that period.

We account for uncertain tax positions in accordance with ASC 740-10, *Accounting for Uncertainty in Income Taxes.* We assess all material positions taken in any income tax return, including all significant uncertain positions, in all tax years that are still subject to assessment or challenge by relevant taxing authorities. Assessing an uncertain tax position begins with the initial determination of the position's sustainability and is measured at the largest amount of benefit that has a greater than fifty percent likelihood of being realized upon ultimate resolution. The evaluation of unrecognized tax benefits is based on factors that include, but are not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. We evaluate unrecognized tax benefits and adjust the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions. The liabilities for unrecognized tax benefits can be relieved only if the contingency becomes legally extinguished through either payment to the taxing authority or the expiration of the statute of limitations, the recognition of the benefits associated with the position meet the more-likely-than-not threshold or the liability becomes effectively settled through the examination process. We consider matters to be effectively settled once the taxing authority has completed all of its required or expected examination procedures, including all appeals and administrative reviews. We also accrue for potential interest and penalties related to unrecognized tax benefits in income tax provision (benefit).

The most significant tax jurisdictions are Ireland, the United States, Argentina and Hungary. Significant estimates are required in determining the provision for income taxes. Some of these estimates are based on management's interpretations of jurisdiction-specific tax laws or regulations and the likelihood of settlement related to tax audit issues. Various internal and external factors may have favorable or unfavorable effects on the future effective income tax rate. These factors include, but are not limited to, changes in tax laws, regulations and/or rates, changing interpretations of existing tax laws or regulations, changes in estimates of prior years' items, changes in the international organization, likelihood of settlement, and changes in overall levels of income before taxes.

As of December 31, 2018, the Company had a federal net operating loss carryover of $3.3 million and net operating loss carryovers in certain foreign tax jurisdictions of approximately $30.5 million which will begin to expire in 2022. At December 31, 2018, the Company had total tax credit carryovers of approximately $4.6 million, primarily consisting of Federal Orphan Drug Tax Credit carryovers. These credit carryovers are expected to be fully realized prior to their expiration, beginning in 2036.

We make an evaluation at the end of each reporting period as to whether or not some or all of the undistributed earnings of our subsidiaries are indefinitely reinvested. While we have concluded in the past that some of such undistributed earnings are indefinitely reinvested, facts and circumstances may change in the future. Changes in facts and circumstances may include a change in the estimated capital needs of our subsidiaries, or a change in our corporate liquidity requirements. Such changes could result in our management determining that some or all of such undistributed earnings are no longer indefinitely reinvested. In that event, we would be required to adjust our income tax provision in the period we determined that the earnings will no longer be indefinitely reinvested outside the relevant tax jurisdiction.

Share-based Compensation

Prior to the consummation of our initial public offering, or IPO our employees were eligible to receive awards from the 2016 Plan. Prior to the completion of our IPO, the compensation committee of the board of directors made recommendations to the board of directors regarding an equity-based incentive compensation plan that took effect prior to the completion of our initial public offering. Therefore, employees are eligible to receive awards from the new 2018 Plan.

Our share-based compensation cost will be measured at the grant date based on the fair value of the award and will be recognized as expense over the requisite service period, which will generally represent the vesting period. We will use the Black Scholes valuation model for estimating the fair value on the date of grant of stock options. The fair value of stock option awards will be affected by our valuation assumptions, the volatility of equity comparables, the expected term of the options, the risk-free interest rate, expected dividends and other objective and subjective variables.

Recently Issued Accounting Standards

For a discussion of recent accounting pronouncements, please see Note 2, Basis of Presentation and *Summary of Significant Accounting Policies* to our condensed consolidated financial statements included elsewhere in this report.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to various market risks, which may result in potential losses arising from adverse changes in market rates, such as interest rates and foreign exchange rates. We do not enter into derivatives or other financial instruments for trading or speculative purposes and do not believe we are exposed to material market risk with respect to our cash and cash equivalents.

Through the operation of our subsidiaries based in Argentina and Hungary, we are exposed to foreign exchange rate risks. In addition to the operations of our foreign subsidiaries, we also contract with vendors that are located outside the United States, and in some cases make payments denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these arrangements. We do not currently hedge our foreign currency exchange rate risk. As of March 31, 2019, our liabilities denominated in foreign currencies were not material.

We are exposed to fluctuations in interest rates on our senior secured credit facilities. An increase in interest rates could have a material impact on our cash flow. As of March 31, 2019, a 100 basis point increase in assumed interest rates for our variable interest credit facilities would have an annual impact of approximately $2.7 million on interest expense.

As of March 31, 2019, we had cash and cash equivalents of $63.1 million. We do not engage in any hedging activities against changes in interest rates. Because of the short-term maturities of our cash and cash equivalents, we do not believe that an immediate 10% increase in interest rates would have a significant impact on the realized value of our investments.

Inflation generally affects us by increasing our cost of labor, API and clinical trials. We do not believe that inflation had a material effect on our business, financial condition or results of operations during the three months ended March 31, 2019.

Item 4. Controls and Procedures

Our principal executive officer and our principal financial officer evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2019. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of March 31, 2019, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective.

Changes in internal control over financial reporting

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the quarter ended March 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we are a party to various legal proceedings. In addition, we have in the past been, and may in the future be, subject to investigations by governmental and regulatory authorities, which exposes us to greater risks associated with litigation, regulatory or other proceedings, including significant fines or penalties. The outcome of litigation, regulatory or other proceedings cannot be predicted with certainty, and some lawsuits, claims, actions or proceedings may be disposed of unfavorably to us. In addition, intellectual property disputes often have a risk of injunctive relief which, if imposed against us, could materially and adversely affect our business, financial condition or results of operations. For the items disclosed below, at this time there is no loss that is probable or reasonably estimatable.

On February 16, 2018, upon receipt of approval for Osmolex ER from the FDA, we filed suit against Adamas in the U.S. District Court for the District of Delaware seeking a declaratory judgment that Osmolex ER does not infringe, directly or indirectly, any valid and enforceable claim of any of the 11 patents enumerated in our complaint. On September 20, 2018, Adamas filed an amended answer with counterclaims alleging infringement of certain patents included in our complaint and requesting that the court grant Adamas damages, injunctive relief and attorneys' fees. Adamas commercializes a different amantadine product, an extended-release capsule marketed and sold as Gocovri ®. We intend to vigorously defend our rights to commercialize Osmolex ER free and clear of any of these patents. However, this litigation is at a very early stage. If we do not prevail in this litigation, we could be exposed to injunctive relief, or damages, either of which could materially and adversely affect our business, financial condition and results of operations.

On April 30, 2019, Osmotica Pharmaceuticals plc was served with a complaint in an action entitled *Leo Shumacher, et al., v. Osmotica Pharmaceuticals plc, et al., Superior Court of New Jersey, Somerset County No. SOM-L-000540-19*.

The complaint names Osmotica Pharmaceuticals plc, certain of its directors and officers and the underwriters of its initial public offering as defendants in a putative class action alleging violations of Sections 11 and 15 of the Securities Act of 1933 related to the disclosures contained in the registration statement and prospectus used for the Company's initial public offering of ordinary shares. The Company disputes the allegations in the complaint and intends to vigorously defend against the action. However, this litigation is still in an early stage and there is no assurance that we will be successful in our defense or that insurance will be available or adequate to fund any settlement or judgment or the litigation costs of the action, which could adversely affect the Company's results of operations and financial condition.

In general, we intend to continue to vigorously prosecute and defend these proceedings, as appropriate; however, from time to time, we may settle or otherwise resolve these matters on terms and conditions that we believe are in our best interests. Resolution of any or all claims, investigations and legal proceedings, individually or in the aggregate, could have a material adverse effect on our business, results of operations and cash flows in any given accounting period or on our overall financial condition.

Item 1A. Risk Factors.

There have been no material changes from the risk factors described in our Annual Report on Form 10-K.

Item 6. Exhibits.

EXHIBIT 10.1+		Employment Agreement, dated September 13,2017, by and between Vertical/Trigen Opco, LLC and Andrew Einhorn
EXHIBIT 31.1	-	Principal Executive Officer Certification Pursuant to Securities Exchange Act Rules 13a—14 and 15d—14 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
EXHIBIT 31.2	-	Principal Financial Officer Certification Pursuant to Securities Exchange Act Rules 13a—14 and 15d—14 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
EXHIBIT 32.1	-	Principal Executive Officer Certification Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
EXHIBIT 32.2	-	Principal Financial Officer Certification Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
EXHIBIT 101.INS	-	XBRL Instance Document.
EXHIBIT 101.SCH	-	XBRL Taxonomy Extension Schema Document.
EXHIBIT 101.CAL	-	XBRL Taxonomy Extension Calculation Linkbase Document.
EXHIBIT 101.DEF	-	XBRL Taxonomy Extension Definition Linkbase Document.
EXHIBIT 101.LAB	-	XBRL Taxonomy Extension Label Linkbase Document.
EXHIBIT 101.PRE	-	XBRL Taxonomy Extension Presentation Linkbase Document.

+ Indicates management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Osmotica Pharmaceuticals plc

Dated: May 9, 2019

By: /s/ Brian Markison
Brian Markison
Chief Executive Officer

Dated: May 9, 2019

By: /s/ Andrew Einhorn
Andrew Einhorn
Chief Financial Officer

Exhibit 10.1

EMPLOYMENT AGREEMENT

This Employment Agreement (this "Agreement"), dated September 13, 2017, is entered into by and between Vertical/Trigen Opco, LLC (the "Company"), which is a wholly-owned subsidiary of Vertical/Trigen Holdings, LLC ("Holdings"), and Andrew Einhorn (the "Executive").

WHEREAS, the Company desires that Executive become employed by, and Executive desires to be employed by, the Company effective as of the date of this Agreement (the "Effective Date").

NOW, THEREFORE, in consideration of such employment and the mutual covenants and promises herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and Executive agree as follows:

1 . **Effectiveness; Employment "At Will"**. The Company hereby agrees to employ Executive, and Executive hereby agrees to accept employment with the Company, upon the terms and conditions contained in this Agreement. Executive's employment with the Company shall commence on the Effective Date. Executive's employment with the Company shall, at all times, be treated as "at will", meaning that Executive's employment may be terminated by the Company for any reason or no reason at all, unless otherwise prohibited by law.

2 . **Duties**. During Executive's employment with the Company, Executive shall have the title of Chief Financial Officer of Company and shall have such duties, authorities and responsibilities as are consistent with such position, as the Board of Directors of Holdings (the "Board") and the Chief Executive Officer of the Company may designate from time to time. Executive will report directly to the Chief Executive Officer. Executive shall devote Executive's entire business time and attention and Executive's best efforts (excepting vacation time, holidays, sick days and periods of disability) to Executive's employment and service with the Company and its Affiliates (defined below); provided, however, that this Section 2 shall not be interpreted as prohibiting Executive from managing Executive's personal investments (so long as such investment activities are of a passive nature) or engaging in charitable or civic activities, so long as such activities in the aggregate do not (i) materially interfere with the performance of Executive's duties and responsibilities hereunder or (ii) create a fiduciary conflict. If requested, Executive shall also serve as an executive officer and/or member of the board of directors or a board committee, without additional compensation, of any entity that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the Company (an "Affiliate").

3 . **Location Of Employment**. Executive's principal place of employment shall be in Bridgewater, New Jersey, subject to reasonable business travel consistent with Executive's duties and responsibilities.

4. Compensation.

4.1 Base Salary.

(a) In consideration of all services rendered by Executive under this Agreement, the Company shall pay Executive a base salary (the "Base Salary") at an annual rate of $325,000.00. Changes to Executive's Base Salary, if any, may occur from time to time in the Company's sole discretion. Such changes to Executive's Base Salary will depend upon a number of factors, including but not limited to Executive's performance, the Company's financial performance, and the general economic environment.

(b) The Base Salary shall be paid in such installments and at such times as the Company pays its regularly salaried employees and shall be subject to all required withholding taxes, FICA and FUTA contributions and similar deductions.

4.2 Annual Cash Bonus. Executive shall be eligible for an annual, discretionary cash bonus (the "Cash Bonus"), with a target Cash Bonus amount equal to fifty percent (50%) of Executive's Base Salary (the "Target Cash Bonus"), subject to the satisfaction of performance criteria set by the Board within the first quarter of each fiscal year. Any such Cash Bonus for calendar year 2017 shall be prorated based on the date of commencement of Executive's employment. Cash Bonuses are not guaranteed and are granted in the Company's sole discretion, with the amount variable, based on individual and Company performance, and/or will be calculated in accordance with an applicable short-term incentive program, should the Company, in its discretion, adopt such a program in regards to Executive, in the event of which vesting and participation will be governed by and subject to the applicable plan documentation. The Cash Bonus, if any, shall be paid to Executive in the calendar year following the year of performance, as soon as reasonably practicable following the issuance of the audited financial statements, and shall only be paid to the extent the same is earned, subject to Executive's continued employment on such payment date (except as otherwise provided in Section 6). To the extent any management or advisory fees are payable to any shareholder(s), such fees shall be excluded for the purpose of determining whether the Company's financial performance criteria were satisfied in determining the amount, if any, of Executive's Annual Cash Bonus.

4.3 Equity Incentive Plan. Executive shall be eligible to participate in the equity incentive plan for management employees of Holdings or one of its parent entities (the "Management Equity Incentive Plan") and will receive a grant of 5,000 Options, as determined by the Board or the board of such parent entity, as applicable, in its sole discretion.

4 . 4 Vacation. Executive shall be entitled to four (4) weeks of annual paid vacation days, which shall accrue and be useable by Executive in accordance with Company policy, as may be in effect from time to time.

4 . 5 Benefits. During Executive's employment with the Company, Executive shall be entitled to participate in any benefit plans, including medical, disability and life insurance (but excluding any severance or bonus plans unless specifically referenced in this Agreement) offered by Holdings, the Company or their subsidiaries, as in effect from time to time (collectively, "Benefit Plans"), on the same basis as those generally made available to other senior employees of the Company and its subsidiaries, to the extent Executive may be eligible to do so under the terms of any such Benefit Plan. Executive understands that any such Benefit Plans may be terminated or amended from time to time by the Company in its sole discretion.

5. Termination. Executive's employment hereunder may be terminated as follows:

5.1 Automatically in the event of the death of Executive;

5.2 At the option of the Company, by written notice to Executive or Executive's personal representative in the event of the Disability of Executive. As used herein, the term Disability shall mean a physical or mental incapacity or disability that has rendered, or is likely to render, Executive unable to perform Executive's material duties for a period of 180 days in any twelve-month period as determined by a medical physician;

5.3 At the option of the Company for Cause (as defined in Section 6.4), on prior written notice to Executive;

5.4 At the option of the Company at any time without Cause (provided that the assignment of this Agreement to, and assumption of this Agreement by, a purchaser of all or substantially all of the assets of the Company shall not be treated as a termination without Cause under this Section 5.4);

5.5 At the option of Executive for Good Reason (as defined in Section 6.5), subject to Section 6.5 hereof; or

5.6 At the option of Executive for any reason other than Good Reason on thirty (30) days prior written notice to the Company (which the Company may, in its sole discretion, make effective as a resignation earlier than the termination date provided in such notice).

6. Severance Payments.

6 . 1 Termination Without Cause or Termination by Executive for Good Reason . If Executive's employment is terminated at any time by the Company without Cause (and not for death or Disability) or by Executive for Good Reason, subject to Section 6.6 hereof, Executive shall be entitled to:

(a) within thirty (30) days following such termination, payment of Executive's accrued and unpaid Base Salary and reimbursement of expenses under Section 7 hereof in each case accrued through the date of termination;

(b) subject to Sections 6.6 and 12.7(b) hereof, an amount equal to Executive's monthly Base Salary through the end of the Restriction Period (as defined in Section 8.1) payable at the same time such Base Salary would have otherwise been payable if Executive had remained employed with the Company; provided that the first payment shall be made on the next regularly scheduled payroll date following the sixtieth (60th) day after Executive's "termination of employment" and shall include payment of any amounts that would otherwise be due prior thereto;

(c) any Cash Bonus actually earned with respect to a full fiscal year ending prior to the date of such termination but unpaid as of such date, payable at the same time in the year of termination as such payment would be made if Executive continued to be employed by the Company;

(d) subject to the satisfaction of performance criteria set by the Company in accordance with Section 4.2, a pro-rata portion of Executive's Cash Bonus actually earned for the fiscal year in which Executive's termination occurs (determined by multiplying the amount of the Cash Bonus that would be due for the full fiscal year by a fraction, the numerator of which is the number of days during the fiscal year of termination that Executive is employed with the Company and the denominator of which is 365), payable at the same time during the following calendar year as such payment would have been made if Executive continued to be employed with the Company;

(e) subject to Sections 6.6 and 12.7(b) hereof and Executive's timely election of continuation coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), the Company shall pay to Executive each month an amount equal to the monthly amount of the COBRA continuation coverage premium under the Company's group medical plans as in effect from time to time until the earliest of: (i) the expiration of the Restriction Period; (ii) the date Executive is no longer eligible for benefits under COBRA; or (iii) the date Executive first becomes eligible for coverage of the same general category under another plan, program or other arrangement of any type or description, without regard to whether the Executive neglects, refuses or otherwise fails to take any action required for enrollment in such other plan, program or other arrangement, provided, that the first payment of any amount described in this Section 6.1(e) shall be paid on the sixtieth (60th) day following Executive's termination of employment and shall include any amounts due prior thereto.

6.2 Termination due to Death or Disability. Upon the termination of Executive's employment due to Executive's death or Disability pursuant to Section 5.1 and Section 5.2 respectively, Executive or Executive's legal representatives shall be entitled to receive the payments and benefits described under Sections 6.1(a), 6.1(c) and 6.1(d) hereof.

6.3 Termination by the Company for Cause or Termination by Executive for any reason other than Good Reason. Except for the payments and benefits described in Sections 6.1(a) and 6.1(c), Executive shall not be entitled to receive severance payments or benefits after the last date of employment with the Company upon the termination of Executive's employment hereunder by the Company for Cause pursuant to Section 5.3 or by Executive for any reason other than Good Reason pursuant to Section 5.6.

6.4 Cause Defined. For purposes of this Agreement, the term "Cause" shall mean:

(a) Executive's willful and continued failure or refusal to perform his employment duties after a written demand by the Board for substantial performance is delivered to Executive by the Company, which specifically identifies the manner in which the Board believes that Executive has not substantially performed his duties, which willful and continued failure is not cured by Executive within thirty (30) days;

(b) Executive's conviction of, or a plea of guilty or no contest to, any felony or other criminal offense involving fraud, dishonesty, misappropriation or moral turpitude;

(c) Executive's fraud, dishonesty or gross misconduct that is materially and demonstrably injurious to the Company or its Affiliates;

(d) the violation by Executive of any material written policies of the Company or its Affiliates known or provided to Executive in written (including electronic) form;

(e) Executive's breach of any confidentiality, non-solicitation or non- competition obligations to the Company or its Affiliates; or

(f) as provided in Section 12.1 hereof;

provided, that prior to any termination for Cause, Executive shall be given five (5) business days prior written notice specifying the alleged Cause event and will be entitled to appear (with counsel) before the full Board to present information regarding his views on the Cause event and, after such hearing, there is at least a majority vote of the full Board (other than Executive) to terminate Executive for Cause.

6.5 Good Reason Defined. For purposes of this Agreement, the term "Good Reason" shall mean:

(a) a material breach of this Agreement;

(b) a material and adverse diminution in Executive's title, duties, reporting structure or responsibilities hereunder without his prior written consent; or

(c) the relocation by the Company of Executive's primary place of employment to a location that is greater than fifty (50) miles from both (i) the current location of Executive's primary place of employment and (ii) Executive's principal residence; provided, that, in any such case, (i) the Company has been given written notice that identifies the alleged Good Reason event within 90 days of the initial existence of the alleged Good Reason event, (ii) Holdings or the Company has not remedied the alleged Good Reason within 30 days after the receipt of such notice and (iii) Executive terminates employment within 5 days of the end of the 30-day cure period; provided, further, that if Executive is indicted for a criminal offense, Executive may be suspended from his duties without pay, and (i) during such period of suspension, shall not have the right to terminate this Agreement for Good Reason, and (ii) such suspension without pay shall not constitute Good Reason.

6.6 Conditions to Payment. All payments and benefits due to Executive under this Section 6 that are not otherwise required by law shall only be payable if (i) Executive (or Executive's beneficiary or estate) delivers to the Company and does not revoke (under the terms of applicable law) a general release of all claims in the form attached hereto as Exhibit 6.6 (the "General Release"), provided, that, if necessary, such General Release may be updated and revised to comply with applicable law or as the Company determines is necessary or appropriate to achieve its intent and (ii) such General Release shall be executed and delivered (and no longer subject to revocation) within sixty (60) days following termination. Failure to timely execute and return such General Release, or revocation thereof, shall be a waiver by Executive of Executive's right to severance. In addition, severance shall be conditioned on Executive's compliance with Section 8 hereof as provided in Section 9 below.

6.7 No Other Severance. Executive hereby acknowledges and agrees that, other than the severance payments described in this Section 6, upon termination of employment Executive shall not be entitled to any other severance under any Company benefit plan or severance policy generally available to the Company's or its subsidiaries' employees or otherwise.

7. Reimbursement of Expenses. The Company shall reimburse Executive for all reasonable travel and other expenses actually incurred by Executive in connection with the performance of his duties under this Agreement, subject to compliance with such reasonable limitations, policies and reporting requirements with respect to expenses (including the presentation of receipts or other appropriate documentation) as may currently exist or be established by the Company or the Board from time to time.

8. Restrictions on Activities of Executive.

8 . 1 Non-Competition. Executive covenants and agrees that, during Executive's employment and for the one (1) year period commencing on the date of termination of Executive's employment with the Company (the "Restriction Period"), Executive shall not, without the prior consent of the Company, directly or indirectly, be involved as an owner, officer, director, employee or consultant of any business, company or entity which directly competes with any of the Company's material products promoted as of the date of termination of Executive's employment, in any geographic area in which said products are promoted.

8.2 Non-Solicitation. Executive covenants and agrees that, during the Restriction Period, Executive shall not directly or indirectly (i) induce or attempt to induce, including through the use of social media, any customer, supplier or other party with whom the Company or its Affiliates do business to cease doing business with the Company or its Affiliates, or in any way interfere with or attempt to interfere with the relationship between the Company and its Affiliates and any existing customer, supplier or other party with whom the Company or its Affiliates do business, (ii) influence or attempt to influence or solicit, including through the use of social media, any employees, officers or independent contractors of the Company or any of its Affiliates to restrict, reduce, sever or otherwise alter their relationship with the Company or such Affiliates or assist any other person to do so, or (iii) knowingly hire or attempt to hire or otherwise retain on an independent contractor basis, any person who is then a current employee of the Company or one of its subsidiaries. The restrictions in this Section 8.2 shall not apply with regard to (i) general solicitations that are not specifically directed to employees of the Company or any Affiliate, or (ii) serving as a reference at the request of an employee.

8.3 Confidentiality.

(a) Executive shall not, during Executive's employment with the Company or at any time thereafter directly or indirectly, disclose, reveal, divulge or communicate to any person other than authorized officers, directors and employees of the Company or use or otherwise exploit for Executive's own benefit or for the benefit of anyone other than the Company, any Confidential Information (as defined below). Executive shall not have any obligation to keep confidential any Confidential Information if and to the extent disclosure thereof is specifically required by applicable law, court order or other legal process; provided, however, that in the event disclosure is required by applicable law, court order or other legal process, Executive shall provide the Company with prompt notice, to the extent reasonably possible, of such requirement prior to making any disclosure so that the Company may seek an appropriate protective order.

(b) "Confidential Information" means any information with respect to the Company or any of its Affiliates, including methods of operation, customer lists, products, prices, fees, costs, technology, formulas, inventions, trade secrets as defined under New Jersey law, know-how, software, marketing methods, plans, personnel, suppliers, competitors, markets or other specialized information or proprietary matters; provided, that, there shall be no obligation hereunder with respect to, information that (i) is generally available to the public on the Effective

Date or (ii) becomes generally available to the public other than as a result of a disclosure not otherwise permissible hereunder.

8.4 Assignment of Inventions.

(a) Executive agrees that during Executive's employment with the Company, any and all inventions, discoveries, innovations, writings, domain names, improvements, trade secrets, designs, drawings, formulas, business processes, secret processes and know-how, whether or not patentable or a copyright or trademark, which Executive may create, conceive, develop or make, either alone or in conjunction with others and related or in any way connected with the Company's strategic plans, products, processes or apparatus or the business (collectively, "Inventions"), shall be fully and promptly disclosed to the Company and shall be the sole and exclusive property of the Company as against Executive or any of Executive's assignees. Regardless of the status of Executive's employment by the Company, Executive and Executive's heirs, assigns and representatives shall promptly assign to the Company, and Executive hereby does assign to the Company, any and all right, title and interest in and to such Inventions made during employment with the Company.

(b) Whether during Executive's employment with the Company or at any time thereafter, Executive further agrees to execute and acknowledge all papers and to do, at the Company's expense, any and all other things necessary for or incident to the applying for, obtaining and maintaining of such letters patent, copyrights, trademarks or other intellectual property rights, as the case may be, and to execute, on request, all papers necessary to assign and transfer such Inventions, copyrights, patents, patent applications and other intellectual property rights to the Company and its successors and assigns. In the event that the Company is unable, after reasonable efforts and, in any event, after ten (10) business days, to secure Executive's signature on a written assignment to the Company, of any application for letters patent, trademark registration or to any common law or statutory copyright or other property right therein, whether because of Executive's physical or mental incapacity, or for any other reason whatsoever, Executive irrevocably designates and appoints the Secretary of the Company as Executive's attorney-in-fact to act on Executive's behalf to execute and file any such applications and to do all lawfully permitted acts to further the prosecution or issuance of such assignments, letters patent, copyright or trademark.

8 . 5 Return of Company Property. Within ten (10) days following the date of any termination of Executive's employment, Executive or Executive's personal representative shall return all property of the Company and its Affiliates in Executive's possession, including but not limited to all Company-owned computer equipment (hardware and software), telephones, facsimile machines, computer tablets and other communication devices, credit cards, office keys, security access cards, badges, identification cards and all copies (including drafts) of any documentation or information (however stored) relating to the business of the Company and its Affiliates, its customers and clients or its prospective customers and clients. Anything to the contrary notwithstanding, Executive shall be entitled to retain (i) personal papers and other materials

of a personal nature, provided that such papers or materials do not include Confidential Information, (ii) information showing Executive's compensation or relating to reimbursement of expenses, and (iii) copies of plans, programs and agreements relating to Executive's employment, or termination thereof, with the Company that he received in Executive's capacity as a participant in such plans, programs or agreements.

8.6 Resignation as an Officer and Director. Upon any termination of Executive's employment, Executive shall be deemed to have resigned, to the extent applicable, as an officer of the Company and any of its Affiliates, as a member of the board of directors of any of the Company's Affiliates and as a fiduciary of any Company or Affiliate benefit plan. On or immediately following the date of any termination of Executive's employment, Executive shall confirm the foregoing by submitting to the Company in writing a confirmation of Executive's resignation(s).

8.7 Cooperation. During Executive's employment with the Company or at any time thereafter, Executive shall assist and cooperate willingly, upon reasonable advance notice (which shall include due regard to the extent reasonably feasible for Executive's prior commitments), in any matter relating to Executive's position with the Company and its Affiliates, or Executive's knowledge as a result thereof as the Company may reasonably request, including Executive's attendance and truthful testimony where deemed appropriate by the Company, with respect to any investigation or the Company's (or an Affiliate's) defense or prosecution of any existing or future claims or litigations or other proceeding relating to matters in which Executive was involved or had knowledge by virtue of Executive's employment with the Company. The Company shall reimburse Executive for reasonable out-of-pocket travel costs and expenses incurred by Executive (in accordance with Company policy) as a result of providing such assistance, upon the submission of the appropriate documentation to the Company.

8.8 Non-Disparagement. During Executive's employment with the Company and its Affiliates and at any time thereafter, Executive agrees not to disparage or encourage or induce others to disparage the Company, any Affiliate, any of their respective employees that were employed during Executive's employment with the Company or its affiliates or any of their respective past and present, partners, members, officers, directors, managers, products or services (the "Company Parties"). For purposes of this Section 8.8, the term "disparage" includes, without limitation, comments or statements to the press, to the Company's or any Affiliate's employees or to any individual or entity with whom the Company or any Affiliate has a business relationship (including, without limitation, any vendor, supplier, customer or distributor), or any public statement, that in each case is intended to, or can be reasonably expected to, damage any of the Company Parties. Upon termination of Executive's employment, the Company shall instruct its directors and its chief executive officer, chief financial officer and chief operating officer not to disparage or encourage or induce others to disparage Executive while such senior executives are employed by the Company. Notwithstanding the foregoing, nothing in this Section 8.8 shall prevent Executive or the directors, chief executive officer, chief financial officer and chief operating officer of the Company from making any truthful statement to the extent, but only to the extent (A) necessary with respect to any litigation, arbitration or mediation

involving this Agreement, including, but not limited to, the enforcement of this Agreement, in the forum in which such litigation, arbitration or mediation properly takes place or (B) required by law, legal process or by any court, arbitrator, mediator or administrative or legislative body (including any committee thereof) with apparent jurisdiction over Executive.

8.9 Tolling. In the event of any violation of the provisions of this Section 8, Executive acknowledges and agrees that the post-termination restrictions contained in this Section 8 shall be extended by a period of time equal to the period of such violation, it being the intention of the parties hereto that the running of the applicable post-termination restriction period shall be tolled during any period of such violation.

8.10 Survival. This Section 8 shall survive any termination or expiration of this Agreement or employment of Executive.

9. Remedies. It is specifically understood and agreed that any breach of the provisions of Section 8 of this Agreement is likely to result in irreparable injury to the Company and that the remedy at law alone will be an inadequate remedy for such breach, and that in addition to any other remedy it may have in the event of a breach or threatened breach of Section 8 above, the Company shall be entitled to enforce the specific performance of this Agreement by Executive and to seek both temporary and permanent injunctive relief (to the extent permitted by law) without bond and without liability should such relief be denied, modified or violated. Furthermore, in the event of any breach of the provisions of Section 8.1 or 8.2 above or a material and willful breach of any other provision in Section 8 above (the "Forfeiture Criteria"), the Company shall be entitled to cease making any severance payments being made hereunder and in the event of a breach of any provision of Section 8 above that satisfies the Forfeiture Criteria and that occurs while Executive is receiving severance payments in accordance with Section 6 above (regardless whether the Company discovers such breach during such period of severance payment or anytime thereafter), notwithstanding anything to the contrary herein, the Company's obligations under this Agreement shall be deemed modified such that the Company's obligations pursuant to Section 6 shall be limited to five hundred dollars ($500); it being understood, that, of those five hundred dollars ($500), two hundred and fifty dollars ($250) shall be deemed to be consideration for the release by Executive of any claim under the Age Discrimination in Employment Act of 1967, and two hundred and fifty dollars ($250) shall be deemed to be consideration for the release by Executive of all other claims released by the General Release.

10. Severable Provisions. Except as otherwise provided in Section 12.8(e), the provisions of this Agreement are severable and the invalidity of any one or more provisions shall not affect the validity of any other provision. In the event that a court of competent jurisdiction shall determine that any provision of this Agreement or the application thereof is unenforceable in whole or in part because of the duration or scope thereof, except as otherwise provided in Section 12.8(e), the parties hereto agree that said court in making such determination shall have the power to reduce the duration and scope of such provision

to the extent necessary to make it enforceable, and that the Agreement in its reduced form shall be valid and enforceable to the full extent permitted by law.

11. Notices. All notices hereunder, to be effective, shall be in writing and shall be deemed effective when delivered by hand or mailed by (a) certified mail, postage and fees prepaid, or (b) nationally recognized overnight express mail service, as follows:

If to the Company, to:

Vertical/Trigen Opco, LLC c/o
Vertical Pharmaceuticals, LLC
400 Crossing Blvd.
Bridgewater, NJ 08807
Attn: Chief Executive Officer

If to Executive, to: the last address shown on records of the Company,

or to such other address as a party may notify the other pursuant to a notice given in accordance with this Section 11.

12. Miscellaneous.

12.1 Executive Representation. Executive hereby represents to the Company that the execution and delivery of this Agreement by Executive and the Company and the performance by Executive of Executive's duties hereunder shall not constitute a breach of, or otherwise contravene, or be prevented, interfered with or hindered by, the terms of any employment agreement or other agreement or policy to which Executive is a party or otherwise bound, and further that Executive is not subject to any limitation on his activities on behalf of the Company as a result of agreements into which Executive has entered. To the extent this representation and warranty is not true and accurate, it shall be treated as a Cause event and the Company may terminate Executive for Cause or not permit Executive to commence employment.

12.2 No Mitigation or Offset. In the event of any termination of Executive's employment hereunder, Executive shall be under no obligation to seek other employment or otherwise mitigate the obligations of the Company under this Agreement, and there shall be no offset against amounts due to Executive under this Agreement on account of future earnings by Executive, except as provided in Section 6.1(e) hereof.

12.3 Entire Agreement; Amendment. Except as otherwise expressly provided herein and as further set forth in the grant agreement of any equity awards, this Agreement constitutes the entire Agreement between the parties hereto with regard to the subject matter hereof, superseding all prior understandings and agreements, whether written or

oral. This Agreement may not be amended or revised except by a writing signed by the parties.

12.4 Assignment and Transfer. The provisions of this Agreement shall be binding on and shall inure to the benefit of the Company and any successor in interest to the Company who acquires all or substantially all of the Company's assets. Neither this Agreement nor any of the rights, duties or obligations of Executive shall be assignable by Executive, nor shall any of the payments required or permitted to be made to Executive by this Agreement be encumbered, transferred or in any way anticipated, except as required by applicable laws. All rights of Executive under this Agreement shall inure to the benefit of and be enforceable by Executive's personal or legal representatives, estates, executors, administrators, heirs and beneficiaries.

12.5 Waiver of Breach. A waiver by either party of any breach of any provision of this Agreement by the other party shall not operate or be construed as a waiver of any other or subsequent breach by the other party.

12.6 Withholding. The Company shall be entitled to withhold from any amounts to be paid or benefits provided to Executive hereunder any federal, state, local or foreign withholding, FICA contributions, or other taxes, charges or deductions which it is from time to time required to withhold. The Company shall be entitled to rely on an opinion of counsel if any question as to the amount or requirement of any such withholding shall arise.

12.7 Code Section 409A.

(a) The parties agree that this Agreement shall be interpreted to comply with or be exempt from Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"), and the regulations and guidance promulgated thereunder to the extent applicable (collectively "Code Section 409A"), and all provisions of this Agreement shall be construed in a manner consistent with the requirements for avoiding taxes or penalties under Code Section 409A. In no event whatsoever will the Company be liable for any additional tax, interest or penalties that may be imposed on Executive under Code Section 409A or any damages for failing to comply with Code Section 409A.

(b) A termination of employment shall not be deemed to have occurred for purposes of any provision of this Agreement providing for the payment of any amounts or benefits considered "nonqualified deferred compensation" under Code Section 409A upon or following a termination of employment unless such termination is also a "separation from service" within the meaning of Code Section 409A and, for purposes of any such provision of this Agreement, references to a "termination", "termination of employment" or like terms shall mean "separation from service". If Executive is deemed on the date of termination to be a "specified employee" within the meaning of that term under Code Section 409A(a)(2)(B), then with regard to any payment or the provision of any benefit that is considered nonqualified deferred compensation under Code Section 409A payable on account of a "separation from service", such payment or

benefit shall be made or provided at the date which is the earlier of (i) the expiration of the six (6)-month period measured from the date of such "separation from service" of Executive, and (ii) the date of Executive's death (the "Delay Period"). Upon the expiration of the Delay Period, all payments and benefits delayed pursuant to this Section 12.7(b) (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid or reimbursed on the first business day following the expiration of the Delay Period to Executive in a lump sum, increased by an amount equal to interest on such payments for the Delay Period at a rate equal to the prime rate in effect as of the date the payment was first due (for this purpose, the prime rate will be based on the rate published from time to time in The Wall Street Journal), and any remaining payments and benefits due under this Agreement shall be paid or provided in accordance with the normal payment dates specified for them herein.

(c) With regard to any provision herein that provides for reimbursement of costs and expenses or in-kind benefits, except as permitted by Code Section 409A, (i) the right to reimbursement or in-kind benefits shall not be subject to liquidation or exchange for another benefit, (ii) the amount of expenses eligible for reimbursement, or in-kind benefits, provided during any taxable year shall not affect the expenses eligible for reimbursement, or in-kind benefits, to be provided in any other taxable year, provided, that, this clause (ii) shall not be violated with regard to expenses reimbursed under any arrangement covered by Internal Revenue Code Section 105(b) solely because such expenses are subject to a limit related to the period the arrangement is in effect and (iii) such payments shall be made on or before the last day of Executive's taxable year following the taxable year in which the expense occurred.

(d) For purposes of Code Section 409A, Executive's right to receive any installment payments pursuant to this Agreement shall be treated as a right to receive a series of separate and distinct payments. Whenever a payment under this Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within thirty (30) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

12.8 Arbitration.

(a) In consideration of Executive's employment with the Company, to the fullest extent allowed by law and except as set forth in Section 12(d), any controversy or claim arising out of or relating to Executive's employment or the termination of such employment, other than injunctive and equitable relief with regard to Section 9 hereof, whether asserted by the Company against Executive or by Executive against the Company or any of its agents or employees, shall be finally settled by binding arbitration, employing a single, neutral arbitrator, and administered by JAMS, Inc. ("JAMS"), under its Employment Arbitration Rules and Procedures (available at http://www.jamsadr.com), if JAMS has an office within 100 miles of where Executive is located or most recently was employed with the Company, or, if JAMS does not have an office within that 100 mile radius, by the American Arbitration Association ("AAA") under its Employment Arbitration Rules and Mediation Procedures (available at

http://www.adr.org). Claims subject to arbitration shall include, but are not limited to, any claims under (as amended) Title VII of the Civil Rights Act of 1964, the Civil Rights Act of 1866, the Civil Rights Act of 1991, the Age Discrimination in Employment Act of 1967, the Rehabilitation Act of 1973, the Americans with Disabilities Act, the Family and Medical Leave Act of 1993, the Employee Retirement Income Security Act of 1974, and any other federal, state or local statute, regulation or common law doctrine, including contract or tort, regarding employment discrimination, the terms and conditions of employment or termination of employment.

(b) The parties acknowledge that this Agreement involves interstate commerce, and is governed by the Federal Arbitration Act, 9 U.S.C. §1 et seq. (the "FAA"). The arbitrators may construe or interpret, but shall not vary or ignore, the terms of this arbitration provision, and shall be bound by controlling law, including the FAA and federal law construing the FAA. In the event of any conflict between state law and federal law under the FAA, federal law shall apply. Prior to invoking arbitration, Executive understands that Executive is encouraged, but not required, to exhaust all remedies set forth in any Company policies or procedures which may exist from time to time. Both the Company and Executive are waiving their rights to proceed in a court of law, including a trial by jury, in exchange for arbitration.

(c) The arbitration will be conducted in the city with a JAMS or AAA office (as applicable) nearest to where Executive is located or most recently was employed with the Company. Judgment upon any award rendered in an arbitration proceeding may be entered in any court having jurisdiction of the matter. Any controversy or claim subject to arbitration by either Executive or the Company shall be deemed waived, and shall be forever barred, if arbitration is not initiated within the time limit established by the applicable statute(s) of limitations in the state where the arbitration is to be conducted. The Company and Executive will have the same remedies in arbitration as the parties would otherwise have had if the claim had been filed in a court of law, including, where authorized by law, compensatory and punitive damages, injunctive relief, and attorneys' fees.

(d) Each party shall bear its own costs for legal representation at any arbitration. The cost of the arbitrator, court reporter (if any), and any incidental costs of arbitration, shall be borne equally by the parties.

(e) The parties intend that any arbitration conducted hereunder be resolved on an individual basis and agree that the arbitrator lacks the power and/or authority to join the disputes of any third party(ies) in any class or consolidated arbitration. This provision may not be severed from Section 12 of this Agreement. In the event this provision is deemed to be unlawful, invalid or unenforceable, the parties agree that the entirety of Section 12 of this Agreement shall be severed from the Agreement and rendered void.

(f) In any arbitration commenced pursuant to this policy, depositions may be taken and discovery obtained to the reasonable amount necessary for both parties to be able to present their claims and defenses. The arbitrator shall determine and apply reasonable discovery limits in the arbitrator's discretion. Any award by the arbitrator(s) shall be reasoned and accompanied by a statement of the factual and legal bases for the award.

(g) This agreement to arbitrate shall not apply to claims for workers' compensation or unemployment compensation or to claims for emergency, provisional relief, including temporary restraining orders, temporary protective orders, and preliminary injunctive relief, from a court of competent jurisdiction pending arbitration if the award to which either party may be entitled would be rendered ineffectual without provisional relief. Nothing in this agreement will preclude Executive from filing a charge or complaint or otherwise communicating with any responsible governmental official, office, or agency, provided that this agreement may, under applicable law, require any request by Executive for individual relief to be arbitrated.

12.9 Directors and Officers Liability Insurance. Executive shall be indemnified and covered under a directors and officers liability insurance policy with an aggregate coverage limit not less than $5,000,000.

12.10 Governing Law. Except as otherwise provided in Section 12.8(b), this Agreement shall be construed under and enforced in accordance with the laws of the State of New York, without regard to the conflicts of law provisions thereof.

12.11 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and shall have the same effect as if the signatures hereto and thereto were on the same instrument.

12.12 Compliance with Dodd-Frank. All payments under this Agreement, if and to the extent subject to the Dodd-Frank Wall Street Reform and Consumer Protection Act, shall be subject to any incentive compensation policy established from time to time by the Company to comply with such Act.

[*Remainder of page intentionally left blank*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

VERTICAL/TRIGEN OPCO, LLC

By: /s/ Brian Markison
Name: Brian A. Markison
Title: Chief Executive Officer

EXECUTIVE

/s/ Andrew Einhorn
Andrew Einhorn

EXHIBIT 6.6

Release of Claims[1]

This release of claims (this "Release") is required as a condition for your receipt of the benefits described in Section 6 of that certain Employment Agreement (the "Agreement"), dated September 13, 2017, entered into by and between Vertical/Trigen Opco, LLC (the "Company"), and Andrew Einhorn ("you").

1 Release.

a. In consideration of the terms of the Agreement, you have agreed to and do waive any claims you may have for employment by the Company and you have agreed not to seek such employment or reemployment by the Company in the future. You have further agreed to and do release and forever discharge the Company, its predecessors, successors or assigns, affiliates, shareholders or members and each of their respective officers, directors, agents and employees (collectively, the "Releasees") from all claims, demands, liabilities and causes of action of every kind, nature and description whatsoever, whether known, unknown or suspected to exist, which you ever had or may now have against the Releasees, including, without limitation, any claims, demands, liabilities and causes of action arising from your employment with the Company and the termination of that employment and/or pursuant to any federal, state, county, or local employment laws, regulations, executive orders, or other requirements, including, but not limited to, wrongful discharge, breach of contract, tort, fraud, Title VII of the 1964 Civil Rights Act, the 1866 Civil Rights Act, the Age Discrimination in Employment Act of 1967, the Americans with Disabilities Act, the Employee Retirement Income Security Act, the New Jersey Law Against Discrimination, the New Jersey Conscientious Employee Protection Act, the New Jersey Family Leave Act, the New Jersey Wage Payment Law, the New Jersey Wage and Hour Law and retaliation claims under the New Jersey Workers' Compensation Law, or any other federal, state or local law relating to employment or discrimination in employment, or otherwise.

b. By executing this Release, you do not waive your right to enforce any obligation of the Company pursuant to Section 6 of the Agreement (subject to Section 9 of the Agreement), any rights you may have under equity award agreements between you and the Company, any rights to indemnification from the Company that you may have, any rights to continuing directors' and officers' liability insurance to the same extent as the Company

[1] The Company reserves the right to modify this Release to the extent that the Company reasonably determines necessary or advisable to help ensure that this Release is enforceable to the fullest extent permissible under applicable law.

covers its other officers and directors, COBRA continuation coverage benefits, or vested benefits under benefit plans of the Company or its affiliates.

2 Consultation with Attorney; Voluntary Agreement . The Company advises you to consult with an attorney of your choosing prior to signing this Release. You understand and agree that you have the right and have been given the opportunity to review this Release with an attorney. You also understand and agree that you are under no obligation to consent to this Release. You acknowledge and agree that the payments to be made to you pursuant to Section 6 of the Agreement offer you consideration greater than that to which you would otherwise be entitled. You represent that you have read this Release and understand its terms, and that you enter into this Release freely, voluntarily, and without coercion.

3 Effective Date; Revocation. You acknowledge and represent that you have been given at least twenty-one (21) days during which to review and consider the provisions of this Release. You further acknowledge and represent that you have been advised by the Company that you have the right to revoke this Release for a period of seven (7) days after signing it (the "Revocation Period"). You acknowledge and agree that, if you wish to revoke this Release, you must do so in writing, signed by you and received by the Company no later than the seventh (7th) day of the Revocation Period. If no such revocation occurs, the Release shall become effective on the eighth (8th) day following your execution of this Release.

If your employment is terminated in connection with an exit incentive or other employment termination program, you will be afforded forty-five (45) days instead of twentyone (21) days during which to review and consider the provisions of this Release as well as other information regarding the exit incentive or employment termination program.

VERTICAL/TRIGEN OPCO, LLC

By: _____
Name:
Title:

ACCEPTED AND AGREED:

_____
Andrew Einhorn

_____
Date Signed:

Exhibit 31.1

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

I, Brian Markison, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Osmotica Pharmaceuticals plc;

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(s) 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)) 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) 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

(c) 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(s) 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.

Date: May 9, 2019

/s/ Brian Markison
Name: Brian Markison
Title: Chief Executive Officer and Chairman
of the Board of Directors
(Principal Executive Officer)

Exhibit 31.2

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

I, Andrew Einhorn, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Osmotica Pharmaceuticals plc;

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(s) 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)) 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) 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

(c) 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(s) 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.

Date: May 9, 2019

/s/ Andrew Einhorn
Name: Andrew Einhorn
Title: Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

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

In connection with the quarterly report of Osmotica Pharmaceuticals plc (the "Company") on Form 10-Q for the quarterly period ended March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Brian Markison, Chief Executive Officer and Chairman of the Board of Directors 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) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 9, 2019

/s/ Brian Markison
Brian Markison
Chief Executive Officer and Chairman of the Board of Directors
(Principal Executive Officer)

Exhibit 32.2

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

In connection with the quarterly report of Osmotica Pharmaceuticals plc (the "Company") on Form 10-Q for the quarterly period ended March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Andrew Einhorn, 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) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 9, 2019

/s/ Andrew Einhorn

Andrew Einhorn
Chief Financial Officer
(Principal Financial Officer)